PAGE REVISION CONTROL SHEET

SH NO.	PAGE REVISIONS														REMARKS
1	A	B	C	D	E	F	H	J	K	L	M	N	P	R	
2	A	B	C	D	E	F	H	J	J	J	J	K	K	L	
3	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
4	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
5	A	B	C	D	E	F	H	J	J	K	K	L	L	L	
6	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
7	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
8	A	B	C	D	E	F	H	J	K	K	L	M	N	P	
9	A	B	C	D	E	F	H	J	K	K	L	M	N	P	
10	A	B	C	D	E	F	H	J	K	K	K	L	M	N	
11	A	B	C	D	E	F	H	J	K	K	L	M	N	P	
12	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
13	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
14	A	B	C	D	E	F	H	J	J	J	J	K	K	L	
15	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
16	A	B	C	D	E	F	H	J	J	K	K	L	L	L	
17	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
18	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
19	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
20	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
21	A	B	C	D	E	F	H	J	J	J	J	K	K	K	
22	—	—	—	—	—	—	—	—	—	—	—	Ø	A	A	
ECO NO.	KI10-24	KI10-25	KI10-28	KI10-30	KI10-32	KI10-33	KI10-36	KI10-37	KI10-38	KI10-39	KI10-40	KI10-41	KI10-42	KI10-43	
ETCH REV.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
ENG.	A.K.	A.K.	A.K.	A.K.	A.K.	A.K.	A.K.	A.K.	D.G.	M.K.	D.H.	A.K. D.G.	D.G.	A.K.	
DATE	10/72	11/72	12/72	2/73	3/73	5/73	5/73	5/73	8/73	15 Aug 73	11/73	11/73	2/74	6/74	

FIRST USED ON OPTION/MODEL

KI10

DRN. B. Hovey	DATE 6/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. D. Healy	DATE 6/72	
ENG. A. Kent	DATE 8/72	
PROJ. ENG. A. Kent	DATE 8/72	TITLE PRINT SET & DWG. DIRECTORY KI10 ARITHMETIC PROCESSOR
PROD. R. Hesseltine	DATE 8/72	

NEXT HIGHER ASSY. —/—

SCALE --/--

SHEET 1 OF 22

SIZE	CODE	NUMBER	REV.
B	DD	KI10-0	R

DIST.

DRB 110

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

	SEQUENCE
DWG INDEX LIST	B-DD-KI1Ø-Ø

All Flow Charts are to be included in the sequence shown on sheet 8.

All Block Schematics are to be included in the sequence shown on sheets 9 and 10.

4-BIT ADDER MODULE	D-CS-MI42-0-1
MODULE UTILIZATION	D-MU-KI1Ø-Ø-1A1D
MODULE UTILIZATION	D-MU-KI1Ø-Ø-1E1J
MODULE UTILIZATION	D-MU-KI1Ø-Ø-1K1N
MODULE UTILIZATION	D-MU-KI1Ø-Ø-1P1T
MODULE UTILIZATION	D-MU-KI1Ø-Ø-2A2D
MODULE UTILIZATION	D-MU-KI1Ø-Ø-2E2J
MODULE UTILIZATION	D-MU-KI1Ø-Ø-2K2N
MODULE UTILIZATION	D-MU-KI1Ø-Ø-2P2T
MODULE UTILIZATION	D-MU-KI1Ø-Ø-3A3B
MODULE UTILIZATION P.L.	A-PL-KI1Ø-Ø-MU
DC WIRING CHART BAY 1	D-IC-KI1Ø-Ø-1PS
DC WIRING CHART BAY 1	D-IC-KI1Ø-Ø-1SPE
DC WIRING CHART BAY 2	D-IC-KI1Ø-Ø-2PS
DC WIRING CHART BAY 2	D-IC-KI1Ø-Ø-2SPE
DC WIRING CHART BAY 3	D-IC-KI1Ø-Ø-3PS1
DC WIRING CHART BAY 3	D-IC-KI1Ø-Ø-3PS2
AC WIRING CHART	D-IC-KI1Ø-Ø-AC
CONSOLE INDICATORS	D-IC-KI1Ø-Ø-CONI
DC WIRING DETAILS	D-IC-KI1Ø-Ø-DET
DC WIRING (DKIØ)	D-IC-KI1Ø-Ø-DET2
BAY 1, 2, & 3 INDICATOR	D-IC-KI1Ø-Ø-INDL
SW & CONNECTOR LAYOUT	D-IC-KI1Ø-Ø-SCL

	SEQUENCE
ARITH PROC ASSY	D-UA-KI1Ø-Ø-Ø
ARITH PROC ASSY P.L.	A-PL-KI1Ø-Ø-Ø
EXTERNAL COMPONENTS	B-CP-KI1Ø-Ø-EC
*WIRE LIST (FACE SHEET)	K-WL-KI1Ø-Ø-WL
CABLE SET	D-AD-7008631-0-0
REGULATOR SENSING	A-WL-KI1Ø-Ø-RSEN
PCØ4 PRINT SET	A-ML-PCØ4-Ø-Ø
TELEPHONE INSTALLATION	A-SP-KI1Ø-Ø-FONE
ACCESSORY LIST (KI1Ø)	A-PL-KI1Ø-Ø-ACL
SPARE COMPONENTS LIST	A-PL-KI1Ø-Ø-RCS
DELAY CHART	B-SP-KI1Ø-Ø-DLY
DELAY CH SETUP PROC	A-SP-KI1Ø-Ø-DPRO
DELAY CHART PICTORIALS	A-SP-KI1Ø-Ø-DPIX
CARRY PROPOGATE & GENERATE CHART	B-SP-KI1Ø-Ø-CPCG
SINGLE PULSE CHART	A-SP-KI1Ø-Ø-SPC
WIRING & ECO/REWORK PR	A-SP-PDP1Ø-Ø-RWRK

* NOTE: In addition to the wire list face sheet in this print set, the wirelist "WRP NAMESORT" and "PINSORT" complete listings are supplied with each KI1Ø.

USER NOTE: See also the PDP1Ø Module Print Sets
B-MN-PDP1Ø-Ø-MOD1
B-MN-PDP1Ø-Ø-MOD2
for module, power supply, and power control information: and the KI10 Maintenance Manual A-MN-KI10-Ø-MAN1

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE: KI10-0	PRINT SET TYPE: KI10-A
KI1Ø-Ø	ARITHMETIC PROCESSOR	X	
KI1Ø-A	TRAINING FLOW CHARTS		X

TRAINING FLOW CHARTS: SEE SHEET 22

REVISIONS

REV	CHG. NO.	DATE
—		
—		

USED ON OPTION/MODEL	
KI1Ø-Ø	

DRN. B.Hovey	DATE 6/19/72	TITLE PRINT SET & DWG DIRECTORY KI1Ø ARITHMETIC PROCESSOR
CHK'D. D.Healy	DATE 6/22/72	
PROJ ENG. allan Kent	DATE 24 July 72	
PROD. —	DATE —	
FIELD SERV.	DATE	SIZE B · CODE DD · NUMBER KI1Ø-0 · REV 0
SHEET 2 OF 22		

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE	MFG SET
PDP-10 CONFIGURATION	D-AR-1Ø-Ø-1
ARITH PROC KI1Ø ASSY	D-UA-KI1Ø-Ø-Ø
ARITH PROC KI1Ø ASSY PL	A-PL-KI1Ø-Ø-Ø
CABINET ASSY	E-AD-7008554-1-0
CABINET ASSY PL	C-PL-7008554-1-0
FAN HSG ASSY BOT	D-AD-7006742-0-0
FAN HSG ASSY PL	A-PL-7006742-0-0
FAN HSG ASSY TOP	D-AD-7006741-0-0
FAN HSG ASSY PL	A-PL-7006741-0-0
PHONE PANEL ASSY	E-AD-7006609-0-0
PHONE PANEL ASSY PL	A-PL-7006609-0-0
MAINTENANCE PANEL ASSY	E-AD-7006644-0-0
MAINTENANCE PANEL ASSY PL	A-PL-7006644-0-0
MARGIN CHK ASSY	D-IA-7008575-0-0
ROTARY SWITCH ASSY	D-AD-7006990-0-0
ROTARY SWITCH ASSY PL	A-PL-7006990-0-0
SWITCH ASSY	D-AD-7006991-0-0
SWITCH ASSY PL	A-PL-7006991-0-0
SERIES PASS ELEMENT	E-AD-7006585-1-0
SERIES PASS ELEMENT PL	A-PL-7006585-1-0
TTY INTF PANEL ASSY	D-AD-7008682-0-0
TTY INTF PANEL ASSY PL	A-PL-7008682-0-0
INDICATOR PANEL ASSY	E-AD-7006671-0-0
INDICATOR PANEL ASSY PL	A-PL-7006671-0-0
BRKT POWER CONN ASSY	D-AD-7005868-0-0
BRKT POWER CONN A SSY PL	A-PL-7005868-0-0
H732 POWER SUPPLY	D-UA-H732-Ø-Ø
H732 POWER SUPPLY PL	A-PL-H732-Ø-Ø
845 POWER CONTROL	D-UA-845-0-0
845 POWER CONTROL PL	A-PL-845-0-0

SEQUENCE	
H723 POWER SUPPLY	D-UA-H723-Ø-Ø
H723 POWER SUPPLY PL	A-PL-H723-Ø-Ø
H725 POWER SUPPLY	D-UA-H725-Ø-Ø
H725 POWER SUPPLY PL	A-PL-H725-Ø-Ø
783C POWER SUPPLY	D-UA-783C-Ø-Ø
783C POWER SUPPLY PL	A-PL-783C-Ø-Ø
857 POWER CONTROL	D-UA-857-Ø-Ø
857 POWER CONTROL PL	A-PL-857-Ø-Ø
858 POWER CONTROL	D-UA-858-0-0
858 POWER CONTROL PL	A-PL-858-0-0
H704C POWER SUPPLY	D-UA-H7Ø4-C-Ø
H704C POWER SUPPLY PL	A-PL-H7Ø4-C-Ø
PC04 READER & PUNCH	D-UA-PC04-Ø-Ø
PC04 READER & PUNCH PL	A-PL-PC04-Ø-Ø
H704H POWER SUPPLY	D-UA-H704-H-Ø
H704H P. SUPPLY (P.L.)	A-PL-H704-H-Ø
MFG CHECKOUT PROCEDURE	A-SP-KI1Ø-Ø-MCOP
SINGLE PULSE CHART	A-SP-KI1Ø-Ø-SPC
CP CG CHART	B-SP-KI1Ø-Ø-CPCG
WIRING & ECO/REWORK PR	A-SP-PDP1Ø-Ø-RWRK
KI1Ø-TA I/O BUS TESTER	A-ML-KI1Ø- TA
AWT REVISION STATUS	A-WT-7006582-0

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE

REVISIONS

REV	CHG. NO.	DATE

USED ON OPTION/MODEL
KIØ-Ø

DRN. B. HOVEY	DATE 6/19/72	TITLE: ARITHMETIC PROCESSOR KI10 UNIT
CHK'D. D. HEALY	DATE 6/22/72	
PROJ ENG. Alan Kent	DATE 29/04/72	
PROD.	DATE	
FIELD SERV.	DATE	

SIZE	CODE	NUMBER	REV
B	DD	KI10-0	–

DIST

1 — KI1Ø ASSY
E-UA-KI1Ø-Ø-Ø

2 — CABINET ASSY
E-AD-7008554-1-0

7 — FRAME, 30 TN
E-UA-H955-A-Ø
D-DI-H955-Ø-1

3 — FILTER H950-S
B-UA-H950-S-Ø
D-DI-H950-Ø-1

8 — FILLER STRIP ASSY H952-G
C-UA-H952-GB-Ø
D-DI-H952-Ø-1

4 — EQUIPMENT MTG. DOOR ASSY R.H.
E-UA- H955-DA-Ø
D-DI-H955-Ø-1

9 — PANEL FASTENER H952-D
A-PL-H952-D-Ø
D-DI-H952-Ø-1

5 — EQUIPMENT MTG. DOOR ASSY L.H.
E-UA-H955-EA-Ø
D-DI-H955-Ø-1

10 — CASTER SET H952-E
A-PL-H952-E-Ø
D-DI-H952-Ø-1

6 — COOLING ASSY
E-AD-7006580-1-0

11 — FAN H952-C
A-PL-H952-C-Ø
D-DI-H952-Ø-1

12 — LEVELER SET H952-F
A-PL-H952-F-Ø
D-DI-H952-Ø-1

13 — END PANEL H952-A
D-UA-H952-AC-Ø
D-DI-H952-Ø-1

14 — SHORT DOOR H951-H
D-UA-H951-HA-Ø
D-DI-H951-Ø-1

15 — SHORT DOOR H951-H
D-UA-H951-HJ-Ø
D-DI-H951-Ø-1

16 — TABLE TOP ASSY H955-G
E-UA-H955-GA-Ø
D-DI-H955-Ø-1.

17 — FAN HOUSING ASSY (BOTTOM)
D-AD-7006742-0-0

18 — POWER SUPPLY H732
D-UA-H732-0-0

19 — LOGIC FRAME ASSY BAY 1
E-AD-7006582-1-0

24 — POWER CONTROL 845
D-UA-845-0-0

25 — POWER SUPPLY H723
D-UA-H723-Ø-Ø

26 — FAN HSG ASSY (TOP)
D-AD-7006741-0-0

20 — LOGIC FRAME ASSY
E-AD-7006660-0-0

27 — FAN HSG TOP
D-IA-7407930-0-0

21 — GROUND PLANE ASSY (BAY1)
D-AD-7008358-0-0

22 — GROUND PLANE
D-IA-5009785-1-0

23 — GROUND PLANE PROT SHEET
D-MD-5009956-0-0

28 — POWER SUPPLY H725
D-UA-H725-Ø-Ø

29 — POWER SUPPLY 783C
D-UA-783C-Ø-Ø

30 — POWER CONTROL 857
D-UA-857-0-0

31 — PHONE PANEL ASSY
E-AD-7006609-0-0

33 — POWER CONTROL 858
D-UA-858-Ø-Ø

32 — BLANK PANEL ASSY
D-IA-7408013-0-0

SEE SHEET 5

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI1Ø UNIT	SHEET 4 OF 22	B	DD	KI1Ø-Ø	K

CONTINUED FROM SHEET 4

34

CONSOLE ASSY
E-AD-7006643-0-0

37 INDICATOR LIGHT BOARD D-CS-5409051-0-1

38 ETCH BOARD E-IA-5009050-0-0

36 CONTROL PANEL D-IA-7407824-0-0

39 SWITCH PANEL ASSY E-AD-7008515-0-0

40 SWITCH BOARD NO. 1 D-CS-5409527-0-1

41 ETCH BOARD E-IA-5009526-0-0

42 SWITCH BOARD NO.2 D-CS-5409529-0-1

43 ETCH BOARD E-IA-5009528-0-0

44

MAINTENANCE PANEL ASSY
E-AD-7006644-0-0

45 MARGIN CHECK SWITCH ASSY D-IA-7008575-0-0

46 PANEL FRONT E-IA-7407851-0-0

47 ROTARY SWITCH ASSY D-AD-7006990-0-0

48 SWITCH ASSY D-AD-7006991-0-0

49 SWITCH PANEL ASSY D-AD-7008573-0-0

50 SWITCH BOARD D-CS-5409562-0-1

51 ETCH BOARD 5009561-0-0

52

SERIES PASS ELEMENT ASSY
E-AD-7006585-1-0

53 PLATE SERIES PASS ELEMENT D-IA-7407721-0-0

54 HEAT SINK ASSY D-AD-7006801-0-0

55 SERIES PASS BOARD D-CS-5408964-0-1

56 ETCH BOARD E-IA-5008963-0-0

SEE SHEET 6

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	SHEET 5 OF 22	B	DD	K11Ø-Ø	L

CONTINUED FROM SHEET 5

57 — PANEL LOGO
D-UA-H955-LA-Ø
D-DI-H955-Ø-1

58 — INLAY BLANK
D-IA-7409224-2-0

59 — PANEL, LOGO
D-UA-H955-LB-Ø
D-DI-H955-Ø-1

60 — INLAY
DEC SYSTEM 1Ø
D-IA-7409224-3-0

61 — TTY INTF PNL
ASSY 60HZ
D-AD-7008682-1-0

TTY INTF PNL
ASSY 50HZ
D-AD-7008682-2-0

62 — PANEL TTY
INTERFACE
D-IA-7409346-0-0

63 — COMPONENT
BOARD ASSY
C-IA-7008684-0-0

64 — INDICATOR PANEL
ASSY BAY 1
E-AD-7006671-1-0

65 — BEZEL, IND MACH
(30 IN)
D-IA-7407821-0-0

66 — PANEL FRONT
(KI1Ø BAY 1)
E-IA-7407850-1-0

67 — IND LIGHT
BOARD
D-CS-5009123-0-1

68 — ETCH BOARD
E-IA-5009122-0-0

69 — INDICATOR PNL
ASSY BAY 2
E-AD-7006671-2-0

65 — BEZEL, IND MACH
(30 IN.)
D-IA-7407821-0-0

70 — PANEL, FRONT
(KI1Ø BAY 2)
E-IA-7407850-2-0

67 — IND LIGHT
BOARD
D-CS-5409123-0-1

68 — ETCH BOARD
E-IA-5009122-0-0

71 — INDICATOR PNL
ASSY BAY 3
E-AD-7006671-3-0

65 — BEZEL, IND. MACH
(30 IN.)
D-IA-7407821-0-0

70 — PANEL, FRONT
(KI1Ø BAY 3)
E-IA-7407850-3-0

67 — IND LIGHT
BOARD
D-CS-5409123-0-1

68 — ETCH BOARD
E-IA-5009122-0-0

SEE SHEET 7

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI1Ø UNIT	SHEET 6 OF 22	B	DD	KI1Ø-Ø	K

CONTINUED FROM SHEET 6

73

LOGIC FRAME & I/O CONNECTOR ASSY
E-AD-7006401-0-0

74

LOGIC FRAME ASSY (BAY 2)
E-AD-7006582-2-0

I

LOGIC FRAME ASSY
E-AD-7006660-0-0

76

GROUND PLANE ASSY BAY 2
D-AD-7008358-0-0

22

GROUND PLANE ASSY
D-IA-5009785-1-0

25

GROUND PLANE PROT SHEET
D-MD-5009956-0-0

75

I/O CONN PANEL ASSY (9TH RACK)
E-AD-7008378-0-0

77

30

GROUND PLANE ASSY (9TH RACK)
D-AD-7008452-0-0

I/O CONN GRD PLANE ASSY
C-AD-7008711-0-0

81

GROUND PLANE ASSY
D-IA-5009785-2-0

78

GROUND PLANE ASSY, I/O CONN
D-IA-5007[illegible]-0-0

23

GROUND PLANE PROT SHEET
D-MD-5009956-0-0

GROUND PLANE PROT SHEET
D-MD-[illegible]-0-0

32

30 IN. FULL DOOR
H955-B R.H.
D-UA-H955-BA-Ø
D-DI-H955-Ø-1

83

30 IN. FULL DOOR
H955-C-Ø L.H.
D-UA-H955-CA-Ø
D-DI-H955-Ø-1

87

PCØ4-CL READER & PUNCH (60HZ)
A-ML-PCØ4-Ø

PCØ4-CM READER & PUNCH (50HZ)
A-ML-PCØ4-Ø

88

FOR 1Ø TELETYPE 35 KSR (60 HZ)
D-UA-LT35-AA-Ø

FOR 1Ø TELETYPE 35 KSR (50 HZ)
D-UA-LT35-AB-Ø

17

19" COVER PANEL
H[illegible]-C-Ø
D-UA-H[illegible]-C-Ø
D-DI-H[illegible]-Ø-1

85

P.S. ASSY (115 VAC)
D-UA-HTØ4-C-Ø

P.S. ASSY (230VAC)
D-UA-HT04-H-Ø

86

BRKT PWR CONN ASSY
D-AD-7005869-0-0

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KITØ UNIT	SHEET 7 OF 22	B	DD	KITØ-[illegible]	K

CUSTOMER PRINT SET KI1Ø-Ø	CUSTOMER PRINT SET KI1Ø-A	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X			1	D-FD-KI1Ø-Ø-ASBM	*	1	ADD-SUBTRACT, BOOLE, MULTIPLY	
X				D-FD-KI1Ø-Ø-BLT	A	1	BLOCK TRANSFER	
X				D-FD-KI1Ø-Ø-BYTE	A	1	BYTE INSTRUCTIONS	
X				D-FD-KI1Ø-Ø-CLK	*	1	CLOCK FLOW	
X				D-FD-KI1Ø-Ø-DFAS	B	1	DOUBLE FLOATING ADD-SUBTRACT	
X				D-FD-KI1Ø-Ø-DFD	B	1	DOUBLE FLOATING DIVIDE	
X				D-FD-KI1Ø-Ø-DFFM	A	1	DOUBLE FLOATING FETCH & MULT-	
							IPLY	
X				D-FD-KI1Ø-Ø-DIVS	*	1	DIVIDE & DIVIDE SUBROUTINE	
X				D-FD-KI1Ø-Ø-DM	*	1	DOUBLE MOVES	
X				D-FD-KI1Ø-Ø-DN	A	1	DOUBLE NORMALIZE	
X				D-FD-KI1Ø-Ø-E	*	1	EXECUTE CYCLE	
X				D-FD-KI1Ø-Ø-F	*	1	FETCH CYCLE	
X				D-FD-KI1Ø-Ø-FASU	A	1	FLOATING ADD-SUBTRACT & UFA	
X				D-FD-KI1Ø-Ø-FD	A	1	FLOATING DIVIDE	
X				D-FD-KI1Ø-Ø-FFDN	*	1	FIX, FLOAT, DOUBLE NEGATE	
X				D-FD-KI1Ø-Ø-FHWT	*	1	FULL & HALF WORD TRANSFERS	
X				D-FD-KI1Ø-Ø-FMSC	*	1	FLOATING MULTIPLY & SCALE	
X				D-FD-KI1Ø-Ø-FNR	A	1	FLOATING NORMALIZE & ROUND	
X				D-FD-KI1Ø-Ø-IC	A	1	INSTRUCTION CYCLE	
X				D-FD-KI1Ø-Ø-IFF	*	1	INSTRUCTION FETCH FLOW	
X				D-FD-KI1Ø-Ø-IOBT	A	1	I/O BUS TIMING	
X				D-FD-KI1Ø-Ø-IOT1	*	1	IN OUT TRANSFER INSTRUCTIONS	
X				D-FD-KI1Ø-Ø-IOT2	*	1	IOT SPECIAL SEQUENCE	
X				D-FD-KI1Ø-Ø-IRD	*	1	IR DECODING	
X				D-FD-KI1Ø-Ø-JMP1	*	1	JUMP INSTRUCTIONS 1	
X				D-FD-KI1Ø-Ø-JMP2	*	1	JUMP INSTRUCTIONS 2	
X				D-FD-KI1Ø-Ø-KC	*	1	KEY CYCLE	
X				D-FD-KI1Ø-Ø-KF	*	1	KEY FUNCTIONS	
X				D-FD-KI1Ø-Ø-KRMP	*	1	KEY READIN & MAP	
X				D-FD-KI1Ø-Ø-MC1	A	1	MEMORY CONTROL (SUBROUTINE	
							CALL & PAGE DELAY	
X				D-FD-KI1Ø-Ø-MC2	C	1	MEMORY CONTROL (PAGE CHECK,	
							MEM GO, & RECYCLE)	
X				D-FD-KI1Ø-Ø-MC3	B	1	MEMORY CONTROL (REQUEST	
							CYCLE & READ RESTART)	
X				D-FD-KI1Ø-Ø-MC4	A	1	MEMORY CONTROL (READ RETURN &	
							REFILL REENTRY).	
X				D-FD-KI1Ø-Ø-MC5	A	1	MEMORY CONTROL WRITE RESTART	
X				D-FD-KI1Ø-Ø-MC6	A	1	MEMORY CONTROL AC REFERENCE	
							(READ)	
X				D-FD-KI1Ø-Ø-OF1	*	1	OVERVIEW FLOW 1	
X				D-FD-KI1Ø-Ø-OF2	*	1	OVERVIEW FLOW 2	
X				D-FD-KI1Ø-Ø-PF	*	1	PAGE FAIL CYCLE	

CUSTOMER PRINT SET KI1Ø-Ø	CUSTOMER PRINT SET KI1Ø-A	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X				D-FD-KI1Ø-Ø-PI	*	1	PI CYCLE	
X				D-FD-KI1Ø-Ø-PIR	*	1	PI REQUEST CYCLE	
X				D-FD-KI1Ø-Ø-PP	*	1	PUSH-POP	
X				D-FD-KI1Ø-Ø-PTP	*	1	PAPER TAPE FLOW	
X				D-FD-KI1Ø-Ø-PTR	A	1	PAPER TAPE READER FLOW	
X			1	D-FD-KI1Ø-Ø-REG	A	1	REGISTER INTERCONNECTIONS	
X				D-FD-KI1Ø-Ø-S	*	1	STORE CYCLE	
X				D-FD-KI1Ø-Ø-SCON	A	1	SHIFT CONNECTIONS	
X				D-FD-KI1Ø-Ø-SR	*	1	SHIFT-ROTATE	
X				D-FD-KI1Ø-Ø-TEST	*	1	LOGICAL & ARITHMETIC TESTING	
X				D-FD-KI1Ø-Ø-TTIF	*	1	TELETYPE INPUT FLOW	
X				D-FD-KI1Ø-Ø-TTOF	*	1	TELETYPE OUTPUT FLOW	
X				D-FD-KI1Ø-Ø-UUO	*	1	MUUO & LUUO	

CUSTOMER PRINT SET CODES

X = PRINT OF DOCUMENT INCLUDED IN PRINT SET
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE: ARITHMETIC PROCESSOR KI1Ø UNIT

SHEET 8 OF 22 | SIZE: B | CODE: DD | NUMBER: KI1Ø-Ø | REV: P

DRB 108

DEC 16-(325)-1062-29-R372

CUSTOMER PRINT SET								ELECTRICAL					
KII0-0							MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X								1	D-BS-KI1Ø-Ø-AB	*	1	ADDRESS BUS	
X									D-BS-KI1Ø-Ø-ABC	*	1	ADDRESS BUS CONTROL	
X									D-BS-KI1Ø-Ø-AD1	*	1	ADDER BITS -2 TO 20	
X									D-BS-KI1Ø-Ø-AD2	*	1	ADDER BITS -21 TO 36	
X									D-BS-KI1Ø-Ø-ADA1	*	1	ADDER "A" INPUT MIXER (BITS ØØ-17)	
X									D-BS-KI1Ø-Ø-ADA2	*	1	ADDER "A" INPUT MIXER (BITS 18-35)	
X									D-BS-KI1Ø-Ø-ADAM	A	1	ADDER AR-, MB	
X									D-BS-KI1Ø-Ø-ADAP	*	1	ADDER AR+	
X									D-BS-KI1Ø-Ø-ADB1	*	1	ADDER "B" INPUT MIXER (BITS ØØ-17)	
X									D-BS-KI1Ø-Ø-ADB2	*	1	ADDER "B" INPUT MIXER (BITS 18-35)	
X									D-BS-KI1Ø-Ø-ADBR	*	1	ADDER BR+ BR- LOGIC	
X									D-BS-KI1Ø-Ø-ADC1	*	1	ADDER BR+2, MASK GEN, ADD.	
X									D-BS-KI1Ø-Ø-ADCR	*	1	AD CARRY 36 IOB & MISC.	
X									D-BS-KI1Ø-Ø-ADFM	*	1	ADDER FM-, MAGIC	
X									D-BS-KI1Ø-Ø-ADFP	*	1	ADDER FM +	
X									D-BS-KI1Ø-Ø-ADX1	*	1	ADX ADDER -2 TO ØØ, Ø9 TO 28	
X									D-BS-KI1Ø-Ø-ADX2	*	1	ADX ADDER 29 TO 35 & Ø1	
X									D-BS-KI1Ø-Ø-ADXC	A	1	ADX CONTROL	
X									D-BS-KI1Ø-Ø-ADZ	*	1	ADDER ZERO LOGIC	
X									D-BS-KI1Ø-Ø-AM1	*	1	ASSOCIATIVE MEMORY	
X									D-BS-KI1Ø-Ø-AM2	*	1	ASSOCIATIVE MEMORY	
X									D-BS-KI1Ø-Ø-AMA	*	1	ASSOC. MEMORY ADDRESS	
X									D-BS-KI1Ø-Ø-AMAC	B	1	ASSOC. MEMORY ADDRESS CONT.	
X									D-BS-KI1Ø-Ø-AMB	*	1	ASSOC. MEM BUF INP & MATCH BUFFS	
X									D-BS-KI1Ø-Ø-AMSP	*	1	ASSOCIATIVE MEMORY SCRATCH PAD	
X									D-BS-KI1Ø-Ø-APR1	*	1	ARITHMETIC PROCESSOR FLAGS	
X									D-BS-KI1Ø-Ø-APR2	*	1	ARITH. PROCESSOR DEVICE LOGIC	
X									D-BS-KI1Ø-Ø-AR1	*	1	AR REGISTER BITS Ø-11	
X									D-BS-KI1Ø-Ø-AR2	*	1	AR REGISTER BITS 12-23	
X									D-BS-KI1Ø-Ø-AR3	*	1	AR REGISTER BITS 24-35	
X									D-BS-KI1Ø-Ø-ARF	*	1	AR FLAGS	
X									D-BS-KI1Ø-Ø-ARI	*	1	AR INPUTS	
X									D-BS-KI1Ø-Ø-ARMA	*	1	AR MIXER CONT. ADDER ENABLE	
X									D-BS-KI1Ø-Ø-ARMB	*	1	AR MIXER CONTROL	
X									D-BS-KI1Ø-Ø-ARMC	*	1	AR MIXER CONTROL	
X									D-BS-KI1Ø-Ø-ARMD	*	1	AR MIXER AUX	
X									D-BS-KI1Ø-Ø-ARX1	*	1	ARX REGISTER BITS ØØ, Ø9-25	
X									D-BS-KI1Ø-Ø-ARX2	*	1	ARX REGISTER BITS 26-35	
X									D-BS-KI1Ø-Ø-ARXC	A	1	ARX CONTROL	
X									D-BS-KI1Ø-Ø-AS1	*	1	ADDRESS SWITCHES 14-17	
X									D-BS-KI1Ø-Ø-AS2	*	1	ADDRESS SWITCHES 18-35	
X									D-BS-KI1Ø-Ø-AXB1	*	1	ADX MIXERS BITS ØØ, Ø9-25	
X									D-BS-KI1Ø-Ø-AXB2	*	1	ADX MIXERS BITS 26-35	
X									D-BS-KI1Ø-Ø-BIO	*	1	BASIC IO CONTROL LOGIC	
X									D-BS-KI1Ø-Ø-BIX1	*	1	BASIC I/O MIXER A (ØØ THRU 17)	
X									D-BS-KI1Ø-Ø-BIX2	*	1	BASIC I O MIXER A (18 THRU 35)	
X									D-BS-KI1Ø-Ø-BIX3	*	1	BASIC I O MIXER 3	
X									D-BS-KI1Ø-Ø-BR1	*	1	BR REGISTER BITS ØØ-17	
X									D-BS-KI1Ø-Ø-BR2	*	1	BR REGISTER BITS 18-35	
X									D-BS-KI1Ø-Ø-BRC	*	1	BR CONTROL	
X									D-BS-KI1Ø-Ø-BYTE	*	1	BYTE	

CUSTOMER PRINT SET								ELECTRICAL					
KII0-0							MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X									D-BS-KI1Ø-Ø-CLK	A	1	CLOCK	
X									D-BS-KI1Ø-Ø-CLKC	*	1	CLOCK CONTROL	
X									D-BS-KI1Ø-Ø-CMP1	*	1	ADDRESS COMPARATOR	
X									D-BS-KI1Ø-Ø-CMP2	*	1	ADDRESS COMPARATOR	
X									D-BS-KI1Ø-Ø-DCP	*	1	DC POWER REGULATION	
X									D-BS-KI1Ø-Ø-DFAM	*	1	DBL FLOAT. ADD, MULT. TIMES STATES	
X									D-BS-KI1Ø-Ø-DFDV	A	1	DOUBLE FLOATING DIVIDE	
X									D-BS-KI1Ø-Ø-DMBL	*	1	DOUBLE MOVES & BLT	
X									D-BS-KI1Ø-Ø-DNT	*	1	DOUBLE NORMALIZE TIME STATES	
X									D-BS-KI1Ø-Ø-DS	*	1	DIVIDE SUBR AND MISC TIME STATES	
X									D-BS-KI1Ø-Ø-DS1	*	1	DATA SWITCHES ØØ-17	
X									D-BS-KI1Ø-Ø-DS2	*	1	DATA SWITCHES 18-35	
X									D-BS-KI1Ø-Ø-E	*	1	EXECUTE CYCLE	
X									D-BS-KI1Ø-Ø-F1	*	1	FETCH CYCLE	
X									D-BS-KI1Ø-Ø-F2	*	1	FETCH CYCLE TIME STATES	
X									D-BS-KI1Ø-Ø-FLAG	*	1	FLAGS	
X									D-BS-KI1Ø-Ø-FMA	*	1	FAST MEMORY ADDRESS CONTROL	
X									D-BS-KI1Ø-Ø-FMB	*	1	FAST MEMORY BUFFERS	
X									D-BS-KI1Ø-Ø-FMC	B	1	FAST MEMORY CONTROL	
X									D-BS-KI1Ø-Ø-FMIN	*	1	FAST MEMORY DATA MIXERS	
X									D-BS-KI1Ø-Ø-FMR	*	1	FAST MEMORY REGISTERS	
X									D-BS-KI1Ø-Ø-FP	*	1	FLOATING POINT TIME STATES	
X									D-BS-KI1Ø-Ø-IBC1	*	1	INTER-BAY CABLES	
X									D-BS-KI1Ø-Ø-IBC2	A	1	INTER-BAY CABLES	
X									D-BS-KI1Ø-Ø-IND1	*	1	SHARED INDICATOR MIXER	
X									D-BS-KI1Ø-Ø-IND2	*	1	SHARED INDICATOR MIXER	
X									D-BS-KI1Ø-Ø-INST	B	1	INSTRUCTION CYCLE	
X									D-BS-KI1Ø-Ø-IOB1	A	1	I/O BUS CABLE 1	
X									D-BS-KI1Ø-Ø-IOBC	*	1	I/O BUS CONTROL	
X									D-BS-KI1Ø-Ø-IOBL	*	1	I/O BUS DATA LEFT HALF	
X									D-BS-KI1Ø-Ø-IOBR	*	1	I/O BUS DATA RIGHT HALF	
X									D-BS-KI1Ø-Ø-IOT1	*	1	IOT TIMING CONTROL	
X									D-BS-KI1Ø-Ø-IOT2	*	1	IOT TIMING CONTROL	
X									D-BS-KI1Ø-Ø-IR	*	1	INSTRUCTION REGISTER BITS ØØ-12	
X									D-BS-KI1Ø-Ø-IR1	A	1	IR DECODING	
X									D-BS-KI1Ø-Ø-IR2	*	1	IR DECODING	
X									D-BS-KI1Ø-Ø-IR3	A	1	INSTRUCTION REGISTER DECODING	
X									D-BS-KI1Ø-Ø-IRMB	*	1	IR CONTROL AND MB CONTROL	
X									D-BS-KI1Ø-Ø-KEY1	*	1	KEY LOGIC	
X									D-BS-KI1Ø-Ø-KEY2	*	1	KEY CONTROL LOGIC #2	
X									D-BS-KI1Ø-Ø-KEY3	*	1	KEY 3	
X									D-BS-KI1Ø-Ø-KEYF	*	1	KEY FLIP FLOPS	
X									D-BS-KI1Ø-Ø-MA1	*	1	MEMORY ADDRESS MIXER BITS 18-35	
X									D-BS-KI1Ø-Ø-MA2	*	1	MA RQ TYPE & BITS 14-17	
X									D-BS-KI1Ø-Ø-MAC	*	1	MEMORY ADDRESS CONTROL	
X									D-BS-KI1Ø-Ø-MAI	*	1	MEMORY ADDRESS INTERFACE	
X									D-BS-KI1Ø-Ø-MAMS	*	1	MAGIC NUMBER AND MASK GEN	
X									D-BS-KI1Ø-Ø-MAR1	A	1	MARGIN CONTROL	

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI1Ø UNIT	SHEET 9 OF 22	B	DD	KI1Ø-Ø	P

CUSTOMER PRINT SET KII0-0	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	D-BS-KI1Ø-Ø-AB	*	1	ADDRESS BUS	
X			D-BS-KI1Ø-Ø-ABC	*	1	ADDRESS BUS CONTROL	
X			D-BS-KI1Ø-Ø-AD1	*	1	ADDER BITS -2 TO 20	
X			D-BS-KI1Ø-Ø-AD2	*	1	ADDER BITS -21 TO 36	
X			D-BS-KI1Ø-Ø-ADA1	*	1	ADDER "A" INPUT MIXER (BITS ØØ-17)	
X			D-BS-KI1Ø-Ø-ADA2	*	1	ADDER "A" INPUT MIXER (BITS 18-35)	
X			D-BS-KI1Ø-Ø-ADAM	A	1	ADDER AR-, MB	
X			D-BS-KI1Ø-Ø-ADAP	*	1	ADDER AR+	
X			D-BS-KI1Ø-Ø-ADB1	*	1	ADDER "B" INPUT MIXER (BITS ØØ-17)	
X			D-BS-KI1Ø-Ø-ADB2	*	1	ADDER "B" INPUT MIXER (BITS 18-35)	
X			D-BS-KI1Ø-Ø-ADBR	*	1	ADDER BR+ BR- LOGIC	
X			D-BS-KI1Ø-Ø-ADC1	*	1	ADDER BR+2, MASK GEN, ADD.	
X			D-BS-KI1Ø-Ø-ADCR	*	1	AD CARRY 36 IOB & MISC.	
X			D-BS-KI1Ø-Ø-ADFM	*	1	ADDER FM-, MAGIC	
X			D-BS-KI1Ø-Ø-ADFP	*	1	ADDER FM +	
X			D-BS-KI1Ø-Ø-ADX1	*	1	ADX ADDER -2 TO ØØ, Ø9 TO 28	
X			D-BS-KI1Ø-Ø-ADX2	*	1	ADX ADDER 29 TO 35 & Ø1	
X			D-BS-KI1Ø-Ø-ADXC	A	1	ADX CONTROL	
X			D-BS-KI1Ø-Ø-ADZ	*	1	ADDER ZERO LOGIC	
X			D-BS-KI1Ø-Ø-AM1	*	1	ASSOCIATIVE MEMORY	
X			D-BS-KI1Ø-Ø-AM2	*	1	ASSOCIATIVE MEMORY	
X			D-BS-KI1Ø-Ø-AMA	*	1	ASSOC. MEMORY ADDRESS	
X			D-BS-KI1Ø-Ø-AMAC	B	1	ASSOC. MEMORY ADDRESS CONT.	
X			D-BS-KI1Ø-Ø-AMB	*	1	ASSOC. MEM BUF INP & MATCH BUFFS	
X			D-BS-KI1Ø-Ø-AMSP	*	1	ASSOCIATIVE MEMORY SCRATCH PAD	
X			D-BS-KI1Ø-Ø-APR1	*	1	ARITHMETIC PROCESSOR FLAGS	
X			D-BS-KI1Ø-Ø-APR2	*	1	ARITH. PROCESSOR DEVICE LOGIC	
X			D-BS-KI1Ø-Ø-AR1	*	1	AR REGISTER BITS Ø-11	
X			D-BS-KI1Ø-Ø-AR2	*	1	AR REGISTER BITS 12-23	
X			D-BS-KI1Ø-Ø-AR3	*	1	AR REGISTER BITS 24-35	
X			D-BS-KI1Ø-Ø-ARF	*	1	AR FLAGS	
X			D-BS-KI1Ø-Ø-ARI	*	1	AR INPUTS	
X			D-BS-KI1Ø-Ø-ARMA	*	1	AR MIXER CONT. ADDER ENABLE	
X			D-BS-KI1Ø-Ø-ARMB	*	1	AR MIXER CONTROL	
X			D-BS-KI1Ø-Ø-ARMC	*	1	AR MIXER CONTROL	
X			D-BS-KI1Ø-Ø-ARMD	*	1	AR MIXER AUX	
X			D-BS-KI1Ø-Ø-ARX1	*	1	ARX REGISTER BITS ØØ, Ø9-25	
X			D-BS-KI1Ø-Ø-ARX2	*	1	ARX REGISTER BITS 26-35	
X			D-BS-KI1Ø-Ø-ARXC	A	1	ARX CONTROL	
X			D-BS-KI1Ø-Ø-AS1	*	1	ADDRESS SWITCHES 14-17	
X			D-BS-KI1Ø-Ø-AS2	*	1	ADDRESS SWITCHES 18-35	
X			D-BS-KI1Ø-Ø-AXB1	*	1	ADX MIXERS BITS ØØ, Ø9-25	
X			D-BS-KI1Ø-Ø-AXB2	*	1	ADX MIXERS BITS 26-35	
X			D-BS-KI1Ø-Ø-BIO	*	1	BASIC IO CONTROL LOGIC	
X			D-BS-KI1Ø-Ø-BIX1	*	1	BASIC I/O MIXER A (ØØ THRU 17)	
X			D-BS-KI1Ø-Ø-BIX2	*	1	BASIC I/O MIXER A (18 THRU 35)	
X			D-BS-KI1Ø-Ø-BIX3	*	1	BASIC I/O MIXER 3	
X			D-BS-KI1Ø-Ø-BR1	*	1	BR REGISTER BITS ØØ-17	
X			D-BS-KI1Ø-Ø-BR2	*	1	BR REGISTER BITS 18-35	
X			D-BS-KI1Ø-Ø-BRC	*	1	BR CONTROL	
X			D-BS-KI1Ø-Ø-BYTE	*	1	BYTE	

CUSTOMER PRINT SET KII0-0	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X			D-BS-KI1Ø-Ø-CLK	A	1	CLOCK	
X			D-BS-KI1Ø-Ø-CLKC	*	1	CLOCK CONTROL	
X			D-BS-KI1Ø-Ø-CMP1	*	1	ADDRESS COMPARATOR	
X			D-BS-KI1Ø-Ø-CMP2	*	1	ADDRESS COMPARATOR	
X			D-BS-KI1Ø-Ø-DCP	*	1	DC POWER REGULATION	
X			D-BS-KI1Ø-Ø-DFAM	*	1	DBL FLOAT. ADD, MULT. TIMES STATES	
X			D-BS-KI1Ø-Ø-DFDV	A	1	DOUBLE FLOATING DIVIDE	
X			D-BS-KI1Ø-Ø-DMBL	*	1	DOUBLE MOVES & BLT	
X			D-BS-KI1Ø-Ø-DNT	*	1	DOUBLE NORMALIZE TIME STATES	
X			D-BS-KI1Ø-Ø-DS	*	1	DIVIDE SUBR AND MISC TIME STATES	
X			D-BS-KI1Ø-Ø-DS1	*	1	DATA SWITCHES ØØ-17	
X			D-BS-KI1Ø-Ø-DS2	*	1	DATA SWITCHES 18-35	
X			D-BS-KI1Ø-Ø-E	*	1	EXECUTE CYCLE	
X			D-BS-KI1Ø-Ø-F1	*	1	FETCH CYCLE	
X			D-BS-KI1Ø-Ø-F2	*	1	FETCH CYCLE TIME STATES	
X			D-BS-KI1Ø-Ø-FLAG	*	1	FLAGS	
X			D-BS-KI1Ø-Ø-FMA	*	1	FAST MEMORY ADDRESS CONTROL	
X			D-BS-KI1Ø-Ø-FMB	*	1	FAST MEMORY BUFFERS	
X			D-BS-KI1Ø-Ø-FMC	B	1	FAST MEMORY CONTROL	
X			D-BS-KI1Ø-Ø-FMIN	*	1	FAST MEMORY DATA MIXERS	
X			D-BS-KI1Ø-Ø-FMR	*	1	FAST MEMORY REGISTERS	
X			D-BS-KI1Ø-Ø-FP	*	1	FLOATING POINT TIME STATES	
X			D-BS-KI1Ø-Ø-IBC1	*	1	INTER-BAY CABLES	
X			D-BS-KI1Ø-Ø-IBC2	A	1	INTER-BAY CABLES	
X			D-BS-KI1Ø-Ø-IND1	*	1	SHARED INDICATOR MIXER	
X			D-BS-KI1Ø-Ø-IND2	*	1	SHARED INDICATOR MIXER	
X			D-BS-KI1Ø-Ø-INST	B	1	INSTRUCTION CYCLE	
X			D-BS-KI1Ø-Ø-IOB1	A	1	I/O BUS CABLE 1	
X			D-BS-KI1Ø-Ø-IOBC	*	1	I/O BUS CONTROL	
X			D-BS-KI1Ø-Ø-IOBL	*	1	I/O BUS DATA LEFT HALF	
X			D-BS-KI1Ø-Ø-IOBR	*	1	I/O BUS DATA RIGHT HALF	
X			D-BS-KI1Ø-Ø-IOT1	*	1	IOT TIMING CONTROL	
X			D-BS-KI1Ø-Ø-IOT2	*	1	IOT TIMING CONTROL	
X			D-BS-KI1Ø-Ø-IR	*	1	INSTRUCTION REGISTER BITS ØØ-12	
X			D-BS-KI1Ø-Ø-IR1	A	1	IR DECODING	
X			D-BS-KI1Ø-Ø-IR2	*	1	IR DECODING	
X			D-BS-KI1Ø-Ø-IR3	A	1	INSTRUCTION REGISTER DECODING	
X			D-BS-KI1Ø-Ø-IRMB	*	1	IR CONTROL AND MB CONTROL	
X			D-BS-KI1Ø-Ø-KEY1	*	1	KEY LOGIC	
X			D-BS-KI1Ø-Ø-KEY2	*	1	KEY CONTROL LOGIC #2	
X			D-BS-KI1Ø-Ø-KEY3	*	1	KEY 3	
X			D-BS-KI1Ø-Ø-KEYF	*	1	KEY FLIP FLOPS	
X			D-BS-KI1Ø-Ø-MA1	*	1	MEMORY ADDRESS MIXER BITS 18-35	
X			D-BS-KI1Ø-Ø-MA2	*	1	MA RQ TYPE & BITS 14-17	
X			D-BS-KI1Ø-Ø-MAC	*	1	MEMORY ADDRESS CONTROL	
X			D-BS-KI1Ø-Ø-MAI	*	1	MEMORY ADDRESS INTERFACE	
X			D-BS-KI1Ø-Ø-MAMS	*	1	MAGIC NUMBER AND MASK GEN	
X			D-BS-KI1Ø-Ø-MAR1	A	1	MARGIN CONTROL	

TITLE	SHEET	SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI1Ø UNIT	9 OF 22	B	DD	KI1Ø-Ø	P

CUSTOMER PRINT SET							SET	ELECTRICAL						
KI1Ø-Ø							MFG.	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X									D-BS-KI1Ø-Ø-MAR2	A	1	MARGIN BUS	
X									D-BS-KI1Ø-Ø-MAR3	*	1	MARGIN MULTIPLEXER	
X									D-BS-KI1Ø-Ø-MAS	A	1	MEMORY ADDRESS SPECIAL	
X									D-BS-KI1Ø-Ø-MB1	*	1	MEMORY BUFF REG BITS ØØ-17	
X									D-BS-KI1Ø-Ø-MB2	*	1	MEMORY BUFF REG BITS 18-35	
X									D-BS-KI1Ø-Ø-MBD	*	1	MEMORY BUS DATA	
X									D-BS-KI1Ø-Ø-MCIA	A	1	MEMORY CONTROL INSTR & ASYNC	
X									D-BS-KI1Ø-Ø-MCM	B	1	MEMORY CONTROL MEM ADR, GO, STOP	
X									D-BS-KI1Ø-Ø-MCP	*	1	MEMORY CONTROL PAGING PARITY	
X									D-BS-KI1Ø-Ø-MCRW	*	1	MEMORY CONTROL REQ. RD & WR RESTART	
X									D-BS-KI1Ø-Ø-MCS	A	1	MEMORY CONTROL SYNCHRONOUS	
X									D-BS-KI1Ø-Ø-MCTF	A	1	MEM. CONTR. FAST MEM TIMING	
X									D-BS-KI1Ø-Ø-MCTN	B	1	MEM. CONTR. TIMING, NXM	
X									D-BS-KI1Ø-Ø-MI	*	1	MI REGISTER	
X									D-BS-KI1Ø-Ø-MIMX	*	1	MI MIXER	
X									D-BS-KI1Ø-Ø-MPYT	*	1	MPY, MUUO & TEST	
X									D-BS-KI1Ø-Ø-MQ1	*	1	MQ REGISTER BITS ØØ-11	
X									D-BS-KI1Ø-Ø-MQ2	*	1	MQ REGISTER BITS 12-23	
X									D-BS-KI1Ø-Ø-MQ3	*	1	MQ REGISTER BITS 24-35	
X									D-BS-KI1Ø-Ø-MQC	*	1	MQ CONTROL	
X									D-BS-KI1Ø-Ø-MQZ	*	1	MQ ZERO DETECTION LOGIC	
X									D-BS-KI1Ø-Ø-MR1	A	1	MASTER CLEAR	
X									D-BS-KI1Ø-Ø-MR2	*	1	MASTER CLEAR	
X									D-BS-KI1Ø-Ø-NR	A	1	FLOATING NORMALIZE TIME STATES	
X									D-BS-KI1Ø-Ø-PAG1	*	1	PAGE DECISION LOGIC	
X									D-BS-KI1Ø-Ø-PAG2	*	1	PAGING CONTROL	
X									D-BS-KI1Ø-Ø-PAR	*	1	PARITY LOGIC	
X									D-BS-KI1Ø-Ø-PC	*	1	PC REGISTER BITS 18-35	
X									D-BS-KI1Ø-Ø-PCC	*	1	PC CONTROL	
X									D-BS-KI1Ø-Ø-PF	A	1	PAGE FAIL LOGIC	
X									D-BS-KI1Ø-Ø-PIC1	B	1	PRIORITY INTERRUPT CONTROL	
X									D-BS-KI1Ø-Ø-PIC2	*	1	PRIORITY INTERRUPT CONTROL	
X									D-BS-KI1Ø-Ø-PIHR	*	1	PIH & PIR REGISTERS	
X									D-BS-KI1Ø-Ø-PIN	*	1	PRIORITY INTERRUPT NETWORK	
X									D-BS-KI1Ø-Ø-PIOG	*	1	PI ON AND PI GEN	
X									D-BS-KI1Ø-Ø-PIR	A	1	PI REQUEST LOGIC	
X									D-BS-KI1Ø-Ø-PTP	A	1	PAPER TAPE PUNCH CONTRCL	
X									D-BS-KI1Ø-Ø-PTR1	*	1	PAPER TAPE READER	
X									D-BS-KI1Ø-Ø-PTR2	A	1	PAPER TAPE READER	
X									D-BS-KI1Ø-Ø-PTR3	*	1	PAPER TAPE READER	
X									D-BS-KI1Ø-Ø-SCA1	*	1	SCAD SCT, -, FE CONTROL	
X									D-BS-KI1Ø-Ø-SCA2	A	1	SCAD CONTROL	
X									D-BS-KI1Ø-Ø-SCA3	*	1	SCAD ADD, + 1, AR EXP LOGIC	
X									D-BS-KI1Ø-Ø-SCAD	A	1	SHIFT COUNT ADDER	
X									D-BS-KI1Ø-Ø-SCC	*	1	SHIFT COUNTER CONTROL	
X									D-BS-KI1Ø-Ø-SCDR	*	1	SCAD DATA REGISTER	
X									D-BS-KI1Ø-Ø-SCFE	*	1	SC & FE REGISTER BITS 6-8	
X									D-BS-KI1Ø-Ø-SCSR	*	1	SHIFT COUNT SUBROUTINE & INSTR.	
X									D-BS-KI1Ø-Ø-ST1	*	1	STORE CYCLE	

CUSTOMER PRINT SET							SET	ELECTRICAL					
KI1Ø-Ø							MFG	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X									D-BS-KI1Ø-Ø-ST2	*	1	STORE CYCLE	
X									D-BS-KI1Ø-Ø-TRAP	*	1	TRAP LOGIC	
X									D-BS-KI1Ø-Ø-TTO	*	1	TELETYPE OUTPUT	
X									D-BS-KI1Ø-Ø-TTY1	*	1	TELETYPE INPUT	
X									D-BS-KI1Ø-Ø-TTY2	*	1	TELETYPE CLOCKS	
X									D-BS-KI1Ø-Ø-TTY3	*	1	TELETYPE INTERFACE	
X									D-BS-KI1Ø-Ø-UEBR	*	1	USER & EXEC BASE REGISTER	
X									D-BS-KI1Ø-Ø-USER	*	1	USER MODE CONTROL	
X									D-BS-KI1Ø-Ø-XCT	B	1	EXECUTE INSTRUCTIONS	
X									D-CS-M142-Ø-1	#	2	4-BIT ADDER MODULE	

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI1Ø UNIT	SHEET 10 OF 22	B	DD	KI1Ø-Ø	P

ELECTRICAL

CUSTOMER PRINT SET KI1Ø-Ø	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	D-MU-KI1Ø-Ø-1A1D	C	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-1E1J	A	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-1K1N	A	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-1F1T	*	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-2A2D	*	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-2E2J	A	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-2K2N	B	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-2P2T	B	1	MODULE UTILIZATION	
X			D-MU-KI1Ø-Ø-3A3B	*	1	MODULE UTILIZATION	
X			A-PL-KI1Ø-Ø-MU	*	4	MODULE UTILIZATION LIST	
X			D-IC-KI1Ø-Ø-1PS	*	1	DC WIRING CHART BAY 1 P.S.	
X			D-IC-KI1Ø-Ø-1SPE	*	1	DC WIRING CHART BAY 1 S.P.E.	
X			D-IC-KI1Ø-Ø-2PS	*	1	DC WIRING CHART BAY 2 P.S.	
X			D-IC-KI1Ø-Ø-2SPE	*	1	DC WIRING CHART BAY 2 S.P.E.	
X			D-IC-KI1Ø-Ø-3PS1	A	1	DC WIRING CHART BAY 3 P.C.& S.	
X			D-IC-KI1Ø-Ø-3PS2	*	1	DC WIRING CHART BAY 3 P.C. & LOGIC	
X			D-IC-KI1Ø-Ø-AC	*	1	POWER WIRING A.C. BAY 1-3	
X			D-IC-KI1Ø-Ø-DET	B	1	DC WIRING (BAY 1, 2 & 3 DETAILS)	
X			D-IC-KI1Ø-Ø-INDL	*	1	BAY 1,2 & 3 INDICATORS	
X			D-IC-KI1Ø-Ø-SCL	*	1	SWITCH & CONN. LAYOUT	
X			D-IC-KI1Ø-Ø-CONI	*	1	CONSOLE INDICATORS	
X			D-IC-KI1Ø-Ø-DET2	*	1	DC WIRING (DK1Ø)	
			A-WL-KI1Ø-Ø-MTWP	A	5	GENERAL WIRING FOR MISSING TWPs	
X			A-WL-KI1Ø-Ø-RSEN	*	3	REGULATOR SENSING	
X			K-WL-KI1Ø-Ø-WL	M		WIRE LIST (KI1Ø)	
			D-FD-KI1Ø-Ø-WRPS	*	3	DEC SYSTEM 10 WIRE WRAP SYSTEM	REF
X			B-CP-KI1Ø-Ø-EC	C	1	EXTERNAL COMPONENTS LIST	
X			A-SP-KI1Ø-Ø-FONE	*	3	KI10 TELEPHONE INSTALLATION	
			A-SP-PDP1Ø-Ø-KI1Ø	#	6	THE ACCEPTANCE TEST KI1Ø	REF
X			A-PL-KI1Ø-Ø-ACL	*	2	ACCESSORY LIST KI1Ø	
X			A-PL-KI1Ø-Ø-RCS	A	11	SPARE COMPONENTS LIST KI1Ø	
X			B-SP-KI1Ø-Ø-DLY	C	6	DELAY CHART	
X			A-SP-KI1Ø-Ø-DPRO	B	8	DELAY CHART SETUP PROCEDURE	
X			A-SP-KI1Ø-Ø-DPIX	A	14	DELAY CHART PICTORIALS	
X		X	A-SP-PDP1Ø-Ø-RWRK	#	6	PDP1Ø WIRING & ECO/REWORK PROC	
		X	A-SP-KI1Ø-Ø-MCOP	D	4Ø	MFG CHECKOUT PROCEDURE	
X		X	A-SP-KI1Ø-Ø-SPC	A	22	SINGLE PULSE CHART (C.O. PROC)	
X		X	B-SP-KI1Ø-Ø-CPCG	A	2	CP CG CHART	
			A-MN-KI1Ø-Ø-MAN1	*	-	KI10 CENTRAL PROCESSOR	REF

CUSTOMER PRINT SET CODES	
	X = PRINT OF DOCUMENT INCLUDED IN PRINT SET
	C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT
	S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

ELECTRICAL

CUSTOMER PRINT SET KI1Ø-Ø	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
	X		A-ML-KI1Ø-TA	#	1	KI10 I/O BUS TESTER	

TITLE	SHEET 11 OF 22	SIZE	CODE	NUMBER	REV
		B	DD	KI1Ø-Ø	P

CUSTOMER PRINT SET	MFG. SET	ELECTRICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		17	D-AD-7006742-0-0		1	FAN HSG ASS'Y BOT	
		18	D-UA-H732-Ø-Ø		2	H732 POWER SUPPLY	H732
			C-CS-H732-Ø-1		1	H732 CIRCUIT	
		21	E-AD-7008358-0-0		1	GROUND PLANE ASSY	
		24	D-UA-845-0-0		1	845 POWER CONTROL	845
			C-CS-845-0-1		1	845 POWER CONTROL CIRCUIT	
		25	D-UA-H723-Ø-Ø		3	H723 POWER SUPPLY	H723
			C-CS-H723-Ø-1		1	H723 POWER SUPPLY CIRCUIT	
		26	D-AD-7006741-0-0		1	FAN HSG ASS'Y TOP	
		28	D-UA-H725-Ø-Ø		3	H725 POWER SUPPLY	H725
			C-CS-H725-Ø-1		1	H725 POWER SUPPLY CIRCUIT	
		29	D-UA-783C-Ø-Ø		2	783C POWER SUPPLY	783C
			C-CS-783C-Ø-1		1	783C POWER SUPPLY CIRCUIT	
		30	D-UA-857-0-0		3	857 POWER CONTROL	857
			D-CS-857-0-1		2	857 POWER CONTROL CIRCUIT	
		33	D-UA-858-0-0		3	858 POWER CONTROL	858
			D-CS-858-0-1		2	858 POWER CONTROL CIRCUIT	

CUSTOMER PRINT SET	MFG SET	ELECTRICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		37	D-CS-5409051-0-0		1	INDICATOR LIGHT BOARD CIRCUIT	
		40	D-CS-5409527-0-1		1	SWITCH BOARD NO 1 CIRCUIT	
		42	D-CS-5409529-0-1		1	SWITCH BOARD NO 2 CIRCUIT	
		44	E-AD-7006644-0-0		3	MAINTENANCE PANEL ASS'Y	
			D-CS-7006644-0-1		1	MAINTENANCE PANEL CIRCUIT	
			C-CS-7006644-0-2		1	MAINTENANCE PANEL TESTER	
			B-SP-7006644-0-3		1	MAINTENANCE PANEL TEST PROC.	
		45	D-IA-7008575-0-0		2	MARGIN CHECK ASS'Y	
		47	D-AD-7006990-0-0		1	ROTARY SWITCH ASS'Y	
		48	D-AD-7006991-0-0		2	SWITCH ASSY	
		50	D-CS-5409562-0-1		1	SWITCH BOARD CIRCUIT	
		52	E-AD-7006585-0-0		1	SERIES PASS ELEMENT ASSY	
			B-CS-7006585-0-2		1	SERIES PASS ELEMENT TESTER	
			B-SP-7006585-0-3		1	SERIES PASS ELEMENT TEST PROC.	
		55	C-CS-5406964-0-1		1	SERIES PASS BOARD CIRCUIT	

TITLE	SHEET	SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K110 UNIT	SHEET 12 OF 22	B	DD	K110-Ø	K

CUSTOMER PRINT SET	MFG. SET	ELECTRICAL					
		FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		62	D-AD-7008682-0-0		2	TTY INTERFACE ASSY	
		63	C-IA-7008684-0-0		1	COMPONENT BOARD ASSY	
		64	E-AD-7006671-0-0		1	INDICATOR PANEL ASSY (BAY 1)	
		67	D-CS-5409123-0-1		1	INDICATOR LIGHT BOARD CIRCUIT	
		69	E-AD-7006671-0-0		1	INDICATOR PANEL ASSY(BAY 2)	
		71	E-AD-7006671-0-0		1	INDICATOR PANEL ASSY (BAY 3)	
		75	D-AD-7008358-0-0		1	GROUND PLANE ASSY BAY 2	
		77	C-AD-7008711-0-0		1	I/O CONN GND PLANE ASSY	
		80	D-AD-7008452-0-0		1	GND PLANE ASSY (9TH RACK)	
		85	D-UA-H704-C-Ø		1	H704C POWER SUPPLY 115VAC	H704
			A-SP-H704-C-1		1	H704C POWER SUPPLY CIRCUIT	
		85	D-UA-H704-H-Ø		1	H704H POWER SUPPLY (230VAC)	H704
			A-SP-H704-H-1		1	CIRCUIT SCHEMATIC	

CUSTOMER PRINT SET	MFG SET	ELECTRICAL				
		FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTIC NO.

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K110 UNIT	SHEET 13 OF 22	B	DD	K110-Ø	K

CUSTOMER PRINT SET							MFG. SET	MECHANICAL						
KI1Ø								FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X							X	1	D-UA-KI1Ø-Ø-Ø	B	6	ARITHMETIC PROCESSOR KI1Ø ASS'Y	
X							X		A-PL-KI1Ø-Ø-Ø	B	6	ARITHMETIC PROC. KI1Ø ASS'Y PL	
									D-IA-7408957-0-0		1	PLATE, HOLD DOWN	
									D-IA-7408958-0-0		1	SUPPORT, HOLD DOWN RIGHT	
									D-IA-7408959-0-0		1	SUPPORT, HOLD DOWN LEFT	
									D-AD-7008631-0-0		1	CABLE LIST	
									A-PL-7008631-0-0		1	CABLE LIST (PL)	
									A-DC-7407795-0-0		1	DECAL (BLOCK SCHEM)	
									A-DC-7409045-0-0		1	DECAL, VOLT PHASE WHT/CLR	
									A-DC-7409045-0-0		1	DECAL, VOLT PHASE BLK/CLR	
									J-IA-7007067-0-0		1	BAY 1 TOP HARNESS	
									J-IA-7007068-0-0		1	BAY 1 BOT HARNESS	
									J-IA-7007069-0-0		1	BAY 2 TOP HARNESS	
									J-IA-7007070-0-0		1	BAY 2 BOT HARNESS	
									J-IA-7007071-0-0		1	BAY 3 HARNESS	
									J-IA-7007073-0-0		1	WIRE HARNESS 856 CONT PC.	
									D-MD-7409582-0-0		1	PANEL FILLER REAR MTG DOOR	
									E-AD-7605760-0-0		REF	LOGIC SHIPPING CASE	
									D-MD-7409584-0-0		1	PANEL FILLER FRONT BAY 2	
									C-IA-7005514-0-0		1	CABLE, POWER (60 HZ)	
									C-UA-BC1ØB-9-Ø		1	CABLE MARG CHK REMOTE CONT	
									C-IA-7409870-0-0		1	SHIPPING BRKT, IND PANEL	
									C-DC-7409635-0-0		1	CONN IDENT DECAL (BAY 3)	
									D-IA-7008409-0-0		1	HARN. SERIES PASS TO LOGIC BAY 2	
									D-IA-7008408-0-0		1	HARN. SERIES PASS TO LOGIC BAY 1	
									D-IA-7006897-0-0		1	HARN. INTERCONN REAR SERIES PASS	
									C-MD- 7409777-0-0		1	PLATE CHASSIS SUPPORT (845PC)	
									A-DC-7406417-0-0		1	CAUTION LABEL	
									D-MD-7409808-1-0		1	PANEL SUPPORT L.H.	
									D-MD-7409808-2-0		1	PANEL SUPPORT R.H.	
									B-MD-5100		1	BLANK PANEL (E) #7402017	
									D-MD-7409234-0-0		1	PANEL BLANK	
									D-IA-7408957-0-0		1	PLATE, HOLD DOWN	
									B-MD-7408990-0-0		1	PLATE, SHIPPING	
									C-IA-7005514-1-0		1	CABLE POWER (50HZ)	
									B-MD-5100		1	BLANK PANEL (D) #7402026	
									A-IT-KI1Ø-Ø-6		3	INSPECTION PROCEDURE	
									A-DC-7409957-0-0		1	SYSTEM PARAMETERS DECAL	
									A-DC-7409958-0-0		1	I/O CONN. 9TH ROW DECAL	
									B-DC-7409959-0-0		1	NAME PLATE (KI1Ø) DECAL	
							X		D-AR-10-0-1	#		PDP-10 CONFIGURATION	
							X	2	E-AD-7008554-1-0	#	2	CABINET ASS'Y	
							X		C-PL-7008554-1-0	#	1	CABINET ASS'Y (PL)	
									E-AD-7409103-0-0		2	FRAME MTG	
									D-IA-7408628-1-0		1	RUNNER TABLE SUPPORT L.H.	
									D-IA-7408628-2-0		1	RUNNER, TABLE SUPPORT R.H.	
									C-IA-7407729-0-0		1	BRKT MTG CABLE CHANNEL	

CUSTOMER PRINT SET							MFG SET	MECHANICAL					
								FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
									D-IA-7407733-0-0		1	CHANNEL CABLE	
									D-MD-7408930-0-0		1	BAR SUPPORT I/O CONN PLATE	
									B-MD-7408121-0-0		1	BLOCK SPACER	
									D-IA-7409181-0-0		1	CHANNEL, IND PANEL	
									D-IA-7409268-0-0		1	CABLE, SUPPORT	
									D-AD-7606090-0-0		1	SKID, 3 BAY	
								3	B-UA-H950-S-Ø		1	H950 -S FILTER	H950
									D-DI-H950-Ø-1		1	H950 DWG INDEX LIST	H950
								4	E-UA-H955-DA-Ø		1	EQUIP MTG DOOR ASS'Y R.H.	H955
									A-PL-H955-DA-Ø		2	EQUIP MTG DOOR ASS'Y R.H. (PL)	H955
									D-DI-H955-Ø-1		1	H955 DWG INDEX LIST	H955
								5	E-UA-H955-EA-Ø		1	EQUIP MTG DOOR ASS'Y L.H.	H955
									A-PL-H955-EA-Ø		2	EQUIP MTG DOOR ASS'Y L.H. (PL)	H955
									D-DI-H955-Ø-1		1	H955 DWG INDEX LIST	H955
								6	E-AD-7006580-1-0		1	COOLING ASS'Y	
									A-PL-7006580-1-0		1	COOLING ASS'Y (PL)	
									E-IA-7407735-0-0		5	COOLING FRAME ASS'Y	
									E-IA-7407732-0-0		2	DOOR COOLING ASS'Y	
								7	E-UA-H955-A-0		1	H955-A FRAME	H955
									D-DI-H955-Ø-1		1	H955 DWG INDEX LIST	H955
								8	C-UA-H952-GB-Ø		1	H952-G FILLER STRIP	H952
									A-PL-H952-GB-Ø		1	H952-G FILLER STRIP PL	H952
									D-DI-H952-Ø-1		1	H952 DWG INDEX LIST	H952

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI1Ø UNIT	SHEET 14 OF 22	B	DD	KI1Ø-Ø	L

CUSTOMER PRINT SET	MFG. SET	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		9	A-PL-H952-D-Ø		1	H952-D PANEL FASTENER (PL)	H952
			D-DI-H952-Ø-1		1	H952 DWG INDEX LIST	H952
		10	A-PL-H952-E-Ø		1	H952-E CASTER SET (PL)	H952
			D-DI-H952-E-Ø		1	H952 DWG INDEX LIST	H952
		11	A-PL-H952-C-Ø		1	H952-C FAN (PL)	H952
			D-DI-H952-Ø-1		1	H952 DWG INDEX LIST	
		12	A-PL-H952-F-Ø		1	H952-F LEVELER SET (PL)	H952
			D-DI-H952-Ø-1		1	H952 DWG INDEX LIST	
		13	D-UA-H952-AC-Ø		2	H952-A END PANEL	H952
			A-PL-H952-AC-Ø		1	H952-A END PANEL (PL)	
			D-DI-H952-Ø-1		1	H952 DWG INDEX LIST	
		14	D-UA-H951-HA-Ø		4	H951-H SHORT DOOR ASSY	H951
			A-PL-H951-HA-Ø		1	H951-H SHORT DOOR ASSY (PL)	
			D-DI-H951-Ø-1		1	H951 DWG INDEX LIST	
		15	D-UA-H951-HJ-Ø		4	H951H SHORT DOOR ASSY	H955
			A-PL-H951-HJ-Ø		1	H951H SHORT DOOR ASSY	
			D-DI-H951-Ø-1		1	H951 DWG INDEX LIST	
		16	E-H955-GA-Ø			H955-G TABLE TOP ASSY	H955
			D-DI-H955-Ø-1			H955 DWG INDEX LIST	
	X	17	D-AD-7006742-0-0	#	1	FAN HSG ASSY (BOT)	
	X		A-PL-7006742-0-0	#	1	FAN HSG ASSY (BOT) (PL)	
			D-IA-7407981-2-0		1	PLATE FAN MTG.	
			D-IA-7407928-0-0		1	SCREEN FAN HOUSING	

CUSTOMER PRINT SET	MFG. SET	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
			A-DC-7409045-0-0		1	DECAL, 120V WHT/CLR	
	X	18	D-UA-H732-Ø-Ø	#	2	H732 POWER SUPPLY	H732
	X		A-PL-H732-Ø-Ø	#	2	H732 POWER SUPPLY (PL)	
		19	E-AD-7006582-1-0		1	LOGIC FRAME ASSY BAY 1	
			A-PL-7006582-1-0		2	LOGIC FRAME ASSY BAY 1 (PL)	
			D-MD-7407756-0-0		1	STIFFENER LOGIC FRAME	
			A-DC-5309970-0-0		A/R	DECALS BAY 1 & 2	
			B-IA-7409067-0-0		1	SPACER, WIRE WRAP	
			C-MD-7408507-0-0		1	HANDLE	
			A-SP-7665161-0-0			PROCESS SPEC	
X	X		A-WT-7006582-0	#	1	AWT REVISION STATUS	
			FIXTURE DWGS REF				
			C-IA-9605824-0-0		1	LOCATING PIN HANDLE	
		20	E-AD-7006660-0-0		1	LOGIC FRAME	
			A-PL-7006660-0-0		1	LOGIC FRAME (PL)	
			D-MD-7407805-0-0		1	BAR, LOGIC FRAME & BAR	
			C-MD-7407804-0-0		1	BAR, LOGIC FRAME END	
			C-MD-7407802-0-0		1	PLATE, MTG LOCK FRAME	
		21	D-AD-7008358-0-0		1	GROUND PLANE ASSY	
			A-PL-7008358-0-0		1	GROUND PLANE ASSY (PL)	
			C-MD-7408967-3-0		1	STRIP INSULATOR	
			D-MD-5009956-0-0		1	GND PL, PROT SHEET 11 BLOCK	
			A-SP-7665161-0-0			PROCESS SPEC	
			A-II-7008358-0-4		1	INSPECTION PROCEDURE	
			FIXTURE DWGS REF				
			E-MD-9609516-0-0		1	TOOLING PLATE	

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	SHEET 15 OF 22	B	DD	K11Ø-Ø	L

CUSTOMER PRINT SET	SET MFG.	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		22	D-IA-5009785-1-0		2	GROUND PLANE ASS'Y	
			D-SS-5009785-0-1		1	SILK SCREEN (HOLES)	
		23	D-MD-5009956-0-0		1	GND PLANE PROTECTION SHEET	
			D-SS-5009956-0-1		1	SILK SCREEN	
	X	24	D-UA-845-0-0	#	3	845 POWER CONTROL	845
	X		A-PL-845-0-0	#	4	845 POWER CONTROL PL	
	X	25	D-UA-H723-0-0	#	3	H723 POWER SUPPLY	H723
	X		A-PL-H723-0-0	#	2	H723 POWER SUPPLY PL	
	X	26	D-AD-7006741-0-0	#	1	FAN HSG ASS'Y (TOP)	
	X		A-PL-7006741-0-0	#	1	FAN HSG ASS'Y (TOP) (PL)	
			A-DC-7409045-0-0		1	DECAL, 120V WHT/CLR	
			1210757			AIR FILTER (5.2 X 27.2 X 3/8 THK)	
		27	D-IA-7407930-0-0		2	FAN HSG (TOP)	
			D-MD-7407931-1-0		1	PLATE, FAN MTG	
	X	28	D-UA-H725-0-0	#	3	POWER SUPPLY H725	H725
	X		A-PL-H725-0-0	#	2	POWER SUPPLY H725 (PL)	
	X	29	D-UA-783C-0-0	#	2	POWER SUPPLY 783C	783
	X		A-PL-783C-0-0	#	2	POWER SUPPLY 783C (PL)	
	X	30	D-UA-857-0-0	#	3	POWER CONTROL 857	857
	X		A-PL-857-0-0	#	2	POWER CONTROL 857 (PL)	
			B-DD-857-0-0		2	DWG DIRECTORY	

CUSTOMER PRINT SET	SET MFG	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
	X	31	E-AD-7006609-0-0	#	1	PHONE PANEL ASS'Y	
	X		A-PL-7006609-0-0	#	1	PHONE PANEL ASS'Y (PL)	
			E-MD-7407782-0-0		1	BEZEL, PHONE PANEL	
			E-MD-7407783-0-0		1	PANEL, PHONE	
			D-IA-7407772-0-0		1	PANEL, MTG, PHONE	
		32	D-IA-7405013-0-0		1	BLANK PANEL ASS'Y	
			D-IA-7407854-0-0		1	SUPPORT, BLANK PANEL	
			D-SC-1209835-0-0		1	PANEL, BLANK	
	X	33	D-UA-858-0-0	#	2	POWER CONTROL 858	858
	X		A-PL-858-0-0	#	2	POWER CONTROL 858 (PL)	
			B-DD-858-0-0		2	DWG DIRECTORY	
		34	E-AD-7006643-0-0		2	CONSOLE ASSY	
			A-PL-7006643-0-0		1	CONSOLE ASS'Y (PL)	
			E-MD-7407860-0-0		2	CONSOLE MACH	
			E-IA-7407817-1-0		1	BRKT MTG CONSOLE L.H.	
			E-IA-7407817-2-0		1	BRKT MTG CONSOLE R.H.	
			B-MD-7407880-0-0		1	ROD, PUSH	
			C-MD-7407881-0-0		1	BUTTON, PUSH	
			B-MD-7409158-0-0		1	SPRING, CONTROL PANEL	
			E-IA-7409057-0-0		1	LIGHT BOARD MTG PLATE	
			B-MD-7409156-0-0		1	COLLAR STOP	
			A-II-7006643-0-4		1	INSPECTION PROCEDURE	
			C-MD-7411291-0-0		1	RECEPTACLE	
			D-IA-7407788-0-0		1	SUPPORT, GLASS	
				FIXTURE		DWGS REF	
			E-IA-9605640-0-0		2	SWITCH ALIGNMENT FIXTURE	
			D-MD-9605641-0-0		1	SWITCH ALIGNMENT PLATE	
			E-AD-7006684-0-0		1	CONTROL PANEL ASS'Y (REF)	
			A-PL-7006684-0-0		1	CONTROL PANEL ASSY (PL) (REF)	

TITLE	SHEET	SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	SHEET 16 OF 22	B	DD	K11Ø-Ø	L

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
			MECHANICAL				
		36	D-IA-7407824-0-0		1	PANEL, CONTROL	
			D-SS-7407824-0-1		1	SILK SCREEN, PEACOCK BLU	
			D-SS-7407824-0-2		1	SILK SCREEN, LIGHT AQUA	
			D-SS-7407824-0-3		1	SILK SCREEN, BRITE OLIVE GRN	
			D-SS-7407824-0-4		1	SILK SCREEN, WHT	
			D-SS-7407824-0-5		1	SILK SCREEN, BLK	
		37	D-CS-5409051-0-1		1	INDICATOR LIGHT BOARD	
			K-CO-5409051-0-4			X-Y COORDINATE HOLE LOCATIONS	
			B-MH-5409051-0-6		1	MODULE ECO HISTORY	
		38	E-IA-5009050-0-0		1	ETCH BOARD	
			PC-5009050-0-1		1	PRINTED CIRCUIT LAYOUT	
		39	E-AD-7008515-0-0		1	SWITCH PANEL ASS'Y	
			A-PL-7008515-0-0		1	SWITCH PANEL ASS'Y (PL)	
			E-IA-7409118-0-0		1	SWITCH ..IG PANEL	
			B-MD-7409070-0-0		1	SUPPOR STANDOFF	
		40	D-CS-5409527-0-1		1	SWITCH BOARD NO. 1	
			K-CO-5409527-0-4			X-Y COO DINATE HOLE LOCATIONS	
			B-MH-5409527-0-6		1	MODULE CO HISTORY	
		41	E-IA-5009526-0-0		1	ETCH BOARD	
			PC-5009526-0-1		1	PRINTED CIRCUIT LAYOUT	
		42	D-CS-5409529-0-1		1	SWITCH BOA D NO 2	
			K-CO-5409529-0-4			X-Y COO DINATE HOLE LOCATIONS	
			B-MH-5409529-0-6		1	MODULE CO HISTORY	

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTIC NO.
			MECHANICAL				
		43	E-IA-5009526-0-0		1	ETCH BOARD	
			PC-5009526-0-0		1	PRINTED CIRCUIT LAYOUT	
	X	44	D-AD-7006644-0-0	#	3	MAINTENANCE PANEL ASS'Y	
	X		A-PL-7006644-0-0	#	2	MAINTENANCE PANEL ASS'Y (PL)	
			E-IA-7407755-0-0		1	PLATE, MTG	
			D-MD-7407855-0-0		1	BEZEL, MAINTENANCE PANEL	
			B-MD-7409189-0-0		1	BUSHING, SWITCH	
			B-MD-7409192-0-0		1	SHAFT	
			J-IA-7007072-0-0		1	WIRE HARNESS	
			A-DC-7409616-0-0		1	DECAL, (MAINT. PNL K11Ø)	
			A-II-7006644-0-4		1	INSPECTION PROCEDURE	
			B-MD-7411169-0-0		1	STOP, VARIAC	
	X	45	D-IA-7008575-0-0	#	2	MARGIN CHECK SWITCH ASSY	
			B-MD-7409225-1-0		1	ROTARY SWITCH REWORK	
		46	E-IA-7407851-0-0		1	PANEL, FRONT	
			D-SS-7407851-0-1		1	SILK SCREEN, DP. PEACOCK BLU.	
			D-SS-7407851-0-2		1	SILK SCREEN, LIGHT AQUA	
			D-SS-7407851-0-3		1	SILK SCREEN, WHT.	
			D-SS-7407851-0-4		1	SILK SCREEN, BLK	
	X	47	D-AD-7006990-0-0	#	1	ROTARY SWITCH ASS'Y	
	X		A-PL-7006990-0-0	#	1	ROTARY SWITCH ASS'Y (PL)	
			D-MD-7408303-0-0		1	BRACKET, ROTARY SWITCH	
			B-MD-7409192-0-0		1	SHAFT	
	X	...	D-AD-7006991-0-0	#	2	SWITCH ASS'Y	
	X		A-PL-7006991-0-0	#	1	SWITCH ASS'Y PL	
			D-MD-7408304-0-0		1	BRACKET, SWITCH	
		)	D-AD-7008573-0-0		1	SWITCH PANEL ASS'Y	
			A-PL-7008573-0-0		1	SWITCH PANEL ASSY PL	
			D-MD-7409046-0-0		1	PLATE SWITCH MTG	

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	SHEET 1 7 OF 22	B	DD	K11Ø-Ø	K

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
			MECHANICAL				
			FIXTURE DWG'S REF				
			E-IA-9605642-0-0		1	SWITCH ALIGNING FIXTURE	
			C-MD-9605649-0-0		1	SWITCH ALIGNING FIXTURE	
		50	D-CS-5409562-0-1		1	SWITCH BOARD	
			K-CO-5409562-0-4			X-Y COORDINATE HOLE LOC.	
			B-MH-5409562-0-6		1	MODULE ECO HISTORY	
		51	5009561-0-0		1	ETCH BOARD	
			PC-5009561-0-1		1	PRINTED CIRCUIT LAYOUT	
	X	52	E-AD-7006585-1-0	#	1	SERIES PASS ELEMENT ASSY	
	X		A-PL-7006585-1-0	#	1	SERIES PASS ELEMENT (PL)	
			D-IA-7407722-0-0		1	BRKT SUPPORT, HEAT SINK	
			E-IA-7006873-0-0		1	WIRE HARNESS, SERIES PASS	
			A-II-7006585-0-4		1	INSPECTION PROCEDURE	
		53	D-IA-7407721-0-0		1	PLATE, SERIES PASS ELEMENT	
			B-SS-7407721-0-1		1	SILK SCREEN, WHT LETRS	
		54	D-AD-7006801-0-0		1	HEAT SINK ASS'Y	
			A-PL-7006801-0-0		1	HEAT SINK ASS'Y (PL)	
			D-SC-1201265-0-0		1	HEAT SINK	
		55	D-CS-5408964-0-1		1	SERIES PASS BOARD	
			K-CO-5408964-0-4			X-Y HOLE LOCATIONS	
			D-MH-5408964-0-6		1	MOD ECO HISTORY	
		56	E-IA-5008963-0-0		1	ETCH BOARD	
			PC-5009963-0-0		1	PRINTED CIRCUIT LAYOUT	

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		57	D-UA-H955-LA-Ø		1	H955-L LOGO	H955
			A-PL-H955-LA-Ø		1	H955-L LOGO PL	
			D-DI-H955-Ø-1		1	H955 DWG INDEX LIST	
		58	D-IA-7409224-2-0		1	LOGO INLAY	
			A-PL-7409224-2-0		1	LOGO INLAY (PL)	
			C-SS-7409224-0-2		1	SILK SCREEN BLUE	
		59	D-UA-H955-LB-Ø		1	H955-L LOGO	H955
			A-PL-H955-LB-Ø		1	H955-L LOGO	
			D-DI-H955-Ø-1		1	H955 DWG INDEX LIST	
		60	D-IA-7409224-3-0		1	LOGO INLAY	
			A-PL-7409224-3-0		1	LOGO INLAY (PL)	
			C-SS-7409224-0-2		1	SILK SCREEN BLUE	
			C-SS-7409224-0-3		1	SILK SCREEN WHT	
	C X	61	D-AD-7008682-0-0	#	2	TTY INTF PNL ASS'Y	
	X		A-PL-7008682-0-0	#	2	TTY INTF PNL ASS'Y (PL)	
			B-MD-7409372-0-0		1	ROTARY SWITCH REWORK	
			D-MD-7409371-0-0		1	COVER AC	
			D-IA-7008683-0-0		2	HARNESS CABLE TTY PANEL	
			A-DC-7409429-0-0		1	DECAL	
			A-II-7008682-0-4		1	INSPECTION PROCEDURE	
		62	D-IA-7409346-0-0		1	PANEL TTY INTERFACE	
			D-SS-7409346-0-1		1	SILK SCREEN BLK LTRS	
		63	C-IA-7008684-0-0		1	COMPONENT BOARD ASS'Y	

TITLE	SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	B	DD	K11Ø-Ø	K

CUSTOMER PRINT SET	SET MFG.	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
	X	64	E-AD-7006671-1-0	#	1	INDICATOR PNEL ASS'Y (BAY 1)	
	X		A-PL-7006671-1-0	#	2	INDICATOR PANEL ASS'Y (PL)	
			E-IA-7407810-0-0		1	PLATE BEZEL MTG #1	
			C-MD-7407807-0-0		1	SLIDE	
			C-MD-7407820-1-0		1	SUPPORT SLIDE	
			E-MD-7408029-0-0		1	SUPPORT 30" INDICATOR	
			B-IA-7407822-0-0		1	BRKT LOCKING	
			A-DC-7409408-0-0		1	DECAL,"LAMP TEST" WHT/CLR	
			A-II-7006671-0-4		1	INSPECTION PROCEDURE	
		65	D-IA-7407821-0-0		1	BEZEL, IND MACH	
			A-PL-7407821-0-0		1	BEZEL, IND. CAST	
			B-MD-7408028-0-0		1	HINGE, IND BEZEL	
		66	E-IA-7407850-1-0		1	PANEL FRONT (BAY 1)	
			D-SS-7407850-0-1		1	SILK SCREEN FRONT WHT	
			D-SS-7407850-0-2		1	SILK SCREEN REAR BLK	
		67	D-CS-5409123-0-1		1	INDICATOR LIGHT BOARD	
			K-CO-5409123-0-4		1	X-Y HOL LOCATIONS	
			D-MH-5409123-0-6		1	MOD ECO ISTORY	
		68	E-IA-5009122-0-0		1	ETCH CIRCUI BOARD	
			PC-5009122-0-1		1	PRINTED IRCUIT LAYOUT	
	X	69	E-AD-7006671-2-0	#	1	INDICATOR P NEL ASS'Y (BAY 2)	
	X		A-PL-7006671-2-0	#	2	INDICATO PANEL ASS'Y (PL)	
			E-IA-7407810-0-0		1	PLATE BE EL MTG #1	
			C-MD-7407807-0-0		1	SLIDE	
			C-MD-7407820-1-0		1	SUPPORT LIDE	
			E-MD-7408029-0-0		1	SUPPORT 0" INDICATOR	
			B-IA-7407822-0-0		1	BRKT LOC ING	
			A-DC-7409408-0-0		1	DECAL, L MP TEST " WHT/CLR	
			A-II-7006671-0-4		1	INSPECTI N PROCEDURE	

CUSTOMER PRINT SET	SET MFG	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTIC NO.
			E-IA-7407850-2-0		1	PANEL FRONT (BAY 2)	
			D-SS-7407850-0-3		1	SILK SCREEN FRONT WHT	
			D-SS-7407850-0-2		1	SILK SCREEN REAR BLK	
	X	71	E-AD-7006671-3-0	#	1	INDICATOR PANEL ASS'Y (BAY 3)	
	X		A-PL-7006671-3-0	#	2	INDICATOR PANEL ASS'Y (PL)	
			E-IA-7408906-0-0		1	PLATE BEZEL MTG #2	
			C-MD-7407807-0-0		1	SLIDE	
			C-MD-7407820-1-0		1	SUPPORT SLIDE	
			E-MD-7408029-0-0		1	SUPPORT 30" INDICATOR	
			B-IA-7407822-0-0		1	BRKT LOCKING	
			A-DC-7409408-0-0		1	DECAL "LAMP TEST" WHT/CLR	
			A-II-7006671-0-4		1	INSPECTION PROCEDURE	
		72	E-IA-7407650-3-0		1	PANEL FRONT (BAY 3)	
			D-SS-7407850-0-4		1	SILK SCREEN FRONT WHT	
			D-SS-7407850-0-2		1	SILK SCREEN REAR BLK	
		73	E-AD-7008401-0-0		1	LOGIC FRAME & I/O CONN ASS'Y	
			A-PL-7008401-0-0		1	LOGIC FRAME & I/O CONN ASS'Y (PL)	
			C-MD-7409002-0-0		1	HANDLE, BRACE	
			E-AD-7006582-2-0		1	LOGIC FRAME ASS'Y BAY 2	
			A-PL-7006582-2-0		2	LOGIC FRAME ASS'Y BAY 2 (PL)	
			D-MD-7407756-0-0		1	STIFFENER, LOGIC FRAME	
			A-DC-5309970-0-0		1	DECAL BAY 2	
			B-IA-7409067-0-0		1	SPACER; WIRE WRAP	
			C-MD-7408507-0-0		1	HANDLE	
			A-SP-7665161-0-0			PROCESS SPEC	
			A-II-7006582-0-4		1	INSPECTION PROCEDURE	
			FIXTURE DWG REF				
			C-IA-9605824-0-0		1	LOCATING PIN HANDLE	

TITLE		SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR KI10 UNIT	SHEET 19 OF 22	B	DD	KI10-0	K

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CUSTOMER PRINT SET	SET MFG.	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		75	E-AD-7008356-0-0		1	GROUND PLANE ASS'Y BAY 2	
			A-PL-7008358-0-0		1	GROUND PLANE ASS'Y (PL)	
			C-MD-7408967-3-0		1	STRIP INSULATOR	
			D-MD-7407758-0-0		1	BAR MTG LOGIC FRAME	
			A-SP-7665161-0-0			PROCESS SPECS	
			A-II-7008358-0-4		1	INSPECTION PROCEDURE	
			FIXTURE DWG'S REF				
			E-MD-9605616-0-0		1	TOOLING PLATE	
		76	E-AD-7008378-0-0		1	I/O CONN PANEL ASS'Y (9TH RACK)	
			A-PL-7008378-0-0		1	I/O CONN PANEL ASS'Y PL	
			E-IA-7408000-0-0		1	I/O CONN PANEL	
			B-MD-7408963-0-0		1	RETAINER, LOGIC BAR	
			A-SP-K11Ø-Ø-3			PROCESS SPECS I/O CONN	
			A-II-7008378-0-4		1	INSPECTION PROCEDURE	
			B-DC-5309970-0-0		1	DECALS 9TH ROW	
			FIXTURE DRAWINGS REF				
			E-IA-9305469-0-0		1	I/O CONN LOCATING FIXTURE	
			D-IA-9605661-0-0		1	I/O CONN ALIGNMENT FIXTURE	
		77	C-AD-7008711-0-0		1	I/O CONN GND PLANE ASS'Y	
			A-SP-K11Ø-Ø-4			PROCESS SHEET I/O CONN	
			FIXTURE DRAWING REF				
			E-AD-9305449-0-0		1	OVEN FIXTURE I/O CONNECTORS	
			C-MD-9605659-0-0		1	I/O CONN GROUND LOCATING PLATE	
			B-MD-9305448-0-0		1	PIN GROUND PLANE LOCATING	
		78	D-IA-5009784-0-0		2	GND PLANE ASS'Y I/O CONN	
			A-SP-7665161-0-0			PROCESS SPEC	
		79	D-MD-5010122-0-0		2	GND PLANE PROT. SHEET	
			D-SS-5010122-0-1		1	SILK SCREEN	
		80	D-AD-7008452-0-0		1	GND PLANE ASS'Y 9TH RACK	
			A-PL-7008452-0-0		1	GND PLANE ASS'Y (PL)	
			C-MD-7408967-2-0		1	STRIP INSULATOR GND PLANE	
			D-MD-7408962-0-0		1	BAR MTG LOGIC (5 BLOCK)	
			D-MD-5009956-0-0		1	GND PLANE PROT SHEET	

CUSTOMER PRINT SET	SET MFG	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
			A-SP-7665161-0-0		-	PROCESS SPEC	
			FIXTURE DRAWINGS REF				
			E-MD-9605616-0-0		1	TOOLING PLATE	
		81	D-IA-5009785-3-0		2	GROUND PLANE ASS'Y	
			D-SS-5009785-0-1		1	SILK SCREEN (HOLES)	
		82	D-UA-H955-BA-Ø		2	30 IN FULL DOOR H955-B R.H.	H955
			A-PL-H955-BA-Ø		1	30 IN FULL DOOR H955-B (PL)	
			D-DI-H955-0-1		1	DWG INDEX LIST	
		83	D-UA-H955-CA-Ø		2	30 IN FULL DOOR H955-C L.H.	H955
			A-PL-H955-CA-Ø		1	30 IN FULL DOOR H955-C (PL)	
			D-DI-H955-Ø-1		1	DWG INDEX LIST	
		84	C-UA-H950-Q-Ø		1	H950 Q 19 IN COVER PNL 10 1/2"	H950
			A-PL-H950-Q-Ø		1	H950Q 19 IN COVER PNL (PL)	
			D-DI-H950-Ø-1		1	H950 DWG INDEX LIST	
	X	85	D-UA-H704-C-Ø	#	1	H704-C POWER SUPPLY (115 VAC)	H704
	X		A-PL-H704-C-Ø	#	2	H704-C POWER SUPPLY (PL)	
	X	85	D-UA-H704-H-Ø	#	1	H704-H P. SUPPLY (230VAC)	H704
	X		A-PL-H704-H-Ø	#	1	H704 POWER SUPPLY (PL)	

TITLE	SHEET	SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	SHEET 20 OF 22	B	DD	K11Ø-Ø	K

CUSTOMER PRINT SET								MECHANICAL								CUSTOMER PRINT SET								MECHANICAL					
K11Ø-Ø							MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.									MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.	
							X	86	D-AD-7005865-0-0	#	1	BRKT POWER CONN ASSY																
							X		A-PL-7005865-0-0	#	1	BRKT POWER CONN ASSY (PL)																
									D-MD-7406729-0-0		1	BRKT POWER CONN																
C								87	A-ML-PCØ4-Ø	#	2	PC04 READER & PUNCH (60HZ) PCØ4-CL	PC04-CL																
							X		D-UA-PC04-0-0	#		PC04 READER & PUNCH PC04-CL																
							X		A-PL-PC04-0-0	#		PC04 READER & PUNCH PC04-CL																
C								87	A-ML-PCØ4-Ø	#	2	PCØ4 READER & PUNCH (50HZ) PCØ4-CM	PC04-CM																
							X		D-UA-PC04-0-0	#		PC04 READER & PUNCH PC04-CM																
							X		A-PL-PC04-0-0	#		PC04 READER & PUNCH PC04-CM																
								88	D-UA-LT35-AA-Ø		1	PDP 1Ø TELETYPE 35 KSR (60 HZ)																
									A-PL-LT35-AA-Ø		2	PDP 1Ø TELETYPE 35 KSR (PL)																
								88	D-UA-LT35-AB-Ø		1	PDP 1Ø TELETYPE 35 KSR (50 HZ)																
									A-PL-LT35-AB-Ø		2	PDP 1Ø TELETYPE 35 KSR (PL)																

TITLE	SHEET	SIZE	CODE	NUMBER	REV
ARITHMETIC PROCESSOR K11Ø UNIT	SHEET 21 OF 22	B	DD	K11Ø-Ø	K

CUSTOMER PRINT SET KI1Ø-Ø	CUSTOMER PRINT SET KI1Ø-A	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			1	SIMPLIFIED			(TRAINING) FLOW CHARTS	
	X			D-FD-KI1Ø-A-BIF 1	*	1	BASIC INSTRUCTION FLOW 1	
	X			D-FD-KI1Ø-A-BIF 2	*	1	BASIC INSTRUCTION FLOW 2	
	X			D-FD-KI1Ø-A-BIF 3	*	1	BASIC INSTRUCTION FLOW 3	
	X			D-FD-KI1Ø-A-BLT	*	1	BLT INSTRUCTION	
	X			D-FD-KI1Ø-A-BYTF	*	1	BYTE & SHIFT INSTRUCTION FLOW	
	X			D-FD-KI1Ø-A-CLKF	*	1	CLOCK FLOW	
	X			D-FD-KI1Ø-A-DFAS	*	1	DOUBLE FLOATING ADD&SUBTRACT	
	X			D-FD-KI1Ø-A-DFD	A	1	DOUBLE FLOATING DIVIDE	
	X			D-FD-KI1Ø-A-DFMM	B	1	DOUBLE FLOATING MULTIPLY	
							& DOUBLE MOVES	
	X			D-FD-KI1Ø-A-DMJF	*	1	DIVIDE MULTIPLY JFFO FLOW	
	X			D-FD-KI1Ø-A-DN	*	1	DOUBLE NORMALIZF	
	X			D-FD-KI1Ø-A-ECF	*	1	EXECUTE CYCLE	
	X			D-FD-KI1Ø-A-FASU	*	1	FLOATING ADD, SUBTRACT & UFA	
	X			D-FD-KI1Ø-A-FC	*	1	FETCH CYCLE	
	X			D-FD-KI1Ø-A-FD	*	1	FLOATING DIVIDE	
	X			D-FD-KI1Ø-A-FMM	*	1	FLOATING MULTIPLY & MISC	
							FLOATING POINT INSTRUCTIONS	
	X			D-FD-KI1Ø-A-IC	A	1	INSTRUCTION CYCLE	
	X			D-FD-KI1Ø-Ø-IFF	←	1	INSTRUCTION FETCH FLOW	
	X			D-FD-KI1Ø-Ø-IOBT	←	1	I/O BUS TIMING	
	X			D-FD-KI1Ø-A-IOT	*	1	IOT FLOW	
	X			D-FD-KI1Ø-A-KLF1	*	1	KEY LOGIC FLOW	
	X			D-FD-KI1Ø-A-KTF	*	1	KEY TIMING FLOW	
	X			D-FD-KI1Ø-Ø-MC1	←	1	MEMORY CONTROL (SUB ROUTINE	
							CALL & PAGE DELAY)	
	X			D-FD-KI1Ø-Ø-MC2	←	1	MEMORY CONTROL (PAGE CHECK.	
							MEM GO & RECYCEL)	
	X			D-FD-KI1Ø-Ø-MC3	←	1	MEMORY CONTROL (REQUEST	
							CYCLE & READ RESTART)	
	X			D-FD-KI1Ø-Ø-MC4	←	1	MEMORY CONTROL (READ RETURN	
							& REFILL REENTRY)	
	X			D-FD-KI1Ø-Ø-MC5	←	1	MEMORY CONTROL WRITE RESTART	
	X			D-FD-KI1Ø-Ø-MC6	←	1	MEMORY CONTROL AC REFERENCE	
							(READ)	
	X			D-FD-KI1Ø-A-NRF	A	1	FLOATING NORMALIZE & ROUND	
	X			D-FD-KI1Ø-Ø-OF1	←	1	OVERVIEW FLOW 1	
	X			D-FD-KI1Ø-Ø-OF2	←	1	OVERVIEW FLOW 2	
	X			D-FD-KI1Ø-A-PFF	A	1	PAGE FAIL FLOW	
	X			D-FD-KI1Ø-A-PII	*	1	PI INSTRUCTION	
	X			D-FD-KI1Ø-A-PIRF	A	1	PI REQUEST CYCLE	
	X			D-FD-KI1Ø-Ø-PTP	←	1	PAPER TAPE PUNCH FLOW	
	X			D-FD-KI1Ø-Ø-PTR	←	1	PAPER TAPE READER FLOW	

CUSTOMER PRINT SET KI1Ø-Ø	CUSTOMER PRINT SET KI1Ø-A	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
	X			D-FD-KI1Ø-Ø-REG	←	1	REGISTER INTERCONNECTIONS	
	X			D-FD-KI1Ø-A-SC	*	1	STORE CYCLE	
	X			D-FD-KI1Ø-Ø-SCON	←	1	SHIFT CONNECTIONS	
	X		1	D-FD-KI1Ø-A-SCS	*	1	SHIFT COUNT SUBROUTINE	
	X			D-FD-KI1Ø-Ø-TTIF	←	1	TELETYPE INPUT FLOW	
	X			D-FD-KI1Ø-Ø-TTOF	←	1	TELETYPE OUTPUT FLOW	

CUSTOMER PRINT SET CODES

X = PRINT OF DOCUMENT INCLUDED IN PRINT SET
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

← = DUPLICATE ENTRY. SEE SHEET 8 FOR REVISION CONTROL.

TITLE ARITHMETIC PROCESSOR KI10 UNIT (TRAINING FLOW CHARTS)

SHEET 22 OF 22

SIZE	CODE	NUMBER	REV
B	DD	KI1Ø-Ø	A

DRB 108

DEC 16-(325)-1062-2B-R972

IR ADSUB

270 - 277
IR = Ø1Ø 111 XYY
IR 2XX IR ADSUB

X specifies add or subtract
IR ADDX = IR ADSUB ∧ IR Ø6(Ø)
IR SUBX = IR ADSUB ∧ IR Ø6(1)
YY specifies mode (general IR Ø7-Ø8 decoding)

Action
Basic AC ± C(E) → AC
Immediate AC ± (Ø, E) → AC
Memory AC ± C(E) → E
Both AC ± C(E) → AC, E

Switches
~IR XXXI : FCE (~Immediate)
IR Ø7 (1): FCE PSE (Memory or Both)
IR XXXM: SAC INH (Memory)

F CYC START

Operand and next instruction fetch according to mode:

Basic	FCE	C(E) → AR	MC INST FETCH START EN
Immediate	~F MEM REF	AR = Ø, E	MC INST FETCH NEXT EN
Memory, Both	FCE PSE	C(E) → AR	MC INST FETCH START EN

See Fetch cycle (F) — See MC1

F CYC ACT EN

AD FM+ FETCH EN A → AD FM+ EN A, ∧ AD ADD EN C
IR ADDX: AD AR+ EN C
IR SUBX: AD AR- EN, AD CRY 36
ET2

170ns

ARF STRB ET2 → AR AD EN C
∧ PI CYC(Ø): ARF STRB
∧ AD CRY Ø: AR CRY Ø EN
∧ AD CRY 1: AR CRY 1 EN
∧ AD CRY Ø ≠ AD CRY 1: AR OV EN, TN 1 EN
ST1 COND → ST1
∧ ~SAC INH: FM WR EN (~Memory)

ET2

110ns

ST1

~FCE PSE (~STORE MEM) — Basic, Immediate — CLK EN INST DONE → Go to Instruction cycle (IC)

FCE PSE (STORE MEM) — Memory, Both — ST2 COND

Write restart or AC write to write result in E → see store cycle (S)

110ns MCRSTØ

ST2 — CLK LONG CYCLE, ST5

170ns

ST5 — CLK EN INST DONE

Go to Instruction cycle (IC)

IR BOOLE

400 - 477
IR = 100 XXX YYY

XXXX specifies Boolean function, decoded in groups
IR BOOLE AD AR+ F = 1-3, 6, 11, 15, 16
IR BOOLE AD FM+ F = 1, 4, 5, 11, 13, 16
IR BOOLE AD FM- F = 2, 6, 7, 10, 12, 15
IR BOOLE (4, 7, 10, 13, 14) = 4, 7, 10, 13, 14
IR BOOLE (6, 11) = 6, 11
YY specifies mode (general IR Ø7-Ø8 decoding)

Action

Basic	f [AC, C(E)] → AC
Immediate	f [AC, (Ø, E)] → AC
Memory	f [AC, C(E)] → E
Both	f [AC, C(E)] → AC, E

Switches
~IR XXXI ∧ ~IR XX(Ø, 5, 12, 17): FCE (~Immediate; 2 words or memory word only)
IR Ø7(1) ∧ ~IR XX(Ø, 5, 12, 17): FCE PSE (Memory or Both; 2 words or memory word only)
IR XX(7, 13, 15, 16): ETØ EN (Complement)
IR XXXM: SAC INH (Memory)
IR Ø7(1) ∧ IR XX(Ø, 5, 12, 17): SCE (Memory or Both; no operand or AC operand only)

F CYC START

Operand and next instruction fetch according to mode and function:

Basic			
Ø, 5, 12, 17	~F MEM REF	AR = Ø, E	MC INST FETCH NEXT EN
~(Ø, 5, 12, 17)	FCE	C(E) → AR	MC INST FETCH START EN
Immediate	~F MEM REF	AR = Ø, E	MC INST FETCH NEXT EN
Memory, Both			MC INST FETCH START EN
Ø, 5, 12, 17	SCE	AR = Ø, E	
~(Ø, 5, 12, 17)	FCE PSE	C(E) → AR	

See fetch cycle (F) — See MC1

F CYC ACT EN

IR BOOLE (6, 11): AD EQV
IR BOOLE AD AR+ F: AD AR+ EN C
IR BOOLE (4, 7, 10, 13, 14): AD AR- EN
IR BOOLE AD FM+ F: AD FM+ EN
IR BOOLE AD FM- F: AD FM- EN
IR X00X: AD MSK EN B

~ETØ EN — ET2

ETØ EN Functions requiring complement — ETØ

110ns

ETØ — AR AD EN A, AD AR- EN, ET2

110ns

ET2 — AR AD ET2 EN → AR AD EN A, ST1 COND → ST1, ∧ ~SAC INH: FM WR EN (~Memory)

110ns

ST1

~FCE PSE ∧ ~SCE (~STORE MEM) — Basic, Immediate — CLK EN INST DONE → Go to Instruction cycle (IC)

FCE PSE ∨ SCE (STORE MEM) — Memory, Both — ST2 COND

Write restart or AC write to write result in E → see store cycle (S)

110ns MCRSTØ

ST2 — CLK LONG CYCLE, ST5

170ns

ST5 — CLK EN INST DONE

Go to Instruction cycle (IC)

IR XMULX

220 - 227
IR = Ø1Ø Ø1Ø XYY — IMULX 220-223 — MULY 224-227
IR 2XX

X specifies operand type
IR IMULX = IR XMULX ∧ IR Ø6(Ø) (220-223)
YY specifies mode (general IR Ø7-Ø8 decoding)

Action

	IMULX: Store only low order half of product	MULX: Store double length product or only high order half
Basic	AC X C(E) → AC	AC X C(E) → AC, AC2
Immediate	AC X (Ø, E) → AC	AC X (Ø, E) → AC, AC2
Memory	AC X C(E) → E	AC X C(E) → E
Both	AC X C(E) → AC, E	AC X C(E) → AC, AC2; E

Switches
By IR XMULX: ETØ EN, ET1 EN, IR MPY, IR XXXM: SAC INH (Memory)
By IR XMULDIVX = IR XMULX ∨ IR XDIVX: ~IR XXXI: FCE (~Immediate); IR Ø7(1): SCE (Memory, Both); ~IR XXXM ∧ IR Ø6(1): SAC2 (MULX ~Memory)

F CYC START — AB = AD = AR = Ø, E

Multiplicand and next instruction fetch according to mode:

Basic	FCE	C(E) → AR	MC INST FETCH START EN
Immediate	~F MEM REF	AR = Ø, E	MC INST FETCH NEXT EN
Memory, Both	FCE, SCE	C(E) → AR	MC INST FETCH START EN

See Fetch cycle (F) — See MC1

F CYC ACT EN

AD FM+ EN A (Multiplier)
SCAD -22 EN (18 count, no signal)
SCAD DATA EN
CLK LONG CYCLE
ETØ

170ns

ETØ

SC SCAD ENC (Count → SC)
AD Ø0(1) ∧ AR Ø0(1): FLAG 3 EN (May overflow)
MQ AD EN A (Multiplier)
BR AR EN (Multiplicand)
AR CLR A
AD AR+ EN C
SC SUBR EN → SCT2

MPY FCN enables →
(~MPY FLAG 1 = MQ 35 IN) ∧ ~ MQ 34 IN: AD BR+ EN
(FLAG 1(Ø) ∧ MQ 34 IN ∧ ~ MQ 35 IN) ∨
(FLAG 1(1) ∧ ~MQ 34 IN ∧ MQ 35 IN): AD BR + 2 EN
(~MPY FLAG 1 = MQ 35 IN) ∧ MQ 34 IN: AD BR- EN, AD CRY 36
~MPY SHIFT STEP: AD ADD EN D
MQ 34 IN ∧ MQ 35 IN: FLAG 1 EN
~MQ 34 IN: FLAG 1 CLR

110/170ns

SC 4-8≠37 (Equivalent to ~SC+1 = Ø)

SCT2

AR SH RT2 EN
ARI SR2 COND
MQ SH RT2 EN (AD 34 → MQ Ø0)
MQ SH ORDINARY → MQ Ø1 GETS AD 35
~SC+1 = Ø: AD AR+ EN B
SC SC+1 EN

SCTC DONE (= SC+1 = Ø)

~SC+1 = Ø — SCT2

AD MPY FINAL → AD AR+ EN B, CLK LONG CYCLE (CLK MAX EN)
AD Ø0-Ø5 BR+2(1) ∧ MQ 34(1): MPY CORRECTION → AD BR- EN, AD ADD SC TERM → AD ADD EN D, AD CRY 36
ET1

170/230ns

IR Ø7(1) Memory or Both → Start memory write subroutine (MC2)

MPY SHIFT STEP = (FLAG 1(Ø) ∧ ~ MQ 34 IN ∧ ~ MQ 35 IN) ∨ (FLAG 1(1) ∧ MQ 34 IN ∧ MQ 35 IN)

Procedure for Adding Partial Products

MQ 34-35 IN	FLAG 1(Ø)	FLAG 1(1)
Ø Ø	Shift only	Add once, clear flag
Ø 1	Add once	Add twice, clear flag
1 Ø	Add twice	Subtract, leave flag set
1 1	Subtract, set flag	Shift only, leave flag set

ET1

AR SH LT B (Position high product)
ARI SH LT COND
MQ Ø0(1): ARMC AR 35 AUX MIX
FLAG 1 EN
IR IMULX: CLK LONG CYCLE
∧ AD Ø1(Ø): AD AR+ EN
∧ AD Ø1(1): AD AR- EN
ET2

110/170ns

ET2

AR Ø0(1) ∧ FLAG 3(1): ARF OV SET
∧ PI CYC(Ø): AR OV EN, TN 1 EN
IR IMULX ∧ ~ AD = Ø ∧ PI CYC(Ø): ARF OV ET2 EN, AR OV EN, TN 1 EN
IR IMULX: AR MQ EN A
∧ [∧ FLAG 1(1)] → ARI AR Ø0 SELF (ARI AR Ø0 SELF DATA / ARI AR Ø1 AUX DATA 1 / ARI AR Ø2 AUX DATA)
FLAG 1(1) → ARI MQ Ø0 INH
ST1 COND → ST1
∧ ~SAC INH: FM WR EN (~Memory)

110ns

MULX: high product → AC
IMULX: product → AC

ST1

SAC2: FMC AC2 EN B (MULX ~Memory)

IMULX Basic or Immediate — IR IMULX ∧ ~SCE — CLK EN INST DONE → Go to Instruction cycle (IC)

MULX Basic or Immediate — SAC2 ∧ ~SCE — ST4

Memory or Both — SCE (STORE MEM) — ST2 COND

Write restart or AC write to write one word of product in E — see store cycle (S)

110ns MCRSTØ

ST2 — CLK LONG CYCLE

SAC2 MULX Both — Memory or IMULX Both

MC STORE IN AC(1) (ST3 COND) — ST3

~ST3 COND — ST4

~SAC2 — ST5

170ns (See S) — ST3 — ST4

170ns — ST4

110ns

ST4

AR MQ EN A
[∧ FLAG 1(1)] → ARI AR Ø0 SELF (ARI AR Ø0 SELF DATA)
FLAG 1(1) → ARI MQ Ø0 INH
ST5 COND A → ST5
FM WR EN A (Low product → AC2)

110ns

ST5 — CLK EN INST DONE

Go to Instruction cycle (IC)

BOOLEAN FUNCTIONS

F CYC ACT / ETØ	Ø SETZ	1 AND	2 ANDCA	3 SETM	4 ANDCM	5 SETA	6 XOR	7 IOR	10 ANDCB	11 EQV	12 SETCA	13 ORCA	14 SETCM	15 ORCM	16 ORCB	17 SETO
	MSK	AR+ FM+	AR+ FM-	AR+	AR- FM+	FM+	AR+ FM- EQV	AR- FM-	AR- FM-	AR+ FM+ EQV	FM-	AR- FM+	AR-	AR+ FM-	AR+ FM+	
								COM				COM		COM	COM	

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C CIAMPA — DATE 6/30/73
CHK'D W ENGLISH — DATE 6/30/73
ENG. Allen Kent — DATE 1st Nov 73
PROJ ENG Allen Kent — DATE 1st Nov 73
PROD Allen Kent — DATE 1st Nov 73
NEXT HIGHER ASSY B-BL-KI11 /
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ADD - SUBTRACT, BOOLE, MULTIPLY

SIZE D | CODE FD | NUMBER KI10-0-ASBM | REV —
DIST

REVISIONS — ECO# KI10-00041 — ORIGINATED — CHK — — — REV —

FORM 102-B

IR BLT
251
IR = 010 101 001
IR 2XX IR 25X

Action	Switches
S = Source address (AC LT)	ET0 EN
D = Destination address (AC RT)	ET1 EN
C(S) → C(D)	PC CHANGE
S+1 → S D+1 → D	TN CLR INH
Repeat until D = E	ST INH
WC = E - AC RT + 1 if > 0, otherwise	WC = 1

IT1 — PC+1 INH IN
F CYC START — FMC AC EN A
AD = AR = 0, E
MB 14-17 = 0 | ~MB 14-17 = 0 — AD AR+ EN E, ET6
110 ns
Compute - WC = -E-1+D
F CYC ACT EN — AD AR - EN A (-E-1); AD FM+ FETCH EN A; AD FM+ EN (S,D); AD ADD EN C; AD+1 LT (Load S)
170 ns
ET0 — AR AD EN A (S,-WC); AD 17.5(1): FLAG 3 EN (E<D); BLTF1 EN; ET1
110 ns
ET1 — AR RT AR LT EN (S); FLAG 3(0): AR LT AR RT EN (-WC); FLAG 3(1): AR LT AD EN (All 1's; WC=1); AD FM+ EN B (S,D); AD ADD EN D (D-1 → AB); ET2
170 ns
ET2 — BR AR EN (-WC,S); AR PC EN (Save PC); ST AD AR+ ET2 EN → AD AR+ EN B; PC CLK (ET2) ENA → PC+1 INH CLR; ↳ B,C → PC CLK EN (D-1 → PC); BLTT0
110 ns
BLTT0 — MQ AD EN A (Real PC); AD BR+ EN B (-WC,S); AD ADD EN E → D (S → AB); AD MSK GEN EN; CLK LONG CYCLE (CLK MAX EN); BLTT1
230 ns

BLTT1 — AR AD EN E (New - WC, S)
~AD CRY 0 ∧ PI RDY SYNC (0) — Continue BLT
MC SYNC READ EN; AB AD CLK INH; BLTT2
AB AB EN
110 ns
BLTT2 — BR AR EN (-WC,S); MC SYNC READ EN; CLK MISC INH → AR CLR A; BLTT3
OPERAND READ; MC RST1
C(S) → AR
MC SYNC READ (1) ∧ PAGE SYNC REFILL (0)
BLTT3 — AB PC EN A (D → AB); ↳ AB FF CLR; BLTT4
110 ns
BLTT4 — MC STORE TIME → CLK INH; ↳ MC SYNC WRITE EN; MB CLOCK EN (Clear MB); ST1
AB AB EN
PAGE CHECK; MC PAGE DLY OVER
Check D
PAGE OK ∧ MC SYNC READ (0) ∧ MC ASYNC START (0)
ST1 — PC CLK EN (BLT) (D+1 → PC); ST2 COND
Write restart or AC Write to Write word in D — See Store cycle (S)
110 ns; MC RST0
ST2 — AB AD EN → AB FF CLR; AD BR+ EN B (-WC,S); ST2 BR+1 → AD+1 LT; (-WC+1, S+1) → AD MSK EN A; ↳ AD ADD; ↳ AD CRY 36; CLK LONG CYCLE (CLK MAX EN); BLTT1
230 ns

AD CRY 0
BLT finished — PI CYC (0): TRAP SATISFIED; BLTT8
110 ns
~AD CRY 0 ∧ PI RDY SYNC (1) — PI before BLT finished
11 0 ns
BLTT7 — AR PC EN . (Next D); AR LT AR RT EN (Next S); FM WR EN A (Save next S, D in AC); PC+1 INH IN; PFF1 (1): AD MAGIC END (Page fail word); CLK LONG CYCLE; BLTT8
110/170 ns
BLTT8 — AR MQ EN (Get real PC); AD AR+ EN D; AB AD EN → AB FF CLR; Clear BLTF1; MQ AD EN A (Save fail word, if any); BLTT9
110 ns
BLTT9 — PC CLK EN (BLT) (Put real PC in PC); AB PC EN A → AB FF CLR; ST1
PFF1(1): STORE
PFF1(0)
110 ns
PFF1(1) — MC STORE TIME → CLK INH; ↳ MC SYNC WRITE EN; CLK MISC INH → AR CLR A; AR MQ EN A (Fail word); MA SPECIAL EN A → MA SPECIAL EN; ↳ MA SPECIAL UBR EN
MA SPECIAL EN A; ↳ AB AB EN
PAGE CHECK; MC PAGE DLY OVER
MA SPECIAL (1) → PAGE OK
[PAGE OK ∧ MC SYNC READ (0) ∧ MC ASYNC START (0)]
ST1 — MC INST FET ST1 EN A → MC INST FETCH EN
Fetch next instruction (MC1)
ST2 COND
Write restart to write page fail word in user process table — see store cycle (S)
MC RST0
STORE: STORE MEM → ST2 COND
ST2 — AB AD EN → AB FF CLR; CLK LONG CYCLE; CLK EN INST DONE; CLK PSEUDO INST DONE; IT2 COND → IT2; ↳ Clear KEY CYCLE
Go to Instruction cycle for trap (IC)

PAGE FAILURE IN BLT (See PF)
PFT0 — MA STATE CLR FF EN; BLTT5
State clear
PF CLK START — PF SYNC CLEAR; MA STATE CLR FF CLEAR
BLTT5 — AD BR+ EN B (-WC, S); PFF1 SET → TRAP PAGE FAULT EN; ↳ PFF1 EN; BLTT6
110 ns
BLTT6 — AR AD EN E (-WC,S); BLTT7
TRAP PAGE FAULT (1)
TN CLR INH

PFF1(1): MA SPECIAL 27,31
MA SPECIAL 33
MA SPECIAL 34
PFF1(1) ∧ USER MODE (1): MA SPECIAL 35
Location 426 or 427

~ST2 COND
CLK EN INST DONE
Return to Instruction cycle (IC)

REVISIONS			
CHK	CHANGE NO	REV	
✓	KI10-00041	A	REDRAWN. OLD DWG IS NOW D-FD-KI10-A-BLT
	A KENT		A Kent 17 Dec 73

DRAWING 40-322 19640 DEC FORM NO DRQ 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005; .XX = .02; .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRWN. A. Stephenson — DATE 12/7/72
CHK'D. David Gross — DATE 3 Jan 72
ENG. Wm Kotok — DATE 3 Jan 72
PROJ. ENG. Allen Kent — DATE 3 Jan 72
PROD. M Smith — DATE 3 Jan 72
NEXT HIGHER ASSY. B-DD-KI10-0
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BLOCK TRANSFER

SIZE D | CODE FD | NUMBER KI10-0-BLT | REV. A
DIST.

BYTE 133-137 — IR = ØØ1 ØØ1 / IR 1XX IR 13X { ØØ1 — IR XXXS; 1ØØ, 1Ø1, 11Ø, 111 } IR ØG(1) — IR IBP 133 — IR ILDB 134 — IR LDB 135 — IR IDPB 136 — IR DPB 137

BYTE FIRST PART

= IR 13X ∧ (IR ØG(1) ∨ IR XXXS) ∧ BYF5(Ø)

BYF5-6 SET = IR 13X ∧ IR ØG(1) ∧ BYF5(Ø) ∧ ~ CLK PSEUDO INST DONE

BYTE PTR INC = (IR IBP ∨ IR ILDB ∨ IR IDPB) ∧ BYF5(Ø) ∧ BYFG(Ø)

BYTE PTR ~INC = IR 13X ∧ IR ØG(1) ∧ BYF5(Ø) ∧ (IR ØØ(1) ∨ BYFG(1))

Action: IBP, ILDB, IDPB: Fetch and increment pointer in E
If P-S ≥ Ø: P-S → P
If P-S < Ø: Y+1 → Y, 36-S → P
LDB, DPB: Fetch pointer from E

Pointer format: P (Ø-5) | S (6-11) | 12 | I (13) | X (14-17) | Y (18-35)

Switches: FCE; BYTE PTR INC: ~FCE PSE; ETØ EN; BYTE PTR INC ∧ ~IR IBP: BYTE MB CLR INH; ~IR IBP: PC CHANGE; BYF5-6 SET: TN CLR INH; IR 13X ∧ IR ØG(1): MSK GEN EN

BYTE PTR INC

AB = AD = AR = Ø, E

F CYC START → AB AB EN

MC SYNC READ EN
MC SYNC WRITE EN
AB AD CLK INH
CLK INH
IR IBP: MC IN FET COND → MC AUTO IN FET A → MC INST FETCH START EN
FT6

POINTER READ MCRST1 — C(E) → AR

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø)

F CYC ACT EN (FT6) → 23Ø ns → ETØ → 17Ø ns → ET2

P-S:
SCAD AR POS EN
SCAD -SIZE EN → SCAD +1 → SCAD ADD
CLK LONG CYCLE (CLK MAX EN)
ETØ

Y+1:
AD ADD EN C
AD AR + EN C
AD BR + EN A
AD BR - EN A
AD CRY 36
AD -1 LT

SCAD Ø (1): AR AD EN A (Y+1 → Y)
~SCAD CRY Ø: SCAD + 44 EN (36)
SCAD CRY Ø: SCAD AR POS EN (P)
SCAD - SIZE EN → SCAD ADD → SCAD +1 (P-S or 36-S)
AD ADD EN D (Generate mask
AD MSK EN B with S is at right)
ET2

MQ AD EN A (save mask)
SC SCAD EN C (P → SC)
AR POS SCAD EN → AR 12-17 SELF B → AR RT AR RT (ARI AR Ø1 AUX DATA 1) → AR RT AUX EN
~IR IBP: MB AR EN B

Insert P (which may be new) into pointer by SCAD 3-8 → ARXR Ø-Ø5 & AD Ø6-11 self via ARI inputs

~IR IBP → INST RDY SET

IR LDB ∨ IR DPB (~STORE MEM) → CLK EN INST DONE → BYF5 EN, BYF6 EN

IR IBP ∨ IR ILDB ∨ IR IDPB (FCE PSE) → ST1 COND → 11Ø ns → ST1 → ST2 COND

Write restart or AC write to write incremented pointer back in E - see store cycle (S)

11Ø ns → MCRSTØ → ST2 → CLK LONG CYCLE ST5 → 17Ø ns → ST5

CLK EN INST DONE
∟ ∧ BYF5-6 SET: BYF5 EN, BYF6 EN (ILDB, IDPB)
∟ ∧ ~ BYF5-6 SET: IR MB EN (IBP)

Return to Instruction cycle (IC)
For IBP, go on to next instruction
For others, simulate INST RDY - INST DONE synchronization and use instruction cycle to calculate byte effective address from pointer. At IT1, BYF5(1) inhibits MQ CLR A so as not to disturb mask. Continue with second part of byte instruction at right above unless address calculation is interrupted.

BYTE PTR ~INC

F CYC START → AB AB EN

MC SYNC READ EN
AB AD CLK INH
CLK INH
FT6

POINTER READ MCRST1 — C(E) → AR

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø)

F CYC ACT EN (FT6) → 17Ø ns → ETØ

SCAD AR POS EN (P)
AD ADD EN C (Generate mask
AD MSK EN B with S is at right)
ET2

AR ← MASK ← Ø; XDPB SHIFT; MQ ← BYTE ← Ø

XLDB SHIFT: AR ← BYTE → Ø

BYTE XDPB PART 2

= BYTE XDPB ∧ BYF5(1)

BYTE XDPB = IR DPB ∨ IR IDPB

Action: Byte in AC → byte in E

Switches: FCE; ETØ EN; SCE; AC INH; ET1 EN

AB = AD = AR = Ø, E

F CYC START → AB AB EN

MC SYNC READ EN
MC SYNC WRITE EN
MC SPLIT CYC COND
MC IN FET COND → MC AUTO IN FET A → MC INST FETCH START EN
FT6

BYTE WORD READ MCRST1 — C(E) → AR

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø)

F CYC ACT EN (FT6) → 17Ø ns → ETØ

AD FM + EN A (AC)
SCAD NEGATE A → SCAD ADD; SCAD +1; SCAD SC - EN; SCAD DATA EN (-P)
SCØ(1): SCAD - 1ØØ EN (-64)
ETØ

BR AR EN (Word → BR)
AR MQ EN A (Mask → AR)
MQ AD EN A (AC → MQ)
SC SCAD EN C

SCAD CRY Ø → AD BR + EN A, AD AR - EN, ET1 — Mask out byte part of word

MC WR SUBR EN → Start memory write subroutine (MC2)

~SCAD CRY Ø → AD AR + EN C, SC SUBR EN → SCT2 → 11Ø ns → SCT2 → AR GO LEFT → AR SH LT B → MQ SH LT A — Shift mask and byte to correct position

~SC + 1 = Ø → SCTC DONE

AD AR + EN B, SCT2

SCTC DONE → Mask out byte part of word

BYTE DPB SH EXIT → AD BR + EN A, AD AR - EN, ET1

MC WR SUBR EN → Start memory write subroutine (MC2)

11Ø ns → ET1 → AR AD BR (ET1) → BR AR EN (Mask → BR); AR MQ EN A (AC → AR); MQ AD EN A (word → MQ); AD AR + EN B (Mask out rest of AC); AD BR + EN A outside of byte); ET2

11Ø ns → ET2 → AR AD BR (ET1) → AR AD ET2 EN, AR AD EN A; AR MQ EN A; BYFG CLR; ST1 COND — OR byte into vacated part of word

11Ø ns → ST1 → ST2 COND

Write restart or AC write to write word with byte inserted back into E - see store cycle (S)

11Ø ns → MCRSTØ → ST2 → CLK LONG CYCLE ST5 → 17Ø ns → ST5 → CLK EN INST DONE

Go to Instruction cycle (IC)

BYTE XLDB

= IR LDB ∨ IR ILDB

Action: Byte in E → AC

Switches: FCE; ETØ EN; ET1 EN

F CYC START → AB AB EN

MC SYNC READ EN
AB AD CLK INH
CLK INH
MC IN FET COND → MC AUTO IN FET A → MC INST FETCH START EN
FT6

BYTE WORD READ MCRST1 — C(E) → AR

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø)

F CYC ACT EN (FT6) → 17Ø ns → ETØ → SC SCAD EN C

SCAD NEGATE A → SCAD ADD; SCAD +1; SCAD SC - EN; SCAD DATA EN (-P)
SCØ(1): SCAD - 1ØØ EN (-64)
ETØ

SCAD CRY Ø → ET1 → AD AR + EN C, SC SUBR EN → SCT1 → 11Ø ns → SCT1 → SCØ(1): AR SH RT A → AR CLR A, SC SH RT EN

~SCAD CRY Ø → Do a single 1-place shift if odd

~SC + 1 = Ø → SCT2 → AD AR + EN B → 11Ø ns → SCT2 → AR SH RT 2 EN, SC SC + 1 EN — Right-justify byte

~SC + 1 = Ø → SCTC DONE → ET1

11Ø ns → ET1 → AR AD BR (ET1) → BR AR EN (Justified word → BR); AR MQ EN A (Mask → AR); AD AR + EN B (Mask out rest of word); AD BR + EN A outside of byte); ET2

11Ø ns → ET2 → AR AD EN A (Byte → AR); BYFG CLR; ST1 COND → FM WR EN

11Ø ns → ST1 → CLK EN INST DONE

Go to Instruction cycle (IC)

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005; .XX ± .02; .X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN M. Stephenson 1/14/72
CHK'D David Gross 31 Jan 72
ENG Alan Kotok 31 Jan 72
PROJ. ENG. Allen Kent 31 Jan 72
PROD Al Mullin 31 Jan 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BYTE INSTRUCTIONS

NEXT HIGHER ASSY. B-DD-KIIØ-Ø
SCALE —
SHEET 1 OF 1

SIZE D | CODE FD | NUMBER KIIØ-Ø-BYTE | REV. A | DIST.

REVISIONS	CHK	REV
CHANGE NO		—
KIIØ-00041		—
ORIGINATED		A
KIIØ-00043		A

A. KENT

BRUNING 40-522 15640
DEC FORM NO DRD 102-B

ASYNCHRONOUS CLOCK RESTARTS

OPERAND RETURN
MCR9T1
MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

PAGING RETURN
MC PAGE DLY OVER
PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

WRITE RETURN
MCR9TØ

DPOP DOUBLE MEMORY OPERAND SYNCHRONIZATION
FCE2 SYNC DLYD ∧ FCE2 WAIT DLYD
FCE2 WAIT (1)

INSTRUCTION FETCH SYNCHRONIZATION
INST DONE DLYD ∧ INST RDY DLYD

START PI OR KEY CYCLE INSTEAD OF INSTRUCTION
INST DONE DLYD PULSE
PI CYC RDY (1)

PAGE FAILURE RESTART
PF CLK START

CLOCK LOOP

CLK MISC INPUT
KEY CLK START
KEY CLK RDY SYNC SET
CLK KEY INPUT
KEY SNGL PLS SYNC A(Ø)
28 ns

CLK A
28 ns
CLK DRIVE A A1,B,B1
SC CLK EN
28 ns
SC CLOCK
SC FE CLK EN
28 ns
SC FE CLOCK
REGISTER DRIVER DELAYS

CLK A1
APR2 HI SPEED (1)
ADJUSTED FOR 100 n.s LOOP (SPEED MARGINS)
CLK 100 n.s
APR2 NORMAL SPEED EN
ADJUSTED FOR 110 n.s LOOP
CLK 110 n.s
CLK MIN DLY
CLK INH (Ø)

AD ADD(Ø) ∧ SCAD ADD(Ø) ∧ CLK LONG CYCLE (Ø)
CLK MIN LOOP
CLK INH (Ø)
KEY CLK RDY SYNC SET

IF CLK INH (1), CLOCK LOOP STOPS AND IS RESTARTED BY ASYNCHRONOUS LOGIC SIGNAL OR BY KEY LOGIC

ADX ADD A(1) ∧ CLK LONG CYCLE (Ø)
ADJUSTED FOR 191 n.s LOOP
CLK 191 n.s

CLK LONG CYCLE (1) V (ADX ADD A (Ø) ∧ (AD ADD (1) V SCAD ADD(1)))
CLK 170 n.s IN
ADJUSTED FOR 170 n.s LOOP
CLK 170 n.s
CLK MAX EN = (AD ADD(1) V SCAD ADD(1)) ∧ CLK LONG CYCLE (1)

~ CLK MAX EN

CLK MAX EN
ADJUSTED FOR 230 n.s LOOP
CLK MAX DLY

CLK B
AR CLK EN
28 ns
AR CLK A,B
BR CLK EN
28 ns
BR CLOCK A,B

CLK B1
~ AB AD CLK INH
28 ns
AD CLOCK A,B
ARX CLK EN
28 ns
ARX CLOCK A,B
MQ CLK EN
28 ns
MQ CLK A,B

CLK C
COMP CLK EN
28 ns
COMP NI CLOCK A,B
PC CLK EN
28 ns
PC CLOCK A,B
28 ns
CLK DRIVE D2
CLK DRIVE D1
KEY CLK SYNC CLR
KEY CLK RDY SYNC CLEAR
KEY REPT DONE CLEAR

CLK C1
MB CLOCK EN
28 ns
MB CLOCK A,B
28 ns
CLK DRIVE C1,C2

REVISIONS			
CHK	CHANGE NO	REV	
—	KI1Ø-00041	—	ORIGINATED

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .006	±0° 30'
.XX = .02	
.X = .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN.	Ed Stephenson	DATE 4/13/72
CHK'D.	David Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	M Mullins	DATE 31 JAN 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
CLOCK FLOW

NEXT HIGHER ASSY.
8-DD-KI1Ø-Ø

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-CLK	—

SCALE ~
SHEET 1 OF 1
DIST.

DEC FORM NO DRD 102-B

IR DFAS

= IR DFAD ∨ IR DFSB
IR DFASDIV = IR DFAS ∨ IR DFDV

IR DFAD
110
= IR 11X ∧ IR Ø6(Ø) ∧ IR XXX-
IR = ØØ1 ØØ1 ØØØ
IR 1XX IR 11X

Action (AC, AC2) + C(E, E+1) → AC, AC2

IR DFSB
111
= IR 11X ∧ IR Ø6(Ø) ∧ IR XXX1
IR = ØØ1 ØØ1 ØØ1
IR 1XX IR 11X

Action (AC, AC2) − C(E, E+1) → AC, AC2

Switches

By IR DFAS	By IR DPOP	
ETØ EN	FCE2, LT OR RT	ST INH
ET1 EN	PC CHANGE	SAC2

BS for DFAT is DFAM

F CYC START

AB = AD = AR = Ø, E

Fetch double summand or subtrahend by IR DPOP (see DFFM)
C(E) → AR E+1 → AD → AB

F CYC ACT EN

SCAD AR EXP EN [C(E) EXPONENT
AD FM+ EN A (AC)
ARX CLK EN (CLEAR)
ETØ
DFSB: ADX EQV
ADX FM+ → A → ADX FM−

AC IS HIGH PART OF OTHER SUMMAND OR MINUEND

110 ns

ETØ

SC SCAD EN C
SC FE CLOCK (M or ∼M) (See table)
SCAD +1
FM ØØ = AR ØØ: SCAD SC− EN
∼FM ØØ = AR ØØ: SCAD SC+ EN
AR AD BR ETØ → BR AR EN (C(E) → BR)
→ AR AD EN A (AC → AR)
SCAD EXP ADD → SCAD AR EXP EN (AC)
→ SCAD ADD EN A → B

ADX EQV
ADX BR− EN (C(E) → ADX)
FMC AC2 EN A (Get AC2)
AD FM+ EN B
CLK LONG CYCLE (CLK MAX EN)
ET1
ARX ADX EN

(LOADS ØS IF DFAD, LOADS 1'S IF DFSB)

A = True AC exponent (AR)
M = True memory exponent (BR)
Sign test for add made at FM & AR prior to transfer of AC & C(E) to AR & BR respectively

SCAD ADD

AC \ C(E)	+	−
+	A−M	A−M
−	M−A	M−A

230 ns

Test of Add Result

AR sign	SCAD sign	Implies
+	+	A ≥ M
+	−	A < M
−	+	A ≤ M
−	−	A > M

D = |A−M|

ET1

SC SCAD EN C (±D → SC)
∼SCAD Ø = AR ØØ: FLAG 2 EN (A ≤ M)
SCAD Ø(Ø): SCAD NEGATE A → SCAD SC− EN
(Want difference in negative form for shifting) → SCAD +1
→ SCAD ADD
→ SCAD DATA EN

AR AD EN B (AC2 → AR)
BR AR EN
AD BR+ EN A (AC → BR → AD)
ARX ADX EN A (C(E) → ARX) : COMPLEMENTED IF DFSB
FMC AC EN A (Back to AC)
ET2

110 / 170 ns

ET2

SC Ø(Ø): SC SCAD EN C (If pos D, substitute neg D)
FLAG 2(Ø): SCAD AR EXP EN (A ≥ M: A or ∼A → SCAD)
FLAG 2(Ø) ∧ BR ØØ(Ø): SCAD EQV
(AR will have AC − see right) SCAD SC+ EN (A ≡ Ø → ∼A)
SCAD SC− EN
DFAT1 COND → DFAT1
→ ∧ FLAG 2(1): SCAD FE EN (A ≤ M: M or ∼M → SCAD)
FLAG 2(1) ∧ [(DFAD ∧ ARX ØØ(Ø)) ∨ (DFSB ∧ ARX ØØ(1))] → SCAD EQV EN A
→ SCAD DATA EN (M ≡ Ø → ∼M)
SCAD Ø(1) ∧ FLAG 2(1): FLAG 2 EN (Clear FLAG 2 if D = Ø)

AR AD BR (ET2) B → BR AR EN (AC2 → BR)
→ AR AD ET2 EN → AR AD EN A (AC → AR)

AD MB EN (Ready for C(E+1))
CLK INH
FCE2 WAIT COND

ET2 puts complement of larger exponent into SCAD.
A ≥ M: AR supplies A or ∼A; if A, EQV with Ø to give ∼A.
A ≤ M: FE supplies M or ∼M; if M, EQV with Ø to give ∼M.
If A = M one or the other ends up in SCAD depending on the sign of AC, and FLAG 2 is cleared.

FCE2 synchronization by IR DPOP (DFFM)
C(E+1) → MB → AD

DFAT1

AB PC EN A → AB FF CLR
SCAD −1(1): AR FXU HOLD EN (A positive exponent cannot underflow)
SC FE CLOCK (Save ∼result exponent)
FLAG 2(1) ∨ SC Ø(Ø) ∨ (SC 1(1) ∧ SC 2(1)): ARX ADX EN A (∼C(E))
→ AR AD EN (C(E+1))
ARX CLK EN
AR CLR A (Throw away AC no matter what − will get it from FM)

Must get fraction with smaller exponent into ARX-AR to shift right to correct position vis-a-vis fraction with larger exponent in FM-BR.
A < M or D ≤ 64: ∼C(E), C(E+1) → ARX, AR; otherwise ARX clock throws away C(E).
Note that after ET2, FLAG 2(1) means specifically A < M.

IR XXX1 (DFSB)

Subtract: C(E) already complemented, must negate C(E+1) in AR unless too small to bother with

IR XXX− (DFAD) → DFAT ARGS RDY

FLAG 2(Ø) ∧ SC Ø−2 = 4−6

FLAG 2(1) ∨ SC Ø(Ø) ∨ (SC 1(1) ∧ SC 2(1))

A < M or D ≤ 64

A > M & D > 64
FM-BR = AC−AC2
ARX-AR = Ø

DFAT2 COND → ADX FM+−B → ADX FM+ EN (Ø)
→ ADX FM− EN
→ ADX ADD EN B (Add Ø to ∼C(E))
→ AD AR− EN
→ AD CRY 36 (Negate C(E+1), and if null, overflow carries into ADX to form −C(E))
→ AD MAGIC EN C
→ AD ADD
→ DFAT2

191 ns

DFAT2

ARX ADX EN
AR AD EN E
DFAT ARGS RDY

−(C(E, E+1)) → ARX, AR

SC Ø−2 = 7 Ø < D ≤ 64

FLAG 2(Ø) FLAG 2(1)

A < M Must put memory operand in FM-BR

A > M
FM-BR = AC−AC2
ARX-AR = memory

DFAT3 COND → ADX FM− EN (∼AC)
→ ADX EQV (See note)
→ AD BR+ EN B (AC2 → AD)
→ SAC BR FF EN
→ DFAT3

These events may occur at DFAT1 or DFAT2

110 ns

DFAT3

MQ AD EN A (AC2 → MQ)
BR ARX EN
FM WR EN A (High memory → FM)
ARX ADX EN
ADX BR− EN (See note)
ADX EQV
DFAT4

Note

DFAT3 COND gets AC but it is mixed with high memory, which is in ARX. DFAT3 unmixes it by putting the result in ARX and remixing with the complement of BR, which receives the former ARX.
∼AC ≡ X ≡ ∼X = ∼AC ≡ Ø = AC

FM−BR = memory
ARX−AR = AC−AC2

110 ns

DFAT4

ARX ADX EN (AC → ARX)
AR MQ EN (AC2 → AR)
BR AR EN (Low memory → BR)
MQ CLR B
SAC BR FF CLR

DFAM SC GO → AD AR+ EN A
→ SCT1

These events may occur at DFAT1, DFAT2 or DFAT4

110 ns

SCT1

SC 8(1): ARX SH RT EN
AR SH RT A → AR CLR A (ADX 35 → AR Ø1)
MQ SH RT A → MQ Ø1 GETS AD 35
SC SH RT EN

Shift ARX−AR−MQ right D places

∼SC+1 = Ø

AD AR+ EN B
SCT2

110 ns

SCT2

ARX SH RT2 EN
AR SH RT2 EN (ADX 34, 35 → AR Ø1, Ø2)
MQ SH RT2 EN
(∼MQ SH ORDINARY → (AD 34, 35 → MQ Ø1, Ø2))
SC SC+1 EN

∼SC+1 = Ø

SCTC DONE (= SC+1 = Ø)

∼SC Ø−2 = 7 D = Ø or D > 64

D > 64 on this path only for DFAD

FLAG 2(Ø)

FM-BR = AC−AC2
A ≥ M ARX-AR = memory or Ø

DFAT5 COND → ADX FM+ EN
→ ADX ADD EN B
→ AD AR+ EN A
(Sum → ADX−AD) → AD BR+ EN B
→ AD ADD EN G
→ DFAT5

These events may occur at DFAT1, DFAT2, SCT1 or SCT2

191 ns

DFAT5

ARX SH RT EN
AR SH RT B (ADX 35 → AR Ø1)
MQ SH RT C
→ MQ Ø1 GETS AD 35
SCAD FE EN (Get −exponent)

Shift result right one for possible fraction overflow and thus convert what was ∼exponent into −exponent

DNT1 COND A → ADX FM+−B → ADX FM+ EN
(See DN) → ADX FM− EN
→ ADX ADD EN A
→ AD AR+ EN F
→ AD ADD
→ AD MAGIC EN
→ FLAG 2 CLR
→ MC INST FETCH NEXT EN
→ DNT1

These events may occur at DFAT1, DFAT2 or DFAT5

191 ns

Go to Double Normalize (DN)

FLAG 2(1) A < M & D > 64

ARX-AR = memory

SCAD FE EN
SCAD DATA EN A → SCAD +1
→ SCAD ADD

These events may occur at DFAT1 or DFAT2

Get ∼exponent and convert it to −exponent

REVISIONS	CHK	CHANGE NO	REV
		KI1Ø-00041	A
REDRAWN OLD DWG IS NOW D-FD-KI1Ø-A-DFAS			
A. KENT			
		KI1Ø-00042	B
D. GROSS			

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX ± .005	±0° 30'
XX ± .02	
X ± .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

	NAME	DATE
DRN.	C. CIAMPA	6/30/73
CHK'D.	W. ENGLISH	6/30/73
ENG.	Allan Kent	DATE (13 Nov 73)
PROJ. ENG.	Allan Kent	DATE (13 Nov 73)
PROD.	Allan Kent	DATE (13 Nov 73)

NEXT HIGHER ASSY. B-DD-KI1/-0

SCALE —

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE

DOUBLE FLOATING ADD-SUBTRACT

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-DFAS	B

DIST

DEC FORM NO ORD 102-B

SIZE D | FD CODE | NUMBER KI1Ø-Ø-DFAS | REV B

IR DFDV

= IR 11X ∧ IR Ø6(Ø) ∧ IR XXXS

113

IR DFASDIV = IR DFDV ∨ IR DFAS

IR = ØØ1 ØØ1 Ø11
IR 1XX IR 11X

Action

(AC, AC2) ÷ C(E, E+1) → AC, AC2

Switches

By IR DFDV	By IR DPOP
SAC BR	FCE2, LT OR RT
TN CLR INH	PC CHANGE
ETØ EN	ST INH
ET1 EN	SAC2

IT1 — SAC BR FF EN

F CYC START — AB = AD = AR = Ø, E

Fetch double divisor by IR DPOP (see DFFM)
C(E) → AR E+1 → AD → AB

Divisor = C(E, E+1) → FM-BR
Dividend = AC, AC2 → ARX-AR

F CYC ACT EN
- SCAD AR EXP EN (Dvsr exp)
- AD FM+ EN B (For dvnd exp)
- ARX CLK EN
- ADX FM- EN
- ADX EQV
- ETØ
(AC fraction → ADX)

110 ns

ETØ

230 ns

- SC SCAD EN C (Dvsr exp)
- FM ØØ = AR ØØ: SCAD SC- EN
- ~FM ØØ = AR ØØ: SCAD SC+ EN
- FM ØØ(Ø): SCAD +1
- AR AD BR (ETØ)
  - → BR AR EN (C(E) → BR)
  - → AR AD EN A (AC → AR)
- SCAD EXP ADD → SCAD AR EXP EN, → SCAD ADD EN A → B

A = True AC exponent
M = True memory exponent

AC \ C(E)	+	-
+	A-M	A-M
-	-A+M-1	-A+M-1

- ARX ADX EN (AC → ARX)
- ADX FM+-A → ADX FM+ EN, → ADX FM- EN
- ADX EQV (AC ≡ Ø = ~AC → ADX)
- FMC AC2 EN A (AC2 → AD)
- AD FM+ EN B
- CLK LONG CYCLE (CLK MAX EN)
- ET1

ET1

110/191 ns

- SC SCAD EN C
- AR AD EN B (AC2 → AR)
- MQ AD EN A (AC2 → MQ)
- ARX ØØ(Ø): SCAD SC+ EN, DFDV POS DIVIDEND → AD AR+ EN B
- ET2
(For either AC sign SCAD gets (A-M); if negative dvnd, negate AC2 in AD, and if null, overflow carries into ADX to convert ~AC into -AC)

- ARX ØØ(1): SCAD SC- EN, DFDV NEG DIVIDEND
  - → ARX ADX EN A (~AC → ARX)
  - → AD AR- EN
  - → AD MAGIC ET1 EN → AD MAGIC EN A
  - → AD CRY 36
  - → AD ADD EN C (Negate AC2)
- ADX ADD EN A (Add Ø to ~AC)
- ADX FM+-A → ADX FM+ EN, → ADX FM- EN (Ø)
- FLAG 3 EN

ET2

- SC FE CLOCK (Save exponent)
- AR MQ EN A (AC2 → AR)
- ARX ADX EN (High dvnd → ARX)
- MQ AD EN A (Low dvnd → MQ)
- AD MB EN (Ready for C(E+1), low divisor)
- CLK INH
- DFDTØ
- FCE2 WAIT COND

FCE2 synchronization by IR DPOP (see DFFM)
C(E+1) → MB → AD

DFDTØ
- AB PC EN A → AB FF CLR
- AD MB EN
- DFDT1

110 ns

DFDT1
- MB AR EN A (AC2 → MB)
- FM WR EN A (C(E) from BR → AC2)
- AR AD EN G (C(E+1) → AR)
- CLK LONG CYCLE
- SCAD ADD (CLK MAX EN)
- ARX SH RT EN (½ dividend)
- MQ SH RT C (ADX 35 → MQ Ø1)
- DFDF1 EN
- DFDT2

230 ns

DFDT2
- BR AR EN (Low dvsr)
- AR MQ EN (Low dvnd)
- MQ CLR B
- SCAD -32 EN (26 count) → SCAD MISC DATA EN
- SAC BR FF CLR
- DFDT3
- ADX CRY Ø (Force initial subtraction)
- BRØØ(1): DFDV DIVISOR SIGN
- DFDF1(1)
  - → ∧ ~DFDV DIVISOR SIGN: ADX FM- EN, AD BR- EN, AD CRY 36
  - → ∧ DFDV DIVISOR SIGN: ADX FM+ EN, AD BR+ EN
  - → AD AR+ EN K
  - → ADX ADD EN A
  - → AD ADD EN E → D

191 ns

Note

This instruction can be interrupted during the first half, so AC2 is saved in MB while the AC2 location in FM is used for high divisor (FM-BR)

DFDT3
- SC SCAD EN C (Count → SC)
- ARX SH LT B (ADX Ø1' → ARX 35)
- AR SH LT A
  - → MB 35(1): ARMC AR 35 AUX MIX
  - → MQ SH LT EN (For quotient bit)
- DFDF1 EN

Low dividend LSB (from AC2) dropped from MQ at DFDT1 shift; picked up now from MB 35

ADX Ø1' is LSB of ADX

Note that there is no connection from MQ to AR in left shift

ADX CRY Ø

|Divisor| ≤ |½ Dividend|

DFDT10

191 ns

DFDF1 events irrelevant at DFDT10

DFDT10
- ARF OV SET → ∧ PI CYC(Ø): AR OV EN, TN 1 EN
- ARF FOV TEST → ∧ PI CYC(Ø): AR FOV EN
- PI CYC(Ø): AR DCK EN, TRAP SATISFIED
- DFDT11 COND → Clear DFDF1, → DFDT11

~ADX CRY Ø

DFDT4

191 ns

Note that FLAG 1 has exactly the opposite meaning here as in FDV

DFDT4
- ARX SH LT B (ADX Ø1' → ARX 35)
- AR SH LT A (Ø → AR 35)
- → MQ SH LT EN
- ARX ØØ(1): FLAG 1 EN (Right shift was SC SC+1 INH EN unnecessary)
- FLAG 2 EN (First part)
- PC+1 INH IN (May interrupt)
- SCT2

191 ns

SCT PROCEED = PI RDY SYNC(Ø) [∨ FLAG 2(Ø) ∨ ~IR DFDV]

SCT2

SCT2 26 or 27 times

SCT2
- ARX SH LT A
- AR GO LEFT → AR SH LT B, → MQ SH LT A
- SC SC+1 EN [~SC+1 = Ø: AD AR+ EN B]

~SC+1 = Ø ∧ SCT PROCEED

PI RDY SYNC(1)

DFDF1 EN, SCT2

DFDT11 COND → Clear DFDF1, → DFDT11

191 ns

SCTC DONE ∧ PI RDY SYNC(Ø) (SC+1 = Ø)

DFDT5 COND → Clear DFDF1, → DFDT5

191 ns

DFDT11
- AD MB EN (Get AC2)
- DFDT12

110 ns

DFDT5
- FLAG 2 CLR (Second part)
- SCAD -42 EN (34 count)
- SCAD -42 EN A → SCAD DATA EN
- PC+1 INH CLR (No more interrupt)
- PI CYC(Ø): TRAP SATISFIED
- MB AR EN A (Save low in progress)
- AD MB EN (& throw away AC2)
- AR MQ EN (Take high quotient)
- DFDT6

110 ns

DFDT12
- AR AD EN E (Restore AC2)
- ST5 COND A → FM WR EN A, → ST5
- MC INST FETCH EN

110 ns

Fetch next instruction (MC1)

DFDT6
- SC SCAD EN D (Count → SC)
- MB AR EN A (Save high quotient)
- AR AD EN E (Get low word back)
- MQ CLR B
- AR 35 ≠ FM ØØ: DFDV CONT SUB → ADX FM- EN, → AD BR- EN, → AD CRY 36
- AR 35 = FM ØØ: DFDV CONT ADD → ADX FM+ EN, → AD BR+ EN B
- AD AR+ EN J → A, → AD ADD EN G
- ADX ADD EN A
- DFDF1 EN
- SCT2 MISC INPUTS → SCT2

ST5
- CLK EN INST DONE

Go to Instruction cycle (IC)

191 ns

SCT2

SCT2 34 times

SCT2
- ARX SH LT A (ADX Ø1' → ARX 35)
- AR GO LEFT → AR SH LT B, → MQ SH LT A
- SC SC+1 EN [~SC+1 = Ø: AD AR+ EN B]

~SC+1 = Ø → DFDF1 EN, SCT2

SCTC DONE (= SC+1 = Ø)

191 ns

DFDT7
- FLAG 1(Ø): SCAD DATA EN A, → SCAD +1, → SCAD ADD
- DFDT7 COND → SCAD FE EN, → Clear DFDF1, → DFDT7

Get exponent and add 1 to it if used ½ dividend

QP = quotient in positive form in MB-MQ
Q = true quotient with correct sign

DFDT7
- MQ SH LT A (Last low QP bit)
- AD MB EN (High QP in AD to test)
- FM ØØ(1): FLAG 3 CLR
- FM ØØ(1) ∧ FLAG 3(Ø): FLAG 3 EN
- FMC AC ∨ AC2 EN (Back to AC)
- SC SCAD EN D (Exponent)
- SCAD FE EN
- SCAD EQV (X ≡ Ø = ~X)
- SCAD DATA EN
- CLK LONG CYCLE
- DFDT8

170 ns

Complete 2-word quotient, throw away remainder, change negative dividend flag to negative quotient flag, put exponent in SC, and complement FE exponent in SCAD by equivalence with Ø

ADX CRY Ø: MQ 35 IN
BR ØØ(1): DFDV DIVISOR SIGN
DFDF1(1)
- → ∧ ~DFDV DIVISOR SIGN: DFDV POS DIVISOR
  - → ∧ ADX CRY Ø: ADX FM- EN, AD BR- EN, AD CRY 36
  - → ∧ ~ADX CRY Ø: ADX FM+ EN, AD BR+ EN
- → ∧ DFDV DIVISOR SIGN: DFDV NEG DIVISOR
  - → ∧ ADX CRY Ø: ADX FM+ EN, AD BR+ EN
  - → ∧ ~ADX CRY Ø: ADX FM- EN, AD BR- EN, AD CRY 36
- → ADX ADD EN A
- → AD ADD EN E → D
- → AD AR+ EN K

DFDT8
- SCAD -1(1): AR FXU HOLD EN
- CLK MISC INH → AR CLR A

A positive exponent cannot underflow. Note that in this one case, CLK MISC INH does not give CLK INH. AR is cleared only if quotient is Ø.

(FLAG 3(Ø) ∧ ~MQ Ø1-35 = Ø) ∨ (~AD = Ø ∧ MQ Ø1-35 = Ø)

Q+ & low Q ≠ Ø or high Q ≠ Ø but low Q = Ø

FLAG 3(1) ∧ ~MQ Ø1-35 = Ø

Q- & low Q ≠ Ø

AD ØØ-17 = Ø ∧ AD Ø9-35 = Ø ∧ MQ Ø1-35 = Ø

Q = Ø

FLAG 3(Ø) ∧ (~AD ØØ-17 = Ø ∨ ~AD Ø9-35 = Ø ∨ ~MQ Ø1-35 = Ø): AD MB EN (Q > Ø)
FLAG 3(1) ∧ ~AD = Ø ∧ MQ Ø1-35 = Ø:
- DFDT8 TWOS COMP → AR AD EN, → AD MAGIC EN B → E, → AD AR- EN, → AD CRY 36, → AD ADD EN G
- (Q- but low Q null, must negate high QP)
- [~AR MQ CLK INPUT:] MC INST FETCH NEXT EN
- DNT8

Only DFDT9 COND produces AR MQ CLK INPUT at DFDT8

DFDT9 COND
- (Negate low QP but force sign bit to Ø)
- → AR MQ EN (Low QP)
- → AD AR- EN
- → AD CRY 36
- → AD ADD EN E → D
- → AD MAGIC EN E
- → DFDT9

AD ØØ IN B

170 ns

DFDT9
- MQ AD EN A (Low Q → MQ)
- AD MB EN (High QP)
- AD EQV (MB ≡ Ø → ~MB)
- AD MAGIC EN E
- MC INST FETCH NEXT EN
- DNT8

110 ns

110/170 ns

DNT8
- AR AD EN E (High Q)
- FLAG 3(Ø): SCAD SC+ EN
- FLAG 3(1): SCAD SC- EN (Put exponent in correct form)
- ~SC Ø = SC1: ARF OV SET → ∧ PI CYC(Ø): AR OV EN, TN 1 EN
- ARF FOV TEST → ∧ PI CYC(Ø): AR FOV EN
- AR FXU HOLD(Ø): ARF DP TEST → ∧ ~SC Ø = SC1 ∧ PI CYC(Ø): AR FXU EN
- DNT9

110 ns

DNT9
- AR EXP SCAD EN (Insert exponent in high Q) → ARI AR ØØ SELF, → AR 12-17 SELF B, → AR RT AR RT, → AR RT AUX EN
- SC1 = FLAG 3: ARI AR Ø1 AUX DATA 1
- ST1 COND B → ST1 COND, (High Q → AC) → FM WR EN, → ST1

ARI AR ØØ SELF DATA

AUX DATA used to save time

110 ns

[~AR MQ CLK INPUT:] MC INST FETCH NEXT EN
ST1 COND → FM WR EN (Clear AC), → ST1

ST1
- FMC AC2 EN B
- ST4

110 ns

ST4
- AR MQ EN A
- ARI MQ ØØ INH
- ST5 COND A → FM WR EN A, → ST5

Low Q → AC2 with sign Ø

110 ns

ST5
- CLK EN INST DONE

Go to Instruction cycle (IC)

REVISIONS	CHK	CHANGE NO	REV
		KI10-00041	B
		REDRAWN, OLD DWG IS NOW D-FD-KI10-A-DFD	
		J. Mackenzie 2-2-73	
		A. KENT	
		Allan Kent 11 Dec 73	

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA — DATE 6/30/73
CHK'D. W. ENGLISH — DATE 6/30/73
ENG. Allan Kent — DATE 13 Nov 73
PROJ. ENG. Allan Kent — DATE 13 Nov 73
PROD. Allan Kent — DATE 12 Nov 73
NEXT HIGHER ASSY. B-DD-KI10-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DOUBLE FLOATING DIVIDE

SIZE D | CODE FD | NUMBER KI10-Ø-DFD | REV. B
SCALE —
SHEET 1 OF 1
DIST.

IR DPOP

=[IR 11X ∨ (IR 12X ∧ IR Ø7(Ø))] ∧ IR Ø6(Ø)
110–113 120, 121

AB=AD=AR=Ø, E

F CYC START
- AB FETCH IT1 COND → AB AD CLK INH; → MC SYNC READ EN
- MCS FCE2 START EN
- FT7

Switches: FCE2, LT OR RT; PC CHANGE; ST INH; SAC2

110ns
FT7
- BR AR EN (E → BR)
- AD MSK EN A → AD ADD
- AD BR+ EN B
- AD CRY 36 (E + 1 → AD)
- CLK MISC INH → AR CLR A; → MC SYNC READ EN
- FT6

AB FETCH IT1 COND → AB AB EN

OPERAND READ

C(E) → AR

MCRST1

MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

F CYC ACT EN
- SCAD AR EXP EN
- AD FM+ EN A (AC)
- ARX CLK EN (Clear)

110ns
ET Ø
- SC SCAD EN C (C(E) exp → SC)
- AR AD BR (ETØ) → BR AR EN (C(E) → BR); → AR AD EN A (AC → AR)
- SCAD EXP ADD → SCAD AR EXP EN (AC); → SCAD ADD EN A → B
- ARX ADX EN: NO EFFECT
- ADX EQV
- FMC AC2 EN A
- AD FM+ EN B (AC2 → AD)
- CLK LONG CYCLE (CLK MAX EN)

230ns
ET1
- SC SCAD EN C (Exp result → SC)
- AR AD EN B (AC2 → AR)

ET2
- AD MB EN (For C(E + 1))
- CLK INH
- FCE2 WAIT COND

FCE2 WAIT(1)

55ns

FCE2 WAIT DLYD

MCRST1

MC SYNC READ(Ø) ∧ MCS FCE2 START(1) ∧ PAGE REFILL CYCLE(Ø)

FCE2 SYNC SET

100ns

FCE2 SYNC DLYD

See clock flow (CLK)

This time state is DFAT1, DFDTØ, DFMT1, DMOVET1, or DMOVNT1.

FCF2 WAIT(1)

[PFT1(Ø):] AB PC EN A → AB FF CLR
[~MC ASYNC HOLD:] Clear MCS FCE2 START → MCI SYNC POINT: Clear MC ASYNC START
Clear FCE2 WAIT

Continue with special sequence for double floating point instruction

Notes: FCE2 SYNC clears when MC INST FETCH START sets.
PFT1(Ø) condition for AB PC EN A is in case page failure should intervene (then PFT1 is next time state after ET2).

MCT RECYCLE sequence brings E + 1 from AD into AB and starts second operand read (MC2)

NOTE

When an exponent is loaded into SCAD from AR, it is converted from excess-128 code to twos complement form by loading the complement of AR Ø1 into both SCAD Ø and SCAD 1 (of course the actual contents of SCAD, as of AR, will be the complement of the true exponent if the floating number containing it is negative).

Operations on exponents are then done in ordinary arithmetic, and when the result is subsequently inserted into AR, AR Ø1 generally receives the complement of SCAD 1 via ARI AR Ø1 DATA.

IR DFMP = IR 11X ∧ IR Ø6(Ø) ∧ IR XXXM
112

IR = ØØ1 ØØ1 Ø10
IR 1XX IR 11X

Switches

Action	By IR DFMP	By IR DPOP
(AC, AC2) X C(E, E+1) → AC, AC2	ETØ EN	FCE2, LT OR RT
	ET1 EN	PC CHANGE
	IR MPY	ST INH
		SAC2

AB = AD = AR = Ø, E

Fetch double multiplier by IR DROP (see at left)
C(E) → AR E+1 → AD → AB

Multiplier = C(E, E+1)
Multiplicand = AC, AC2 → FM-BR

AC \ C(E)	+	−
+	A+M−1	A+M−1
−	−A−M−2	−A−M−2

A = True AC exponent
M = True memory exponent

F CYC ACT EN
- SCAD AR EXP EN (C(E)exp)
- AD FM+ EN A (Multiplicand)
- ARX CLK EN
- ETØ

110ns
ETØ
- SC SCAD EN C (C(E)exp → SC)
- FM ØØ = AR ØØ: SCAD SC+ EN
- ~FM ØØ = AR ØØ: SCAD SC− EN
- FM ØØ(Ø): SCAD +1
- AR AD BR (ETØ) → BR AR EN (C(E) → BR); → AR AD EN A (AC → AR)
- SCAD EXP ADD → SCAD AR EXP EN (AC); → SCAD ADD EN A → B
- MQ AD EN (Save AC)
- BR SIGN SMEAR EN [ADX EQV]
- FMC AC2 EN A
- AD FM+ EN B (Low multiplicand)
- CLK LONG CYCLE (CLK MAX EN)
- ET1

230ns

BR SIGN SMEAR (1)

BR ØØ(Ø) → BR SMEAR ZEROS
BR ØØ(1) → BR SMEAR ONES

ET1
- SC SCAD EN C
- MQ ØØ(Ø): SCAD SC− EN
- MQ ØØ(1): SCAD SC+ EN
- AR AD EN B (AC2)
- AD BR+ EN (C(E))
- FMC AC EN A (Back to AC, high mcnd)
- ET2

SCAD gets −(A+M)−2
Drop AC from AR, will use FM

110ns
ET2
- BR AR EN (AC2, low mcnd)
- AR AD ET2 EN → AR AD EN A (C(E), high mplr)
- AD MB EN (Ready for C(E+1), low mplr)
- SC FE CLOCK (Save −(A+M)−2)
- SCAD −43 EN → SCAD DATA EN (35 count)
- CLK INH
- DFMT1
- FCE2 WAIT COND

FCE2 synchronization by IR DPOP (see at left)
C(E+1) → MB → AD

DFMT1
- AB PC EN A → AB FF CLR
- FLAG 2 EN (First part)
- SC SCAD EN D (Count → SC)
- MQ AD EN A (Low mplr from MB)
- MB 35(1): ADX FM+ EN (High mcnd)
- ADX ADD EN A
- DFAM MUL STEP 1 → AD BR+ EN B+ (Low mcnd); → AD ADD EN E → D
- AD AR− EN
- DFAM SC GO → AD AR+ EN A (Zero A mixer); → SCT1

110/191ns

BS for DFMT is DFAM

Multiplicand is in FM-BR. Use half of multiplier at a time — first low with high saved in MB. First shift voids prior contents of AR.

SCT1
- MB AR EN C (Save high mplr)
- [SC B(1):] ARX SH RT EN
- AR SH RT A → AR CLR A (ADX 35 → AR Ø1)
- MQ SH RT A → MQ Ø1 GETS AD 35
- SC SH RT EN
- AD AR+ EN B
- SCT2

110/191ns

SCT2
- ARX SH RT2 EN
- AR SH RT2 EN (ADX 34, 35 → AR Ø1, Ø2)
- MQ SH RT2 EN (AD 34, 35 → MQ Ø1, Ø2)
- ~SC+1 = Ø: AD AR+ EN B
- SC SC+1 EN

~SC+1=Ø → SCT2

SC 4-8 ≠ 37 (Equivalent to ~SC+1 = Ø)

SCTC DONE (=SC+1=Ø)

MPY FCN enables →
- (~MPY FLAG 1 = MQ 35 IN) ∧ ~MQ 34 IN: ADX FM+ EN; AD BR+ EN
- (FLAG 1(Ø) ∧ MQ 34 IN ∧ ~MQ 35 IN) ∨ (FLAG 1(1) ∧ ~MQ 34 IN ∧ MQ 35 IN): AD BR+2 EN (→ADX FM-2 EN)
- (~MPY FLAG 1 = MQ 35 IN) ∧ MQ 34 IN: ADX FM− EN; AD BR− EN; AD CRY 36
- ~MPY SHIFT STEP: ADX ADD EN A; AD ADD EN D
- MQ 34 IN ∧ MQ 35 IN: FLAG 1 EN
- ~MQ 34 IN: FLAG 1 CLR

MPY SHIFT STEP = (FLAG 1(Ø) ∧ ~MQ 34 IN ∧ ~MQ 35 IN) ∨ (FLAG 1(1) ∧ MQ 34 IN ∧ MQ 35 IN)

Procedure for Adding Partial Products

MQ 34–35 IN	FLAG 1(Ø)	FLAG 1(1)
ØØ	Shift only	Add once, clear flag
Ø1	Add once	Add twice, clear flag
1Ø	Add twice	Subtract, leave flag set
11	Subtract, set flag	Shift only, leave flag set

110ns
DFMT2
- FLAG 2(1) → DFMT2 COND → AD MB EN (Get high mplr); → SCAD −16 EN (Half 28 count) → SCAD MISC DATA EN; → DFMT2
- FLAG 2 CLR (Second part)
- SC SCAD EN D (Count → SC)
- MQ AD EN A (High mplr)
- SCT2 MISC INPUTS → SCT2; → AD AR+ EN A

Throw away lowest order word of product

110/191ns

SCT2
- ARX SH RT2 EN
- AR SH RT2 EN (ADX 34, 35 → AR Ø1, Ø2)
- MQ SH RT2 EN (AD 34, 35 → MQ Ø1, Ø2)
- ~SC+1 = Ø: AD AR+ EN B
- SC SC+1 EN

~SC+1=Ø → SCT2

SC 4-8 ≠ 37 (Equivalent to ~SC+1 = Ø)

SCTC DONE (=SC+1=Ø)

FLAG 2(Ø)
- AD MPY FINAL → AD AR+ EN B; → CLK LONG CYCLE (CLK MAX EN)
- ∧ AD ØØ–Ø5 BR+2(1) ∧ MQ 34(1): MPY CORRECTION → ADX FM− EN; → AD BR− EN; → ADX ADD EN A
- AD ADD SC TERM → AD ADD EN D; → AD CRY 36
- DFMT3 COND → SCAD FE EN; → SCAD +1; → SCAD DATA EN; → SCAD ADD EN C; → DFMT3 (Get −(A+M) − 2 and add 1)

230ns

DFMT3
- ARX SH LT B (AD Ø1 → ARX 35)
- AR SH LT A (Position product) → MQ SH LT EN (Ø → MQ ØØ, MQ 35)
- MQ Ø1: ARMC AR 35 AUX MIX
- SC SCAD EN D (−(A+M)−1)
- SCAD −1(1): AR FXU HOLD EN (A positive exponent cannot underflow)
- FLAG 1 CLR
- SCAD SC+ EN
- SCAD DATA EN A → SCAD +1; → SCAD ADD (Add 1 more to get −exponent)

DNT1 COND A → ADX FM+−B → ADX FM+ EN; → ADX FM− EN
(See DN)
- ADX ADD EN A
- AD AR+ EN F → AD ADD; → AD MAGIC EN
- FLAG 2 CLR
- MC INST FETCH NEXT EN
- DNT1

191ns

Enter Double Normalize routine (DN)

REVISIONS			
CHK	CHANGE NO	REV	
—	KI1Ø-00041	1	
	ORIGINATED		
BB	KI1Ø-00042	A	
	J. Mahoney		3-7-74
	D. GROSS		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005; XX ± .02; X ± 1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL
FINISH

DRN.	C. CIAMPA	DATE 6/30/73
CHK'D.	W. ENGLISH	DATE 6/30/73
ENG		DATE
PROJ. ENG.		DATE
PROD.		DATE
NEXT HIGHER ASSY.	B-DD-KI1Ø-Ø	
SCALE	—	
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DOUBLE FLOATING FETCH & MULTIPLY

SIZE D | CODE FD | NUMBER KI1Ø-Ø-DFFM | REV. A | DIST.

DEC FORM NO. DRD 102-B

IR XDIVX
230-237

IR = Ø1Ø Ø11 XYY
IR 2XX

X specifies operand type
IR IDIVX = IR XDIVX ∧ IR Ø6(Ø) (230-233)
IR DIVX = IR XDIVX ∧ IR Ø6(1) (234-237)
YY specifies mode (general IR Ø7-Ø8 decoding)

Action

	Dividend	÷ Divisor →	Destination of Result	
	IDIVX	DIVX	Quotient	Remainder
Basic	AC	AC, AC2	C(E)	AC	AC2
Immediate	AC	AC, AC2	Ø, E	AC	AC2
Memory	AC	AC, AC2	C(E)	E	Lost
Both	AC	AC, AC2	C(E)	AC, E	AC2

Switches

By IR XDIVX
ET0 EN
ET1 EN
ST INH
IR XXXM: SAC INH (Memory)

By IR XMULDIVX = IR XMULX ∨ IR XDIVX
~ IR XXXI: FCE (~ Immediate)
IR Ø7(1): SCE (Memory, Both)
~ IR XXXM [∧ IR Ø5(1)]: SAC2 (~ Memory)

F CYC START — AB = AD = AR = Ø, E

Divisor and next instruction fetch according to mode:
Basic: FCE; C(E) → AR; MC INST FETCH START EN
Immediate: ~ F MEM REF; AR = Ø, E; MC INST FETCH NEXT EN
Memory, Both: FCE, SCE; C(E) → AR; MC INST FETCH START EN
See Fetch cycle (F); See MC1

F CYC ACT EN
AD FM- EN (~ High dividend)
SCAD -42 EN (34 count)
SCAD -42 EN A → SCAD DATA EN
ETØ
Must put dividend in positive form

110ns

ETØ
SC SCAD EN A (Count → SC)
BR AR EN (Save divisor)
AR AD EN A (~ High dividend → AR)
FM ØØ(Ø): AD AR- EN (Positive dividend)
FM ØØ(1): DS NEG DIVIDEND (ETØ) → FLAG 3 EN; AD AR+ EN C
AR ADD ETØ EN A → AD ADD EN D; AD CRY 36; AD MAGIC EN A
(Negate dynd)
IR DIVX: FMC AC2 EN A (For low dividend)
ET1

110/170ns

ET1

IR DIVX
MQ AD EN A (High dvnd)
FLAG 3(Ø): AD FM+ EN B
FLAG 3(1): DS NEG DIVIDEND (ET1) → AD FM- EN; AD MSK EN A; AD ADD; AD CRY 36; CLK LONG CYCLE
ET2 (CLK MAX EN)

IR IDIVX
MQ AD EN A
AR CLR A
AD MAGIC EN D
AD MAGIC # + 1 EN
CLK LONG CYCLE
ET2
(Have AD ready for +2^35)

Get low dividend in positive form

AD MAGIC # + 1(1)

AD 35 IN B

110/170/191ns

ET2

170ns

FMC AC EN A
IR DIVX: MQ AD EN A (Low dvnd, pos form)
→ ∧ (FLAG 3(Ø) ∨ AD CRY 1): AR MQ EN A (High dvnd, pos form)
(Otherwise AR already contains correct high dvnd)
IR IDIVX ∧ MQ ØØ(1): AR AD ET2 EN → AR AD EN A
(If positive form still negative, make dvnd 2^35)
ST AD AR+ ET2 EN → AD AR+ EN B
AD ADD EN D
BR ØØ(Ø): AD CRY 36
DS FIRST STEP → DSF2 EN
→ ∧ BR ØØ(Ø): AD BR- EN
→ ∧ BR ØØ(1): AD BR+ EN B
→ DST1

DST1

AR SH LT C → MQ SH LT EN

FDT3

FDT4

~ AD CRY Ø

AD ØØ(Ø) |Divisor| ≤ AR

DSF2 EN
SCT2

Clear DSF2
DST2
Memory, Both
SCE
MC WRITE KILL IN
Kill waiting write (MC5)

170/[230]ns

DST2

ARF OV SET
→ ∧ PI CYC(Ø): AR OV EN; TN 1 EN
PI CYC(Ø): AR DCK EN
[IR Ø1(Ø): ARF FOV TEST
(FDVXX) → ∧ PI CYC(Ø): AR FOV EN]
CLK EN INST DONE

Go to Instruction cycle (IC)

170ns

SCT2

AR GO LEFT → AR SH LT B; MQ SH LT A
DSF2 EN
SC SC+1 EN
[~ SC+1=Ø: AD AR+ EN B]

~SC+1=Ø

SCTC DONE (=SC+1=Ø)

DST2

DST3 COND
[→ SCAD FE EN]
SCE
Start memory write subroutine (MC2)

170ns

DST3

Clear DSF2
AR AD EN G (Keep remainder in place)
MQ SH LT EN (Shift quotient to final position)
DST4
[SC SCAD EN D
SCAD SC- EN
FLAG 1(Ø): SCAD NEGATE A → SCAD ADD; SCAD +1; SCAD DATA EN]

170ns

DST4

MQ 35(Ø): AR AD EN J (Add divisor back in)
FLAG 3(Ø): AD LT AR+ EN A; AD RT AR+ EN A (Positive remainder)
FLAG 3(1): DS NEG REMAINDER → AD MAGIC EN B → E; AD AR- EN; AD ADD EN G; AD CRY 36

DST5
[SC SCAD EN D]

110/170ns

DST5

AR MQ EN (Quotient)
MQ AD EN A (Remainder)
[SCAD SC+ EN]

IR FP ~ RND ∧ FLAG 3 = BR ØØ
DS FP EXIT → NRT1
AD AR+ EN D
CLK LONG CYCLE

170ns

Go to Floating Normalize & Round (FNR)

IR 2XX ∧ FLAG 3 = BR ØØ (ST1 COND A)
IR 2XX implies IR XDIVX

DS NEG QUOTIENT [∨ DS RND QUOTIENT]

FLAG 3 ≠ BR ØØ: DS NEG QUOTIENT → DST6
AD MAGIC EN B → E
AD AR- EN
AD CRY 36
AD ADD EN G
[IR FP RND ∧ FLAG 3 = BR ØØ:
DS RND QUOTIENT → DST6
AD CRY 36
AD AR+ EN F → AD ADD
AD MAGIC EN]

170ns

ARI SH LT COND
MQ SH ORDINARY
MQ Ø1: ARMC AR 35 AUX MIX
MQ Ø1 & SH LT
DSF2(1) enables →
AD CRY Ø: MQ 35 IN (Quotient bit)
[IR Ø1(Ø) ∧ MQ Ø8(1): ARMC AR 35 AUX MIX]
BR ØØ(Ø): DS POS DIVISOR
→ ∧ AD CRY Ø: AD BR- EN; AD CRY 36
→ ∧ ~AD CRY Ø: AD BR+ EN
BR ØØ(1): DS NEG DIVISOR
→ ∧ AD CRY Ø: AD BR+ EN
→ ∧ ~ AD CRY Ø: AD BR- EN; AD CRY 36
AD AR+ EN J → AD AR+ EN A; AD ADD EN G

Note

Chart shows all events in divide subroutine, with brackets enclosing those that are only for floating divide (some of which occur only in FDVAX whereas others always occur but are relevant only to FDVXX). Most of the events for XDIVX are basic to both types of division, but a few are gated by IR XDIVX and do not appear in chart FDV.

DST6

[IR 1XX ∧ IR Ø6(1): AR SH RT A → AR CLR A
Condition implies FDVRX
~ AR SH RT A: AR AD EN J (XDIVX or FDVX)
SCAD SC+ EN
AD AR+ EN D]

IR 2XX (XDIVX)

ST1 COND → ST1
→ ~ SAC INH: FM WR EN (~ Memory)
(Quotient → AC)

110ns

ST1

SAC2: FMC AC2 EN B
(~ Memory)

Basic, Immediate
SAC2 ∧ ~SCE

ST4

Memory, Both
SCE (STORE MEM)

ST2 COND

Write restart or AC write to write quotient in E — see Store cycle (S)

110ns MCRSTØ

ST2

CLK LONG CYCLE

SAC2 Both

MC STORE IN AC(1) (ST3 COND)

ST3

170ns (See S)

ST3

ST4

~ ST3 COND

ST4

170ns

Memory
~ SAC2

ST5

170ns

110ns

ST4

AR MQ EN A
ST5 COND A → FM WR EN A
ST5 → (Remainder → AC2)

110ns

ST5

CLK EN INST DONE

Go to Instruction cycle (IC)

IR FDVXX

IR Ø6(1): MQ CLR A (FDVRX)
CLK LONG CYCLE
NRT1

170ns

Go to Floating Normalize & Round (FNR)

REVISIONS		
CHK	CHANGE NO	REV
—	KI1Ø-ØØØ41	—
	ORIGINATED	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005; XX ± .02; X ± .1
ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 12 Nov 73	TITLE: DIVIDE & DIVIDE SUBROUTINE
PROJ. ENG. Allan Kent	DATE 12 Nov 73	
PROD. Allan Kent	DATE 12 Nov 73	

NEXT HIGHER ASSY.: B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-DIVS	—

DIST

DEC FORM NO. DRD 102-B

DOUBLE MOVES

IR DMOVE / IR DMOVN

120 / 121

IR = 001 010 00X
IR 1XX IR 12X

	Action	Switches by IR DPOP	
DMOVE	C(E, E+1) → AC, AC2	FCE2, LT OR RT	ST INH
DMOVN	−C(E, E+1) → AC, AC2	PC CHANGE	SAC2

F CYC START — AB = AD = AR = Ø, E

Fetch double operand by IR DPOP (See DFFM)
C(E) → AR E+1 → AD → AB

F CYC ACT EN — SCAD AR EXP EN, AD FM+ EN A, ARX CLK EN, ET2 (IR DPOP)

110 ns

ET2 — AD MB EN, CLK INH, IR DMOVE: DMOVET1, IR DMOVN: DMOVNT1, FCE2 WAIT COND

FCE2 synchronization by IR DPOP (See DFFM)
C(E+1) → MB → AD

IR DMOVE

DMOVET1 — MQ AD EN B (C(E+1)), AB PC EN A → AB FF CLR, ST1 COND B → ST1 COND → ST1, → FM WR EN (C(E) → AC)

110 ns

ST1 — FMC AC2 EN B, MC INST FET ST1 EN, → MC INST FETCH EN, ST4

Fetch next instruction (MC1)

110 ns

ST4 — AR MQ EN A, ST5 COND A → ST5, → FM WR EN A (C(E+1) → AC2)

110 ns

ST5 — CLK EN INST DONE

Go to Instruction cycle (IC)

Note: DMOVNT3 is also used in PI INC MEM following ET2 (See PI)

IR DMOVN

DMOVNT1 — BR AR EN (Save high), AR AD EN G (Get low), AD MAGIC EN B, → AD AR− EN, → AD CRY 36 (−low), → AD ADD EN G, CLK LONG CYCLE (CLK MAX EN), AB PC EN A → AB FF CLR, DMOVNT2

230 ns

DMOVNT2 — MQ AD EN B (Save −low), AD BR− EN (High~), AD CRY 1: DMOV' NEG HI WORD, (High−) → AD MSK EN A → AD ADD, → AD CRY 36, DMOVNT3, MC INST FETCH EN

Fetch next instruction (MC1)

110 / 170 ns

DMOVNT3 — AR AD EN G (−high → AC), ST1 COND B → ST1 COND → ST1, → FM WR EN

110 ns

ST1 — FMC AC2 EN B, ST4

110 ns

ST4 — AR MQ EN A, ARI MQ ØØ INH (−low → AC2), ST5 COND A → ST5, → FM WR EN A

110 ns

ST5 — CLK EN INST DONE

Go to Instruction cycle (IC)

IR DMOVXM = IR DMOVEM ∨ IR DMOVNM

124 / 125

IR = 001 010 10X
IR 1XX IR 12X

IR DMOVXM PART 1 = IR 12X ∧ IR Ø6(1) ∧ IR Ø7(Ø) ∧ BYF6(Ø)

IR DMOVEM PART 1 = IR DMOVEM ∧ BYF6(Ø)

Switches: SCE, PC CHANGE, TN CLR INH, SAC INH

F CYC START — MC SYNC WRITE EN, AB AD CLK INH, CLK INH, MB 14−17 = Ø: FT6, ~MB 14−17 = Ø: FT8

AB = AD = AR = Ø, E

AB AB EN

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

FT6(1) — FT8(1) — FT8 — FMC AC∨AC2 EN, FT6

110 ns

IR DMOVNM PART 1 = IR DMOVNM ∧ BYF6(Ø)

Switches: SCE, PC CHANGE, TN CLR INH, ETØ EN, ET1 EN, SAC INH

IR DMOVEM

F CYC ACT EN — AD FM+ EN A, ET2

110 ns

ET2 — BR AR EN (Save E), AR AD ET2 EN, → AR AD EN A (AC), ST1 COND

IR DMOVNM

F CYC ACT EN — AD FM− EN (High~), ETØ

110 ns

ETØ — AR AD BR (ETØ) → BR AR EN (Save E), → AR AD EN A (High~), AD AR+ EN C, AD ADD ETØ EN A → AD ADD EN D, (High−) → AD CRY 36, → AD MAGIC EN A, FMC AC2 EN A, ET1

170 ns

ET1 — MQ AD EN A (Save high−), AD FM− EN (AC2), AD MSK EN A → AD ADD, → AD CRY 36 (−low), CLK LONG CYCLE (CLK MAX EN), ET2

230 ns

ET2 — AD CRY 1: AR MQ EN A (If low zero, substitute high− for high~), ST1 COND

110 ns

ST1 — ST2 COND

Write restart or AC write to write AC (DMOVEM) or high word of negative (DMOVNM) in E − see Store cycle (S)

110 ns — MCRSTØ

ST2 — AB AD EN → AB FF CLR, AD BR+ EN B (Get E), PI CYC(Ø): BYF6 EN, CLK LONG CYCLE, FT6

170 ns

IR DMOVEM PART 2 / IR DMOVNM PART 2

IR DMOVEM PART 2 = IR DMOVEM ∧ BYF6(1)
IR DMOVNM PART 2 = IR DMOVNM ∧ BYF6(1)

IR DMOVXM PART 2 = IR DMOVXM ∧ BYF6(1)

Switches: ETØ EN, ET1 EN, STORE, SAC INH

AD 24−29 BR+(1) implies PART 2 (See ST2 of PART 1)

	Action
DMOVEM	AC, AC2 → E, E+1
DMOVNM	−(AC AC2) → E, E+1

F CYC ACT EN — [AD 24−29 BR+(1)] AR AD EN (E), AD AR+ EN C, AD ADD EN C, AD CRY 36 (E+1), AD MAGIC EN A, ETØ

170 ns

ETØ — IR DMOVEM: FMC AC2 EN B, IR DMOVNM: FMC AC2 EN A, MC AUTO IN FET A → MC INST FETCH START EN, MC STORE TIME → CLK INH, → MC SYNC WRITE EN, AB AD CLK INH, ET1

The AD gates listed in DMOVNM PART 1 are enabled here but the AD clock is inhibited.

AB AB EN

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

IR DMOVEM

ET1 — AD FM+ EN (AC2), ET2

110 ns

ET2 — AR AD ET2 EN, → AR AD EN A, ST1 COND

IR DMOVNM

ET1 — AD FM− EN (AC2), AD MSK EN A → AD ADD, → AD CRY 36 (−low), [MQ AD EN A], ET2

170 ns

ET2 — AR AD ET2 EN → AR AD EN A, ARI AR ØØ GETS Ø, ST1 COND

110 ns

ST1 — ST2 COND

Write restart or AC write to write AC2 (DMOVEM) or low word of negative (DMOVNM) in E+1 − see Store cycle (S)

110 ns — MCRSTØ

ST2 — CLK LONG CYCLE, ST5

170 ns

ST5 — BYF6 CLR, CLK EN INST DONE

Go to Instruction cycle (IC)

REVISIONS			
CHK	CHANGE NO	REV	
—	KI10-00041	—	ORIGINATED

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION: PARTS LIST	PART NO / ITEM NO
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN: C CIAMPA	DATE: 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'	CHK'D: W ENGLISH	DATE: 6/30/73	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	ENG: Alan Kent	DATE: 13 Nov 73	TITLE: DOUBLE MOVES
MATERIAL	PROJ ENG: Alan Kent	DATE: 13 Nov 73	
FINISH	PROD: Alan Kent	DATE: 13 Nov 73	
	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø		SIZE D / CODE FD / NUMBER KI10-Ø-DM / REV —
	SCALE: —		
	SHEET 1 OF 1		DIST

DEC 10MM-NC DRD 102-B

ENTRIES FROM DOUBLE FLOATING POINT INSTRUCTIONS (EXCEPT DFDV):

IR DFAS

DFAT1: IR XXX-DFAD

DFAT2: DFSB

DFAT5: DFAD or DFSB

IR DFMP (DFFM)

DFMT3

Triple length fraction is in ARX-AR-MQ
SCAD has -exponent

DFAT ARGS RDY

~ SC Ø-2=7 ∧ FLAG 2(1)

DNT1 COND A →
- ADX FM+-B → ADX FM+ EN, ADX FM- EN
- ADX ADD EN A
- AD AR+ EN F → AD ADD, AD MAGIC EN
- FLAG 2 CLR
- MC INST FETCH NEXT EN
- DNT1

Add 1 into LSB of high order 35 bits to check for 35 leading null bits in a negative result

MAGIC #Ø8

191ns

DNT1

SC SCAD EN D (-exponent)
AD AR+ EN D
FLAG 3 CLR
MC INST FETCH NEXT EN: MC INST FETCH EN

Fetch next instruction (MC1)

(ARX ØØ-35=Ø ∧ AR Ø1-Ø8=Ø ∧ FLAG 1(Ø)) ∨ (ADX CRY Ø ∧ ADX ADD(1))

High order 35 bits null
FLAG 1 is Ø first time only

DNT2

110ns

DNT2

ARX CLK EN (Clear ARX)
BR AR EN
AR Ø1: BR ØØ IN
AR MQ EN
MQ CLR B
ADX BR- EN (BR→ADX)
ADX EQV
DNT3

110ns

Move AR Ø9-35 to ARX with sign from AR Ø1, move MQ to AR, and subtract 35 from exponent

Can use this path only once for positive, once or twice for negative (second time clears AR because first time clears MQ)

DNT3

ARX ADX EN
SCAD SC+ EN
SCAD 43 EN (35)
SCAD MISC DATA EN
SCAD ADD EN A→B
FLAG 1 EN
DNT1 COND A →
- ADX FM+-B → ADX FM+ EN, ADX FM- EN
- ADX ADD EN A
- AD AR+ EN F → AD ADD, AD MAGIC EN
- DNT1

MAGIC #Ø8

191ns

ARX Ø0 = ARX Ø9 ∧ FLAG 2(Ø) ∧ ((~ARX ØØ-19=Ø ∨ ~ARX 20-35=Ø ∨ ~AR Ø1-Ø8=Ø) ∧ (~ADX CRY Ø ∨ ADX ADD(Ø)))

Normalize nonzero result

DNT4

110ns

DNT4

ARX SH LT B (AD Ø1→ARX 35)
AR SH LT A → MQ SH LT EN
MQ Ø1: ARMC AR 35 AUX MIX
SC SC+1 EN (-exp+1)
FLAG 2 EN
AD AR+ EN D
SCAD SC+ EN

ARX Ø0 = ARX 10 ∧ ~IR DFMP

Do another shift

DFMP normalization limited to one shift

~ARX Ø0 = ARX 10 ∨ IR DFMP

DNT1

110ns

[ARX ØØ(Ø) ∧ (ARX Ø9(1) ∨ FLAG 2(1)) ∧ MQ Ø1(1)] ∨ [ARX ØØ(1) ∧ (ARX Ø9(Ø) ∨ FLAG 2(1)) ∧ MQ Ø1(1) ∧ ~MQ Ø2-35=Ø]

Normalized but must add 1 to round

DNT5 COND →
- ADX FM+-B → ADX FM+ EN, ADX FM- EN
- ADX ADD EN A
- AD MAGIC EN C (Add 1) → AD ADD
- AD CRY 36
- MQ CLK EN (Clear MQ)
- SCAD SC+ EN
- SCAD ADD EN A→B (-exp-1)
- DNT5

191ns

DNT5

ARX ØØ(Ø) Positive

ARX SH RT EN
AR SH RT A→AR CLR A (ADX 35→AR Ø1)
MQ SH RT A → MQ Ø1 GETS AD 35
SC SCAD EN A
SCAD SC+ EN
FLAG 2 CLR
DNT1

110ns

In case rounding overflows, shift right, get adjusted exponent, and renormalize if necessary (at most one shift)

ARX ØØ(1) Negative

AR AD EN J (Low word)
DN RND NEG →
- ARX ADX EN (High)
- AD AR+ EN D (Low)
- SCAD NEGATE B → SCAD SC- EN, SCAD +1, SCAD DATA EN (Negate -exponent)
- SCAD ADD
- DNT7 COND → SCAD ADD EN A→B, DNT7

Negative, normalized, and rounding done

ARX ØØ(Ø) ∧ (ARX Ø9(1) ∨ FLAG 2(1)) ∧ MQ Ø1(Ø)

Positive, normalized, and rounding done or not needed

DNT7 COND → (Negate -exponent)
- SCAD NEGATE B → SCAD SC- EN, SCAD 1, SCAD DATA EN
- SCAD ADD EN A→B
- DNT7

ARX ØØ(1) ∧ (ARX Ø9(1) ∨ FLAG 2(1)) ∧ (MQ Ø1(Ø) ∨ MQ Ø2-35=Ø)

Negative, normalized, and no rounding needed

DNT6 COND → (-exp-1)
- SCAD SC+ EN
- SCAD ADD EN C
- DNT6

170ns

DNT6

ARX Ø9-35=Ø ∧ AD ØØ-17=Ø ∧ AD Ø9-35=Ø: SC SCAD EN B (Fraction = -1, change to -1/2 and add 1 to exponent) → ARX SH RT EN
AD AR+ EN D (Low result)
DNT7 COND → (Negate -exponent)
- SCAD NEGATE B → SCAD SC- EN, SCAD +1, SCAD DATA EN
- SCAD ADD EN A→B
- DNT7

170ns

DNT7

SC SCAD EN D (Result exponent)
ARX ØØ(1): FLAG 3 EN (Result negative)
MQ AD EN B (Low result→MQ)
BR ARX EN
AD BR+ EN B (High fraction→BR→AD)
DNT8

110ns

DNT8

AR AD EN E (High fraction)
FLAG 3(Ø): SCAD SC+ EN (Put exponent in correct form)
FLAG 3(1): SCAD SC- EN
~SC Ø=SC 1: ARF OV SET → ∧ PI CYC(Ø): AR OV EN, TN 1 EN
ARF FOV TEST → ∧ PI CYC(Ø): AR FOV EN
AR FXU HOLD(Ø): ARF DP TEST → ∧ ~SC Ø=SC 1 ∧ PI CYC(Ø): AR FXU EN
DNT9

110ns

DNT9

AR EXP SCAD EN (Insert exponent in high result) →
- ARI AR ØØ SELF (ARI AR ØØ SELF DATA)
- AR 12-17 SELF B
- AR RT AR RT
- AR RT AUX EN

SC 1=FLAG 3: ARI AR Ø1 AUX DATA 1
ST1 COND B → ST1 COND → FM WR EN
∴ (High result→AC) → ST1

AUX DATA used to save time

110ns

ST1

FMC AC2 EN B
ST4

110ns

ST4

AR MQ EN A
ARI MQ ØØ INH
ST5 COND A → FM WR EN A → ST1

Low word→AC2 with sign Ø

110ns

ST5

CLK EN INST DONE

Go to Instruction cycle (IC)

ARX ØØ-19=Ø ∧ ARX 20-35=Ø ∧ AR Ø1-Ø8=Ø ∧ FLAG 1(1)

Positive and second order 35 bits null

AR CLR B
MQ CLK EN (Clear MQ)
ST1 COND → FM WR EN (Clear AC), ST1

110ns

DNT8 & DNT9 are also used in IR DFDV following DFDT8 or DFDT9 (see DFD)

REVISIONS	REV	CHK	CHANGE NO
	A		K110-00041 REDRAWN. OLD DWG IS NOW D-FD-K110-A-DN

A KENT 7 Dec 73

FIRST USED ON OPTION/MODEL	KI1Ø
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DECIMALS: XXX ± .005, XX ± .02, X ± .1; ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓	
MATERIAL	
FINISH	

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG.	DATE 12N-v'73	
PROJ. ENG.	DATE 12N-v'73	
PROD.	DATE 12Nov'73	
NEXT HIGHER ASSY. B-DD-KI1J--		
SCALE —		
SHEET 1 OF 1		

TITLE: DOUBLE NORMALIZE

SIZE D | CODE FD | NUMBER K110-0-DN | REV. A | DIST

DEC FORM NO DRD 102-B

F CYC ACT EN = FT6(1) ∨ (IT1(1) ∧ MB 13(Ø) ∧ ~ FCE ∧ ~ SCE ∧ ~ FCE,LT OR RT ∧ MB 14-17 = Ø)

From Fetch cycle (F)

F CYC ACT EN → ~TN CLR INH ∧ ~ STORE: TRAP SATISFIED; ARX CLR EN (Clear ARX); CLEAR AR FXU HOLD

~ ET Ø EN

ET Ø EN → ETØ

ETØ * NOTE 1

SC SUBR EN = ETØ(1) ∧ (IR XMULX ∨ (BYF5(1) ∧ ~ SCAD CRY Ø))

SC SUBR EN → BYTE XLDB: SCT1; ~BYTE XLDB: SCT2

Go to Shift Count Subroutine (SCON) → SCTC

SCTC DONE ∧ (BYF5(1) ∨ IR XMULX)

ET1 EN

~ ET1 EN

ET1 EN ∧ ~ SC SUBR EN

~ STORE

STORE → ET1

STORE

MC STORE TIME → CLK INH
↳ MC SYNC WRITE EN
↳ ∧ KEY SINGLE PULSE SYNC(1): NO MEMGO INH EN
AB AD(1): AB AD CLK INH
AB AB EN

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

ET1(1) → ET1

ET2(1) → ET2

~ STORE

~ ET1 EN → ET2

BYTE XDPB PART 2 ∨ (IR XMULX ∧ IR 07(1)) → Start memory write subroutine (see MC2)

ET1 → ~TN CLR INH ∧ STORE: TRAP SATISFIED; See note at F CYC ACT EN above * NOTE 1

ET1 IOT LOOP (= IOT INST ∧ IOB IOT(Ø) ∧ PI DIVERT INDIRECT(Ø)) → ET1

~ IOT INST

IOB IOT(1) → IOTTØ → Go to In-out (IOT)

Return from In-out → IOTT9

IOT INST ∧ IOB IOT(Ø) ∧ PI DIVERT INDIRECT(1) (: PI CYCLE DIVERTED) → Clear KEY CYCLE

KEY RUN(1)

PI RDY SYNC(1) → PIT1 → Go to PI cycle (PI)

PI RDY SYNC(Ø) → KT1 COND → Go to Key cycle (KC)

~ ET1 EN

ET2(1) ∧ [(~ STORE MEM ∧ ~ ST INH ∧ SAC INH) ∨ (IR FIXX ∧ SCAD Ø(1) ∧ SC Ø(Ø))]: CLK EN INST DONE
FCE PSE ∨ SCE ∨ STORE: STORE MEM

MC MEM GO INH(1) → Start memory write subroutine (see MC2) → ET2

T2 → MC MEM GO INH CLR | ~ PI MAY OVF ∧ PI CYC(1) ∧ PI OV(Ø): PI ACT INH; MC INST FET ET2 EN → MC INST FETCH EN * NOTE 1

Fetch next instruction (MC1)

CLK EN INST DONE → Return to Instruction cycle (IC)

ST1 COND → ST1 → Go to Store Cycle (S)

BLTF1(1) → BLTØ → Go to Block Transfer (BLT)

IR SR INST → SRT1 → Go to Shift-Rotate (SR)

IR JFFO ∧ FLAG 1(1) ∧ ~ MQ ØØ IN → JFFOT1 → Go to JFFO (JMP2)

IR FIXX → SCØ(≥) ∧ SCAC Ø(Ø) → FIXT1 → Go to Fix (FFDN)

AR ØØ ≠ ARØ1 ∧ SC Ø(1) → SCT1 → Go to FLTR (FFDN)

IR FLTR → SCT2 → Go to Divide Subroutine (DIVS)

IR XDIVX → DST1 → Go to Floating Add-Subtract (FASU)

IR FADXX ∨ IR FSBXX ∨ IR UFA → FAT1 → Go to Floating Multiply (FMSC)

IR FMPXX → FMT1

IR FDVXX → FDTØ → Go to Floating Divide (FD)

IR FSC → NRT1 → Go to Floating Normalize & Round (FNR)

IR DFAS → DFAT1 → Go to Double Floating Add-Subtract (DFAS)

IR DFMP → DFMT1 → Go to Double Floating Multiply (DFFM)

IR DFDV → DFDVT1 → Go to Double Floating Divide (DFD)

IR DMOVE → DMOVET1 → Go to Double Move (DM)

IR DMOVN → DMOVNT1 → Go to Double Move Negative (DM)

ET2(1) ∧ [(~ ST INH ∧ (FCE PSE ∨ SCE ∨ STORE ∨ ~ SAC INH)) ∨ ST INST FET ST1 EN ∨ (IR FIXX ∧ ARØØ = ARØ1) ∨ (IR JFFO ∧ (ARØØ(1) ∨ FLAG 1(Ø)))]: ST1 COND

PI MAY OVF = IR SKIPS ∨ IR BLKX ∨ IR CONSX

The following events may occur at any of the indicated clocks:

FT6, ETØ, ET1, ET2 → MC INST FETCH NEXT(1): MC INST FETCH EN → Fetch next instruction (MC1)

TRAP SATISFIED causes clock to clear these flags
TNØ
TN1
COMP ADR BRK INH
KEY CYCLE
KEY XCT
conditions in key logic may override the clear for KEY XCT

KEY RUN can be Ø only if SINGLE INST is on (See IOT1)

TN CLR INH
BYF5-6 SET
IR BLT
IR LUUO
IR XCT
IR DMOVXM PART1
IR DFDV
PI CYC(1)
TRAP PAGE FAULT(1)

STORE
IR LUUO
IR PUSH
IR PUSHJ
IR DMOVEM PART 2
IR DMOVNM PART 2
MUUO PART 1
MUUOF2(1)
PI DATAI
PFF1(1)

ETØ EN only
IR 3XX
IR FSC
IR BOOLE ∧ IR XX (7, 13, 15, 16)
IR HWTFWT ∧ IR XXXM
IR MUUOF2 (1)
IR TEST ∧ IR ØØ(1)
IR POP
IR JSA
BYTE PTR INC
IR FP IMM

ET1 EN only
IR FSB XX
IR FDV XX
IR FMP XX
TEST TXOX ∨ TXX(E,N,A)
IOT INST ∧ ~ IR BLKX

Both ETØ EN and ET1 EN
MUUO PART 1
IR DFDV
IR DFMP
BYF5(1)
IR PUSH
IR PUSHJ
IR LUUO
IR BLT
IR SP INST
IR DFAS
IR DFN
IR FIXX
IR XMULX
IR XDIVX
IR JFFO
PI INC MEM
IR DMOVNM
IR DMOVEM PART 2

* NOTE 1: SEE INDIVIDUAL INSTRUCTIONS FLOWS FOR ETØ, ET1 AND ET2 ACTIONS.

REVISIONS		
CHK	CHANGE NO	REV
—	K11Ø-00041 ORIGINATED	—

BRUNING 40-522 1964
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES: DECIMALS XXX = .005, .XX = .02, .X = .1; ANGLES ±0° 30'. REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	DRN M. Stephenson	DATE 11 MAY 72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
	CHK'D. David Gross	DATE 31 Jan 72	TITLE: EXECUTE CYCLE	
	ENG. Allan Kotok	DATE 31 Jan 72		
	PROJ. ENG. Allan Kent	DATE 31 Jan 72		
	PROD. Matthews	DATE 31 JAN 72		
MATERIAL	NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		SIZE D CODE FD NUMBER KI1Ø-Ø-E REV —	
FINISH	SCALE ~	SHEET 1 OF 1	DIST.	

IT1

From Instruction cycle (IC)

F CYC START (= IT1(1) ∧ MB 13(Ø))

IR XCT : XCTF EN
Clear INST DONE
~ BYTE FIRST PART ∧ (XCTP RD(1) ∨ XCTP WR(1)): XCTP ACTIVE EN

MC PAGE SLOW EN SET

AB = AD = AR
~ IR JRST : AR = Ø, E
IR JRST : AR = RESTORE BITS, E

AD F LT ∨ RT COND (= IR JRA ∨ IR POPX)

AD FM + EN B (AC → AD → AB)
FMC AC EN A
~ MB 14-17 = Ø: CLK LONG CYCLE, SCAD ADD EN B (CLK MAX EN)

IR JRA — FT1 — 110/230 ns
IR POPX — FT3 — 110/230 ns

FT1 — 110 ns
BR AR EN
AR AD EN G
FT2
E → BR
AC → AR

FT2 — 110 ns
AR RT AR LT EN
AD AR + EN D
FT3
AC LT → AR RT
↳ AD RT

ST2
IR BLKO ∨ MUUO PART 3
FT3 — 170 ns

FT3
IR POPX : BR AR EN (E → BR)
IR IOT : IR 12 SET (DATAO)
MUUOF1(1): MA SPECIAL EN A
↳ MA SPECIAL EN
↳ MA SPECIAL UBR EN
(AB AD(1):) AB AD CLK INH
CLK MISC INH → AR CLR A
MC SYNC READ EN
SCE : FT4 COND (POP)
~ FT4 COND : FT6 (POPJ, JRA, BLKO, MUUO)

AB AB EN

See note — OPERAND READ — MC RST1

POPX : C(AC RT) → AR
JRA : C(AC LT) → AR
BLKO : C(POINTER RT) → AR
MUUO : PC WORD → AR

MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

ST2
IR BLKI
FT5 — 170 ns

FT4(1)
FT4
AD BR + EN B (E → AD → AB)
AB AD EN → AB FF CLR
FT5
110 ns

FT5
IR IOT : IR 12 SET (DATAI)
~ PC CHANGE → MC AUTO IN FET A
↳ MC INST FETCH START EN
(AB AD(1):) AB AD CLK INH
MC STORE TIME → MC SYNC WRITE EN
↳ CLK INH
(~ MCI PSEUDO INST FET EN:) FT6

AB AB EN

PAGE CHECK — MC PAGE DLY OVER — See note

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

ST2
MUUOF2(1) ∨ IR DMOVXM PART 1
FT6 — 170 ns

FT6(1)

IR DPOP = (IR 11X ∨ (IR 12X ∧ IR Ø7(Ø))) ∧ IR Ø6(Ø)
AB FETCH IT1 COND = IR DPOP ∨ FCE
MC SPLIT CYC COND = F CYC START ∧ ((FCE ∧ SCE) ∨ (MC SCE OR PSE ∧ ~ MC SCE NOT POPX ∧ (KEY SINGLE PULSE SYNC(1) ∨ KEY ADR STOP(1) ∨ KEY PAR STOP(1) ∨ (IOB DR SPLIT T ∧ ~ IR SKIP3))))

IR DPOP

AB FETCH IT1 COND
↳ (∧ AB AD(1):) AB AD CLK INH
↳ MC SYNC READ EN
MCS FCE2 START EN
FT7

110 ns

FT7
BR AR EN (E → BR)
AD BR + EN B
AD MSK EN A → AD ADD
AD CRY 36 (E + 1 → AD)
CLK MISC INH → AR CLR A
↳ MC SYNC READ EN
(~ MCI PSEUDO INST FET EN:) FT6

C(E) → AR
See note

MC RST1

MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

AB FETCH IT1 COND
↳ AB AB EN

OPERAND READ

To FCE2 Synchronization in Execute cycle

FCE (: AB FETCH IT1 COND) ∨ SCE ∧ ~ IR POP (X)

IR CONI ∨ IR DATAI ∨ IR MAP : MC MEM GO INH EN
MC SPLIT CYC COND : MC SPLIT CYC SYNC EN
MC IN FET COND : MC AUTO IN FET A → MC INST FETCH START EN
(AB AD(1):) AB AD CLK INH
CLK INH

All conditions that generate FCE PSE also generate FCE

FCE (: AB FETCH IT1 COND)

MC SYNC READ EN
FCE PSE : MC SCE OR PSE
↳ MC SYNC WRITE EN
(~ FCE 2, LT OR RT :) FT6

AB AB EN

See note — OPERAND READ — MC RST1 — C(E) → AR

MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

FT8(1)
FT8
IR MAP : PF MAP COND A
↳ MC SYNC WRITE EN
FMC AC ∨ AC 2 EN
(~ MCI PSEUDO INST FET EN:) FT6
110 ns

SCE

MC SCE NOT POPX
↳ MC SCE OR PSE → MC SYNC WRITE EN
MB 14-17 = Ø (∧ ~ FCE 2, LT OR RT) : FT6
~ FCE ∧ ~ MB 14-17 = Ø : FT8

AB AB EN

See note — PAGE CHECK — MC PAGE DLY OVER — PF CLK START

Do not continue on this path if also reading

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

if MAP page failure returns this way

FT6(1)

~ F MEM REF

MC INST FETCH(IT1) : MC INST FETCH EN
~ MC INST FETCH(IT1) : FMC AC EN A
~ STORE ∧ ~ PC CHANGE : AB PC EN A
↳ AB FF CLR
MC IN FET COND : MC INST FETCH NEXT EN

~ MB 14-17 = Ø — MB 14-17 = Ø

AD AR + EN E
FT6
Hold E in AD

110 ns

FCE
BYF5(1)
IR UFA
IR SKIP3
IR CAMX
IR PUSH
IR FLTR
IR FIXX
IR FP ~ IMM
IR XMULDIVX ∧ ~ IR XXXI
IR BOOLE ∧ ~ IR XX(Ø, 5, 12, 17) ∧ ~ IR XXXI
IR ABSUB ∧ ~ IR XXXI
IR HWTFWT ∧ ~ IR XXXM ∧ ~ IR XXXI
IR DFN
IR EXCH
BYTE FIRST PART
IR DATAO
IR BLKX
TEST T (D, S) XX
PI INC MEM
FETCH HXX - M (= IR HWT ∧ IR XXXM ∧ IR Ø4(Ø) ∧ IR Ø5(Ø))

FCE PSE
FETCH HXX - M
IR EXCH
IR AOSX
IR SOSX
BYTE PTR INC
IR DFN
IR BLKX
PI INC MEM
IR HWTFWT ∧ IR XXXS
IR ADSUB ∧ IR Ø7(1)
IR BOOLE ∧ ~ IR XX(Ø, 5, 12, 17)

SCE
IR XMULDIVX ∧ IR Ø7(1)
IR 1XX ∧ IR Ø3(1) ∧ IR Ø7(1)
IR FWT ∧ IR Ø8(Ø) ∧ IR Ø7(1)
IR BOOLE ∧ IR XX(Ø, 5, 12, 17) ∧ IR Ø7(1)
KEY DEP CYCLE (1)
IR DATAI
IR JSR
IR JSA
IR POP

IR CONI
IR MAP
IR DMOVXM PART 1
BYTE XDPB PART 2
IR HWT ∧ IR XXXM ∧ (IR Ø4(1) ∧ IR Ø5(1))

From PI cycle with FT6(1) (PI)

MC PAGE DLY OVER — PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

MC RST1 — MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

Note: In memory subroutine

MC PAGE DLY OVER → FT6(1): FMC SEL Ø SET (To give FM ADR AC)

PC CHANGE
TEST TXX (E, N, A)
IR AOBJX
IR POPJ
IR BLT
IR DPOP
IR DMOVXM ∧ BYF6 ?
IOT INST
MUUO PART 3
BYTE FIRST PART ∧ ? IBP
PC CHANGE A ∧ (IR ? ∨ IR 2GX ∨ IR 3XX)
PC CHANGE A = IR ? (: IR Ø6(1)

F CYC ACT EN (FT6) → Go to Execute cycle (E)

FCYC ACT EN → Go to Execute cycle (E) in same time state (IT1)

See individual instruction flows for specific Execute Cycle actions

REVISIONS	CHANGE NO.	REV
CHK	KI10-00041	—
	ORIGINATED	

DRAWING 40-323 15840
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005, .XX = .02, .X = .1 — ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. W. Stephenson — DATE 7/19/72
CHK'D. Richard Brown — DATE 7/15/72
ENG. Allan Kotok — DATE 7/20/72
PROJ. ENG. Allan Kotok — DATE 7/20/72
PROG. [illegible] — DATE 7/20/72

NEXT HIGHER ASSY. B-DD-KI10-Ø
SCALE ~
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: FETCH CYCLE

SIZE D | CODE FD | NUMBER KI10-Ø-F | REV —

DIST.

SIZE D | CODE FD | NUMBER KI10-Ø-F | REV —

FP ADSUB

= IR FADXX ∨ IR FSBXX ∨ IR UFA

IR FADXX	FADX FSBX	FADRX FSBRX	IR FSBXX
140-147	140-143 150-153	144-147 154-157	150-157
IR = 001 100 XYY	Basic	Basic	IR = 001 101 XYY
IR 1XX	Long	Immediate	IR 1XX
	Memory	Memory	
	Both	Both	

XYY act thru signals common to all four basic floating point instruction sets

X specifies rounding
- IR FP ~RND = IR 1XX ∧ IR 03(1) ∧ IR 06(0) (~Round)
- IR FP RND = IR 1XX ∧ IR 03(1) ∧ IR 06(1) (Round)

YY specifies mode
- IR FP IMM = IR 1XX ∧ IR 03(1) ∧ IR XX5 (Immediate)
- IR FP ~IMM = IR 1XX ∧ IR 03(1) ∧ ~IR XX5 (~Immediate)
- IR FP LONG = IR FP ~IMM ∧ IR XXX1 (Long)

Action

Basic	AC ± C(E) → AC
Long (FADL, FSBL)	AC ± C(E) → AC, AC2
Immediate (FADRI, FSBRI)	AC ± (E,0) → AC
Memory	AC ± C(E) → E
Both	AC ± C(E) → AC; E

Switches

IR FP ~IMM: FCE (~Immediate)
[IR 1XX ∧ IR 03(1) ∧] IR 07(1): SCE (Memory, Both)
IR FP IMM: ET0 EN (For Immediate swap)
IR FSBXX: ET1 EN (Subtract only)
IR 1XX ∧ IR 03(1) → IR FP → IR FP SHIFT → ST INH
IR FP ~IMM ∧ IR XXXM: SAC INH (Memory)
IR FP ~IMM ∧ IR XXX1: SAC2 (Long)

F CYC START — AB = AD = AR = 0, E

Summand or subtrahend and next instruction fetch according to mode:

Basic, Long	FCE	C(E) → AR	MC INST FETCH START EN
Immediate	~F MEM REF	AR = 0, E	MC INST FETCH NEXT EN
Memory, Both	FCE, SCE	C(E) → AR	MC INST FETCH START EN

See Fetch cycle (F) — See MC1

F CYC ACT EN
- AD FM+ EN A (AC)
- SCAD AR EXP EN (C(E) exponent)
- IR FSBXX: AD AR- EN (Negate subtrahend)
- AD CRY 36
- AD ADD FETCH EN B → AD ADD EN C
- AD MAGIC EN A (Smother FM+)

IR FP ~IMM / IR FP IMM

IR FP IMM: ET0

110/170 ns — ET0
- AR LT AR RT
- AR RT AR LT (AR swap)
- AD FM+ EN B
- SCAD AR EXP EN
- IR FSBXX: AD AR- EN
  - AD ADD ET0 EN A → AD CRY 36
  - AD ADD EN D
  - AD MAGIC EN A

IR FSBXX: ET1 / IR FADXX: ET2

170 ns — ET1
- AR AD EN B (Get negative)
- AD FM+ EN B
- SCAD AR EXP EN
- ET2

IR UFA

130
R = 001 011 000
IR 1XX IR 13X

Action

AC + C(E) → AC2 without normalization

Switches

FCE
IR 1XX ∧ IR 03(1) → IR FP → IR FP SHIFT → ST INH

AB = AD = AR = 0, E

F CYC START
- MC SYNC READ EN
- CLK INH
- AB AD CLK INH
- MC IN FET COND
  - MC AUTO IN FET A
    - MC INST FETCH START EN
- FT6

AB AB EN

SUMMAND READ MCRST1 — C(E) → AR

MC SYNC READ(1) ∧ PAGE SYNC REFILL(0)

F CYC ACT EN
- AD FM+ EN A (AC)
- SCAD AR EXP EN (C(E) exp)

110 ns — ET2
- BR AR EN (C(E) or -C(E))
- AR AD ET2 EN → AR AD EN A (AC)
- SC FE CLOCK (Save BR exponent; M or ~M)
- BR SIGN SMEAR EN
- SC SCAD EN C (M or ~M)
- SCAD EXP ADD → SCAD AR EXP EN (A or ~A)
  - → SCAD ADD EN A → B
- SCAD +1
- FM 00 = AR 00: SCAD SC- EN
- ~FM 00 = AR 00: SCAD SC+ EN (See table)
- CLK LONG CYCLE (CLK MAX EN)
- IR UFA: FMC AC2 EN A (For result)
- FAT1

BR SIGN SMEAR (1)
- BR 00(0) → BR SMEAR ZEROS
- BR 00(1) → BR SMEAR ONES

A = True AC exponent (AR)
M = True memory or immediate exponent (BR)

Sign test for add made at FM & AR prior to transfer of AC & ±C(E) to AR & BR respectively

SCAD ADD

AC \ BR	+	-
+	A-M	A-M
-	M-A	M-A

Test of Add Result

AR sign	SCAD sign	Implies
+	+	A ≥ M
+	-	A < M
-	+	A ≤ M
-	-	A > M

230 ns — FAT1
- SC SCAD EN D (±D → SC)
- ~SCAD 0 = AR 00: FLAG 2 EN (A ≤ M)
- SCAD 0(0): SCAD NEGATE A (Want difference in negative form for shifting)
  - → SCAD SC- EN
  - → SCAD +1
  - → SCAD ADD
  - → SCAD DATA EN
- FAT2

D = |A-M|

BS for floating point time states is FP

110/170 ns — FAT2
- SC 0(0): SC SCAD EN A (If pos D in SC, substitute neg D)
- FLAG 2(0): SCAD AR EXP EN (A ≥ M: A or ~A → SCAD)
- FLAG 2(0) ∧ AR 00(0): SCAD SC+ - EQV
  - → SCAD EQV
  - → SCAD SC+ EN (A ≥ 0 → ~A)
  - → SCAD SC- EN
- FLAG 2(1): SCAD FE EN (A ≤ M: M or ~M → SCAD)
- FLAG 2(1) ∧ BR 00(0): SCAD EQV EN A (M ≥ 0 → ~M)
  - → SCAD DATA EN
- AD BR+ EN B (May move to AR)
- FAT3

FAT2 puts complement of larger exponent into SCAD
A ≥ M: AR supplies A or ~A; if A, EQV with 0 to give ~A.
A ≤ M: FE supplies M or ~M; if M, EQV with 0 to give ~M.

Must get fraction with smaller exponent into AR to shift right to correct position vis-a-vis fraction with larger exponent in BR.

FAT3
- SC FE CLOCK (Save ~result exponent)
- FLAG 2(0): BR AR EN (A ≥ M: AC → BR)
- BR SIGN SMEAR EN
- FLAG 2(0) ∧ [SC 0(0) ∨ (SC 1(1) ∧ SC 2(1))]: FAT3 AR INPUT → AR AD EN
  - (A ≥ M & D ≤ 64: BR → AR)
- FLAG 2(1) ∧ SC 0(0): AR SIGN SMEAR A
  - ∧ (SC 1(1) ∧ SC 2(1)): AR SIGN SMEAR B
    - → AR AR 00 SELF
    - (A ≤ M & D ≤ 64: keep AC in AR) (ARI AR 00 SELF DATA / ARI AR 01-11 DATA)
    - → AR 12-17 SELF B
    - → AR RT AR RT
    - → AR RT AUX EN
- AR CLR A (If AC neither moved to BR nor kept in AR (A ≤ M & D > 64), throw it away)
- AD AR+ EN D (For shift or direct sum)

BR SIGN SMEAR (1)
- BR 00(0) → BR SMEAR ZEROS
- BR 00(1) → BR SMEAR ONES

~SC 0-2=7
D = 0 or D > 64

FAT4 COND
- → AD BR+ EN B (Sum → AD)
- → AD ADD EN G
- → CLK LONG CYCLE (CLK MAX EN)
- → FAT4

0 < D ≤ 64

SC 0-2 = 7 — SCT1

110 ns — SCT1
- SC 8(1): AR SH RT A → AR CLR A (ARI AR 00 SH RT A / ARI AR 01 SH RT)
- MQ SH RT A
- (IR FP SHIFT → (AD 35 → MQ 08))
- SC SH RT EN

~SC + 1 = 0 — AD AR+ EN B, SCT2

110 ns — SCT2
- AR SH RT2 EN
- ARI SR2 COND
- MQ SH RT2 EN
  - → MQ FP SHIFT
- SC SC+1 EN

AD 34, 35 → MQ 08, 09

~SC + 1 = 0

SC 0-3 ALL ONES ∧ SC 8(1) ∧ SC 4-7 ALL ONES (SCTC DONE) (= SC + 1 = 0)

AD AR+ EN B
FAT4 COND
- → AD BR+ EN B (Sum → AD)
- → AD ADD EN G
- → CLK LONG CYCLE (CLK MAX EN)
- → FAT4

230 ns — FAT4
- SCAD FE EN (Get ~result exponent)
- AD 00 ≠ AD 08: FAT4 SH RT
  - → AR SH RT EN (ARI AR 00 SH RT A / ARI AR 01 SH RT)
  - (Fractional overflow, already have - exponent)
  - → MQ SH RT C
  - (IR FP SHIFT → (AD 35 → MQ 08))
  - → CLK LONG CYCLE
- AR CLR A (For clock)
- AD 00 = AD 08: FAT4 ~SH RT
  - → AR LT AD EN
  - → AR RT AD EN
  - → SCAD ADD EN A → B
  - → SCAD +1
  - → SCAD DATA EN
- (Sum OK, change ~exponent to -exponent)
- AD AR+ EN D (Result fraction)
- NRT1

170 ns

Go to Floating Normalize & Round (FNR)

REVISIONS	REV	CHK	CHANGE NO
	A	[illegible]	KI10-00041

REDRAWN OLD DWG IS NOW D-FD-KI10-A-FASU
[illegible] A KENT
Allen Kent 17 Dec 73

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN.	C. CIAMPA	DATE 6/30/73
CHK'D.	W. ENGLISH	DATE 6/30/73
ENG.	Allan Kent	DATE 13 Nov 73
PROJ. ENG.	Allan Kent	DATE 13 Nov 73
PROD.	Allan Kent	DATE 13 Nov 73

NEXT HIGHER ASSY. B-DD-KI10-0
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: FLOATING ADD-SUBTRACT & UFA

SIZE	CODE	NUMBER	REV.
D	FD	KI10-0-FASU	A

DIST

REV A | CODE FD | SIZE D | NUMBER KI10-0-FASU

IR FDVXX

170 – 177
IR = 001 111 XYY
IR 1XX

FDVX	FDVRX
170-173	174-177
Basic	Basic
Long	Immediate
Memory	Memory
Both	Both

XYY act thru signals common to all four basic floating point instruction sets

X specifies rounding
- IR FP ~RND = IR 1XX ∧ IR Ø3(1) ∧ IR Ø6(Ø) (~Round)
- IR FP RND = IR 1XX ∧ IR Ø3(1) ∧ IR Ø6(1) (Round)

YY specifies mode
- IR FP IMM = IR 1XX ∧ IR Ø3(1) ∧ IR XX5 (Immediate)
- IR FP ~IMM = IR 1XX ∧ IR Ø3(1) ∧ ~IR XX5 (~Immediate)
- IR FP LONG = IR FP ~IMM ∧ IR XXX1 (Long)
- IR FDVL = IR FDVXX ∧ SAC2

Action

Basic	AC ÷ C(E) → AC
Long (FDVL)	AC, AC2 ÷ C(E) → AC Remainder → AC2
Immediate (FDVRI)	AC ÷ (E,Ø) → AC
Memory	AC ÷ C(E) → E
Both	AC ÷ C(E) → AC, E

Switches

IR FP ~IMM: FCE (~Immediate)
[IR 1XX ∧ IR Ø3(1) ∧] IR Ø7(1): SCE (Memory, Both)
IR FP IMM: ETØ EN (For Immediate swap)
ET1 EN
IR 1XX ∧ IR Ø3(1) → IR FP → IR FP SHIFT → ST INH
IR FP ~IMM ∧ IR XXXM: SAC INH (Memory)
IR FP ~IMM ∧ IR XXX1: SAC2 (Long)

F CYC START — AB = AD = AR = Ø,E

Divisor and next instruction fetch according to mode:

Basic, Long	FCE	C(E) → AR	MC INST FETCH START EN
Immediate	~F MEM REF	AR = Ø,E	MC INST FETCH NEXT EN
Memory, Both	FCE, SCE	C(E) → AR	MC INST FETCH START EN

See Fetch cycle (F) — See MC1

F CYC ACT EN — SCAD AR EXP EN (Dvsr exp → SCAD)
AD FM+ EN A (Get dvnd)

IR FP ~IMM → ET1
IR FP IMM → ETØ

110 ns

ETØ — AR LT AR RT (AR swap)
AR RT AR LT
SCAD AR EXP EN
AD FM+ EN B
ET1

110 ns

ET1 — BR AR EN (Divisor)
AR AD EN (Dividend)
SC SCAD EN C (Dvsr exp)
SCAD EXP ADD
- → SCAD ADD EN A → B
- → SCAD AR EXP EN (Dvnd exp)

FM ØØ = AR ØØ: SCAD SC- EN
~FM ØØ = AR ØØ: SCAD SC+ EN
FM ØØ(Ø): SCAD +1
FM ØØ(1): FDV NEG DIVIDEND → FLAG 3 EN
- → AD AR- EN
- → AD MAGIC ET1 EN → AD MAGIC EN A
  - → AD ADD EN C
  - → AD CRY 36
- → CLK LONG CYCLE (CLK MAX EN)

IR FDVL: FMC AC2 EN A (For low dividend)
ET2

A = True AC exponent
M = True memory or immediate exponent

AC \ BR	+	–
+	A–M	A–M
–	–A+M–1	–A+M–1

170 / 230 ns

ET2 — SC SCAD EN C
FLAG 3(Ø): SCAD SC+EN (A-M → SCAD)
FLAG 3(1): SCAD SC-EN
FLAG 3(1) ∧ ~AD Ø9-35 = Ø: AR AD EN
IR FDVL ∧ FLAG 3(Ø): AD FM+ EN B
FDVL & FLAG 3(1): AD FM- EN
(Get low dvnd in positive form) AD ADD EN D
AD CRY 36
AD MSK EN B
IR FDVL: CLK LONG CYCLE (CLK MAX EN)
BR SIGN SMEAR EN
FDTØ

110/170/230 ns

BR SIGN SMEAR(1)

BR ØØ(Ø) → BR SMEAR ZEROS
BR ØØ(1) → BR SMEAR ONES

FDTØ — SC FE CLOCK (Save exponent)
AR ØØ(Ø): AR SIGN SMEAR A
- → AR1 AR ØØ SELF
- → AR 12-17 SELF B
- → AR RT AR RT
- → AR RT AUX EN

(Wipe out high dvnd exponent)
AR CLR A
AR ØØ(1): ARI AR Ø8 DATA (–1 → +1)
AD AR+ EN D

IR FDVL — Change negated high dividend into comparment unless low dividend zero

~IR FDVL → DSF2 EN, FDT2
FLAG 3(1) ∧ ~AD Ø9-35 = Ø: AD ADD EN D
FDT1 COND → FDT1
- → MQ AD EN A (Low dvnd)

110/170 ns

FDT1 — AR AD EN G (Correct high dvnd)
MQ SH LT EN (Position low dvnd)
AD AR+ EN D
DSF2 EN
FDT2

110 ns

FDT2 — AR SH RT B (ARI AR ØØ SH RT A, ARI AR Ø1 SH RT) (½ dividend)
MQ SH RT C
(IR FP SHIFT → (AD 35 → MQ Ø8))
AD CRY Ø (Force initial subtraction)
DSF2(1)
- → ∧BR ØØ(Ø): DS POS DIVISOR → AD BR- EN, AD CRY 36
- → ∧BR ØØ(1): DS NEG DIVISOR → AD BR+ EN
  - → AD AR+ EN J → AD AR+ EN A, AD ADD EN G

DSF2 EN
IR Ø6(Ø): SCAD –32 EN (26 count, FDVX)
- → SCAD MISC DATA EN

IR Ø6(1): SCAD –33 EN (27 count, FDVRX)
FDT3

170 ns

Note
BS for floating point time states is FP
BS for divide subroutine is DS

FDT3 — SC SCAD EN D (Count → SC)
AR SH LT C
- → MQ SH LT EN

CLK LONG CYCLE (CLK MAX EN)

~AD CRY Ø (= AD ØØ(1)) → DSF2 EN, FDT4

AD ØØ(Ø) — |Divisor| ≤ ½ |Dividend|

Clear DSF2
DST2 — Memory, Both
SCE

230 ns

MC WRITE KILL IN
Kill waiting write (MC5)

ARF OV SET
- → ∧PI CYC(Ø): AR OV EN, TN1 EN

PI CYC(Ø): AR DCK EN
ARF FOV TEST (IR Ø1(Ø))
- → ∧PI CYC(Ø): AR FOV EN

CLK EN INST DONE

DST2 — Go to Instruction cycle (IC)

230 ns

FDT4 — AR SH LT C
- → MQ SH LT EN

AD ØØ(Ø): SC SC+1 EN (Right shift was necessary)
FLAG 1 EN
DSF2 EN
FMC AC ∨ AC2 EN
SCT2 MISC INPUTS → AD AR+ EN A, SCT2

170 ns

SCT2 — AR GO LEFT → AR SH LT B, MQ SH LT A
DSF2 EN
SC SC+1 EN
[~SC+1 = Ø: AD AR+ EN B]

FDVX: 25 or 26 SCT2s
FDVRX: 26 or 27 SCT2s

~SC+1 = Ø — SCTC DONE (= SC+1 = Ø)

DST2 — DST3 COND → DST3
- → SCAD FE EN (Get exponent)

SCE
Start memory write subroutine (MC2)

170 ns

Put ~exponent in SCAD and add 1 to form –exponent unless used ½ dividend, in which case ~(A-M) is –exponent

DST3 — Clear DSF2
AR AD EN G (Keep remainder in place)
MQ SH LT EN (Shift quotient to final position)
SC SCAD EN D (Exponent → SC)
SCAD SC- EN (Negate exponent)
FLAG 1(Ø): SCAD NEGATE A → SCAD ADD
(Compensate for taking ½ dividend) → SCAD +1
→ SCAD DATA EN
DST4

170 ns

DST4 — MQ 35(Ø): AR AD EN J (Add divisor back in)
FLAG 3(Ø): AD LT AR+ EN A (Positive remainder)
AD RT AR+ EN A
FLAG 3(1): DS NEG REMAINDER
- → AD MAGIC EN B → E
- → AD AR- EN
- → AD ADD EN G
- → AD CRY 36

SC SCAD EN D (Negative exponent)
DST5

110/170 ns

ARI SH LT COND
MQ SH ORDINARY
DSF2(1) enables →
AD CRY Ø: MQ 35 IN (Quotient bit)
MQ Ø8(1) [∧IR Ø1(Ø)]: ARMC AR 35 AUX MIX
BR ØØ(Ø): DS POS DIVISOR
- → ∧AD CRY Ø: AD BR- EN, AD CRY 36
- → ∧~AD CRY Ø: AD BR+ EN

BR ØØ(1): DS NEG DIVISOR
- → ∧AD CRY Ø: AD BR+ EN
- → ∧~AD CRY Ø: AD BR- EN, AD CRY 36

AD AR+ EN J → AD AR+ EN A, AD ADD EN G

DST5 — AR MQ EN (Quotient)
MQ AD EN A (Remainder)
SCAD SC+ EN (Exponent ready for NRT1)

IR FP ~RND ∧ FLAG 3 = BR ØØ
DS NEG QUOTIENT ∨ DS RND QUOTIENT

DS FP EXIT
- → AD AR+ EN D
- → CLK LONG CYCLE
- → NRT1

FLAG 3 ≠ BR ØØ: DS NEG QUOTIENT → DST6
- → AD MAGIC EN B → E

(To round negative quotient, just drop extra bit)
- → AD AR- EN
- → AD CRY 36
- → AD ADD EN G

IR FP RND ∧ FLAG 3 = BR ØØ:
DS RND QUOTIENT → DST6
(Adding 1 changes 27-28th bit 1)
- → AD CRY 36
- → AD AR+ EN F
- → AD ADD
- → AD MAGIC EN

170 ns

DST6 — IR Ø6(1): AR SH RT A → AR CLR A (IR 1XX)
(ARI AR ØØ SH RT A, ARI AR Ø1 SH RT)
MQ CLR A
(For FDVRX, reposition quotient after rounding and throw away remainder)
~AR SH RT A: AR AD EN J (FDVX)
SCAD SC+ EN (Again)
AD AR+ EN D (Quotient fraction)
CLK LONG CYCLE
NRT1

170 ns

Go to Floating Normalize & Round (FNR)

Note
There are three more floating divide time states, which duplicate for FDVL the operations performed by the final NR time states for the other long mode floating point instructions. Refer to the Floating Normalize & Round routine (FNR).

REVISIONS			
CHA	CHANGE NO	REV	
	KIØ-00041	A	
	REDRAWN OLD DWG IS NOW D-FD-KIØ-A-FD		
	J. Mabey 12-13-73		
	A. KENT		
	Allan Kent 17 Dec 73		

FIRST USED ON OPTION/MODEL: KIØ	QTY	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN C CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'	CHK'D W ENGLISH	DATE 6/30/73	TITLE: FLOATING DIVIDE
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	ENG Allan Kent	DATE 13Nov73	
MATERIAL	PROJ ENG Allan Kent	DATE 13Nov73	
FINISH	PROD Allan Kent	DATE 13Nov73	
	NEXT HIGHER ASSY: B-DD-KIØ-Ø		SIZE D, CODE FD, NUMBER KIØ-Ø-FD, REV A
	SCALE —		
	SHEET 1 OF 1		DIST

DEC 102-B

IR FIXX
= IR 12X ∧ IR XXXM

IR = ØØ1 Ø1Ø X11
IR 1Xx IR 12X IR XXXM

X specifies instruction: Ø FIX, 1 FIXR
122 126

Action

FIX C(E) fixed → AC
FIXR C(E) fixed, rounded → AC

Switches

FCE ETØ EN
IR FP SHIFT → ST INH ET1 EN

F CYC START → MC SYNC READ EN; CLK INH; AB AD CLK INH (AB=AD=AR=Ø, E); MC IN FET COND → MC AUTO IN FET A → MC INST FETCH START EN; FT6
AB AB EN
OPERAND READ MCRST1 — C(E) → AR
MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)
F CYC ACT EN → SCAD AR EXP EN; ETØ — C(E) exponent → SCAD
ETØ → SC SCAD EN C; AR ØØ(Ø): SCAD SC+ EN; AR ØØ(1): SCAD SC- EN; SCAD ADD EN B; SCAD -33 EN (-27) → SCAD MISC DATA EN; ET1 — Get true exponent and subtract 27 from it to convert from fraction exponent to integer exponent N
170ns
ET1 → SC FE CLOCK (Save N); SC SCAD EN C; SCAD SC- EN; SCAD +1; SCAD +1Ø EN → SCAD MISC DATA EN; SCAD ADD EN B; CLK LONG CYCLE; ET2 — (Check for N>8 by checking -N+8<Ø)
170ns
ET2 → AR CLR A (Clear if no sign smear); AR ØØ ≠ AR Ø1: AR SIGN SMEAR A → ARI AR ØØ SELF, ARI AR Ø1 DATA; AR 12-17 SELF B; AR RT AR RT; AR RT AUX EN — (AR ØØ = AR Ø1 implies C(E) exponent < Ø, hence N < -27)

SC Ø(Ø) ∧ SCAD Ø(1): N > 8, Left > 8 → ARF OV SET → ∧ PI CYC(Ø): AR OV EN, TN 1 EN; CLK EN INST DONE → Go to Instruction cycle (IC)

AR ØØ ≠ AR Ø1 ∧ SC Ø(1): -27 ≤ N < Ø, Right ≤ 27 → FIX SH RT COND → AD AR+ EN B; SCT1

AR ØØ = AR Ø1: N < -27, Right > 27 → ST1 COND → ST1; FM WR EN (Clear AC)

0 ≤ N < 8 → SC Ø(Ø) ∧ SCAD Ø(Ø)

FIXT1 COND → SCAD ADD EN A → B; SCAD NEGATE B → SCAD SC- EN; SCAD +1; SCAD DATA EN (CLK MAX EN); CLK LONG CYCLE; FIXT1 — (Negate)
200ns
FIXT1 → SC LOAD EN D — BS for FIX is DS
SCAD Ø(1): Ø < N < 8, Left < P → AD AR+ EN D; SCT2
SCAD Ø(Ø): N = Ø, No shift → ST1 COND → ST1; FM WR EN (Result → AC)

110ns
SCT1 → SC 8(1): AR SH RT A → AR CLR A (ARI AR ØØ SH RT A; ARI AR Ø1 SH RT); MQ SH RT A; (IR FP SHIFT → (AD 35 → MQ Ø8)); SC SH RT EN
~ SC+1=Ø → AD AR+ EN B; SCT2
110ns
SCT2 → FE Ø(Ø): AR GO LEFT → AR SH LT B; ARI SH LT COND; ~ AR GO LEFT: AR SH RT2 EN; MQ SH RT2 EN; MQ FP SHIFT (AD 34, 35 → MQ Ø8, Ø9); ARI SR2 COND; SC SC+1 EN
~ SC+1=Ø
SCTC DONE (= SC+1=Ø)
AD MAGIC EN A; AD AR+ EN B; AD ADD ~C TERM → AD ADD EN D; AD CRY 36; FIXT2 — Ready to round or correct negative
170ns
FIXT2 → IR Ø6(1) ∧ MQ Ø8(1): (FIXR) FIXT2 AR INPUT A → AR AD EN D; IR Ø6(Ø) ∧ AR ØØ(1) ∧ (MQ Ø8(1) ∨ ~ MQ Ø9-35=Ø): FIXT2 AR INPUT B → AR AD EN D; (FIX) ST1 COND → FM WR EN (Result → AC); ST1
110ns
ST1 → CLK EN INST DONE
Go to Instruction cycle (C)

IR FLTR
127

IR = ØØ1 Ø1Ø 111
IR 1XX IR 12X

Action

C(E) floated, rounded → AC

Switches

FCE
IR FP SHIFT → ST INH

F CYC START → MC SYNC READ EN; CLK INH; AB AD CLK INH (AB=AD=AR=Ø, E); MC IN FET COND → MC AUTO IN FET A → MC INST FETCH START EN; FT6
AB AB EN
OPERAND READ MCRST1 — C(E) → AR
MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)
F CYC ACT EN → SCAD -4 EN (8 count) → SCAD DATA EN; ET2 — Must shift integer right 8 to fraction position
110ns
ET2 → SC SCAD EN C; AD AR+ EN B; SCT2
110ns
SCT2 → AR SH RT2 EN; ARI SR2 COND; MQ SH RT2 EN; MQ FP SHIFT (AD 34,35 → MQ Ø8, Ø9); SC SC+1 EN
~ SC+1=Ø → AD AR+ EN B; SCT2
SCTC DONE (= SC+1=Ø) → SCAD -43 EN (-35) → SCAD DATA EN; AD AR+ EN B; CLK LONG CYCLE; NRT1
170ns
Go to Floating Normalize and Round (FNR)

ST1 → SAC BR FF CLR A; ST2 COND
Write restart or AC write to write low result in E — see Store cycle (S)
110ns MCRSTØ
ST2 → CLK LONG CYCLE; ST5
170ns
ST5 → CLK EN INST DONE
Go to Instruction cycle (IC)

IR DFN
131

IR = ØØ1 Ø11 ØØ1
IR 1XX IR 13X

Action

-(AC, C(E)) → (AC, E)

Switches

FCE ETØ EN
FCE PSE ET1 EN
SAC BR

ET1 → SAC BR FF EN
F CYC START → MC SYNC READ EN; MC SYNC WRITE EN; CLK INH; AB AD CLK INH (AB=AD=AR=Ø, E); MC IN FET COND → MC AUTO IN FET A → MC INST FETCH START EN; FT6
AB AB EN
LOW WORD READ MCRST1 — C(E) → AR
MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)
F CYC ACT EN → SCAD AR EXP EN (Low exp); SCAD SC+-EQV → SCAD SC+ EN; SCAD SC- EN; SCAD EQV; AD AR+ EN C (Low word); CLK LONG CYCLE; ETØ — Complement exponent by EQV with Ø
170ns
ETØ → AD FM- EN (High ~); AD Ø9-35=Ø: AD DFN ZERO COND → AD MSK EN B; AD ADD ETØ EN A → AD CRY 36; AD ADD EN D; FLAG 3 EN; ~AD Ø9-35=Ø: AR EXP SCAD (ETØ) → AR EXP SCAD EN → ARI AR ØØ SELF; (ARI AR Ø1 DATA); AR 12-17 SELF B; AR RT AR RT; AR RT AUX EN; AR ØØ(Ø): ARI AR ØØ SELF DATA; ET1 — If low fraction Ø, substitute high negative for high complement. If low fraction ~Ø, complement low sign and exponent
110/170ns
ET1 → BR AR EN (Low); AR AD EN B (High result); FLAG 3(1): AD BR+ EN A (Low Ø); FLAG 3(Ø): AD MSK EN B; AD CRY 36; AD DFN & ~ FLAG 3 → AD BR- EN; AD ADD EN D; ET2 — If low fraction ~Ø, negate low word, returning sign and exponent to original state
110/170ns
ET2 → AR AD BR (ET2) A → BR AR EN (High result); AR AD ET2 EN → AR AD EN A (Low result); ST1 COND → FM WR EN (High result → AC); ST1
110ns

REVISIONS		
CHK	CHANGE NO	REV
—	KI1Ø-UØØ41 ORIGINATED	—

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± 1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA DATE 6/30/73
CHK'D. W. ENGLISH DATE 6/30/73
ENG. DATE
PROJ. ENG. DATE
PROG. DATE
NEXT HIGHER ASSY.
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
FIX, FLOAT, DOUBLE NEGATE

SIZE	CODE	NUMBER	REV
D	FD	KI1Ø-Ø-FFDN	—

DIST.

DEC FORM NO. DRD 102-B

IR FWT

200 - 217
= IR 2XX ∧ IR Ø3(Ø) ∧ IR Ø4(Ø)

IR MOV(E,S)X 200-207 — IR MOV(N,M)X 210-217

IR = ØIØ ØØY YZZ
IR 2XX

YY specifies instruction: MOVE, MOVS, MOVN, MOVM
IR MOVSX = IR MOV(E,S) ∧ IR Ø6(1)
ZZ specifies mode (general IR Ø7-Ø8 decoding)
IR MOV(N,M)(-,I,S) = IR MOV(N,M)X ∧ ∼IR XXXM

Action

	Operand result MOVE	MOVS	MOVN	MOVM	Destination
Basic	C(E)	C(E) RT/LT	-C(E)	|C(E)|	AC
Immediate	Ø, E	E, Ø	-(Ø,E)	Ø, E	AC
Memory	AC	AC RT/LT	-AC	|AC|	E
Self	C(E)	C(E) RT/LT	-C(E)	|C(E)|	E; IR Ø9-12 ≠ Ø: AC

IR HWT

500 - 577
IR = 1Ø1 WXX YZZ

W specifies destination half: Ø left, 1 right
Y specifies source half: Ø same as destination, 1 opposite
IR HLLXX = IR HWT ∧ IR Ø3(Ø) ∧ IR Ø6(Ø)
IR HRLXX = IR HWT ∧ IR Ø3(Ø) ∧ IR Ø6(1)
IR HRRXX = IR HWT ∧ IR Ø3(1) ∧ IR Ø6(Ø)
IR HLRXX = IR HWT ∧ IR Ø3(1) ∧ IR Ø6(1)
XX specifies action on other half: do nothing, zeros, ones, extend
IR HXX-X = IR HWT ∧ IR Ø4(Ø) ∧ IR Ø5(Ø)
IR HXX(-,Ø)X = IR HWT ∧ IR Ø5(1)
IR XXXEX = IR Ø4(1) ∧ IR Ø5(1)
ZZ specifies mode (general IR Ø7-Ø8 decoding)
IR HXXXM = IR HWT ∧ IR XXXM
IR HXL-S = IR HXX-S ∧ IR XXXS ∧ IR Ø3(Ø)
IR HXR-S = IR HXX-S ∧ IR XXXS ∧ IR Ø3(1)
FETCH HXX-M = IR HWT ∧ IR Ø4(Ø) ∧ IR Ø5(Ø) ∧ IR XXXM

Action

	Operand result HLL Left half	Right half –	Z	O	E	Left half	Operand result HRL Right half –	Z	O	E	Destination
Basic	C(E) LT	AC RT	Ø	1s	C(E) ØØ	C(E) RT	AC RT	Ø	1s	C(E) 18	AC
Immediate	Ø	AC RT	Ø	1s	Ø	E	AC RT	Ø	1s	E 18	AC
Memory	AC LT	C(E) RT	Ø	1s	AC ØØ	AC RT	C(E) RT	Ø	1s	AC 18	E
Self	C(E) LT	C(E) RT	Ø	1s	C(E) ØØ	C(E) RT	C(E) RT	Ø	1s	C(E) 18	E; IR Ø9-12 ≠ Ø: AC

	Operand result HRR Left half –	Z	O	E	Right half	Operand result HLR Left half –	Z	O	E	Right half	Destination
Basic	AC LT	Ø	1s	C(E) 18	C(E) RT	AC LT	Ø	1s	C(E) ØØ	C(E) LT	AC
Immediate	AC LT	Ø	1s	E 18	E	AC LT	Ø	1s	Ø	Ø	AC
Memory	C(E) LT	Ø	1s	AC 18	AC RT	C(E) LT	Ø	1s	AC ØØ	AC LT	E
Self	C(E) LT	Ø	1s	C(E) 18	C(E) RT	C(E) LT	Ø	1s	C(E) ØØ	C(E) LT	E; IR Ø9-12 ≠ Ø: AC

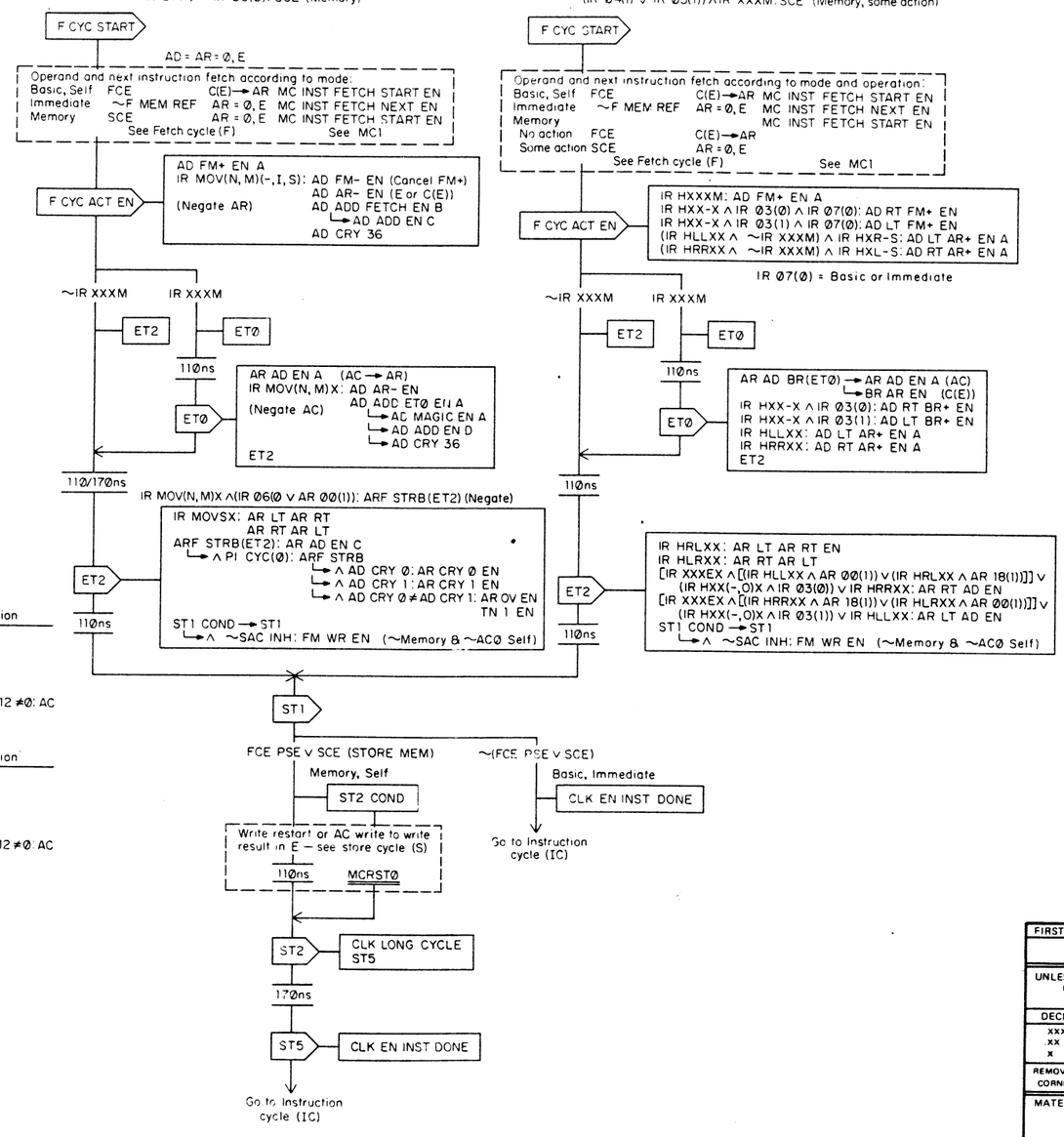
IR FWT / IR HWT

IR HWTFWT = IR HWT ∨ IR FWT

Common switches by IR HWTFWT
∼IR XXXI ∧ ∼IR XXXM: FCE (Basic or Self)
IR XXXS: FCE PSE (Self)
IR XXXM: ETØ EN (Memory)
IR XXXS ∧ IR Ø9-12 = Ø: SAC INH (Self, ACØ)

Switches by IR FWT
IR XXXM: SAC INH (Memory)
IR Ø7(1) ∧ IR Ø8(Ø): SCE (Memory)

Switches by IR HWT
FETCH HXX-M: FCE (Memory, no action)
FCE PSE
IR XXXM: SAC INH (Memory)
(IR Ø4(1) ∨ IR Ø5(1)) ∧ IR XXXM: SCE (Memory, some action)

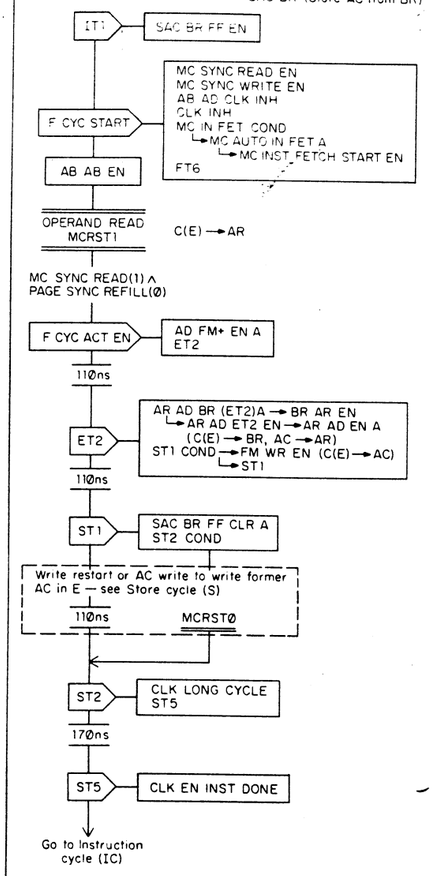


IR EXCH

25Ø

IR = ØIØ 1Ø1 ØØØ
IR 2XX IR 25X

Action: AC ↔ C(E)
Switches: FCE; FCE PSE; SAC BR (Store AC from BR)



REVISIONS			
REV.	CHANGE NO.	CHK.	
—	KI10-00041	—	ORIGINATED

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D W ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13 Nov 73	TITLE: FULL & HALF WORD TRANSFERS
PROJ. ENG. Allan Kent	DATE 13 Nov 73	
PROG. Allan Kent	DATE 13 Nov 73	
NEXT HIGHER ASSY. B-DD-KI10 A		SIZE D CODE FD NUMBER KI10-0-FHWT REV. —
SCALE —		
SHEET 1 OF 1		DIST

DEC 11HW-NU
DRD 102-B

IR FMPXX
160-167

IR = ØØ1 11Ø XYY
IR 1XX

FMPX	FMPRX
160-163	164-167
Basic	Basic
Long	Immediate
Memory	Memory
Both	Both

XYY act thru signals common to all four basic floating point instruction sets

X specifies rounding
- IR FP ~RND = IR 1XX ∧ IR Ø3(1) ∧ IR Ø6(Ø) (~Round)
- IR FP RND = IR 1XX ∧ IR Ø3(1) ∧ IR Ø6(1) (Round)

YY specifies mode
- IR FP IMM = IR 1XX ∧ IR Ø3(1) ∧ IR XX5 (Immediate)
- IR FP ~IMM = IR 1XX ∧ IR Ø3(1) ∧ ~IR XX5 (~Immediate)
- IR FP LONG = IR FP ~IMM ∧ IR XXXI (Long)

Action

Basic	AC X C(E) → AC
Long (FMPL)	AC X C(E) → AC, AC2
Immediate (FMPRI)	AC X (E, Ø) → AC
Memory	AC X C(E) → E
Both	AC X C(E) → AC; E

Switches

IR FP ~IMM: FCE (~Immediate)
[IR 1XX ∧ IR Ø3(1) ∧] IR Ø7(1): SCE (Memory, Both)
IR FP IMM: ETØ EN (For Immediate swap)
ET1 EN
IR 1XX ∧ IR Ø3(1) → IR FP → IR FP SHIFT → ST INH
IR MPY
IR FP ~IMM ∧ IR XXXM: SAC INH (Memory)
IR FP ~IMM ∧ IR XXXI: SAC2 (Long)

F CYC START — AB = AD = AR = Ø, E

Multiplicand and next instruction fetch according to mode:

Basic, Long	FCE	C(E) → AR	MC INST FETCH START EN
Immediate	~ F MEM REF	AR = Ø, E	MC INST FETCH NEXT EN
Memory, Both	FCE, SCE	C(E) → AR	MC INST FETCH START EN
	See Fetch cycle (F)		See MC1

F CYC ACT EN — SCAD AR EXP EN (Mcnd exp → SCAD); AD FM+ EN A (Get multiplier)

IR FP ~IMM → ET1
IR FP IMM → ET1

ET1 → 110ns → ET1 → 170ns

BR AR EN (Mcnd)
AR AD EN B (Mplr)
SC SCAD EN C (Mcnd exp)
SCAD EXP ADD
- → SCAD ADD EN A → B
- → SCAD AR EXP EN (Mplr exp)

FM ØØ = AR ØØ: SCAD SC+ EN
~ FM ØØ = AR ØØ: SCAD SC- EN
FM ØØ(1): SCAD +1
ET2

A = True AC exponent
M = True memory or immediate exponent

AC \ BR	+	-
+	A+M	A+M
-	-A-M-1	-A-M-1

ET1 → 110ns → ET0 → 110ns

AR LT AR RT (AR swap)
AR RT AR LT
SCAD AR EXP EN
AD FM+ EN B
ET1

ET2 → SC FE CLOCK (Save ET1 result)
AR SIGN SMEAR A → ARI AR ØØ SELF (ARI AR ØØ SELF DATA, ARI AR Ø1-11 DATA); AR 12-17 SELF B; AR RT AR RT; AR RT AUX EN
BR SIGN SMEAR EN
AD AR+ EN B (Multiplier)
CLK LONG CYCLE
FMT1 COND
- → SCAD -16 EN (Half 28 count)
  - → SCAD MISC DATA EN
- → FMT1

110ns → BR SIGN SMEAR(1)

BR ØØ(Ø) → BR SMEAR ZEROS
BR ØØ(1) → BR SMEAR ONES

FMT1 → SC SCAD EN D (Count → SC)
MQ AD EN A (Multiplier)
AR CLR A
SCT2 MISC INPUTS → AD AR+ EN A; → SCT2

BS for floating point time states is FD

MPY FCN enables →
(~ MPY FLAG 1 = MQ 35 IN) ∧ ~MQ 34 IN: AD BR+ EN
(FLAG 1(Ø) ∧ MQ 34 IN ∧ ~MQ 35 IN) ∨ (FLAG 1(1) ∧ ~MQ 34 IN ∧ MQ 35 IN): AD BR+2 EN
(~MPY FLAG 1 = MQ 35 IN) ∧ MQ 34 IN: AD BR- EN, AD CRY 36
~MPY SHIFT STEP: AD ADD EN D
MQ 34 IN ∧ MQ 35 IN: FLAG 1 EN
~MQ 34 IN: FLAG 1 CLR

110/170ns

MPY SHIFT STEP = (FLAG 1(Ø) ∧ ~MQ 34 IN ∧ ~MQ 35 IN) ∨ (FLAG 1(1) ∧ MQ 34 IN ∧ MQ 35 IN)

SC 4-8 ≠ 37 (Equivalent to ~ SC+1 = Ø)

SCT2 → AR SH RT2 EN
ARI SR2 COND
MQ SH RT2 EN
- → MQ FP SHIFT (AD 34, 35 → MQ Ø8, Ø9)

~ SC+1 = Ø: AD AR+ EN B
SC SC+1 EN

~SC+1 = Ø → SCTC DONE (= SC+1 = Ø) → SCT2

AD MPY FINAL → AD AR+ EN B; → CLK LONG CYCLE (CLK MAX EN)
AD ØØ-Ø5 BR+2(1) ∧ MQ 34(1): MPY CORRECTION → AD BR- EN; → AD ADD SC TERM → AD ADD EN D, AD CRY 36
FMT2 COND → SCAD FE EN (Get ET1 exp result); → FMT2

170/230ns

FMT2 → ARI SH LT COND
AR SH LT C (Position product)
- → MQ SH LT EN (Ø → MQ 35)

MQ Ø8: ARMC AR 35 AUX MIX
SC SCAD EN D
SCAD DATA EN A → SCAD ADD; → SCAD +1 (SCAD gets -(A+M))
FM ØØ(Ø): SCAD NEGATE A → SCAD SC- EN
FM ØØ(1): SCAD SC+ EN
AD AR+ EN D (Product fraction)
NRT1

170ns

Go to Floating Normalize and Round (FNR)

Procedure for Adding Partial Products

MQ 34-35 IN	FLAG 1(Ø)	FLAG 1(1)
ØØ	Shift only	Add once, clear flag
Ø1	Add once	Add twice, clear flag
1Ø	Add twice	Subtract, leave flag set
11	Subtract, set flag	Shift only, leave flag set

IR FSC
132

IR = ØØ1 Ø11 Ø1Ø
IR 1XX IR 13X

Action: AC X 2^E → AC

Switches: ETØ EN; IR FP SHIFT → ST INH

F CYC START → FMC AC EN A; AB PC EN A → AB FF CLR; MC IN FET COND → MC INST FETCH NEXT EN

MB 14-17 = Ø → AB = AD = AR = Ø, E
~MB 14-17 = Ø → AD AR+ EN E, FT6 → 110ns

F CYC ACT EN → AD FM+ EN A (AC); ETØ

110ns

A = True AC exponent

ETØ → SC AR EN (E 18, 28-35 → SC)
AR AD EN A (AC → AR)
SCAD EXP ADD → SCAD AR EXP EN; → SCAD ADD EN A → B
FM ØØ(Ø): SCAD SC+ EN (A+E)
FM ØØ(1): SCAD SC- EN, SCAD +1 (-A-1-E)
ET2

170ns → ET2

SC SCAD EN C
SCAD ADD EN B
SCAD DATA EN
SCAD +1
FM ØØ(Ø): SCAD SC- EN (SCAD gets -(A+E))
FM ØØ(1): SCAD SC+ EN
AR SIGN SMEAR A → ARI AR ØØ SELF (ARI AR ØØ SELF DATA, ARI AR Ø1-11 DATA); AR 12-17 SELF B; AR RT AR RT; AR RT AUX EN
AD AR+ EN B (Fraction)
NRT1

170ns

Go to Floating Normalize and Round (FNR)

REVISIONS		
REV	CHANGE NO	
1	KI10-0004	ORIGINATED
CHK		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13 Nov 73	TITLE: FLOATING MULTIPLY & SCALE
PROJ. ENG. Allan Kent	DATE 13 Nov 73	
PROD. Allan Kent	DATE 13 Nov 73	
NEXT HIGHER ASSY. B-DD-KI10-0		SIZE D · CODE FD · NUMBER KI10-0-FMSC · REV. —
SCALE —		DIST.
SHEET 1 OF 1		

DEC FORM NO DRD 109-B

ENTRIES FROM FLOATING POINT INSTRUCTIONS

FP ADSUB (FASU) → FAT4 ; R FMPXX (FMSC) → FMT2 ; IR FDVXX (IR 1XX) (FD) → DST5 ; DST6 ; IR FSC (FMSC) → ET2 ; IR FLTR (FFDN) → SCT2

DS FP EXIT ; SCTC DONE

DS FP EXIT = IR FP ∼RND ∧ FLAG 3 = BR ØØ

170NS

ALL ZEROS = AD ØØ-17 = Ø ∧ AD Ø9-35 = Ø ∧ ((MQ Ø8(Ø) ∧ MQ Ø9-35 = Ø) ∨ IR FDVXX)
In FDVX, MQ has remainder

CA EXPONENT
AD = AR=HIGH FRACTION
MQ = LOW FRACTION
EXCEPT REMAINDER IN FDVX, Ø IN FDVRX

NRT1

IR Ø6(1) ∧ MQ Ø8(1): NR RND
AR Ø0(Ø) ∧ (AR Ø9(1) ∨ (IR UFA ∧ ∼AD = Ø ∧ ∼MQ Ø8-35 = Ø)): NR POS
∧ R Ø9(Ø) ∨ IR UFA: NR NEG
IR Ø6(1) ∧ MQ Ø8(1) ∧ ((AR Ø0(Ø) ∧ AR Ø9(1)) ∨ (AR Ø0(1) ∧ AR Ø9(Ø) ∧ ∼MQ Ø9-35 = Ø)):
d if need to and normalized)
NRT1 NORMAL RND → AD CRY 36 ; AD MAGIC EN C ; AD ADD
(CLK MAX EN) → CLK LONG CYCLE

SCAD EN D (- exponent)
A -1): AR FXU HOLD EN (A positive exponent cannot underflow)
AR+ EN D

AD Ø0-17 = Ø ∧
AD Ø9-35 = Ø ∧
(MQ Ø8-35 = Ø ∨ IR FDVXX)
(=NR ALL ZEROS)

MQ CLR C
→ ST1 COND
→ ∼SAC INH: FM WR EN
→ ST1 (∼Memory)

Result is zero so go directly to store. Above events clear AC if not Memory mode except in UFA where AC2 is cleared instead. Note that a zero quotient causes the remainder to be thrown away

AR Ø8(1) ∧ NR NEG) ∨ (NR POS ∧ NR RND) [(AR Ø8(Ø) ∧ AR Ø9(Ø) ∨ (AR Ø0(1) ∧ AR Ø9(1)) ∧ ∼NR ALL ZEROS ∧ ∼IR UFA]

NR POS ∧ ∼NR RND

Result nonzero and ready to store — positive and either normalized with no rounding needed or UFA

No left shifting needed but may need to correct for fraction overflow due to rounding or for fraction ±1

NRT2

Must normalize left

110ns

IR Ø6(1) ∧ MQ Ø9(1): NR RND
AR Ø0(Ø) ∧ AR 10(1): NR POS
AR 10(Ø): NR NEG
AR SH LT B
ARI SH LT COND
MQ Ø8(1) ∧ ∼ IR FDVXX [∧ IR FP SHIFT]: ARMC AR 35 AUX MIX
∼IR FDVXX: MQ SH LT A (Ø → MQ 35)
IR Ø6(1) ∧ MQ Ø9(1) ∧ ((AR Ø0(Ø) ∧ AR 10(1)) ∨ (AR Ø0(1) ∧ AR 10(Ø) ∧ ∼MQ 10-35 = Ø)):
NRT2 NORMAL RND → AD CRY 36 ; AD MAGIC EN C ; AD ADD
(Round if need to and will be normalized)
(CLK MAX EN) → CLK LONG CYCLE
SC SC+1 EN (-exponent+1)
AD AR+ EN D

AR Ø0 = AR 10

NRT2

Positive result ready to store

(AR Ø8(1) ∧ NR NEG) ∨ (NR POS ∧ NR RND)

Negative appears normalized but may be -1
Positive normalized but rounding may cause overflow

NR POS ∧ ∼NR RND

NRT3 COND → SCAD SC+ EN ; SCAD ADD ; NRT3

Subtract 1 from -exponent

170/230ns

AD Ø9-35 = Ø: AR SH RT A → AR CLR A ; SC SCAD EN A (ARI AR Ø0 SH RT A) (ARI AR Ø1 SH RT)
AD Ø9-35 = Ø ∧ ∼IR FDVXX: MQ SH RT B
(IR FP SHIFT → (AD 35 → MQ Ø8))
∼AD Ø9-35 = Ø: AR AD EN J
AR Ø0(1): SCAD SC+ EN
AR Ø0(Ø): SCAD NEGATE A → SCAD SC- EN ; SCAD +1 ; SCAD DATA EN
SCAD ADD EN A → B
NRT4 COND → CLK LONG CYCLE (CLK MAX EN)
→ NRT4

NRT3

If fraction ±1, change to ±1/2 and substitute exponent increased by 1

Normalization uses -exponent but must now put it in correct form for result: if result positive, negate SC; if result negative, add -1 to change to ∼exponent

SCE Memory, Both

Start memory write subroutine (MC2)

SCAD NEGATE A → SCAD SC- EN ; SCAD +1 ; SCAD DATA EN ; SCAD ADD
NRT4 COND → CLK LONG CYCLE (CLK MAX EN) → NRT4

Put exponent in correct form for positive result (negate -exponent)

230ns

SCE Memory, Both

Start memory write subroutine (MC2)

AR EXP SCAD EN → ARI AR Ø0 SELF ; (ARI AR Ø0 SELF DATA) (ARI AR Ø1 DATA) ; AR 12-17 SELF B ; AR RT AR RT ; AR RT AUX EN
(Insert exponent in high word)

Note SC still holds -exponent

NRT4

∼SCAD Ø = SCAD 1 ∧ PI CYC(Ø): ARF FP TEST → AR OV EN ; AR FOV EN ; TN 1 EN ; ∧ AR FXU HOLD(Ø): AR FXU EN

Extra SCAD bit not null means overflow. Underflow if overflow and exponent result should be negative as indicated by AR FXU HOLD not set at NRT1 (extreme underflow, < -256, looks positive)

SCAD -33 EN (-27 to get remainder exponent)
→ SCAD MISC DATA EN

NR RND means will likely round, if already normalized at NRT1 or will be normalized by this NRT2
NR POS means positive and either already normalized or UFA and >Ø at NRT1 or will be normalized by this NRT2
NR NEG means UFA (possible only at NRT1), or negative, or unnormalized at NRT1, or will not be normalized by this NRT2

Notes

Rounding may unnormalize (by overflow to +1)
Fraction -1 satisfies normalize condition but is not regarded as truly normalized and is changed to -1/2
No rounding in FDVRX as MQ is Ø

∼IR FP LONG

[MQ SH RT A]
∼SAC INH: FM WR EN
ST1 (∼Memory)

High result to AC except UFA where result goes to AC2

110ns

ST1

∼SAC2

This branch only for long mode with zero result directly from NRT1

ST4

110ns

ST4

AD MQ EN A
ST5 COND A → FM WR EN A → ST5

Clear AC2

110ns

ST5

CLK EN INST DONE

Go to Instruction cycle (IC)

SCE Memory, Both (STORE MEM)

ST2 COND

Write restart or AC write to write high result in E — see Store cycle (S)

110ns MCRSTØ

ST2

CLK LONG CYCLE
ST5

170ns

∼SAC2 ∧∼ SCE Basic, Immediate, UFA, FSC, FLTR

CLK EN INST DONE

Go to Instruction cycle (IC)

IR FP LONG ∧ ∼IR FDVXX

MQ SH RT A
FM WR EN
NRT5

Position low fraction in MQ Ø9-35 and write high word in AC

110ns

NRT5

AR MQ EN (Low fraction → AR)
SCAD SC- EN
SCAD +1 (Exponent -27)
SCAD -33 EN → SCAD MISC DATA EN
SCAD ADD EN A → B
FMC AC2 EN
FMC AC V AC2 EN
CLK LONG CYCLE (CLK MAX EN)
NRT6

230 ns

NRT6

∼MQ Ø9-35 = Ø ∧ SCAD Ø = SCAD 1:
AR EXP SCAD EN → ARI AR Ø0 SELF ; (ARI AR Ø0 SELF DATA) (ARI AR Ø1 DATA) ; AR 12-17 SELF B ; AR RT AR RT ; AR RT AUX EN
(Insert low exp and store in AC2, but if low fraction is Ø, clear AC2)

AR CLR A
ST5 COND A → FM WR EN A → ST5

110ns

IR FDVL

Remainder is in MQ with sign of dividend

FLAG 3(Ø): AD FM+ EN A
FDVL & FLAG 3(1): AD FM- EN
FDT5 COND → SAC BR FF EN → FDT5

Get exponent from positive form of dividend

110ns

FDT5

BR AR EN
FM WR EN A (Quotient → AC
SC SCAD EN D (-27)
AR AD EN G (Positive dividend)
SCAD EXP ADD → SCAD ADD EN A → B ; SCAD AR EXP EN
SCAD SC+ EN
FLAG 1(1): SCAD +1 (26 step division)
FDT6

Subtract 27 from exponent of dividend as actually used — ie add 1 to original dividend exponent if initial right shift was required

170ns

FDT6

AR MQ EN (Remainder)
AD AR+ EN D
SC SCAD EN D (True remainder exponent)
FLAG 3(Ø): SCAD SC+ EN
FLAG 3(1): SCAD SC- EN
SAC BR FF CLR A
FMC AC2 EN
FMC AC V AC2 EN
CLK LONG CYCLE
FDT7

Convert exponent to proper form for sign of dividend

110ns

FDT7

∼AD = Ø ∧ SC Ø = SC 1:
AR EXP SCAD EN → ARI AR Ø0 SELF ; (ARI AR Ø0 SELF DATA) (ARI AR Ø1 DATA) ; AR 12-17 SELF B ; AR RT AR RT ; AR RT AUX EN
(Insert remainder exponent in correct form and store in AC2, but if remainder is Ø, clear AC2)

AR CLR A
ST5 COND → FM WR EN A → ST5

110ns

ST5

CLK EN INST DONE

Go to Instruction cycle (IC)

REVISIONS		
CHK	CHANGE NO	REV
—	KI10-CC041	—
	ORIGINATED	A
	KI10-00042	
	GROSS	

DEC FORM NO DRD 103-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005 ; XX ± .02 ; X ± .1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA DATE 6/30/73
CHK'D W. ENGLISH DATE 6/30/73
ENG. DATE
PROJ. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY.

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: FLOATING NORMALIZE & ROUND

SIZE D | CODE FD | NUMBER KI10-Ø-FNR | REV. A | SCALE — | SHEET 1 OF 1 | DIST

REV A | NUMBER KI10-Ø-FNR | SIZE D | CODE FD

PI T3 → MA SPECIAL (1): MA SPECIAL EN B, CLK MISC INH → CLK INH, AR CLR A

ET2 | ST1 | ST5 | SRT1 | DST2 | KT2 | KT3 | ST2

CLK EN INST DONE and CLK PSEUDO INST DONE always occur at PIT3(1) (refer to PI cycle)

CLK EN INST DONE

From memory subroutine for instruction fetch

MC RST1

MC INST FETCH START (1) ∧ MC SYNC READ (Ø) ∧ PAGE REFILL CYCLE (Ø)

ET2 (1) → BYTE FIRST PART ∧ ~IR IBP → INST RDY SET

KT3 (1) → KEY RDI NOT WAIT ∨ XCT → KEY INST RDY SET

INST RDY

MR RESTART B CLEAR

100 nS

INST RDY (1)

INST RDY DLYD

INST RDY DLYD | INST DONE DLYD

IT1 (Ø) ∧ IT2 (Ø): ITØ (1)

28 nS

ITØ

IR IR EN
AD MB RT EN
AB AD EN → AB FF CLR
MB 13 (Ø) ∧ MB 14-17 = Ø: FMC SEL Ø IN
MB 14-17 = Ø: AD MB LT E: (Restore bits)
~ MB 14-17 = Ø: AD ITØ INDEX → AD FM + EN
→ AD ADD
→ AD + 1 LT (Restore bits)

XCTP ACTIVE (1): XCTP FF CLR
Clear XCTF
(~ MC ASYNC HOLD:) Clear MC INST FETCH START
↳ MCI SYNC POINT: Clear MC ASYNC START
KEY SINGLE PULSE (1): KEY SINGLE PULSE SYNC EN

TN = Ø ∨ TRAP CYC (1) ∨ PI CYC (1) (= IT1 IN)

IT1

110/170 nS

INST RDY CLEAR
Disable ITØ (1)

IT1

AR RT AD EN (E into AR RT)
IR JRST: AR LT AD EN (Restore bits)
IR MB CLR
SAC BR: SAC BR FF EN
SAC BR FF CLR A
IR JRST ∧ IR 10 (1): KEY PROG STOP IN → KEY RUN CLR
IR JRST ∧ IR 12 (1) ∧ PAGE PRIVATE INST (1): PAGE LIP CLR
PAGE PRIVATE INST (Ø): PAGE LAST INST PUBLIC EN
BYF5 (Ø) ∧ ~IR SKIP5 ∧ ~IR IOT: MQ CLR A
IR BLT: PC + 1 INH IN
FLAG 1 CLR FLAG 2 CLR FLAG 3 CLR Clear PI OV
IOT BLKX SKIP CLR

SAC BR
IR EXCH
IR JSA
IR PUSHPOP
IR PUSHJ
IR DFN
IR DFDV

F CYC START (= IT1 (1) ∧ MB13 (Ø))

Go to Fetch cycle (F) in same time state

MB 13 (1)

PI DIVERT INDIRECT (Ø)

CLK INH
(IT2 (1): CLK MISC INH → AR CLR A)
MCI PSEUDO INST FET EN

INSTRUCTION FETCH

Address word for IT1
Instruction for IT2

PI DIVERT INDIRECT (1) (: PI CYCLE DIVERTED)

Clear KEY CYCLE

KEY RUN (Ø) → KEY IDLE EN → Go to key cycle (KC)

KEY RUN (1)

PI RDY SYNC (1) → PIT1 → Go to PI cycle (PI)

PI RDY SYNC (Ø) → KT1 COND → Go to key cycle (KC)

PI OV (1) ∧ ~CLK PSEUDO INST DONE → PICTØ → Go to PI cycle (PI)

PI T3 (Ø) ∨ MCI PSEUDO INST FET EN

INST DONE EN

87 nS

INST DONE DLYD

INST DONE DLYD PULSE

PI CYC RDY (1)

INST DONE (1) ∧ PI CYC RDY (1) (: PI CYCLE DIVERTED) → See PI or key cycle

~TN = Ø ∧ TRAP CYC (Ø) ∧ PI CYC (Ø) (: IT2 COND)

Clear KEY CYCLE IT2

110/170 nS

INST RDY CLEAR
Disable ITØ (1)

IT2

TRAP CYC EN
TRAP BEGIN EN
MA SPECIAL EN B
USER MODE (1): MA SPECIAL UBR EN
PC + 1 INH IN
Clear IR IR (IR MB EN remains)
Clear PFF1

(TN = Ø) = EBR TRAP EN (Ø) ∨ (TNØ (Ø) ∧ TN1 (Ø))
TRAP ANY = TRAP BEGIN (1) ∧ PI CYC (Ø)
TRAP REAL = TRAP BEGIN (1) ∧ PI CYC (Ø) ∧ TRAP PAGE FAULT (Ø)
TRAP ANY: MA SPECIAL 27, 31
TRAP REAL ∧ TN (1): MA SPECIAL 35A
TRAP REAL ∧ TN (Ø): MA SPECIAL 34A
Location 420, 421, 422, or 423

BYF5, 6 SET: BYF5 EN, BYF6 EN
~ BYF5, 6 SET: IR MB EN → clear IR IR
~ CLK PSEUDO INST DONE ∧ PI OV (Ø): CLK INH, clear PI CYC
Clear FMC SEL Ø, 1 (To give FM ADR XR)
Clear BYF5, TRAP CYC, MC SPLIT CYC SYNC

BYF5, 6 SET = IR 13X ∧ IR06 (1) ∧ BYF5 (Ø) ∧ ~CLK PSEUDO INST DONE

Enter synchronizer to allow AC Reference for instruction fetch (MC6)

MC WR SUBR START FE CLR
MC MEM GO ONCE CLEAR
~ MC ASYNC HOLD → MCI SYNC POINT

ANY
((MC INST FETCH EN ∧ ~ MCI PSEUDO INST FET EN) ∨ MC AUTO IN FET A) ∧ (PI RDY SYNC (1) ∨ KEY RDY SYNC (1))

PI CYC RDY EN

KEY RUN (Ø) → KEY IDLE EN → Go to key cycle (KC)

KEY RUN (1)

PI RDY SYNC (1) → PIT1 → Go to PI cycle (PI)

PI RDY SYNC (Ø) → KT1 COND → Go to key cycle (KC)

PFF1 (1) (: IT2 COND)

170 nS

Clear KEY CYCLE IT2

INST RDY CLEAR

CLK EN INST DONE and CLK PSEUDO INST DONE always occur at ST2 (1) ∧ PFF1 (1) (refer to Page Fail cycle PF)

These entries cover all CLK EN INST DONE situations except at PIT3 with MCI PSEUDO INST FET (Ø), which goes to FT6 (refer to PI cycle)

CLK EN INST DONE
ET2 (1) ∧ ~ STORE MEM ∧ ~ ST INH ∧ SAC INH
ET2 (1) ∧ IR FIXX ∧ SCAD Ø (1) ∧ SC Ø (Ø)
ST1 (1) ∧ ~ ST2 COND ∧ ~ SAC2
SRT1 (1) ∧ SCAD Ø (Ø)
DST2 (1)
ST5 (1)
PIT3 (1)
ST2 (1) ∧ PFF1 (1)
KEY EN INST DONE

CLK PSEUDO INST DONE = PIT3 (1) ∨ ST2 (1)

REVISIONS	REV	CHK	CHANGE NO
	A	JS	K11Ø-00041 REDRAWN OLD DWG IS NOW D-FD-K11Ø-A-IC
		A KENT	11-Dec-73

BRUNING 40-522 15840

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN	Al Stephenson	DATE 5/22/72
CHK'D	David Gross	DATE 31 Jan 72
ENG	Allen Kotok	DATE 31 Jan 72
PROJ. ENG.	Allen Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: INSTRUCTION CYCLE

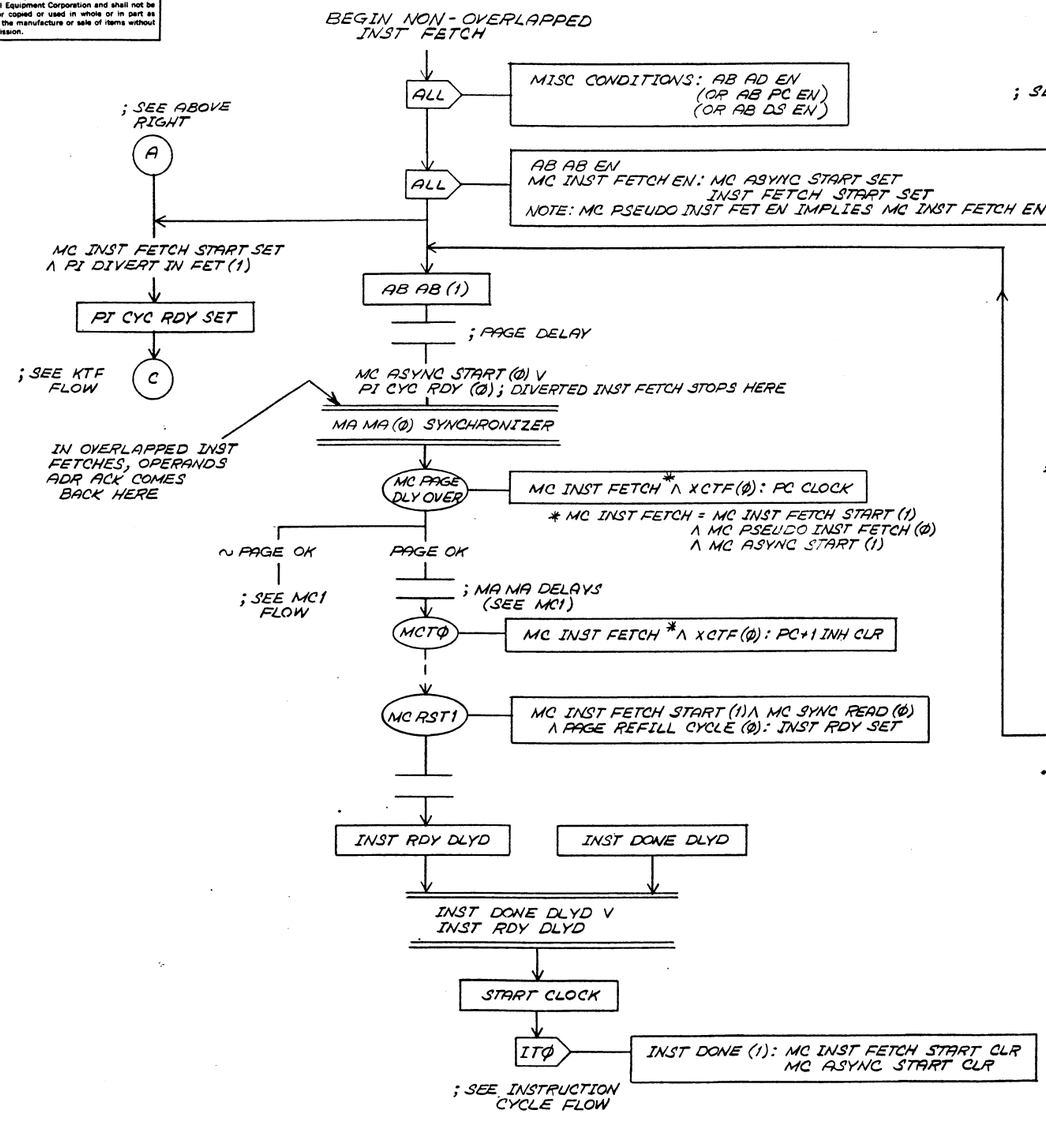
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

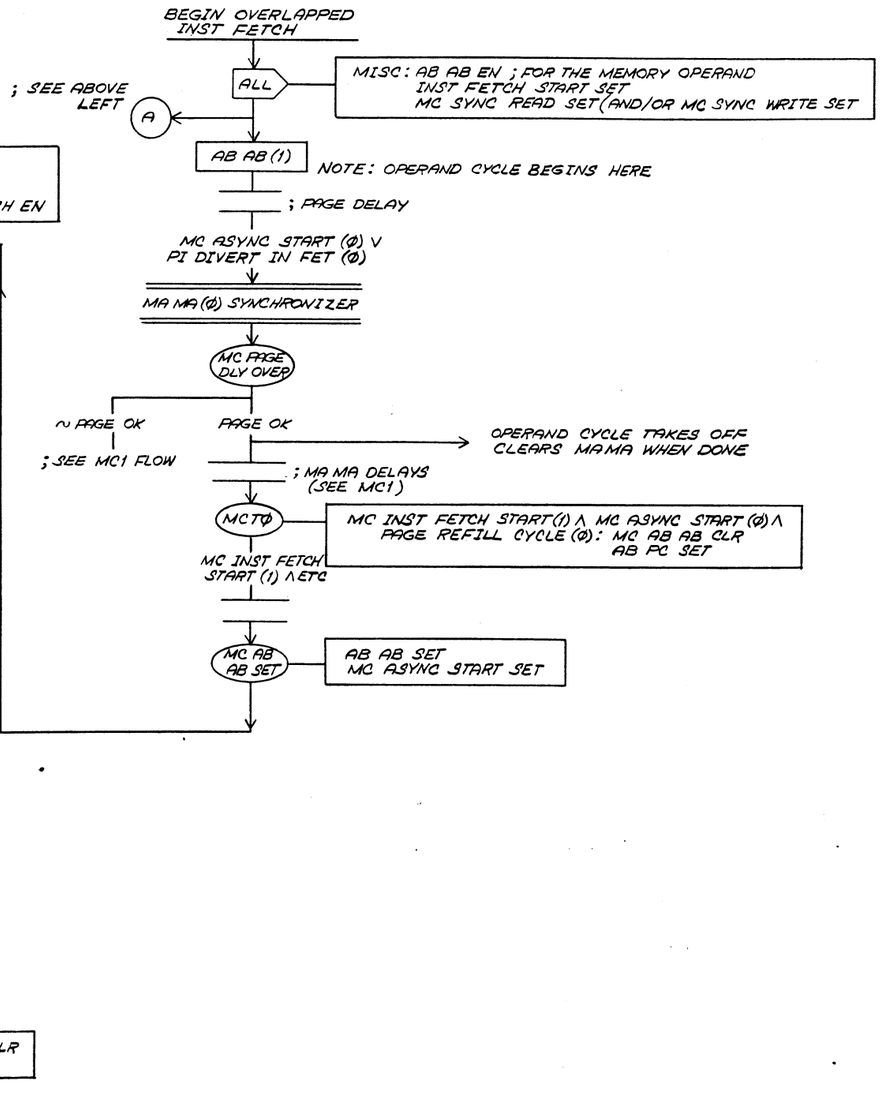
SCALE ~

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	FD	K11Ø - Ø - IC	A

DIST





FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES: DECIMALS .XXX = .005, .XX = .02, .X = .1; ANGLES ±0° 30'. REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	DRN. W Stephenson	DATE 3/27/71
	CHK'D. Marvel Gross	DATE 31 Jan 72
	ENG. Allan Kotok	DATE 31 Jan 72
	PROJ. ENG. Allan Kent	DATE 31 Jan 72
	PROD. J Mullen	DATE 31 Jan 72
MATERIAL	NEXT HIGHER ASSY. B-DD-KI1Ø	
FINISH	SCALE	
	SHEET 1 OF 1	

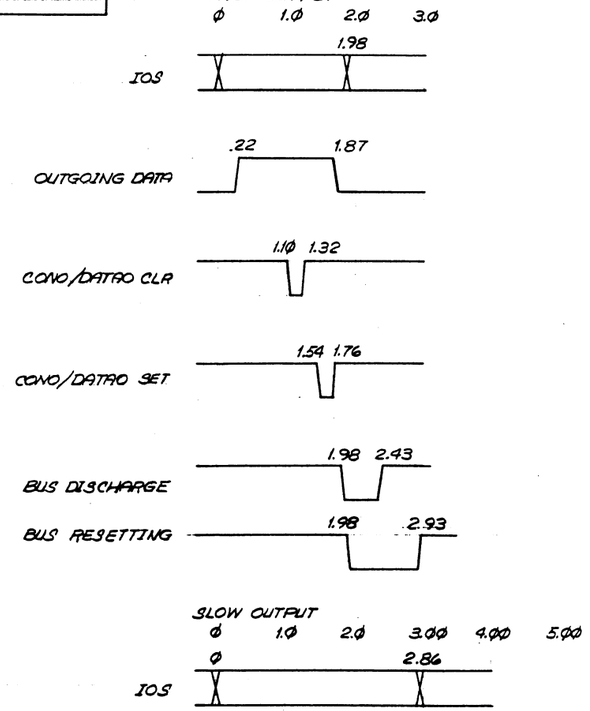
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: INSTRUCTION FETCH FLOW

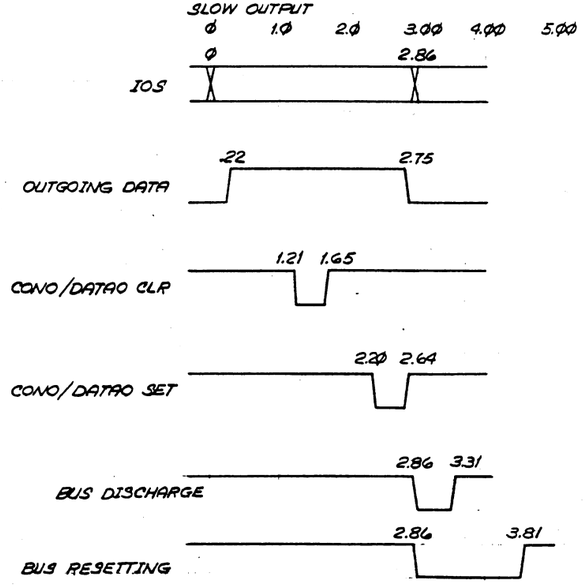
SIZE D | CODE FD | NUMBER KI1Ø-0-IFF | REV.

DIST.

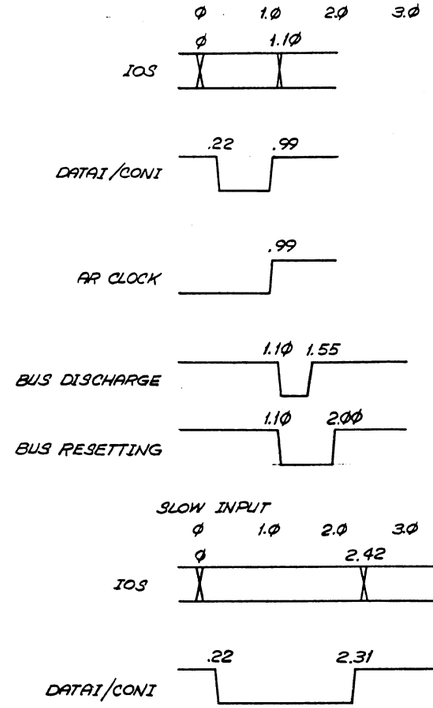
FAST OUTPUT



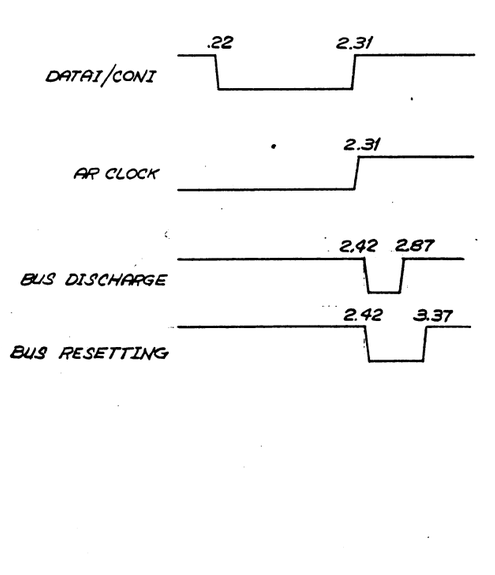
SLOW OUTPUT



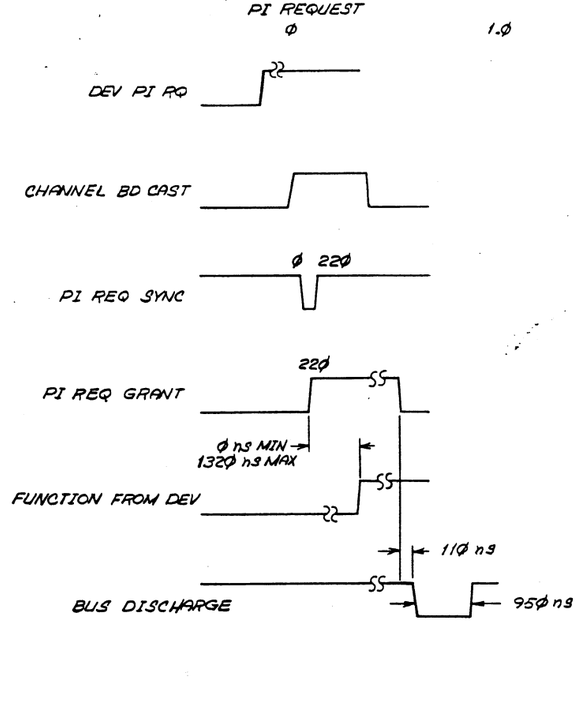
FAST INPUT



SLOW INPUT



PI REQUEST



NOTE: 'SLOW' CYCLES ARE INTENDED TO MEET KA1Ø TIMING SPECS.

CAUTION: THE TIMES SHOWN ARE INCORRECT. THIS DRAWING SHOULD ONLY BE USED TO GET A GENERAL IDEA OF I/O BUS TIMING.

REVISIONS	REV.	CHK	CHANGE NO.
	A	JB	KI1Ø-00041

J Clarke 12-9-71
KENT
Allan Kent 1 Dec 71

DEC FORM NO DRD 102A

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .ØØØ FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	W Stephenson	DATE 9/30/70
CHKD	David Gross	DATE 31 Jan 72
ENG	Allan Kent	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE I/O BUS TIMING

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø - Ø - IOBT	A

DIST.

IR BLKX

IR BLKI 70000 — Switches
IR BLKO 70010 — FCE, FCE PSE, PI MAY OVF

IT1 → IOT BLKX SKIP CLR

MB 13 (Ø)

F CYC START → MC SYNC READ EN, MC SYNC WRITE EN, CLK INH, FT6

AB AB EN

POINTER READ, MC RST1 — C(E) → AR

F CYC ACT EN → AD AR + EN C, PI CYC(1) ∨ BYF6(Ø): AD + 1 BOTH BLKX → AD MAGIC EN A, AD ADD EN C, AD + 1 BOTH F → AD CRY 36, AD + 1 LT; CLK LONG CYCLE, ET2

AD ADD gives CLK MAX EN

170/230 ns

ET2 → AR MA BLKX ETC → AR AD ET2 EN, AR AD EN A; ~AD ØØ-17=Ø ∧ PI CYC(Ø) ∧ IOB PI(Ø): IOT BLKX SKIP EN; AD ØØ-17=Ø ∧ PI CYC(1): PI OV EN; PI CYC(Ø): BYF6 EN, ST1 COND

110 ns

ST1 → PI CYC(1) ∧ PI OV(Ø): PI ACT INH, IOT BLKX SKIP(1): IOT BLKX SKIP HOLD EN, ST2 COND

Write restart or AC write to write incremented pointer back in memory – see Store cycle (S)

110 ns — MC RSTØ

ST2 → AB AD EN → AB FF CLR, AD AR + EN K, CLK LONG CYCLE

IOT INST

= IR IOT ∨ PI DATAO ∨ PI DATAI

Common Switches
PC CHANGE
~BLKX: ET1 EN
SAC INH

AB = AD = AR = Ø, E

F CYC ACT EN → AB PC (FETCH) EN ↳ ∧ KEY RDI FFØ(Ø): AB PC IN, AB FF CLR; IOB RESETTING SYNC(Ø) ∧ ~IOB PI IN: IOB IOT EN, ET1

110 ns

ET1 → AD AR − EN; IOB RESETTING SYNC(Ø) ∧ ~IOB PI IN: IOB IOT EN — Supply complement of possible data word

ET1 IOT LOOP — PI CYCLE DIVERTED → ET1 → Clear KEY CYCLE [~ET1 IOT LOOP:] Clear IOT BLKX SKIP

KEY RUN (Ø) → KEY IDLE EN

KEY RUN (1) → Go to key cycle (KC)

PI RDY SYNC (1) → PIT1 → Go to PI cycle (PI)

PI RDY SYNC (Ø) → KT1 COND → Go to Key cycle (KC)

IC5 IOT(1) → Go to IOT Special Sequence (IOT2)

Return from IOT Special Sequence (IOT2)

ET1 IOT LOOP = ET1(1) ∧ IOT INST ∧ IOB IOT(Ø) ∧ PI DIVERT INDIRECT(Ø)
ET1(1) ∧ IOT INST ∧ IOB IOT(Ø) ∧ PI DIVERT INDIRECT(1): PI CYCLE DIVERTED

IR CONO 700020 — Switch: IOT OUTGOING

~MB 14-17 = Ø → F CYC START → AD AR + EN E, FT6 → 110 ns → F CYC ACT EN

MB 14-17 = Ø → F CYC START, F CYC ACT EN

IR CONSX = IR CONS2 ∨ IR CONS0
700030 — Switches: ST INST FET ST1 EN ↳ ST INH, PI MAY OVF
700034

IR CONSX → BR AR EN — Save mask for conditions

IR CONO → AR LT AR RT EN, AR SIGN SMEAR → AR RT AR RT, AR RT AUX EN, (AR 12-17 SELF B), (ARI AR ØØ SELF) — Duplicate conditions on bus left half

IOT BLKX SKIP(1): PC CLK EN [~ET1 IOT LOOP:] Clear IOT BLKX SKIP
Relevant only to DATAX from BLKX

ET2

IR CONO → CLK EN INST DONE → Return to Instruction cycle (IC)

IR CONSX → (IR CONS0 ∧ ~AD=Ø) ∨ (IR CONS2 ∧ AD ØØ-17=Ø ∧ AD Ø9-35=Ø): PC CLK (ET2) EN B, PC CLK (ET2) EN C; PI CYC(1) ∧ ~PC CLK EN: PI OV EN; ST INST FET ST1 EN ↳ ST1 COND

110 ns → ST1 → PI MAY OVF ↳ ∧ PI OV(Ø): PI ACT INH; CLK EN INST DONE; PI OV(Ø): MC INST FET ST1 EN A ↳ MC INST FETCH EN
Return to Instruction cycle (IC)
Fetch next instruction (MC1)

IOT DATAO → PI CYC(Ø): BYF6 CLR, CLK EN INST DONE → Return to Instruction cycle (IC)

IOT DATAO = IR DATAO ∨ PI DATAO
700014 — PI FCN 3-5=4 — Switch: IOT OUTGOING

IR DATAO — Switch: FCE — Direct entry from IT1
PI DATAO from PIT2 (See PI) — MC RST1

F CYC START → AB, FETCH IT1 COND ↳ MC SYNC READ EN, CLK INH, FT6

AB AB EN

OPERAND READ, MC RST1 — C(E) → AR

BLKO entry from FT3 (see below left) — MC RST1

F CYC ACT EN

IR DATAI = IR DATAI ∨ PI DATAI
700004 — PI FCN 3-5=5

IR DATAI — Switch: SCE — Direct entry from IT1
BLKI entry from FT5 (see below center)
PI DATAI from PIT2 — Switch: STORE (See PI)
MC PAGE DLY OVER

IR CONI 700024 — Switch: SCE

F CYC START → MC MEM GO INH EN, MC SYNC WRITE EN, CLK INH, ~MB 14-17=Ø: FT8, MB 14-17=Ø: FT6

AB AB EN

PAGE CHECK, MC PAGE DLY OVER

FT8(1) → FT8 → FMC AC ∨ AC2 EN, FT6 → 110 ns

FT6(1)

F CYC ACT EN

IR BLKO → FT3 → 170 ns → FT3 → IR 12 SET, CLK MISC INH ↳ AR CLR A, MC SYNC READ EN, AB AD CLK INH, FT6 → AB AB EN

OPERAND READ, MC RST1 — Word addressed by right half of pointer goes to AR and AD

Enter IOT DATAO at top center

IR BLKI → FT5, MC MEM GO INH EN → 170 ns → FT5 → IR 12 SET, MC STORE TIME ↳ MC SYNC WRITE EN, ↳ CLK INH, AB AD CLK INH, FT6 → AB AB EN

PAGE CHECK, MC PAGE DLY OVER — Do paging for right half of pointer

Enter IOT DATAI at top right

IR CONI — IOT DATAI

MC MEM GO INH CLR, ST1
MC MEM GO INH CLR, ST1 COND, PI CYC(Ø): BYF6 CLR

110 ns → ST1 → ST2 COND

Write restart or AC write to wr. e conditions or data word in memory – see store cycle (S) — MC RSTØ

110 ns → ST2 → CLK LONG CYCLE, ST5

170 ns → ST5 → CLK EN INST DONE

Return to Instruction cycle (IC)

REVISIONS	REV	CHK	CHANGE NO	DATE
ORIGINATED	—	—	K11Ø-00041	

BRUNING 40-522 15940
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRAWN M. Stephenson — DATE 12/27/72
CHK'D David Gross — DATE 1/3/72
ENG. H. Mary Kotch — DATE 1/3/72
PROJ. ENG. Allan Kent — DATE 1/3/72
PROD. [illegible] — DATE 1/3/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IN-OUT TRANSFER INSTRUCTIONS

NEXT HIGHER ASSY. B-DD-K11Ø-Ø
SCALE ~
SHEET 1 OF 1

SIZE D | CODE FD | NUMBER K11Ø-Ø-1ØT1 | REV —
DIST.

SIZE D | CODE FD | NUMBER K11Ø - Ø - IOT2 | REV —

Instruction Decoding

IR = 111 XXX XXX XYY Y
Device code
YYY specifies instruction

IR IOT FAST ∧ IR 1Ø-12

Instruction Action

ØØØ = IR BLKI C(E)+1,1 → C(E) DEVICE BUFFER → C(C(E RT))
ØØ1 = IR DATAI DEVICE BUFFER → C(E)
Ø1Ø = IR BLKO C(E)+1,1 → C(E), C(C(E RT)) → DEVICE BUFFER
Ø11 = IR DATAO C(E) → DEVICE BUFFER
1ØØ = IR CONO E → DEVICE CONTROL
1Ø1 = IR CONI STATUS → C(E)
11Ø = IR CONSZ (STATUS ∧ E) = Ø : PC+1 → PC
111 = IR CONSO (STATUS ∧ E) ≠ Ø : PC+1 → PC

IR IOT FAST = IR 7XX ∧ (IR XX17 ∨ USER IOTS ILLEGAL (Ø) ∨ PI CYC(1))
IR 7XX ∧ ~ IR XX17 ∧ USER IOTS ILLEGAL (1) ∧ PI CYC(Ø): IR ILLEGAL INST
IR IOT = IR 7XX ∧ ~ IR ILLEGAL INST
IR BLKX = IR 7XX ∧ ~ IR ILLEGAL INST ∧ IR 1Ø(Ø) ∧ IR 12(Ø)
IOT OUTGOING = IR CONO ∨ IOT DATAO

From IOT Instruction (IOT1)

ET1

IOB IOT (1)

IOTTØ COND → IOT IOS EN Gate IR Ø3-Ø9 onto IOS Ø3-Ø9

11Ø ns

IOTTØ
IOT LOAD TIMER 1101 (-3)
IOT OUTGOING: AR AD EN C
IOTT1
Put complement of output word into AR for bus

11Ø ns

~ IOT TIMER DONE

IOTT1
IOT DATA TIME EN
~ IOT TIMER DONE : IOTT1
IOT TIMER DONE : IOTT2
IOT LOAD TIMER
~ IOT OUTGOING ∧ ~ IOB SLOW 11ØØ (-4)
~ IOT OUTGOING ∧ IOB SLOW ØØØØ (-16)
IOT OUTGOING ∧ ~ IOB SLOW 1Ø11 (-5)
IOT OUTGOING ∧ IOB SLOW 1Ø01 (-7)

IOT DATA TIME (1)

IOB BUS READ

IOT TIMER DONE

IOT OUTGOING | ~ IR CONSX ∧ PI OV(Ø) | IR CONI ∨ IR CONSX | IOT DATAI

IOT OUTGOING DATA EN | PI ACT INH A | IOB CONI T | IOB DATAI T

These signals remain on until IOT DATA TIME clears at IOTT8

11Ø ns

~ IOT TIMER DONE

IOTT2
AD IOB EN (For input)
~ IOT TIMER DONE : IOTT2
IOT TIMER DONE ∧ ~ IOT OUTGOING : IOTT8
IOT TIMER DONE ∧ IOT OUTGOING : IOTT5
IOT LOAD TIMER
~ IOB SLOW 1110 (-2)
IOB SLOW 11ØØ (-4)

IOTT 5 (1)

IOB PULSE LIMITER SET

1.5 µs

IOB PULSE LIMITER CLEAR

IOB CLR

IR CONO | IOT DATAO

IOB CONO CLR T | IOB DATAO CLR T

These signals remain on until IOTT5 clears at IOT TIMER DONE or IOB PULSE LIMITER times out, whichever occurs first.

IOT TIMER DONE

IOT OUTGOING

11Ø ns

~ IOT TIMER DONE

IOTT5
~ IOT TIMER DONE : IOTT5
IOT TIMER DONE : IOTT6
IOT LOAD TIMER
~ IOB SLOW 1110 (-2)
IOB SLOW 1Ø11 (-5)

~ IOT OUTGOING

IOT TIMER DONE

11Ø ns

~ IOT TIMER DONE

IOTT6
~ IOT TIMER DONE : IOTT6
IOT TIMER DONE : IOTT7
IOT LOAD TIMER
~ IOB SLOW 1110 (-2)
IOB SLOW 11ØØ (-4)

IOTT 7 (1)

IOB PULSE LIMITER SET

IOT TIMER DONE

11Ø ns

~ IOT TIMER DONE

IOTT7
~ IOT TIMER DONE : IOTT7
IOT TIMER DONE : IOTT8

IOB SET

1.5 µs

IOB PULSE LIMITER CLEAR

11Ø ns

IOTT8
Clear IOT DATA TIME
~ IOT OUTGOING : AR AD EN B
AD AR + EN B (For CONSX compare
AD BR + EN B conditions and mask with
IOTT9 AND in AD)
~ IR CONSX ∧ PI OV(Ø): MC INST FETCH EN

Fetch next instruction (MC1)

IR CONO | IOT DATAO

IOB CONO SET T | IOB DATAO SET T

These signals remain on until IOTT7 clears at IOT TIMER DONE or IOB PULSE LIMITER times out, whichever occurs first.

11Ø ns

IOTT9
Clear IOT IOS EN
IOB DISCHARGE START → IOB DISCHARGE EN
↳ IOB RESETTING SYNC EN
AD AR + EN B
AD BR + EN B
ET2

ET2 (1)

MC MEM GO INH (1)
(IR CONI ∨ IOT DATAI)

MC WR SUBR EN

Start memory write subroutine (MC2)

11Ø ns

ET2
[IOB RESETTING SYNC (1):] Clear IOB IOT

Return to IOT Instruction (IOT1)

REVISIONS	REV
CHANGE NO	—
K11Ø-00041	
CHK —	ORIGINATED

BRUNING 40-522 15M0
DEC FORM NO
DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1 ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN W. Stephenson DATE 14/6/72
CHK'D David Gross DATE 31 Jun 72
ENG Allan Kotok DATE 31 Jun 72
PROJ. ENG. Allan Kent DATE 31 Jun 72
PROD T. Hamilton DATE 31 JUN 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
IOT SPECIAL SEQUENCE

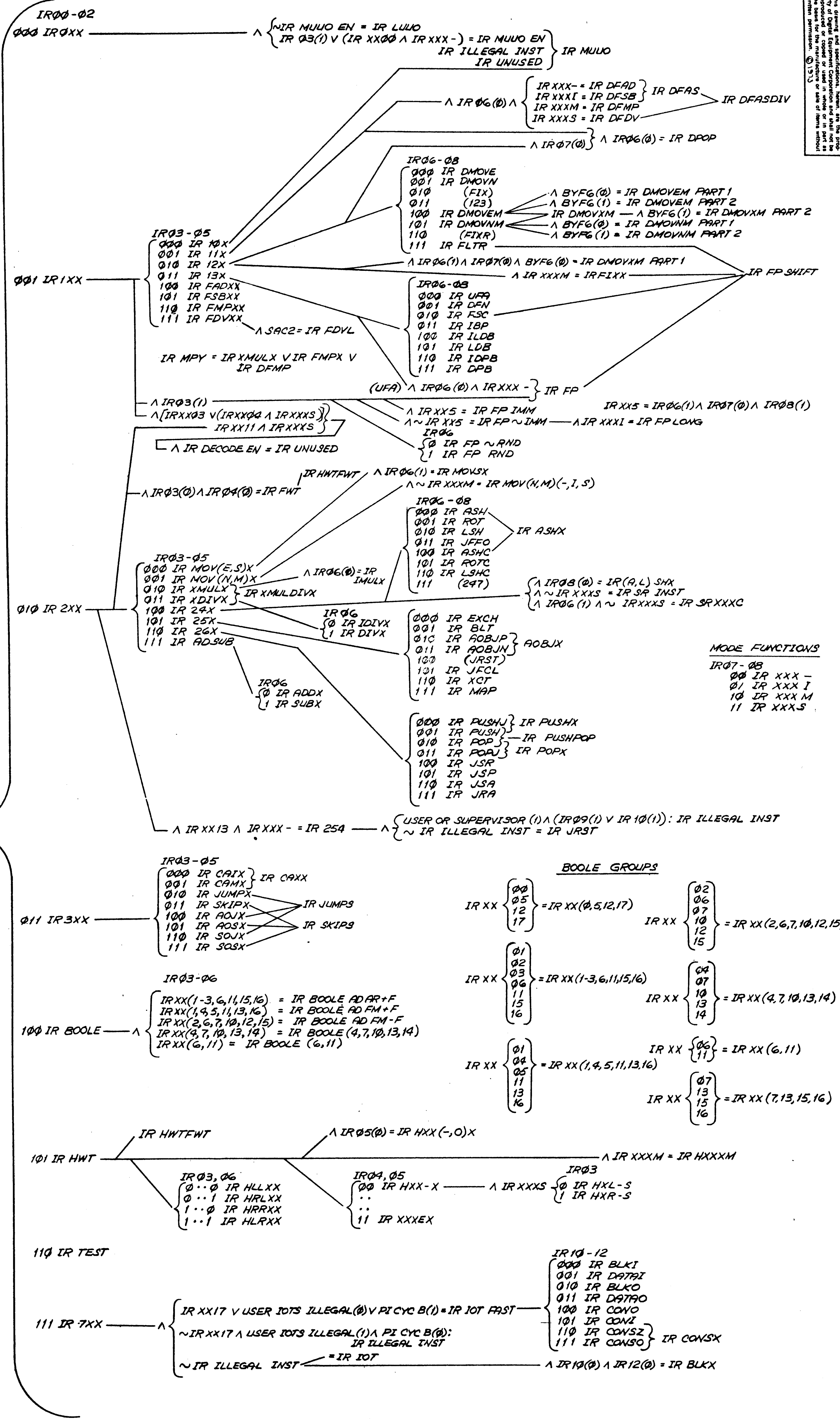
NEXT HIGHER ASSY. B-DD-K11Ø-Ø
SCALE ~
SHEET 1 OF 1

SIZE D | CODE FD | NUMBER K11Ø - Ø - IOT2 | REV —
DIST.

REVISIONS		
CHK	CHANGE NO.	REV
—	KI10-00041	—
	ORIGINATED	

GENERAL IR03-06 DECODING

IR03-06		INSTRUCTION CODE
0000	IR XX00	X00X
0001	IR XX01	X04X
0010	IR XX02	X10X
0011	IR XX03	X14X
0100	IR XX04	X20X
0101	IR XX05	X24X
0110	IR XX06	X30X
0111	IR XX07	X34X
1000	IR XX10	X40X
1001	IR XX11	X44X
1010	IR XX12	X50X
1011	IR XX13	X54X
1100	IR XX14	X60X
1101	IR XX15	X64X
1110	IR XX16	X70X
1111	IR XX17	X74X



IR DECODE EN = ~ PI INST ∧ PFF1 (0) ∧ KEY DEP CYCLE (0) ∧ KT3(0)

FIRST USED ON OPTION/MODEL
KI10

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES.
TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN W. Stephenson DATE 7/6/72
CHK'D. David Gross DATE 31 Jan 72
ENG. Alan Kotok DATE 31 Jan 72
PROJ. ENG. Allan Kent DATE 31 Jan 72
PROD. DATE 31 Jan 72
NEXT HIGHER ASSY. B-DD-KI10-0
SCALE ~
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
IR DECODING

SIZE D CODE FD NUMBER KI10 - 0 - IRD REV. —

DIST.

IR JSR 264

IR = Ø1Ø 11Ø 1ØØ
IR 2XX IR 26X

Action: FLAGS, PC → E; E+1 → PC

Switches: IR 26X ∧ IRØ6(1) → PC CHANGE SCE SAC INH

F CYC START → MC SYNC WRITE EN, AB AD CLK INH, CLK INH, MB 14-17=Ø: FT6, ~MB 14-17=Ø: FT8

AB AB EN

AB = AD = AR = Ø, E

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

FT6(1): FT8(1) → FMC AC V AC2 EN, FT6

110 ns

F CYC ACT EN → ET2

110 ns

ET2 → AR FLAGS SAVE
↳ AR FLAGS EN → AR PC EN
↳ AR FLAGS EN A → BYFG CLR
↳ TRAP SATISFIED (clear TRAP PAGE FAULT)
↳ ∧ PI CYC(1): PI REQ SETS PIH, PAGE LEAVE USER
PC CLK(ET2) EN A → PC+1 INH CLR
↳ PC CLK(ET2) EN B,C → PC CLK EN
AB PC EN A → AB FF CLR
ST1 COND

110 ns

ST1 → MC INST FET ST1 EN → MC INST FETCH EN, ST2 COND

Fetch next instruction (MC1)

Write restart or AC write to write PC word in E — see Store cycle (S)

110 ns, MCRSTØ

ST2 → CLK LONG CYCLE ST5

170 ns

ST5 → CLK EN INST DONE

Go to Instruction cycle (IC)

IR JSP 265

IR = Ø1Ø 11Ø 1Ø1
IR 2XX IR 2GX

Action: FLAGS, PC → AC; E → PC

Switch: IR 26X ∧ IRØ6(1) → PC CHANGE

F CYC START → FMC AC EN A

MB 14-17=Ø: AD AR = EN E, FT6

~MB 14-17=Ø

110 ns

AB = AD = AR = Ø, E

F CYC ACT EN → ET2

110 ns

ET2 → BR AR (ET2) A → BR AR EN; AD BR = EN B (E → AB); AR FLAGS SAVE
↳ AR FLAGS EN → AR PC EN
↳ AR FLAGS EN A → BYFG CLR
↳ TRAP SATISFIED (clear TRAP PAGE FAULT)
↳ ∧ PI CYC(1): PI REQ SETS PIH, PAGE LEAVE USER
ST1 COND → FM WR EN
↳ ST1

110 ns

ST1 → CLK EN INST DONE; BR AR (ET2) A → MC INST FET ST1 EN; ↳ MC INST FETCH EN

Go to Instruction cycle (IC)

Fetch next instruction (MC1)

IR JRST

= IR 25Ø ∧ ~ IR ILLEGAL INST
IR 25Ø = IR 2XX ∧ IR XX13 ∧ IR XXX-
IR 254 ∧ (IR Ø9(1) ∨ IR 1Ø(1)) ∧ USER OR SUPERVISOR(1): IR ILLEGAL INST → IR MUUO (See UUO)

Action: E → PC
IR Ø9(1): Restore PI channel
IR 1Ø(1): Halt
IR 11(1): Restore FLAGS
IR 12(1): Private entry OK

Switches: IR 25X ∧ IRØ6(1) → PC CHANGE
IR 1Ø(Ø) ∧ IR 11(Ø): MCI JRST NO FLAGS
~MCI JRST NO FLAGS: ST INH
SAC INH
ST INH means halt or restore

IT1 → AR RT AD EN (E → AR RT); AR LT AD EN (Restore bits → AR LT); IR 1Ø(1): KEY PROG STOP IN → KEY RUN CLR; IR 12(1) ∧ PAGE PRIVATE INST(1): PAGE LIP CLR A

F CYC START → MCI JRST NO FLAGS: MC INST FETCH (IT1); ↳ MC INST FETCH EN

Fetch next instruction (MC1)
AB = AD RT
AD = AR = Restore bits, E

MB 14-17=Ø: AD AR = EN E, FT6

~MB 14-17=Ø

110 ns

F CYC ACT EN → KEY RUN(Ø): KEY RDY SYNC EN, ET2

110 ns

ET2 → KEY RUN(Ø): KEY RDY SYNC EN; IR Ø9(1): PI DISMISS; IR 11(1): ARF LOAD → BYFG CLR
↳ ∧ AR Ø5(1) ∧ ~ USER PAGING: PAGE LIP CLR
↳ ∧ AR Ø6(1) ∧ USER MODE(Ø): USER IOT EN
↳ ∧ AR Ø7(1): PAGE ENTER PUBLIC
↳ PAGE CLR PRIVATE EN
↳ ∧ ~ PAGE ENTER PUBLIC ∧ USER MODE(Ø): PAGE SET PRIVATE EN
BR AR EN; AD BR = EN B (E → AB for halt or restore); AR PC EN (for halt only)

~MCI JRST NO FLAGS

PAGE SET PRIVATE (1)

PAGE PRIVATE INST SET

PAGE CLR PRIVATE (i)

PAGE PRIVATE INST CLR

MCI JRST NO FLAGS [∴ ~ ST INH]

CLK EN INST DONE

Go to Instruction cycle (IC)

MC INST FET ST1 EN A → ST INH, ↳ ST1 COND

110 ns

ST1 → MC INST FET ST1 EN A → MC INST FETCH EN, ↳ KEY RDY SYNC (1): PI CYC RDY EN, CLK EN INST DONE

IR 1Ø(Ø)

Go to Instruction cycle (IC)

Fetch next instruction (MC1) Aborted if PI CYC RDY(1)

IR 1Ø(1) → IR MB EN → Clear IR IR, CLK INH, Clear PI CYC, FMC SEL Ø,1

INST DONE EN

see Instruction cycle for details (IC)

87 ns

INST DONE DLYD

INST DONE DLYD PULSE

PI CYC RDY(1)

INST DONE(1) ∧ PI CYC RDY(1) (∴ PI CYC DIVERTED) → KEY IDLE EN, PC CLK EN (E → PC), Clear MC INST FETCH START, MC ASYNC START, PI CYC RDY, KEY CYCLE, XCTP FF CLR

110 ns

KEY IDLE (1) → ~ KEY ANY NO BOUNCE ∧ KEY SYNC(Ø): KEY CLK STOP; ↳ ∧ KEY REPT DONE(Ø): KEY CLK INH, ↳ CLK MISC INH

Clock stops unless coincidental conditions start key cycle (See KC)

IR JSA 266

IR = Ø1Ø 11Ø 11Ø
IR 2XX IR 2GX

Action: AC → E; E, PC → AC; E+1 → PC

Switches: IR 26X ∧ IRØ6(1) → PC CHANGE; ETØ EN; SAC BR; SCE

IT1 → SAC BR FF EN

F CYC START → MC SYNC WRITE EN, AB AD CLK INH, CLK INH, MB 14-17=Ø: FT6, ~MB 14-17=Ø: FT8

AB AB EN

AB = AD = AR = Ø, E

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

FT6(1): FT8(1) → FMC AC V AC2 EN, FT6

110 ns

F CYC ACT EN → AD AR = EN C; AB AD EN → AB FF CLR; ETØ

110 ns

ETØ → AR LT AR RT EN (E → AR LT); AR PC EN (PC → AR RT); AD FM+ EN B (AC → AD); PC CLK EN (E → PC); PC+1 INH CLR (E+1); AB PC EN A → AB FF CLR; ET2

110 ns

ET2 → AR AD BR (ET2) A → BR AR EN (E, PC); ↳ AR AD ET2 EN; ↳ AR AD EN A (AC); MC INST FET ET2 EN → MC INST FETCH EN; ST1 COND → ST1; ↳ FM WR EN (BR (E, PC) → AC)

Fetch next instruction (MC1)

110 ns

ST1 → ST2 COND

Write restart or AC write to write AC in E — See store cycle (S)

110 ns, MCRSTØ

ST2 → CLK LONG CYCLE ST5

170 ns

ST5 → CLK EN INST DONE

Go to Instruction cycle (IC)

IR JRA 267

IR = Ø1Ø 11Ø 111
IR 2XX IR 2GX

Action: C(AC LT) → AC; E → PC

Switches: AD F LT V RT COND FCE2, LT OR RT; IR 2GX ∧ IRØ6(1) → PC CHANGE

F CYC START → AD F LT V RT COND; ↳ FMC AC EN A; ↳ AD FM+ EN B (AC → AD); ↳ ∧ ~ MB 14-17=Ø: CLK LONG CYCLE, SCAD ADD EN B (CLK MAX EN)

FT1

110/230 ns

FT1 → BR AR EN (save E); AR AD EN G (AC → AR); FT2

110 ns

FT2 → AR RT AR LT EN (AC LT → AR RT); AD AR = EN D; FT3

110 ns

FT3 → MC SYNC READ EN, AB AD CLK INH, CLK MISC INH → AR CLR A, ~ SCE → ~ FT4 COND → FT6

AB AB EN

OPERAND READ
MC RST1

C(AC LT) → AR [→ AD]

MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

E → AD → AB

F CYC ACT EN → AD BR = EN A; AB AD EN → AB FF CLR; ET2

110 ns

ET2 → MC INST FET ET2 EN → MC INST FETCH EN; ST1 COND → ST1; ↳ FM WR EN (c(AC LT) → AC)

Fetch next instruction (MC1)

110 ns

ST1 → CLK EN INST DONE

Go to Instruction cycle (IC)

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1; ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. A. Stephenson DATE 1/12/73
CHK'D. David Green DATE 1/15/73
ENG. Allan Kotok DATE 31 Jan 73
PROJ. ENG. Allan Kotok DATE 31 Jan 73
PROD. Mary Stone DATE 31 JAN 73

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: JUMP INSTRUCTIONS 1

NEXT HIGHER ASSY. B-DD-KIØ-Ø
SCALE
SHEET 1 OF 1

SIZE D | CODE FD | NUMBER KI1Ø-Ø-JMP1 | REV —

DIST.

REVISIONS	CHK	CHANGE NO	REV
ORIGINATED	—	KIØ-00041	—

BRUNING 40-522 15840
DEC FORM NO DRD 107-B

IR AOBJX = IR AOBJP (252) V IR AOBJN (253)

IR = ØIØ ØØ1 Ø1X
IR 2XX IR 25X

Action
AOBJP AC+(1,1) ≥ Ø: E → PC
AOBJN AC+(1,1) < Ø: E → PC
AC+(1,1) → AC

Switch
PC CHANGE

F CYC START → FMC AC EN A
AB = AD = AR = Ø, E
MB 14-17 = Ø
~MB 14-17 = Ø → AD AR+ EN E, FTG
110 ns
F CYC ACT EN
AD FM+ FETCH EN A → AD FM+ EN A, AD ADD EN C
AD+1 BOTH F → AD CRY 36, AD+1 LT
AD MSK EN B
CLK LONG CYCLE (CLK MAX EN)
ET2
230 ns
(IR AOBJN ∧ AD ØØ(Ø)) V (IR ØØ(Ø) ∧ AD ØØ(1)): AB PC EN A → AB FF CLR
(Otherwise next instruction fetch will use AD)
AR AD BR (ET2) A → BR AR EN (E → BR), AR AD ET2 EN → BR AD EN A (AC+ → AR)
AD BR+ EN B (E → AD ÷ AB)
ST1 COND → FM WR EN (AC+(1,1) → AC), ST1
110 ns
ST1
MC INST FET ST1 EN → MC INST FETCH EN
CLK EN INST DONE

Go to Instruction cycle (IC)
Fetch next instruction (MC1)

IR JFFO 243

IR = ØIØ IØØ Ø11
IR 2XX IR 24X

Action
AC = Ø: Ø → AC2
AC ≠ Ø: Count leading Ø's → COUNT → AC2
E → PC

Switches
PC CHANGE
ST INH
ETØ EN
ET1 EN

F CYC START → FMC AC EN A
AB = AD = AR = Ø, E
MB 14-17 = Ø
~MB 14-17 = Ø → AD AR+ EN E, FTG
110 ns
F CYC ACT EN
AD FM+ EN A
CLK LONG CYCLE
ETØ
170 ns
~AD = Ø: FLAG 1 EN
AD ØØ-17 = Ø: FLAG 2 EN
AR AD BR (ETØ) → BR AR EN (E → BR), AR AD EN A (AC → AR)
ETØ
AD BR+ EN B (E → AD → AB)
FMC AC2 EN A (For count)
ET1
110 ns
FLAG 1(1) ∧ FLAG 2(1): MQ GETS 22 → MQ SH LT EN (18), AR LT AR RT
(Left all Os, count only right)
FLAG 1(1): PC CLK (ET1) EN (E → PC), PC+1 INH IN
AB PC EN A → AB FF CLR (Next instruction)
AD AR+ EN B (AC → AD)
ET1
110 ns
MQ AD EN A (AC → MQ)
AR MQ EN A (COUNT → AR → AD)
AD AR+ EN
AD MAGIC EN D
AD ADD EN D
AD CRY 36 (COUNT +1)
MC INST FET ET2 EN → MC INST FETCH EN
ET2
Fetch next instruction (MC1)

FLAG 1(Ø) V AR ØØ(1)
FLAG 1(1) ∧ ~MQ ØØ IN → JFFOT1 (BS for JFFO is DS)
170 ns
JFFOT1
MQ SH ORDINARY
MQ SH LT A (Shift AC)
AR AD EN G (COUNT → AR)
AD AR+ EN F → AD ADD → AD MAGIC EN
AD CRY 36
MQ Ø1(1)
ST1 COND → FM WR EN (COUNT → AC2), ST1
170 ns
ST1
CLK EN INST DONE
Go to Instruction cycle (IC)

IR JFCL 255

IR = ØIØ ØØ1 1Ø1
IR 2XX IR 25X

Action
SELECTED FLAG(1): E → PC
Clear SELECTED FLAG

Switches
IR 25X ∧ IR Ø6(1) → PC CHANGE
SAC INH

PC COND Z = (IR Ø9(1) ∧ AR OV(1)) V (IR 10(1) ∧ AR CRY Ø(1)) V (IR 11(1) ∧ AR CRY 1(1)) V (IR 12(1) ∧ AR FOV(1))

F CYC START → PC COND Z: MC INST FETCH (IT1) → MC INST FETCH EN; (~MC INST FETCH (IT1): FMC AC EN A)
AB = AD = AR = Ø, E
Fetch next instruction (MC1)
MB 14-17 = Ø
~MB 14-17 = Ø → AD AR+ EN E, FTG
110 ns
F CYC ACT EN
~PC COND Z: MCI JFCL INST FET → AB PC (FETCH) EN → AB PC IN → AB FF CLR
ET2
110 ns
ET2
IR Ø9(1): AR OV CLR
IR 10(1): AR CRY Ø CLR
IR 11(1): AR CRY 1 CLR
IR 12(1): AR FOV CLR.
~PC COND Z: MCI JFCL INST FET → MC INST FET ET2 EN → MC INST FETCH EN
CLK EN INST DONE

Go to Instruction cycle (IC)
Fetch next instruction (MC1)

IR XCT 256

IR = ØIØ 1Ø1 11Ø
IR 2XX IR 25X

Action
USER MODE(Ø): IR 11 → XCTP WR, IR 12 → XCTP RD
Execute C(E)

Switches
IR 25X ∧ IR Ø6(1) → PC CHANGE
TN CLR INH
SAC INH

AB = AD = AR = Ø, E
F CYC START → XCTF EN; MC INST FETCH (IT1) → MC INST FETCH EN
Fetch instruction (MC1) from E; XCTF(1) kills PC MEM COND (MC2)
MB 14-17 = Ø
~MB 14-17 = Ø → AD AR+ EN E, FTG
110 ns
AB = AD = AR = Ø, E
F CYC ACT EN → XCTF(1): clear KEY RDY SYNC
ET2
110 ns
ET2
[XCTF(1):] Clear KEY RDY SYNC
USER MODE(Ø) ∧ IR 11(1): XCTP WR EN
USER MODE(Ø) ∧ IR 12(1): XCTP RD EN
CLK EN INST DONE

Go to Instruction cycle (IC)

Setup for paging in executed instruction occurs at F CYC START
(XCTP RD(1) V XCTP WR(1)) ∧ ~BYTE FIRST PART: XCTP ACTIVE EN
XCTP ACTIVE(1) → MC PAGE SLOW EN SET

REVISIONS			
CHK	CHANGE NO.	REV
—	KIØ-00041 ORIGINATED	—

BRUNING 40-522 15640
DEC FORM NO DRD 107-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN	M. Stephenson	DATE 9/1/72
CHK'D	David Gross	DATE 31 Jan 72
ENG	M. Dan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY. B-DD-KIØ-Ø
SCALE — / —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: JUMP INSTRUCTIONS 2

SIZE	CODE	NUMBER	REV.
D	FD	KIØ-Ø-JMP2	—

DIST.

DIVERSION OF PROCESSOR MAIN SEQUENCE TO KEY LOGIC

Enter here for HALT, starting any function, returning from IOT in Read In, ending Execute or single instruction

May enter here to begin any function other than Execute

IT1 · IT2 · MB 13(1) · ET1 · IOT INST ∧ IOB IOT(Ø)

PI DIVERT INDIRECT(1) [: PI CYCLE DIVERTED]

Clear KEY CYCLE

ANY · (KEY RDY SYNC(1) ∧ KEY FCN RDY ∧ KEY XCT(Ø)) ∨ PI RDY SYNC(1)

PI DIVERT INDIRECT EN

From Instruction cycle (IC)

INST DONE DLYD PULSE

PI CYC RDY(1)

INST DONE(1) ∧ PI CYC RDY(1) [: PI CYCLE DIVERTED]

XCTF(Ø): PC CLK EN
[~ MC ASYNC HOLD:] Clear MC INST FETCH START
└→ MCI SYNC POINT: Clear MC ASYNC START
Clear PI CYC RDY, KEY CYCLE
XCTP FF CLR

For possible time states see Memory Subroutine Call (MC1)

(KEY RDY SYNC(1) ∨ PI RDY SYNC(1)) ∧ (MC AUTO IN FET A ∨ (MC INST FETCH EN ∧ ~ MCI PSE UDO INST FET EN))

PI CYC RDY EN

PI RDY SYNC(1) causes diversion to PI cycle (see PI) unless KEY RUN(Ø)

KEY RUN(Ø)

KEY RUN(1) ∧ PI RDY SYNC(Ø)

KEY ANY ACT
KEY RESET(1)
KEY RDI(1)
KEY START(1)
KEY CONT(1)
KEY STOP(1)
KEY XCT(1)
KEY MEM OP

KEY MEM OP
KEY EXAM(1)
KEY EX NXT(1)
KEY DEP(1)
KEY DEP NXT(1)

KEY FCN RDY = KEY ANY ACT ∧ KEY CYCLE(Ø) ∧ KEY REPT DLY(Ø)

KEY IDLE EN

KEY IDLE(1)

Release KEY CLK RUNNING
Disable KEY REPT HOLD
└→ Release KEY REPT DLY

KEY STOP OR RESET (KEY DONE)

KEY IDLE EN

KEY IDLE(1) · KEY IDLE(Ø) · 170ns · KEY IDLE(1)

Release KEY CLK RUNNING

KEY IDLE(1) ~ KEY ANY NO BOUNCE ∧ KEY SYNC(Ø): KEY CLK STOP
└→ ∧ KEY REPT DONE(Ø): KEY CLK INH
└→ CLK MISC INH

For Stop, Reset, Execute or manual single instruction, clock goes till key is released. If new key already latched, continue with new synchronization. For HALT clock may coincidentally continue with key latch, sync, strobe or even KT1.

ANY · KEY REPT(1): KEY REPT SYNC EN
KEY SINGLE PULSE(1) ∧ (KEY RUN(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY SINGLE PULSE SYNC EN
KEY RUN(Ø) ∧ XCTF(Ø) ∧ KT1(Ø): KEY RDY SYNC EN
KEY RDY SYNC(1) ∧ KEY FCN RDY ∧ KEY XCT(Ø): PI DIVERT INDIRECT EN
KEY SINGLE INST(1): KEY RUN CLR

KEY REPT SYNC(1)

KEY SINGLE PULSE SYNC(Ø)

Disable KEY CLR

PRESS FUNCTION KEY

KEY ANY NO BOUNCE

Note: If memory stop, CONT does not give KEY ANY NO BOUNCE

~KEY CLK STOP · KEY CLK STOP

~ KEY CLK STOP
~ KEY CLK INH
KEY CLK START

ANY · KEY ANY NO BOUNCE ∧ KEY SYNC(Ø): KEY LATCH EN

Latch all no-bounce flipflops

NEXT · KEY ANY NO BOUNCE ∧ KEY SYNC(Ø): KEY LATCH EN
KEY LATCH(1) ∧ ~ KEY ANY ACT: KEY SYNC EN

KEY ANY ACT · ~KEY ANY ACT

These four clocks set up the key function

NEXT · KEY LATCH(1) ∧ KEY SYNC(1): KEY STROBE
Set one key function flag according to priority network
Clear KEY LATCH

NEXT · KEY FCN RDY: KEY RDY SYNC EN

KEY IDLE(Ø) ↓ Wait for entry from left

KEY IDLE(1) [∧ KEY FCN RDY]

KT1 COND

110ns

Perform key function (KF)

KT1
PC + 1 INH IN
APR2 DATAI
AD IOB EN (DS → IOB → AD)
CLK LONG CYC EN A
PF KEY CLEAR
Clear KEY PROG STOP, KEY MANUAL STOP, INST DONE, KEY AS + 1, KEY RDY SYNC, PI RDY SYNC

KEY REPT SYNC(1): KEY REPT DLY START
~KEY DONE: KEY CYCLE EN
KT2

KEY CYCLE(1)

MC PAGE SLOW EN SET
Disable KEY FCN RDY
Disable KEY CLK STOP
└→ ~ KEY CLK INH

~ KEY DONE

170ns

KT2
~ KEY DONE: KT3
APR2 DATAI
KEY RUN(Ø): KEY RDY SYNC EN

~ KEY DONE · 110ns · 110ns

KEY CONT(1) ∨ KEY START(1) ∨ (KEY RDI FF1(1) ∧ IOT BLKX SKIP HOLD(Ø))

(KEY DONE (KT2))

Go to Instruction cycle (IC)

KT3 · KEY RDI DATA WAIT(1): KT3

KEY RDI DATA WAIT(1)

KEY DEP CYCLE(1) · 110ns

KEY EXAM(1) ∨ KEY EX NXT(1) (KEY DONE (KT3))

Do Store cycle (S) ST5

(KEY DONE)

KEY RDI NOT WAIT ∨ XCT

Go to Instruction cycle (IC)

KEY IDLE(1) · KEY IDLE(Ø)

Go to Instruction cycle (IC)

KT1 KT2 KT3 ST5 · KEY DONE ∧ (KEY REPT SYNC(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY CLR

Some function flag(1)

KEY ANY ACT

KEY FCN RDY

SOME · ~KEY ANY NO BOUNCE: Clear KEY SYNC

AUTO RESTART

MR CROWBAR OFF · APR1 TIMER(Ø)

APR1 TIMER FF SET

Release MR PWR CLR EN · MR PWR CLR EN SET

10ms · MR RESTART DLY SET

MR PWR CLR EN CLEAR

Release MR RESTART DLY

10ms

MR RESTART DLY CLEAR

MR RESTART(1) ∨ APR1 TIMER FF(1)

MR RESTART B EN

MR RESTART B(1)

APR1 TIMER FF CLEAR
MA SPECIAL EN B
MA SPECIAL 31
MA SPECIAL 32
PI NORM CYC EN
KEY START OR RESTART └→ KEY ANY NO BOUNCE

PI NORM CYC(1)

MA SPECIAL 30

FUNCTION REPEAT

KEY REPT SYNC(1) ∧ KEY SINGLE PULSE SYNC(Ø)
KEY REPT(1)

ANY · KEY REPT DLY START

KEY REPT DLY(1)

KEY CYCLE(1) ∧ KEY REPT SYNC(1) · KEY CYCLE(Ø) · Disable KEY FCN RDY

KEY RUN SET · ~KEY RUN SET · Wait till KEY IDLE(1) drops KEY REPT HOLD

Wait till variable repeat delay times out

KEY REPT DLY(Ø)

KEY REPT SYNC(1) · [KEY ANY ACT]

KEY REPT DONE EN · KEY FCN RDY

KEY REPT DONE(1) · ~KEY CLK INH

KEY CLK STOP · KEY CLK START

ANY · KEY FCN RDY: KEY RDY SYNC EN
KEY CLK SYNC CLR
└→ KEY REPT DONE CLEAR

KEY IDLE(Ø)

Wait for entry to key cycle from main sequence at far left

KEY IDLE(1) · KEY FCN RDY → KT1 COND

KEY RUN SET = KEY START(1) ∨ KEY CONT(1) ∨ KEY RDI(1)
KEY REPT HOLD = KEY IDLE(Ø) ∧ KEY REPT DLY(1) ∧ KEY REPT SYNC(1) ∧ KEY SINGLE PULSE SYNC(1)

SINGLE PULSE OPERATION

KEY SINGLE PULSE SYNC(1)
KEY SINGLE PULSE(1)

MANUAL

PRESS SINGLE PULSER

KEY SINGLE PULSER SET

KEY SINGLE PULSER(1)

KEY SINGLE PULSER PA

KEY CLK START

REPEAT
KEY REPT SYNC(1)

ANY · KEY CLK SYNC CLR
└→ KEY CLK RDY SYNC CLEAR
└→ KEY REPT DONE CLEAR
KEY REPT DLY START

Clock period
CLK INH(Ø) (See CLK)

Wait till variable repeat delay times out

KEY REPT DLY(Ø)

KEY REPT SYNC(1)

KEY CLK RDY SYNC SET · KEY REPT DONE EN

KEY CLK RDY SYNC(1) · KEY REPT DONE(1)

KEY CLK START

REVISIONS			
REV	CHANGE NO	CHK	
—	KI10-00041 ORIGINATED	—	

DEC FORM NO 1080 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS	ANGLES
.XXX ± .005 .XX ± .02 .X ± .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13Nov73	TITLE: KEY CYCLE
PROJ. ENG. Allan Kent	DATE 13Nov73	
PROG. Allan Kent	DATE 13Nov73	
NEXT HIGHER ASSY. B-DP-KI10-0		SIZE D · CODE FD · NUMBER KI10-0-KC · REV. —
SCALE —		
SHEET 1 OF 1		DIST

SIZE D · CODE FD · NUMBER KI10-0-KC · REV —

1 KEY RESET(1)

KEY STOP OR RESET = KEY STOP(1) ∨ KEY RESET(1)

Switch KEY ANY ACT

~KEY RESET NO

Release MR RESET PANIC DLY

If 10ms elapses before MR RESET SUCCESSFUL sets then

MR RESET PANIC DLY CLEAR

MR RESET
MR KEY CLR
MR STATE CLR

APR2 RESTART CLR DLY SET

APR2 RESTART CLR

KT1

MR KEY RESET → MR RESET
  └→ IOB RESET T SET
  └→ MR RESET SUCCESSFUL EN

MR RESET SUCCESSFUL(1)

Hold MR RESET PANIC DLY on till KEY RESET NC

IOB RESET 400ns

IOB RESET T CLEAR

5 KEY STOP(1)

KT1

KEY MANUAL STOP EN
KEY RUN CLR
KEY IDLE EN
KEY DONE
  └→ ∧(KEY REPT SYNC(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY CLR

KEY IDLE(1)

Release KEY CLK RUNNING

KEY IDLE(1)

KEY IDLE(Ø)

170ns

KEY IDLE(1)

~KEY ANY NO BOUNCE ∧ KEY SYNC(Ø):
KEY CLK STOP
  └→ ∧KEY REPT DONE(Ø): KEY CLK INH
    └→ CLK MISC INH

2 KEY RDI(1)

See chart KRMP

3 KEY START(1)

Action: Start normal operation in kernel mode at location AS

Switches: KEY ANY ACT
KEY RUN SET

KT1

KEY RUN SET → KEY RUN IN
  └→ Clear KEY IDLE
PAGE LEAVE USER → Clear USER MODE
  └→ Clear PAGE LAST INST PUBLIC
KEY AB AS EN → AB AS IN
  └→ AB AS EN → AB AD EN → AB FF CLR
KT2

170ns

KT2

[KEY AB AS EN → AB AB EN]
KEY DONE (KT2) → KEY DONE → Clear KEY CYCLE
  └→ ∧(KEY REPT SYNC(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY CLR
  └→ KEY EN INST DONE → CLK EN INST DONE
  └→ MC INST FETCH EN

Go to Instruction cycle (IC)

Fetch first instruction (MC1)

KEY CONT NO

KEY MEM CONTINUE(Ø)

KEY CONT NO BOUNCE SET

Wait for Key cycle (KC)

MC MEM STOP(1)

KEY MEM CONTINUE EN

KEY MEM CONTINUE(1)

KEY MEM CONT

80ns

MA RD RQ

KEY RD CONT

80ns

~KEY RD CONT

KEY MEM GO

MC MEM STOP CLEAR

MCRSTØ

Continue memory subroutine (MC5)

MCRST1

Continue memory subroutine (MC4)

MA WR RQ

4 KEY CONT(1)

Action: Continue normal operation at location PC

Switches: KEY ANY ACT
KEY RUN SET

KT1

KEY RUN SET → KEY RUN IN
  └→ Clear KEY IDLE
PC + 1 INH IN
KEY AB PC EN → AB PC EN A
  └→ AB FF CLR
KT2

170ns

KT2

KEY DONE (KT2) → KEY DONE → Clear KEY CYCLE
  └→ ∧(KEY REPT SYNC(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY CLR
  └→ KEY EN INST DONE → CLK EN INST DONE
  └→ MC INST FETCH EN

Go to Instruction cycle (IC)

Fetch first instruction (MC1)

7 KEY EXAM(1)

Action: C(AS) → MI

Switches: KEY ANY ACT
KEY MEM OP

KT1

KEY EX NXT(1): KEY NEXT → KEY AS + 1 EN
KEY AB AS EN → AB AS IN
  └→ AB AS EN → AB AD EN → AB FF CLR
KT2

170ns

KT2

KEY DONE (KT3) → MC SYNC READ EN A
KEY CLK INH → CLK MISC INH
  └→ AR CLR A
COMP MI PROG CLR → COMP AC WRITE EN
KEY RUN(1): KEY INST FET ST SET
  └→ MC INST FETCH START EN
KT3

KEY AB AS EN
  └→ AB AB EN

KT3(1)

COMP AB=AS

8 KEY EX NXT(1)

Action: C(AS + 1) → MI
AS + 1 → AS

Switches: KEY ANY ACT
KEY MEM OP

KT1

KEY EX NXT(1): KEY NEXT → KEY AS + 1 EN
KEY AB AS EN → AB AS IN
  └→ AB AS EN → AB AD EN → AB FF CLR
KT2

170ns

AB AS(1)

KEY EXEC PAGING(Ø)

AB AS C

COMP AC WRITE(1)

COMP MI FM EN

9 KEY DEP(1)
KEY DEP CYCLE(1)

Action: DS → location AS, MI

Switches: KEY ANY ACT
KEY MEM OP
SCE

KT1

KEY DEP, DEP NXT → KEY DEP CYCLE EN
APR2 DATAI
AD IOB EN
KEY DEP NXT(1): KEY NEXT → KEY AS + 1 EN
KEY AB AS EN → AB AS IN
  └→ AB AS EN → AB AD EN → AB FF CLR
KT2

170ns

AB AS(1)

KEY EXEC PAGING(Ø)

AB AS C

KT2

APR2 DATAI
KEY AR GETS DS → AR AD EN B
MC SYNC WRITE EN
KEY CLK INH → CLK MISC INH
  └→ AR CLR A
COMP MI PROG CLR → COMP AC WRITE EN
KEY RUN(1): KEY INST FET ST SET
  └→ MC INST FETCH START EN
KT3

KEY AB AS EN
  └→ AB AB EN

KT3(1)

COMP AB=AS

COMP AC WRITE(1)

COMP MI FM EN

10 KEY DEP NXT(1)

Action: DS → location AS + 1, MI
AS + 1 → AS

OPERAND READ
MCRST1

C(AB) → AR → MI

MC SYNC DLY OVER

KEY AS LOAD PULSE

KEY AS AB EN

MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)

KT3

[COMP AC WRITE(1): COMP MI CLOCK EN]
KEY DONE (KT3) → KEY DONE → Clear KEY CYCLE
  └→ ∧(KEY REPT SYNC(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY CLR
  └→ KEY EN INST DONE → CLK EN INST DONE

KEY IDLE(Ø)

KEY IDLE(1)

110ns

KEY IDLE(1)

~KEY ANY NO BOUNCE ∧ KEY SYNC(Ø):
KEY CLK STOP
  └→ ∧KEY REPT DONE(Ø): KEY CLK INH
    └→ CLK MISC INH

Go to Instruction cycle (IC)

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START(Ø)

KT3

[COMP AC WRITE(1):] COMP MI CLOCK EN

AR → MI

PF KEY(1) (ST5 COND B)

~ST5 COND B

ST5

ST1

110ns

110ns

ST1

ST2 COND

Write restart or AC write to write C(DS) into selected location, AS or AS + 1 — see Store cycle (S)

110ns

MCRSTØ

ST2

CLK LONG CYCLE ST5

170ns

ST5

~KEY DONE → Clear KEY CYCLE, KEY DEP CYCLE
  └→ ∧(KEY REPT SYNC(Ø) ∨ KEY SINGLE PULSE SYNC(1)): KEY CLR

CLK EN INST DONE

6 KEY XCT(1)

Action: Execute DS

Switch: KEY ANY ACT

KEY XCT(1) inhibits KEY FCN RDY ∧ KEY RDY SYNC(1) from setting PI DIVERT INDIRECT, so entry must be at instruction done

KT1

Clear KEY IDLE
APR2 DATAI
AD IOB EN
PC + 1 INH IN
[KEY RDI NOT WAIT ∨ XCT
  └→ KEY AB PC EN → AB PC EN A → AB FF CLR]
KT2

170ns

KT2

APR2 DATAI
KEY AR GETS DS → AR AD EN B
KT3

110ns

KT3

MB AR EN B
KEY EN INST DONE → CLK EN INST DONE
KEY INST RDY SET

Go to Instruction cycle to execute instruction in MB (IC)

During instruction TRAP SATISFIED clears KEY CYCLE and also clears KEY XCT unless function is being repeated or KEY CYCLE has already been cleared by IT2 COND or PI CYCLE DIVERTED

REVISIONS	REV	CHK
CHANGE NO	—	—
KI10-00041		
ORIGINATED		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1
ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13 Nov 73	
PROJ. ENG. Allan Kent	DATE 13 Nov 73	
PROD. Allan Kent	DATE 13 Nov 73	
NEXT HIGHER ASSY. B-DD-KI10-0		
SCALE —		
SHEET 1 OF 1		

TITLE: KEY FUNCTIONS

SIZE	CODE	NUMBER	REV.
D	FD	KI10-0-KF	—

DIST

DEC FORM NO. DRD 102-B

SIZE D | CODE FD | NUMBER KI10-0-KF | REV —

2 KEY RDI(1)

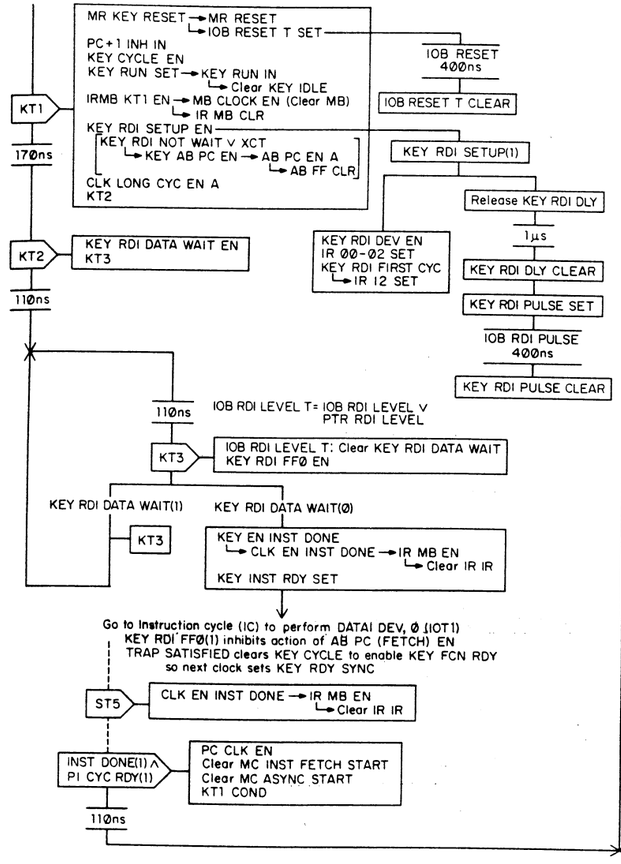
Action

Read in block from readin device
LAST ADDRESS → PC
Execute location PC

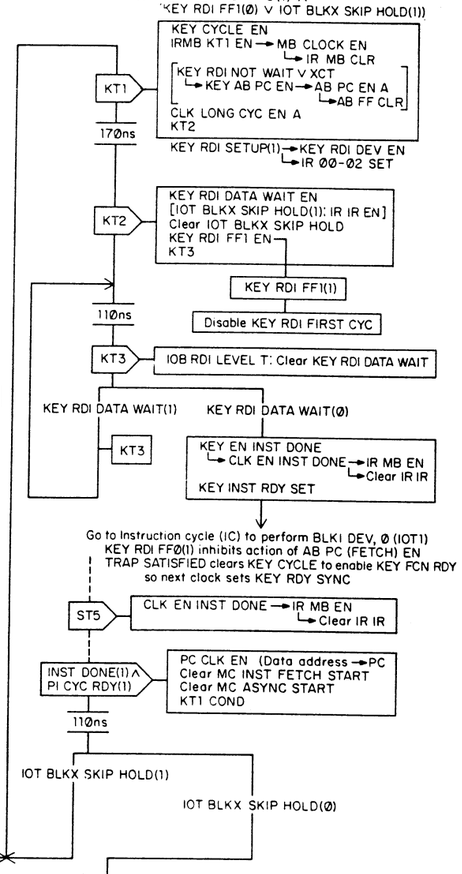
Switches

KEY ANY ACT
KEY RUN SET

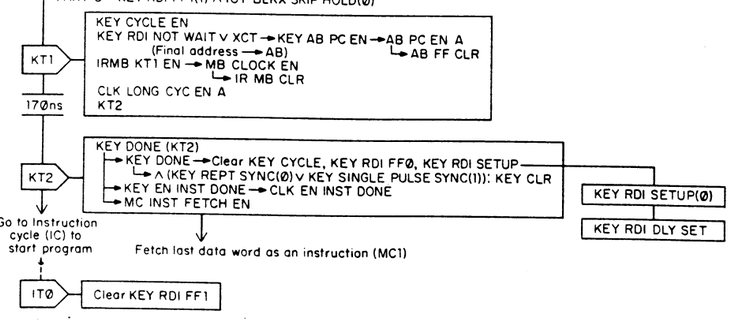
PART 1 KEY RDI FF0(0)



PART 2 KEY RDI FF0(1) ∧ KEY RDI FF1(0) ∨ IOT BLKX SKIP HOLD(1))



PART 3 KEY RDI FF1(1) ∧ IOT BLKX SKIP HOLD(0)

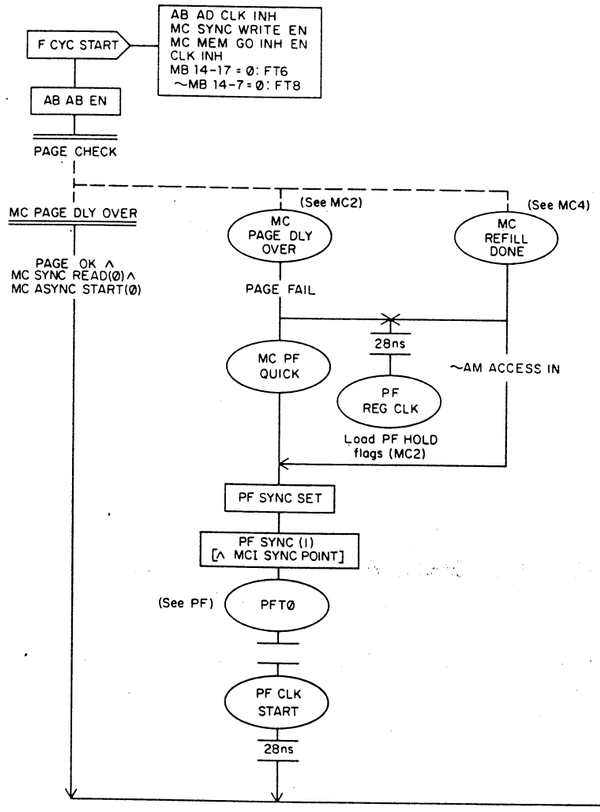


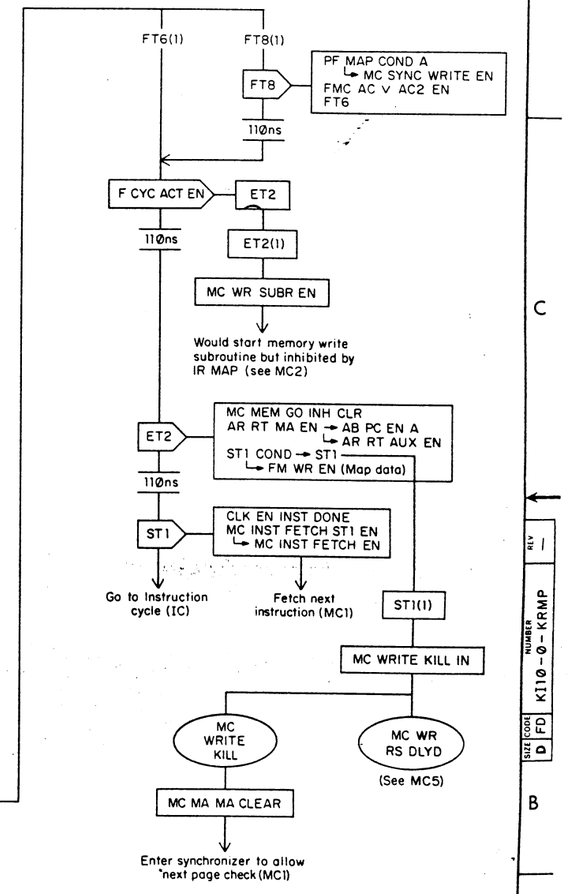
IR MAP

257
IR = 010 101 111
IR 2XX IR 25X

Action PHYSICAL MAP DATA for E → AC: 19-21, 23-35
PAGE FAIL → AC 18
NO MATCH → AC 22

Switches IR 25X ∧ IR 06(1) → PC CHANGE SCE





REVISIONS

REV	CHANGE NO	CHK
—	KI10-00041 ORIGINATED	—

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES

DECIMALS	ANGLES
XXX ± .005 .XX ± .02 X ± .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13 Nov 73	TITLE
PROJ. ENG. Allan Kent	DATE 13 Nov 73	KEY READ IN & MAP
PROD. Allan Kent	DATE 13 Nov 73	

NEXT HIGHER ASSY. B-DD-KI10-0

SCALE —

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	FD	KI10-0-KRMP	—

DIST.

DEC FORM NO. DRD 102-B

SIZE D CODE FD NUMBER KI1Ø - Ø - MC1 REV A

KT2
KEY DONE(KT3): MC SYNC READ EN
KEY DEP DEP NXT:
MC SYNC WRITE EN
↳ ∧ KEY SINGLE PULSE SYNC(1): MC MEM GO INH EN
KEY MEM OP (: KEY AB AS EN)

PIT2
PIT3
PI DATAO: MC SYNC READ EN Ø
PI DATAI: MC SYNC PI WR EN → MC SYNC WRITE EN
↳ (∼ PI INC MEM:) MC MEM GO INH EN
PI INC MEM: MC SYNC READ EN Ø (see below)
MC SYNC PI WR EN → MC SYNC WRITE EN

PIT3
MC SYNC READ EN Ø ∧ ∼ PI DATAO ∧ (KEY SINGLE PULSE SYNC(1) ∨ KEY PAR STOP(1) ∨ KEY ADR STOP(1) ∨ (IOB DR SPLIT T ∧ ∼ IR SKIPS)): MC SPLIT CYC SYNC SET

F CYC START
AB FETCH IT1 COND (= FCE ∨ IR DPOP) ∨ (SCE ∧ ∼ IR POPX)

AB FETCH IT1 COND: MC SYNC READ EN
IR DPOP: MCS FCE2 START EN
For Recycle Entry for second operand fetch (see MC2)
MC SCE OR PSE: MC SYNC WRITE
↳ ∧ KEY SINGLE PULSE SYNC(1) ∧ ∼ FCE PSE ∧ (∼ FCE ∨ ∼ SCE): MC MEM GO INH EN
IR CONI ∨ IR DATAI ∨ IR MAP: MC MEM GO INH EN
(FCE ∧ SCE) ∨ (MC SCE OR PSE ∧ ∼ MC SCE NOT POPX ∧ (KEY SINGLE PULSE SYNC(1) ∨ KEY PAR STOP(1) ∨ KEY ADR STOP(1)) ∨ (IOB DR SPLIT T ∧ ∼ IR SKIPS)): MC SPLIT CYC COND

MC SCE OR PSE = MC SCE NOT POPX ∨ FCE PSE
MC SCE NOT POPX = SCE ∧ ∼ IR POPX

BLT1 — ∼AD CRY Ø ∧ PI RDY SYNC(Ø)
FT3 — MC SYNC READ EN
FT7 — MC SYNC READ EN
BLT2 — MC SYNC READ EN
ETØ — STORE
FT5 — MC STORE TIME ↳ MC SYNC WRITE EN ↳ ∧ KEY SINGLE PULSE SYNC(1): MC MEM GO INH EN
BLT4 — MC STORE TIME
BLT9 — STORE (= PFFI(1))
PFT3 — MA SPECIAL EN A

KEY RUN(1)

FT5 — ∼PC CHANGE
ETØ — IR PUSH ∨ IR DMOVXM PART 2
PI INC MEM
MC IN FET COND (= ∼ STORE ∧ ∼ PC CHANGE)
FCE ∨ (SCE ∧ ∼ IR POPX)
∼ F MEM REF

DFAT1 — IRXXX-
DFAT2 — (DFAT ARGS RDY ∧ FLAG 2(1) ∧ ∼ SCØ-2=7
DFAT5
DFMT3
DFDT8 — ∼AR MQ CLK INPUT
DFDT9
PFT4

KEY INST FET ST SET
MC AUTO IN FET A
PI RDY SYNC(1) ∨ KEY RDY SYNC(1): PI CYC RDY EN
MC INST FETCH START EN
FCE2 SYNC CLEAR
For Recycle Entry for asynchronous instruction fetch (see MC2)
DNT1 COND A
MC INST FETCH NEXT EN

NEXT
FT6 DNT1
ETØ DNT8
ET1 ST1
ET2 ST2
→ MC INST FETCH NEXT (1)

KT2 — KEY DONE(KT2)
IT1 — MC INST FETCH(IT1)
ET2 — MC INST FET ET2 EN
ST1 — MC INST FET ST1 EN
IOTT8 — PI OV(Ø) ∧ ∼ IR CONSX
DFDT12
DMOVNT2

IT1
IT2
PIT2 — PI PSEUDO INST FET
MB 13(1)
PI DIVERT INDIRECT(Ø)
PIT3 — MCI PSEUDO INST FET(1)
MCI PSEUDO INST FET EN
MCI PSEUDO INST FET

MC INST FETCH EN

PI PSEUDO INST FET = [PI FCN 3(Ø) ∧ (PI FCN 4(Ø) ∨ PI FCN 5(Ø))] ∨ (PI FCN 3(1) ∧ PI FCN 4(1))
KEY DONE(KT2) = (KEY RDI FF1(1) ∧ IOT BLKX SKIP HOLD(Ø)) ∨ KEY START(1) ∨ KEY CONT(1)

MC ASYNC START EN
MC INST FETCH START EN
∼ MCI PSEUDO INST FET EN ∧ (PI RDY SYNC(1) ∨ KEY RDY SYNC(1)): PI CYC RDY EN
FCE2 SYNC CLEAR

KEY DONE(KT3) = KEY EXAM(1) ∨ KEY EX NXT(1)
KEY DEP, DEP NXT = KEY DEP(1) ∨ KEY DEP NXT(1)
KEY MEM OP = KEY EXAM(1) ∨ KEY EX NXT(1) ∨ KEY DEP(1) ∨ KEY DEP NXT(1)

F MEM REF = FCE ∨ SCE ∨ FCE2, LT OR RT
FCE2, LT OR RT = IR DPOP ∨ IR JRA ∨ IR POPX

PC CHANGE
TEST TXX (E,N,A)
IR AOBJX
IR POPJ
IR BLT
IR DPOP
IR JFFO
IR DMOVXM ∧ BYFG(Ø)
IOT INST
MUUO PART 3
BYTE FIRST PART ∧ ∼ IR IBP
PC CHANGE A = ∧ (IR 25X ∨ IR 26X ∨ IR 3XX)
PC CHANGE A = IR 3XX ∨ IR ØG(1)

STORE
PI DATAI
MUUO PART 1
MUUO F2 (1)
PFFI (1)
IR PUSH
IR PUSHJ
IR LUUO
IR DMOVEM PART 2
IR DMOVNM PART 2

From Address Acknowledge (MC3)
MAI ADR ACK (T)
MAI ADR ACK (NT)
PAGE REFILL CYCLE (1) ∨ (MCM STOP SYNC(Ø) ∧ (MC SPLIT CYC SYNC(Ø) ∨ MC SYNC WRITE (Ø)))
From Write Restart (MC5) — See MC3
MC WR RS DLYD
MC STOP SYNC(1) ∧ MC STORE IN AC(Ø)
From AC Read (MC6)
MCT4
∼ MA WR RQ ∧ MCM STOP SYNC(Ø) ∧ MC SPLIT CYC SYNC(Ø)

From Read Return (MC4)
MCRST1
MCM STOP SYNC(1) ∧ MC SPLIT CYC SYNC(Ø)
Skip Write cycle (from MC5)
MC WRITE KILL IN
PI page failure (from PF)
PFT4(1)
MC WRITE KILL
From AC Write in Store Cycle (5)
MCM AC STORE DONE
Either not in single pulse operation, or
if starting synchronous cycle either no overlap or
if starting synchronous cycle wait for clock inhibit, or
wait for synchronous read to finish (write not overlapped)
CLK INH(1)
MC ASYNC START(Ø)
MC SYNC READ (Ø)
MC ASYNC START(1)
MC MA MA CLEAR

Recycle Entry from Recycle Section (MC2)
MCT AB AB SET
MC ASYNC START SET
AB AB SET
PI CYC RDY(1): PI CYC RDY HOLD SET
AB AD(1): AB AD CLK INH
AB AB EN → ∧ (KEY PAR STOP(1) ∨ KEY ADR STOP(1)): MCM STOP SYNC EN
↳ AB AB IN

Refill Reentry (from MC4)
AMAC WRITE DONE
PAGE REFILL CYCLE(1)

AB AB(1)
AB AB ON PULSE
30 ns — Latch AB
AB AD CLEAR
AB PC CLEAR
AB AS CLEAR
81 ns — Delay for paging
MC PAGE DLY
PAGE REFILL CYCLE CLEAR
PI CYC RDY HOLD(Ø) ∧ (MC ASYNC START(Ø) ∨ PI CYC RDY(Ø))
87 ns — Extra delay in case must switch address spaces
MC PAGE SLOW
MC PAGE SLOW EN(1)
MC PAGE SLOW EN(Ø)
MC PAGING RDY SET

MC MA MA(Ø)
MCP CYCLE ALLOW = KEY SINGLE PULSE SYNC(Ø) ∨ (MC ASYNC START(Ø) ∧ CLK INH(1)) ∨ (MC ASYNC START(1) ∧ MC SYNC READ(Ø))
MC PAGING RDY(1)

44 ns — To ensure MA unlatches on overlapped cycle
MC PAGE DLY OVER
Continue to Page Check Section (MC2)

MC ASYNC START(1)
Enter Synchronizer for MCT2 in AC Reference Section (MCG)

MC INST FETCH(IT1) = IT1(1) ∧ MB 13(Ø) ∧ ((IR JFCL ∧ PC COND ≠) ∨ IR XCT ∨ MCI JRST NO FLAGS)
MCI JRST NO FLAGS = IR JRST ∧ IR 10(Ø) ∧ IR 11(Ø)

MC INST FET ET2 EN
MCI JFCL INST FET (= IR JFCL ∧ ∼ PC COND ≠)
IR JRA
TEST TXX (E,N,A)
IR JFFO
IR LUUO
IR JSA

MC INST FET ST1 EN
IR JSR
IR AOBJX
IR MAP
IR POPJ
IR DMOVE
BR AR(ET2) A (= IR PUSHJ ∨ IR JSP)
MC INST FET ST1 EN A

MC INST FET ST1 EN A
PI OV(Ø) ∧ (IR 3XX ∨ IR CONSX)
IR BLT ∧ BLTF1(Ø)
IR JRST ∧ ∼ MCI JRST NO FLAGS
MUUO PART 3

REVISIONS	REV	CHK	CHANGE NO	
	A	YZ	KI1Ø-00041	REDRAWN J Mac Rae 23-Jan-73 A KENT Allen Kent 17 Dec 73

BRUNING 40-522 15840 DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = ±.005, .XX = ±.02, .X = ±.1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN	W. Stephenson	DATE 6/28/72
CHK'D	David Green	DATE 31 Jan 72
ENG	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 Jan 72
NEXT HIGHER ASSY.	B-DD-KI1Ø-Ø	
SCALE	∼	
SHEET 1 OF 1		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MEMORY CONTROL (SUBROUTINE CALL & PAGE DELAY)

SIZE D CODE FD NUMBER KI1Ø - Ø - MC1 REV A

DIST

PAGE REFILL = PAGED REF ∧ ~ AM ANY MATCH ∧ PAGE REFILL ERROR (Ø)
PAGED REF = PAGE USER PAGED REF ∨ PAGE EXEC PAGED REF ∨ (AB 18-31 = Ø ∧ XCT SHADOW REF ∧ MA SPECIAL (Ø) ∧ ~ PAGE ILL ENTRY)

PC MEM COND (= MC INST FETCH ∧ XCTF (Ø))

28 n.s → PC CLOCK A,B — Load PC from AB (usually PC+1)

PAGE REFILL

PAGE REFILL CYCLE SET
PAGE REFILL ADR EN
MC ASYNC START (Ø): PAGE SYNC REFILL EN

PAGE SYNC READ HOLD CLEAR

80 n.s — Switch addresses

MC MA MA SET

MC MA 14-17 MA
MC MA 18-26 MA
MC MA 27-35 MA

Latch MA and request type — 20 n.s

Restart for console induced page failure (see PF) — PFTØ

KT3(1) ∧ MC ASYNC START (Ø)

MCTØ

MC ASYNC START (Ø) ∧ PAGE SYNC REFILL (Ø)

PC MEM COND: PC+1 INH CLEAR
AMAC EQUAL REF (1): AMAC AM+1 SET
(PAGE PRIVATE INST (1) ∧ ~ PAGE CHK PRIVATE) ∨ (PAGE CHK PRIVATE ∧ (~ AMSP PUBLIC ∨ PAGE EXEC UNPAGED REF)): PAGE PRIVATE INST EN
PAGE REFILL ADR CLEAR

PAGE CHK PRIVATE = ~ MA AC REF LATCH ∧ MA SPECIAL (Ø) ∧ MC INST FETCH ∧ ~ PAGE REFILL

MCT RECYCLE — MC INST FETCH START (1): AB PC SET, MCS FCE2 START (1): AB AD SET

55 n.s

MCS FCE2 START (1) → MC INST FETCH START (1)

MCT AB AB CLR — AB AB CLEAR

73 n.s — Set up new address in AB

MCT AB AB SET — MC ASYNC START SET

AB AB SET → Return to Recycle Entry in Paging section (MC1)

PAGE OK

PAGED REF ∧ AMAC EQUAL: AMAC EQUAL REF SET
KEY ADR STOP (1) ∧ COMP AB = AS ∧ COMP CYC TYPE ∧ MCM STOP SYNC (1) ∧ MCM NOT PSE: MC MEM STOP SET

MC MEM GO INH (Ø)

MC SYNC READ (Ø) ∧ MC ASYNC START A (Ø) → CLK MISC INPUT — Restart clock in time state being held

MC MEM GO SET

MA AC REF LATCH ∧ MC ASYNC START (1) → Enter Synchronizer for MCT2 in AC Reference section (MC6)

MA AC REF LATCH → MC MEM GO ONCE EN → Enter Synchronizer for MCT2 in AC Reference section (MC6)

50 n.s → MC MEM GO DLYD → ~ MA AC REF LATCH → Enter Synchronizer for Request Cycle section (MC3)

Page delay entry from MC1 → MC PAGE DLY OVER

FTG (1): FMC SEL Ø SET (To give FM ADR AC)
~ PF MAP COND: MCP MAP COND HOLD EN
KEY PAR STOP (1) ∧ MCM STOP SYNC (1) ∧ MCM NOT PSE: MC PAR SYNC EN
COMP AB = AS ∧ MC ASYNC START (1): COMP ASYNC AB = AS EN
(COMP AB = AS ∧ MC ASYNC START (Ø)) ∨ (COMP SYNC AB = AS (1) ∧ MC ASYNC START (1)): COMP SYNC AB = AS EN

MC ASYNC START (Ø) ∨ (MC SYNC READ HOLD (Ø) ∧ MC SYNC WR HOLD (Ø)) → IRMB ASYNC CLOCK → ~ PC CLK EN (BLT) → 28 n.s → MB CLOCK A,B

MC ASYNC START (Ø) → MC SYNC READ (1) ∧ CLK INH (1) → 28 n.s → AR CLK A,B

18 n.s → MC PAGING RDY CLR

MC PAGING RDY CLEAR
MC PAGE SLOW EN CLEAR

PAGE OK = (PAGE EXEC UNPAGED REF ∧ ~ PAGE TEST PRIVATE) ∨ ~ PAGE ILL ENTRY ∧ ((AB 18-31 = Ø ∧ (AM ANY MATCH ∨ ~ XCT SHADOW REF)) ∨ MA SPECIAL (1))) ∨ (PAGE EXEC PAGE FOUND ∧ ~ AMSP PUBLIC ∧ PAGE TEST PRIVATE ∧ ~ PAGE WRITING) ∨ (PAGE TEST WRITE ∧ (AMSP WRITABLE OUT ∨ ~ PAGE WRITING))

PAGE TEST PRIVATE = PAGE LAST INST PUBLIC (1) ∧ KEY CYCLE (Ø) ∧ PI CYC (Ø) ∧ ~ MC INST FETCH
PAGE WRITING = MC ASYNC START (Ø) ∧ (MC SYNC WRITE (1) ∨ MC SPLIT CYC SYNC (1))
COMP CYC TYPE = (KEY RD COND (1) ∧ MC SYNC WRITE (Ø) ∧ ~ MC INST FETCH) ∨ (KEY WR COND (1) ∧ MC SYNC WRITE (1)) ∨ (KEY IN FET COND (1) ∧ MC INST FETCH)

MC SYNC DLY OVER → KT3 (1) → KEY AS LOAD PULSE → [KT3 (1):] KEY AS AB EN

MA AC REF: MC STORE IN AC EN
~ MA AC REF LATCH ∧ PAGE OK ∧ MC SYNC READ (1): MC SYNC READ HOLD SET*
~ MA AC REF LATCH ∧ PAGE OK ∧ MC SYNC WRITE (1): MC SYNC WR HOLD SET

~ PF CODE 2X

AMAC CLK → [AMAC IOB (Ø) ∧ AMAC AM+1 (Ø):] AMAC MATCH EN

Load address of failing associative memory word into AM ADR

AMAC CLR → AMAC EQUAL REF CLEAR, AMAC AM+1 CLEAR, AMAC IOB CLEAR

ET2 (1) → MC MEM GO INH (1)

ET1 (1) → BYTE XDPB PART 2 ∨ (IR XMULX ∧ IR Ø7 (1))

NRT4 (1) → SCE

DST3 (1) → IR XDIVX ∧ SCE

MC WR SUBR EN.

KEY SINGLE PULSE SYNC (Ø)

MC WR SUBR START FF SET → MC WR SUBR START → ~ IR MAP

ST2 DLYD → MC MA MA (1) ∧ CLK INH (1) ∧ (MC SPLIT CYC SYNC (1) ∨ KEY SINGLE PULSE SYNC (1))

* MC SYNC READ HOLD (1) → MCS AR MBD EN

PAGE FAIL

MC PF QUICK → PF SYNC SET → Go to Page Fail cycle (PF)

83 n.s — Select location of failing AM word

MCP MAP COND HOLD (1)

MC PF QUICK DLYD — AMAC write events are shown for PAGE FAIL only; for complete sequence see REFILL DONE (MC4)

~ PF CODE 2X

AMAC WRITE PULSE 1 → PF WORD EMPTY EN

AMAC WRITE

80 n.s — Invalidate location of failed AM word

AMAC WRITE PULSE 2 → AMAC WRITE

70 n.s

AMAC WRITE DONE → PF WORD EMPTY CLEAR

Invalidation of AM location may inadvertently set PAGE REFILL ERROR (see MC9); however PFF1 (1) prevents it from giving PAGE FAIL and thus thwarts a pseudo failure in the Page Fail cycle (PF)

MC SYNC AC READ: FM ADR MA SET, MCF MB FM FF SET

MB FM EN

MA AC REF LATCH ∧ MA RD RQ ∧ MC ASYNC START (Ø) ∧ MCS FCE2 START (Ø) → Enter delay to MCT3 in AC Reference section (MC6)

MC SYNC AC READ ∧ MCS FCE2 START (Ø) → MCF AD FM+ SET — For events associated with this pulse see AC Reference section (MC6)

25 n.s → PF REG CLK

USER PAGING: PF HOLD USER EN
Load PF HOLD 31-35 according to equations given below
PAGE REFILL ERROR CLEAR

Conditions given include those for access failure at REFILL DONE (see MC9)

PF HOLD 31 EN = PF CODE 2X = PAGE ILL ENTRY ∨ (PAGE USER PAGE FOUND ∧ PAGE CONCEALED VIOL) ∨ (PAGE EXEC UNPAGED REF ∧ PAGE TEST PRIVATE) ∨ PAGE SMALL VIOL ∨ PAGE REFILL ERROR (1)
PF HOLD 32 EN = ~ PF CODE 2X ∧ PAGE REFILL CYCLE (Ø)
PF HOLD 33 EN = ~ PF CODE 2X ∧ {(PAGE REFILL CYCLE (Ø) ∧ AMSP WRITABLE OUT) ∨ (PAGE REFILL CYCLE (1) ∧ AN WRITABLE IN)}
PF HOLD 34 EN = PAGE REFILL ERROR (1) ∨ (PAGE ILL ENTRY ∧ (PAGE PRIVATE INST (Ø) ∨ PAGE LAST INST PUBLIC (Ø))) ∨ PAGE CODE 2X ∧ ((PAGE REFILL CYCLE (Ø) ∧ AMSP SOFTWARE OUT) ∨ (PAGE REFILL CYCLE (1) ∧ AM SOFTWARE IN))
PF HOLD 35 EN = PAGE ILL ENTRY ∨ (PAGE USER PAGE FOUND ∧ PAGE CONCEALED VIOL) ∨ (PAGE EXEC UNPAGED REF ∧ PAGE TEST PRIVATE) ∨ (PAGE WRITING ∧ ~ PAGE SMALL VIOL ∧ PAGE REFILL ERROR (Ø))
PAGE ILL ENTRY = (PAGE PRIVATE INST (1) ∧ PAGE LAST INST PUBLIC (1)) ∨ (COMP ADR BRK ∧ ((MC SYNC WRITE (1) ∧ KEY WRITE COND (1)) ∨ (MC INST FETCH ∧ KEY IN FET COND (1)) ∨ (MC SYNC WRITE (Ø) ∧ ~ MC INST FETCH ∧ KEY RD COND (1))))

MA AC REF = AB 18-31 = Ø ∧ ~ PAGE ILL ENTRY ∧ MA SPECIAL (Ø) ∧ ~ USER AC STACK EN ∧ ~ XCT SHADOW REF
MC SYNC AC READ = MA AC REF ∧ MC SYNC READ (1) ∧ MA ASYNC START (Ø)
PF MAP COND = [IR MAP ∧ (FTG (1) ∨ FTS (1))] ∨ [KT3 A ∧ KEY MEM OP ∧ MC ASYNC START (Ø)]
MCM NOT PSE = MC SYNC READ (Ø) ∨ MC SYNC WRITE (Ø) ∨ MC SPLIT CYC SYNC (1) ∨ MC ASYNC START (1)

MA RD RQ = MC SYNC READ (1) ∨ PAGE REFILL ∨ MC ASYNC START (1)
MA WR RQ = MC SYNC WRITE (1) ∧ MC ASYNC START (Ø) ∧ ~ PAGE REFILL ∧ MC SPLIT CYC SYNC (Ø)
MA SEQ RQ = MC INST FETCH ∨ BLTF1 (1) ∨ (MCS FCE2 START (1) ∧ MC ASYNC START (Ø))
MC INST FETCH = MC INST FETCH START (1) ∧ MC ASYNC START (1) ∧ MCI PSEUDO INST FET (Ø)

PAGE SMALL VIOL = PAGE SMALL USER (1) ∧ USER PAGING ∧ ~ AB 19-21 = Ø
PAGE TEST WRITE = ~ PAGE ILL ENTRY ∧ AM ANY MATCH ∧ {(AMSP PUBLIC OUT ∧ (PAGE USER PAGED REF ∨ PAGE EXEC PAGED REF)) ∨ (PAGE USER PAGED REF ∧ (~ PAGE TEST PRIVATE ∨ XCT PROT BYPASS)) ∨ (PAGE EXEC REF ∧ ~ MA EXEC UNPAGED ∧ ~ PAGE TEST PRIVATE)}
PAGE CONCEALED VIOL = PAGE TEST PRIVATE ∧ ~ AMSP PUBLIC OUT ∧ ~ XCT PROT BYPASS
PAGE FAIL = PAGE ILL ENTRY ∨ (PAGE USER REF ∧ PAGE SMALL VIOL) ∨ (PFF1 (1) ∧ PAGE REFILL ERROR (1)) ∨ (PAGE EXEC UNPAGED REF ∧ PAGE TEST PRIVATE) ∨ (PAGE EXEC PAGE FOUND ∧ PAGE TEST PRIVATE ∧ PAGE WRITING ∧ ~ AMSP PUBLIC OUT) ∨ (PAGE USER PAGE FOUND ∧ PAGE CONCEALED VIOL) ∨ (PAGE TEST WRITE ∧ PAGE WRITING ∧ ~ AMSP WRITABLE OUT)
PAGE EXEC PAGE FOUND = PAGE EXEC PAGED REF ∧ AM ANY MATCH
PAGE USER PAGE FOUND = PAGE USER PAGED REF ∧ AM ANY MATCH
PAGE EXEC PAGED REF = PAGE EXEC REF ∧ ~ MA EXEC UNPAGED ∧ ~ PAGE ILL ENTRY
PAGE EXEC UNPAGED REF = PAGE EXEC REF ∧ MA EXEC UNPAGED
PAGE USER PAGED REF = PAGE USER REF ∧ ~ PAGE ILL ENTRY ∧ ~ PAGE SMALL VIOL
PAGE EXEC REF = ~ USER PAGING ∧ MA SPECIAL (Ø) ∧ ~ AB 18-31 = Ø
PAGE USER REF = USER PAGING ∧ MA SPECIAL (Ø) ∧ ~ AB 18-31 = Ø

REVISIONS			
CHK	CHANGE NO	REV	
	KI1Ø-00041	C	
	REDRAWN		
	A. KENT		
	17 Dec 73		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX ± .005	± 0° 30'
.XX ± .02	
.X ± .1	

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MATERIAL

FINISH

		DATE
DRN	W. Stephenson	6/13/72
CHK'D	David Green	3 / June 72
ENG	Alan Kotok	31 June 72
PROJ. ENG.	Allan Kent	31 Jun 72
PROD		30 June 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE ½ SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MEMORY CONTROL (PAGE CHECK MEM GO & RECYCLE)

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-MC2	C

DIST.

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MEM GO entry from MC2

MC MEM GO DLYD

~ MA AC REF LATCH

Either no overlap, or previous cycle not write, or → wait for write to finish via this entry from MC5

MC WR RS DLYD

MC WR CYC IN PROG CLEAR

Either no overlap, or previous cycle timed and overlap not disabled, or → wait for read to finish via this entry from MC4

MC RST1

MCT UNTIMED CYCLE CLEAR

MC MEM GO DLYD ∧ ~ MA AC REF LATCH	MC WR CYC IN PROG (Ø)	MCT UNTIMED CYCLE (Ø)

MC REQ CYC SET

MC MEM GO CLEAR

MC CYC REQUESTED EN

MC CYC REQUESTED (1)

100 µs — Integrating one-shot — time out if no memory responds to request

MC NXM ALLOW RQ CLEAR — MC REQ CYC CLEAR

2 µs — Integrating one-shot — make sure no memory responds

MC NXM ABORT CLEAR

MC NXM PULSE 1 → APR1 NXM FLAG SET; MCM STOP SYNC SET; KEY NXM STOP (1): MC MEM STOP SET; MC SYNC READ HOLD CLEAR

MCT ADR ACK ALL → MCN CYC REQUESTED CLEAR; MA WR RQ: MC WR CYC IN PROG EN

Enter synchronizer to allow Write Restart (MC5)

80 ns — Set up memory stop

MA RD RQ

MC NXM PULSE 2

193 ns — Check parity

MC PAR CHK → pulse width → ~ MC PAR CLK → Clear PAR IGNORE

MC PAR STOP: MC MEM STOP EN; Clear MC SYNC READ HOLD; ~ PAR ODD ∧ PAR IGNORE (Ø): PAR ERR EN

PAR ERR (1) → PAR ERR FLAG SET

MC PAR STOP = MC PAR SYNC (1) ∧ ~ PAR ODD ∧ PAR IGNORE (Ø)

COMP MEM READ (1) → 28 ns → COMP MI CLOCK A,B

MCR MB POST CLR (1) ∧ ~ MC PAR STOP → IRMB ASYNC CLOCK [~ PC CLK EN BLT] → 28 ns → MB CLOCK A,B

MC PAR SYNC (1) ∧ (PAR ODD ∨ PAR IGNORE (1))

MC MEM STOP (Ø) → MC RST1 → Continue to Read Return section (MC4)

MAI MC RQ SLOW

Data warning already received from previous cycle or → no overlap, or restart already received from previous cycle

MCT DATA WARN 1 (1)

MCT FAST REQ EN

MCT ADR ACK 1 (Ø)

No overlap, or restart already received from previous cycle

MCT ADR ACK 1 (Ø)

MCT IMM REQ EN

MC REQ CYC (1)	MCT FAST REQ EN ∨ MCT ADR ACK 1 (Ø) ∨ MC REQ CYC FAST

MC RQ CYC FAST

MAI MC RQ FAST

MC REQ CYC (1)	MCT IMM REQ EN

MC RQ CYC IMM

MAI MC RQ IMM

MAI ADR ACK (T) → MCT ADR ACK 1 (1): MCT ADR ACK 2 EN; MCT ADR ACK 1 SET; MC REQ CYC CLEAR

MAI IGN PAR

PAR IGNORE SET

PAR ERR CLEAR

MAI ADR ACK (NT) → MC REQ CYC CLEAR

PAGE REFILL CYCLE (1) ∨ [MCM STOP SYNC (Ø) ∧ (MC SPLIT CYC SYNC (Ø) ∨ MC SYNC WRITE (Ø))]

75 ns — Delay set so MC MA MA clears at least 33 ns after request turns off at bus

MC MA MA CLEAR

Enter synchronizer to allow next page check (MC1)

MCT ADR ACK BOTH

MAI ADR ACK (NT) ∨ KEY OVERLAP DIS (1)

MA RD RQ: MCT UNTIMED CYCLE EN

MAI DATA WARN → MCT DATA WARN 1 (1): MCT DATA WARN 2 EN; MCT DATA WARN 1 SET

Enter synchronizer to allow fast request (above)

MAI RD RS → PAGE REFILL CYCLE (Ø) ∧ COMP MI PROG (Ø) ∧ (MC SYNC READ (Ø) ∧ COMP ASYNC AB = AS (1) ∨ MC SYNC READ (1) ∧ COMP SYNC AB = AS (1)): COMP MEM READ EN

MC (RD, WR) RS → MCT ADR ACK 2 (1): MCT ADR ACK 1 EN (See note above); MCT ADR ACK 2 CLEAR; MCT DATA WARN 2 (1): MCT DATA WARN 1 EN; MCT DATA WARN 2 CLEAR; MC SYNC READ HOLD (1) ∧ MC SYNC WR HOLD (Ø) ∧ (MC INST FETCH START (1) ∨ MCS FCE2 START (1)): MCR MB POST CLR EN

MC PAR SYNC (Ø)

Note: clearing MCT ADR ACK 1 enables synchronizers to allow fast and immediate requests (above)

REVISIONS		
CHK	CHANGE NO	REV
SJ	KI10-00041	B
	REDRAWN	
	A KENT	17 Dec 73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX ± .005	± 0° 30'
.XX ± .02	
X ± .1	

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MATERIAL

FINISH

		DATE
DRN	W Stephenson	5/31/72
CHK'D	David Gross	7 Jun 72
ENG	Allan Kotok	31 May 72
PROJ. ENG.	Allan Kent	31 May 72
PROD.	[illegible]	31 May 72

NEXT HIGHER ASSY: B-DD-KI10-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MEMORY CONTROL (REQUEST CYCLE & READ RESTART)

SIZE	CODE	NUMBER	REV.
D	FD	KI10 - Ø - MC3	B

DIST.

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Entries from Request Cycle and Read Restart Section (MC3)

Nonexistent memory → MC NXM PULSE 2

Possible parity stop → MC PAR CHK → MC PAR SYNC (1) ∧ (PAR ODD ∨ PAR IGNORE (1))

Read Restart → MAI RD RS → MC PAR SYNC (Ø)

Return from AC Reference section (MC6) → MCT4 DLYD

Restart from console for read (See KF) → KEY MEM GO → MC MEM STOP CLEAR

MC MEM STOP (Ø)

PAGE REFILL RESTART = PAGE SYNC REFILL (1) ∨ (PAGE REFILL CYCLE (1) ∧ MC SYNC READ (Ø))

MC RST1

MC SPLIT CYC SYNC (1) ∧ MC SYNC WRITE (1) → MA SPLIT CYC → MA RD RQ CLEAR, MA WR RQ SET

MCT UNTIMED CYCLE CLEAR → Enter Synchronizer to allow Request Cycle (MC3)

MCM STOP SYNC (1) ∧ MC SPLIT CYC SYNC (Ø): MC MA MA CLEAR → Enter Synchronizer to allow next page check (MC1)

PAGE REFILL RESTART

88 ns — Allow for memory bus skew and logic delays

MC REFILL DONE

~ AM ACCESS IN → PF SYNC SET → Go to Page fail cycle (PF)

AM ACCESS IN

Enter here from MC PF QUICK DLYD (MC2)

AMAC WRITE PULSE 1 → AMAC WRITE

~ AM ANY MATCH: PAGE MATCH LATCH
PAGE REFILL CYCLE (Ø): PF WORD EMPTY EN
To invalidate location for PAGE FAIL only

80 ns — Write in associative memory

AMAC WRITE PULSE 2 → AMAC WRITE

If writing produces a match, AM ANY MATCH drops PAGE MATCH LATCH

70 ns — Write in scratch pad

AMAC WRITE DONE → PAGE MATCH LATCH: PAGE REFILL ERROR SET, PF WORD EMPTY CLEAR

PAGE REFILL CYCLE (1)

Return to Refill Reentry in Paging section (MC1)

28 ns — Loading of PF HOLD is shown for possible access failure only; for complete conditions see PAGE FAIL (MC2)

PF REG CLK → USER PAGING: PF HOLD USER EN
PAGE REFILL CYCLE (Ø): PF HOLD 32 EN
AM WRITABLE IN: PF HOLD 33 EN
AM SOFTWARE IN: PF HOLD 34 EN
PAGE WRITING: PF HOLD 35 EN
PAGE REFILL ERROR CLEAR

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø) → CLK MISC INPUT

Restart clock in time state being held

MC SYNC READ (Ø) ∧ PAGE REFILL CYCLE (Ø)

MC INST FETCH START (1) → INST RDY

Enter synchronizer to begin Instruction cycle (IC)

MCS FCE2 START (1) → FCE2 SYNC SET

Enter synchronizer to continue Double Floating instruction at begining of special execution sequence – following retrieval of second operand (see DFFM)

REVISIONS	CHK	CHANGE NO	REV
	JH	KI10-00041	A
		REDRAWN	
	J. Hutchinson	12-11-72	
		A KENT	
	Allen Kent	11 Dec 72	

BRUNING 40-522 15940

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX ± .005 .XX ± .02 .X ± .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

		DATE
DRN	W. Stephenson	6/6/72
CHK'D	David Gross	31 Jan 72
ENG	Allan Kotok	31 Jan 72
PROJ. ENG	Allen Kent	31 Jan 72
PROD	[illegible]	9 Jan 72

NEXT HIGHER ASSY. B-DD-KI10-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE MEMORY CONTROL (READ RETURN & REFILL REENTRY)

SIZE	CODE	NUMBER	REV.
D	FD	KI10 - Ø - MC4	A

DIST.

Write restart from store cycle (S)

ST2(1)

126 ns — Generate parity

ST2 DLYD

CLK INH(1)

MC MAMA(1) ∧ CLK INH(1) ∧ (MC SPLIT CYC SYNC (1) ∨ KEY SINGLE PULSE SYNC(1))

This write subroutine start only for split cycle or single pulse operation (MC2); otherwise this synchronizer entry stems from ongoing subroutine (MC3)

MC WR SUBR START FF SET

MCT ADR ACK ALL

MA WR RQ

MC WR CYC IN PROG EN

ST2 DLYD ∧ CLK INH(1) | MC WR CYC IN PROG(1)

MC WR RS

Send data pulses out on bus according to contents of MB
PAR ODD: send MAI BUS PAR pulse

MC MEM STOP(Ø)

COMP SYNC AB=AS(1)

COMP MI CLK IN

COMP MI PROG(Ø)

28 ns

COMP MI CLOCK A, B

Restart from console for write (see KF)

KEY MEM CONT

MA WR RQ

From Execute cycle of IR MAP (see KPMP)

ST1(1)

IR MAP

From Divide subroutine (DIVS)

DST2(1)

SCE

From PI cycle (PI)

PIT1(1)

From Page Fail cycle (PF)

PFT4(1)

MC WRITE KILL IN

MC WRITE KILL

MC MAMA CLEAR

Enter synchronizer to allow next page check (MC1)

MCRSTØ

CLK MISC INPUT

Restart clock in time state ST2

110 ns — Let data clear bus

BYTE MB CLR INH = ∼ IR IBP ∧ BYTE PTR INC

MC WR RS DLYD

∼ BYTE MB CLR INH

IRMB ASYNC CLOCK

[∼ PC CLK EN BLT]

28 ns

MB CLOCK A, B

MC (RD, WR) RS

MCT ADR ACK 2(1): MCT ADR ACK1 EN
MCT ADR ACK 2 CLEAR
MCT DATA WARN2 (1): MCT DATA WARN1 EN
MCT DATA WARN2 CLEAR

MC WR CYC IN PROG CLEAR

Enter synchronizer to allow Request Cycle (MC3)

MC STOP SYNC(1) ∧ MC STORE IN AC(Ø)

MC MAMA CLEAR

Enter synchronizer to allow next page check (MC1)

MC SYNC WR HOLD CLEAR
MC WR SUBR START FF CLEAR
MC SPLIT CYC SYNC CLEAR
MC MEM STOP CLEAR

BRUNING 40-522 15840 — DEC FORM NO DRD 102-B

REVISIONS	CHK	CHANGE NO	REV
	JCS	KI10-00041 REDRAWN J. Nicholson 5-4-72 A. KENT Allan Kent 11 Dec 72	A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005	±0° 30'
.XX = .02	
.X = .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. D. Stephenson	DATE 5/24/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'DV. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE MEMORY CONTROL WRITE RESTART
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 9 Jan 72	

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-MC5	A

DIST.

Page check entry from MC2 for single operand read

MC PAGE DLY OVER

MC SYNC AC READ: FM ADR MA SET
MCF MB FM FF SET

MB FM EN

MA AC REF LATCH ∧
MA RD PQ ∧
MC ASYNC START(Ø) ∧
MCS FCE2 START(Ø)

MC SYNC AC READ ∧
MCS FCE2 START(Ø)

MEM GO entry from MC2 for first of double operand read

MC MEM GO ONCE(1)

MC SYNC READ(1) ∧
MCS FCE2 START(1)

Wait for second address via this entry from MC1

MC PAGING RDY(1)

MC ASYNC START(1)

MEM GO entry from MC2 for second of double operand read or instruction read

MC MEM GO(1)

MA AC REF LATCH ∧
MC ASYNC START(1)

Wait til processor ready for second operand, or → wait til present instruction finished (see Instruction cycle IC)

ET2

IR DPOP

FCE2 WAIT COND

INST DONE(1)

MC MEM GO ONCE(1) ∧
MC SYNC READ(1) ∧
MCS FCE2 START(1)

MC PAGING RDY(1) ∧
MC ASYNC START(1)

MC MEM GO(1) ∧
MA AC REF LATCH ∧
MC ASYNC START(1)

FCE2 WAIT(1) ∨ INST DONE(1)

MCT2

FM ADR MA SET
MCF MB FM FF SET

MB FM EN

MC SYNC READ(1)

MCF AD FM + SET

MCF AR AD FF SET
AD FM + SET
AD AR ± CLEAR
AD BR ± CLEAR
AD BR + 2 CLEAR
AD FM - CLEAR

AD MB CLEAR
AD MSK GEN CLEAR
AD MAGIC CLEAR
AD +1 LT CLEAR
AD ADD CLEAR
AD EQV CLEAR

AD IOB CLEAR
AD CRY 36 CLEAR
MAGIC #+1 CLEAR

192 ns

Decode FM ADR, propagate FM output thru AD and AR mixers

MCT3

MC MEM GO CLR
[PAGE REFILL CYCLE(Ø)] ∧ COMP MI PROG(Ø) ∧
(MC SYNC READ(Ø) ∧ COMP ASYNC AB = AS(1) ∨
MC SYNC READ(1) ∧ COMP SYNC AB = AS(1)):
COMP MEM READ EN

28 ns

MB CLOCK A,B

[MCF AR AD FF(1):]
AR AD EN E

28 ns

AR CLK A,B

33 ns

wait for register driver delay and skew

MCT4

FM ADR MA CLEAR
MCF AR AD FF CLEAR
MCF MB FM FF CLEAR
~ MA WR RQ ∧ MC SPLIT CYC SYNC (Ø) ∧
MCM STOP SYNC(Ø): MC MA MA CLEAR

Reestablish previous FM ADR decoding

60 ns

MCT4 DLYD

Enter synchronizer to allow next page check (MC1)

COMP MEM READ(1)

COMP MI CLK IN

COMP MI PROG(Ø)

28 ns

COMP MI CLOCK A,B

MC MEM STOP(Ø)

MCRST1

Return to Read Return section to complete reference (MC4)

REVISIONS			
CHK	CHANGE NO	REV	
	KI10-00041	A	
	REDRAWN		
	A KENT		
	Allen Kent 11 Dec 73		

BRUNING 40-522 3840
DEC FORM NO
DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX ± .005 .XX ± .02 .X ± .1	± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN	W Stephenson	DATE 9 May 72
CHK'D	David Gross	DATE 31 Jan 72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ. ENG	Allen Kent	DATE 31 Jan 72
PROD	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY.
B-DD-KI10-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

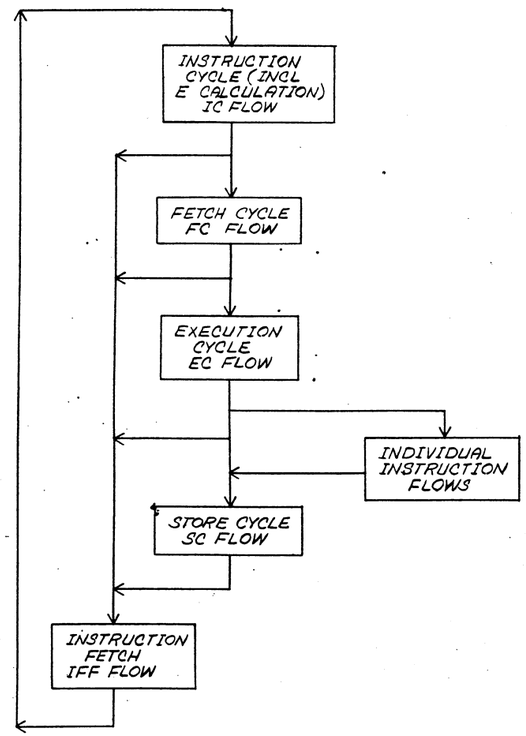
TITLE
MEMORY CONTROL
AC REFERENCE
(READ)

SIZE	CODE	NUMBER	REV.
D	FD	KI10 - Ø - MC6	A

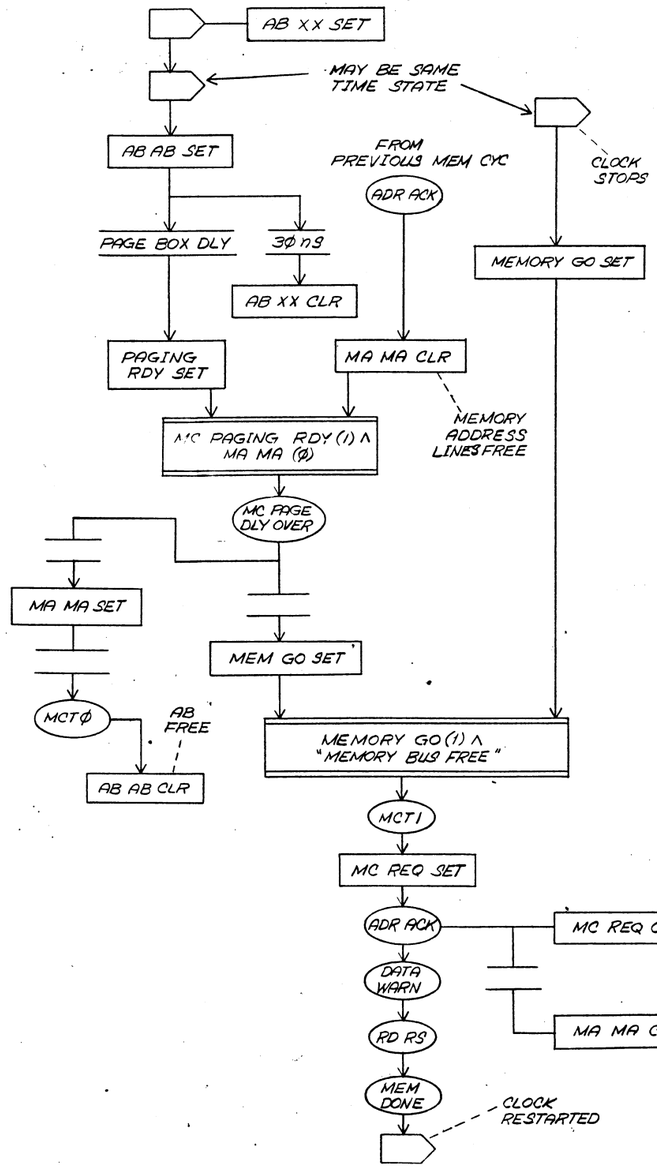
DIST

SIZE D | CODE FD | NUMBER KI10 - Ø - MC6 | REV A

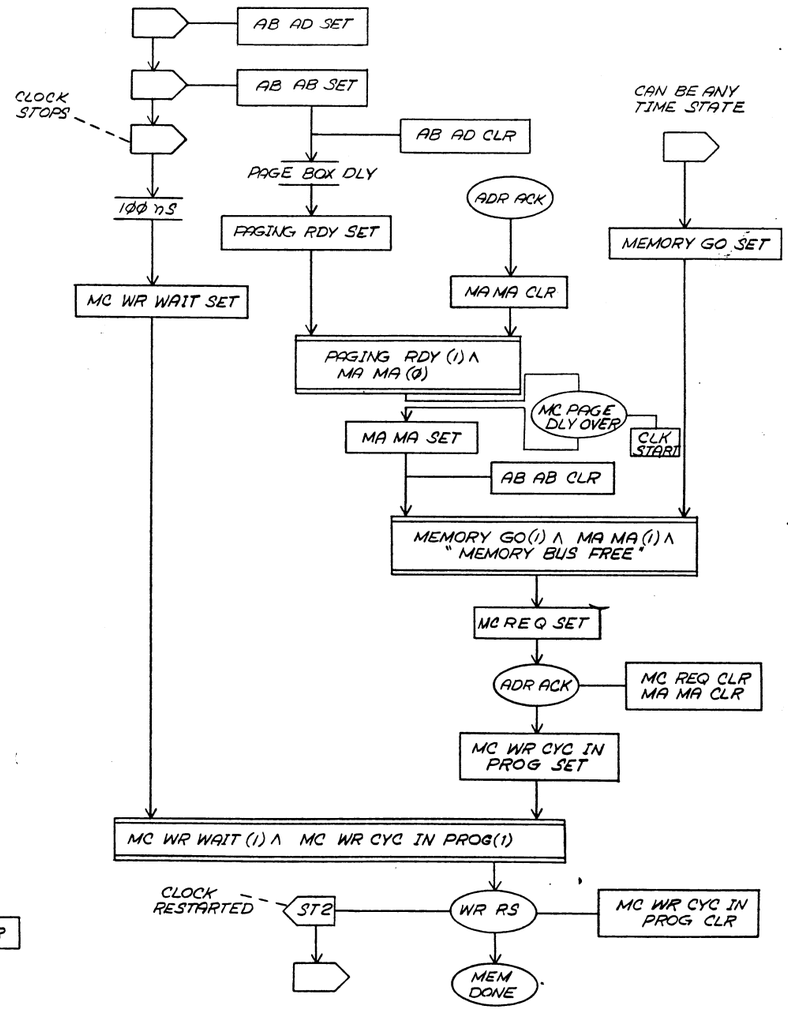
MACHINE CYCLE OVERVIEW



MEMORY READ CYCLE OVERVIEW



MEMORY WRITE CYCLE OVERVIEW (MOST LOGIC DELAYS OMITTED)



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	cl. Stephenson	DATE 3/3/70
CHK'D.	David Gross	DATE 7/24/72
ENG.	Wm Kotok	DATE 7/24/72
PROJ. ENG.	Allen Kent	DATE 8/30/72
PROD.	Russell Hunt	DATE 8/30/72

NEXT HIGHER ASSY: B-DD-KIØ-Ø

SCALE —

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: OVERVIEW FLOW 1

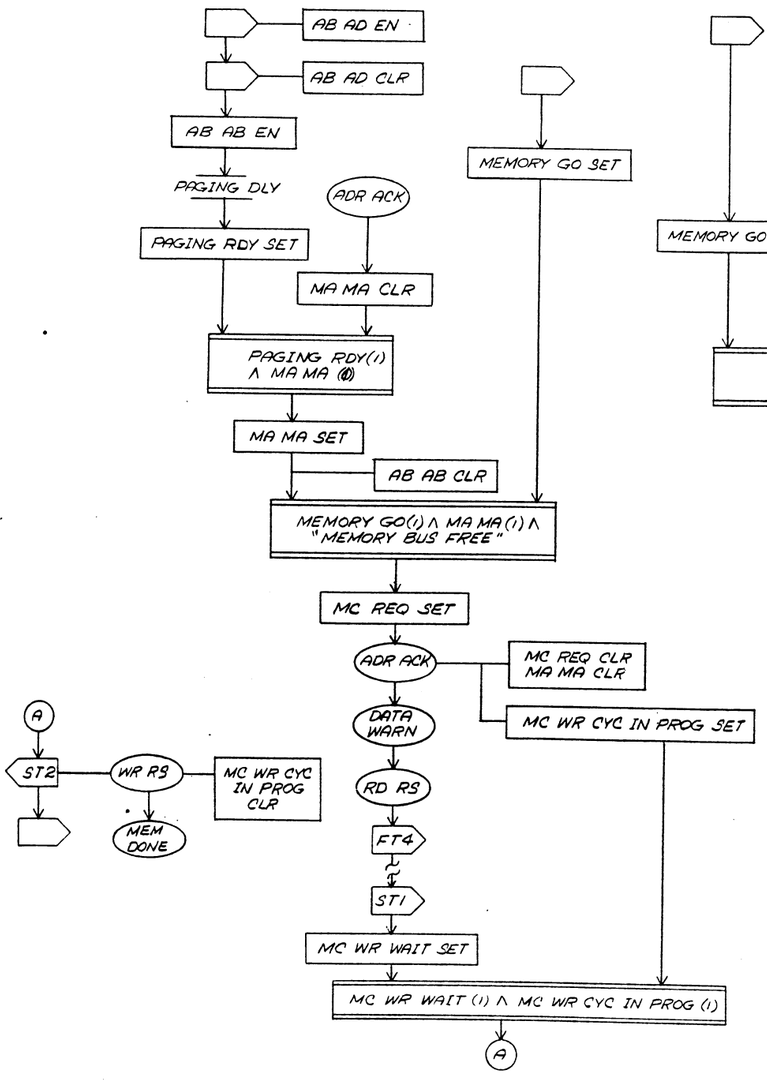
SIZE	CODE	NUMBER	REV.
D	FD	KIØ - Ø - OF1	

DIST.

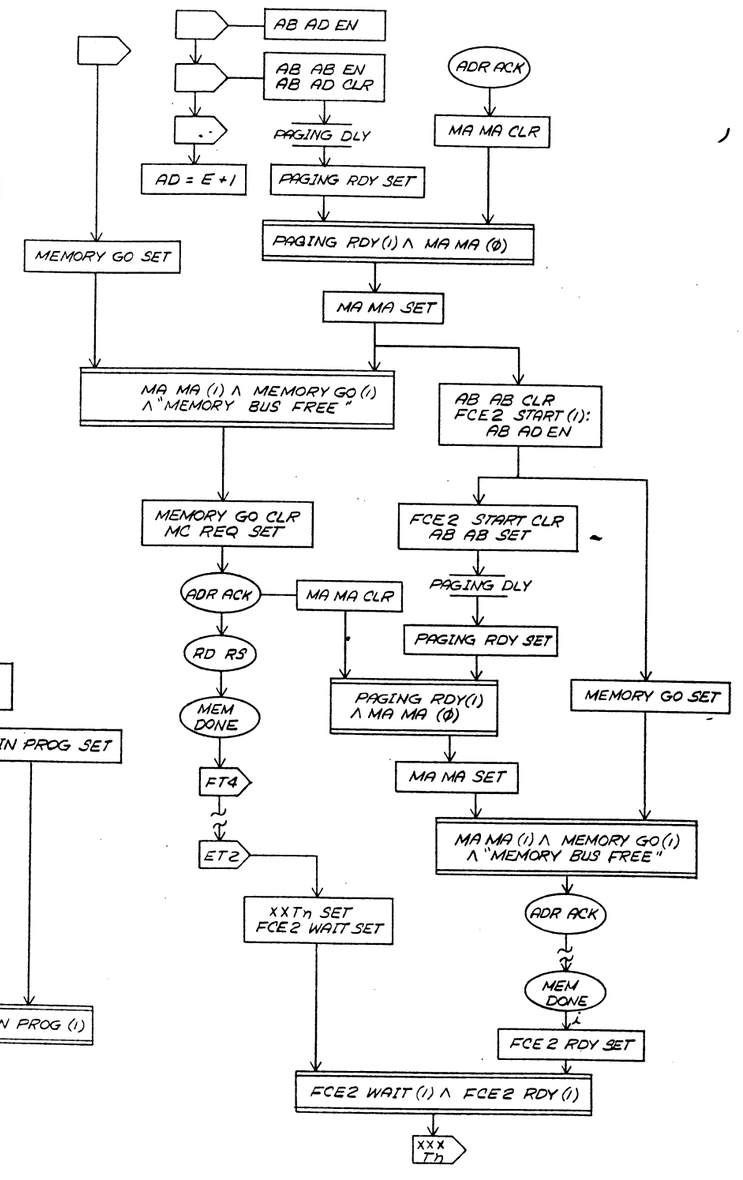
REVISIONS | REV | CHANGE NO. | CHK

DEC-10-MY-110 DRO 102A

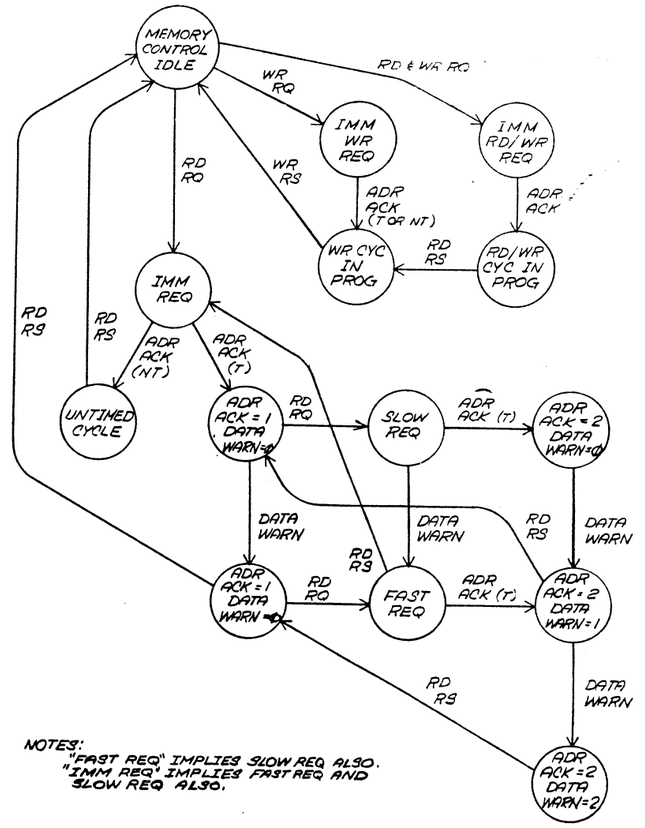
MEMORY READ-MODIFY-WRITE OVERVIEW (MOST LOGIC DELAYS OMITTED)



MEMORY TWO-WORD READ OVERVIEW (MANY DETAILS OMITTED)



MEMORY CONTROL STATE-DIAGRAM



NOTES:
"FAST REQ" IMPLIES SLOW REQ ALSO.
"IMM REQ" IMPLIES FAST REQ AND SLOW REQ ALSO.

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST		
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY √; REMOVE BURRS AND BREAK SHARP CORNERS	DRN. W. Stephenson 3/5720	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS		
	CHK'D David Gross 3 Jun 72	TITLE: OVERVIEW FLOW 2		
	ENG. Allen Kotok 31 May 72			
MATERIAL	PROJ. ENG. Allen Kotok 31 May 72			
FINISH	PROD. 31 MAY 72	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø		
	SCALE	SIZE D / CODE FD / NUMBER KI1Ø Ø-OF2 / REV		
	SHEET / OF /	DIST		

REVISIONS: REV | CHANGE NO | CHK

DEC-11DMM-NO DRF 1924

Page failure indication from Page check (MC2)

MC PF QUICK

Access failure indication from Read Return on refill cycle (MC4)

MC REFILL DONE

~AM ACCESS IN

PF SYNC SET

No asynchronous fetch going on or → wait til clocked sequence complete

MC ASYNC START (Ø)

INST DONE (1)

FCE2 WAIT (1)

~MC ASYNC HOLD

PF MAP COND = [IR MAP ∧ (FT6 (1) ∨ FT8 (1))] ∨ (KT3 (1) ∧ KEY MEM OP ∧ MC ASYNC START (Ø))

PF SYNC (1)

MCI SYNC POINT

PFTØ

~PF MAP COND ∧ BLTF1 (Ø) ∧ PI CYC (Ø): PFT1 SET
BLTF1 (1): BLTT5 SET
~PF MAP COND ∧ BLTF1 (Ø) ∧ PI CYC (1): PFT4 SET
KT3 (1): PF KEY EN
~PF MAP COND: MR STATE CLR FF EN

MR STATE CLR

Allow time to clear state

PF CLK START

PF SYNC CLEAR
MR STATE CLR FF CLEAR

PFT4 (1)

APR1 I/O PF FLAG SET
PC+1 INH SET

MC WRITE KILL

MC MA MA CLEAR

Enter synchronizer to allow page check (MC1)

Refer to memory control, Recycle section (MC2)

KT3 (1) ∧ MC ASYNC START (Ø)

MCT RECYCLE

MC INST FETCH START (1): AB PC SET

MC INST FETCH START (1)

MCT AB AB CLR

AB AB CLEAR

73 nS

Set up address in AB

MCT AB AB SET

MC ASYNC START SET
↳ Disable COMP AB = AS (For KEY MEM OP only)

AB AB SET

Begin instruction fetch via Recycle Entry (MC1)

KT3 (1)

Resume KEY MEM OP function (KF)

PFT4 (1)

PFT4

AB PC EN A
MC INST FETCH NEXT EN
ST5

110 ns

ST5

CLK EN INST DONE
[MC INST FETCH NEXT (1):] MC INST FETCH EN

Return to Instruction cycle (IC)

Fetch next instruction (MC1)

BLTT5 (1)

Go to special sequence to terminate Block Transfer (BLT)

FT6 (1) ∨ FT8 (1)

Resume Fetch cycle of MAP in given time state (F)

PFT1 (1)

PFT1

Clear MC MEM GO INH, PI CYC RDY
[~MC ASYNC HOLD:] Clear MC INST FETCH START
Clear MCS FCE2 START
↳ MCI SYNC POINT: Clear MC ASYNC START
AD MAGIC EN E
CLK LONG CYC EN A
PFT2
PFF1 SET → TRAP PAGE FAULT EN
↳ ∧ PAGE LAST INST PUBLIC (1): PAGE ENTER PUBLIC
↳ PFF1 EN
↳ PAGE CLR PRIVATE EN

PFF1 (1)

~IR DECODE EN
STORE
SAC INH
PF HOLD USER (1): MAGIC #ØB
AB 18...26 (1): MAGIC #Ø9...17
PF HOLD 31...35 (1): MAGIC #31...35

Construct page fail word

PAGE CLR PRIVATE (1)

PAGE PRIVATE INST CLEAR

TRAP PAGE FAULT (1)

TN CLR INH

110 ns

PFT2

AR AD EN E (Fail word → AR)
AB AD EN → AB FF CLR
PFT3

110 ns

PFT3

MC STORE TIME → CLK INH
↳ MC SYNC WRITE EN
↳ ∧ KEY SINGLE PULSE SYNC (1): MC MEM GO INH EN
MA SPECIAL EN A → MA SPECIAL EN
↳ MA SPECIAL UBR EN
ST1 COND B

MA SPECIAL EN A → AB AB EN

PFF1 (1) → MA SPECIAL 27, 31
↳ MA SPECIAL 33
↳ MA SPECIAL 34
↳ ∧ USER MODE (1): MA SPECIAL 35 Location 426 or 427

PAGE CHECK
MC PAGE DLY OVER

MA SPECIAL (1) → PAGE OK

[PAGE OK ∧ MC SYNC READ (Ø) ∧ MC ASYNC START (Ø)]

ST1

(ST2 COND:)
MB AR EN
PAR BIT EN
MC MEM GO INH CLR
CLK INH (ST1) EN
ST2

Write restart to write page fail word in user process table - see store cycle (S)

MC RSTØ

ST2

AB AD EN → AB FF CLR
CLK LONG CYCLE
CLK EN INST DONE
CLK PSEUDO INST DONE
IT2 COND → IT2
↳ Clear KEY CYCLE

Go to Instruction cycle for trap (IC)

REVISIONS			
CHK	CHANGE NO	REV	
—	KIIØ-00041	—	ORIGINATED

BRUNING 40-522 15840

DEC FORM NO DRD 102-8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN	W. Stephenson	DATE 2/21/72
CHK'D	David Gross	DATE 3/3/72
ENGR	Allen Kotok	DATE 3/3/72
PROJ. ENG	Alan Kotok	DATE 3/3/72
PROD	M. Guilliam	DATE 3/3/72

NEXT HIGHER ASSY. B-DD-KIIØ-Ø

SCALE ~

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PAGE FAIL CYCLE

SIZE	CODE	NUMBER	REV.
D	FD	KIIØ - Ø - PF	—

DIST.

SIZE D | CODE FD | NUMBER K11Ø-Ø-PI | REV —

From Instruction cycle (IC)

INST DONE DLYD PULSE

((MC INST FETCH EN ∧ ~ MCI PSEUDO INST FET EN) ∨ MC AUTO IN FET A) ∧ (PI RDY SYNC (1) ∨ KEY RDY SYNC (1))

For possible time states see Memory Subroutine Call (MC1)

PI CYC RDY EN

PI CYC RDY (1)

INST DONE (1) ∧ PI CYC RDY (1) (:PI CYCLE DIVERTED)

XCTF(Ø): PC CLK EN
(↳ ~ MC ASYNC HOLD:) clear MC INST FETCH START
↳ MCI SYNC POINT: clear MC ASYNC START
Clear PI CYC RDY, KEY CYCLE
XCTP FF CLR

PI RDY SYNC (1) ∧ KEY RUN (1)

PIT1

MC WRITE KILL IN → Kill waiting write, if any (see MC5)

110 ns

PIT1

AD IOB EN (For function word)
AB AD EN → AB FF CLR
Clear XCTF
SCAD ADD (For long cycle)
PI CYC COND → Clear PI RDY SYNC
↳ PI CYC EN
PIT2

IOB BUS READ

PI CYC (1)

TN CLR INH
MC PAGE SLOW EN SET
Enable PI FCN decoder

PI FCN Decoding

Output	Input Condition
PI DISPATCH	PI FCN 3-5 = 2
PI INC MEM	PI FCN 3-5 = 3
PI DATAO	PI FCN 3-5 = 4
PI DATAI	PI FCN 3-5 = 5

170 ns

PIT2

PI OV(Ø): MQ AD EN (Save function word)
PI PSEUDO INST FET: MCI PSEUDO INST FET EN → MC INST FETCH EN
↳ ∧ ~ PI DISPATCH: PI NORM CYC EN
↳ MA SPECIAL EN
PI DATAI: MC SYNC PI WR EN → MC SYNC WRITE EN
↳ (∧ ~ PI INC MEM) → MC MEM GO INH EN
PI DATAO: MC SYNC READ EN A
PI INC MEM: MC SYNC READ EN A
MC SYNC PI WR EN → MC SYNC WRITE EN
MC AUTO IN FET A → MC INST FETCH START EN
PC +1 INH IN
(AB AD(1):) AB AD CLK INH
Clear INST DONE
MC MEM GO INH CLR
(PI CYC(1):) PIR CYC STARTED EN → Enter synchronizer for PIR DONE (see PIR)
PIT3

PI PSEUDO INST FET = (PI FCN 3(Ø) ∧ (PI FCN 4(Ø) ∨ PI FCN 5(Ø))) ∨ (PI FCN 3(1) ∧ PI FCN 4(1))
PI function: Ø, 1, 2, 6, 7
PI DATAI: STORE
PI INST: SAC INH
PI INST = PI INC MEM ∨ PI DATAO ∨ PI DATAI
PI NORM CYC(1): MA SPECIAL 3Ø
↳ ∧ PI ENC 4: MA SPECIAL 32
↳ ∧ PI ENC 2: MA SPECIAL 33
↳ ∧ PI ENC 1: MA SPECIAL 34
↳ ∧ PI CV(1): MA SPECIAL 35

AB AB EN

MEMORY SUBROUTINE
Instruction fetch for normal or dispatch
Operand fetch for DATAO or increment
Page check for DATAI
See Note

MA SPECIAL (1): PAGE OK

MC RST1

MC INST FETCH START (1) ∧ MC SYNC READ (Ø) ∧ PAGE REFILL CYCLE (Ø)

INST RDY

Go to Instruction cycle to execute instruction for normal or dispatch interrupt (IC)

MC PAGE DLY OVER

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø)

F CYC ACT EN (= FTG (1))

Go to Execute cycle for DATAO (see IO) or increment memory (flow shown at right)

PAGE OK ∧ MC SYNC READ (Ø) ∧ MC ASYNC START (Ø)

F CYC ACT EN (= FTG (1))

Go to Execute cycle for DATAI (see IO)

110 ns

PIT3

PI PSEUDO INST FET ∧ ~ PI DISPATCH: PI NORMAL CYC EN
↳ MA SPECIAL EN
MA SPECIAL (1): MA SPECIAL EN B
PI DATAI: MC SYNC PI WR EN → MC SYNC WRITE EN
↳ (∧ ~ PI INC MEM) → MC MEM GO INH EN
PI DATAO: MC SYNC READ EN A
PI INC MEM: MC SYNC READ EN A
MC SYNC PI WR EN → MC SYNC WRITE EN
MCI PSEUDO INST FET (1): MCI PSEUDO INST FET EN
↳ MC INST FETCH EN
~ MCI PSEUDO INST FET EN: FTG
CLK MISC INH → CLK INH
↳ AR CLR A
CLK PSEUDO INST DONE
CLK EN INST DONE → IR NB EN → Clear IR IR
↳ Clear FMC SEL Ø, 1
↳ Clear BYF5, TRAP CYC, MC SPLIT CYC SYNC
↳ ∧ MCI PSEUDO INST FET EN: INST DONE EN

Go to Instruction cycle (IC) to wait for interrupt instruction from memory

Interrupt function executed by standard processor cycles with special events produced by PI CYC (1) as shown above

MAIN SEQUENCE WITH PI CYC (1)
(PI CYC (1) → TN CLR INH, MC PAGE SLOW EN (1))

IT1 — MB 13 (1)

IT2

ET1 — IOT INST ∧ IOB IOT (Ø)

ANY — PI RDY SYNC (1) — PI DIVERT INDIRECT EN

PI DIVERT INDIRECT (1) (:PI CYCLE DIVERTED)

Clear KEY CYCLE

ET2

((IR BLKX ∧ AD ØØ-17*Ø) ∨ IR SKIPS ∨ IR CONSX):
PI OV (ET2) EN
↳ ∧ ~ PC CLK EN: PI OV EN
~ PI MAY OVF ∧ PI OV (Ø): PI ACT INH
AR FLAGS SAVE: PI PC SETS PIH
PAGE LEAVE USER
AR FLAGS EN → AR PC EN
↳ TRAP SATISFIED
(Clear TN Ø, TN 1, TRAP PAGE FAULT, COMP ADR BRK INH)
↳ AR FLAGS EN A → BYF6 CLR

ST1 — PI MAY OVF ∧ PI OV (Ø): PI ACT INH

PI MAY OVF = IR BLKX ∨ IR SKIPS ∨ IR CONSX
For IOT instructions
IOT DATA TIME (1) ∧ PI OV (Ø) ∧ ~ IR CONSX: PI ACT INH A

FINAL

ET2 ST1 ST5 ST1 DST2

CLK EN INST DONE (∧ ~ CLK PSEUDO INST DONE)

PI OV (1)

PICTØ

Follow this path for normal or dispatch interrupt only

PICTØ

AR MQ EN A (Get function word for dispatch)
AD AR + EN F
↳ AD ADD
↳ AD MAGIC EN
AD CRY 36 (Address + 1)
AB AD EN → AB FF CLR
PIT2

170 ns

PI OV (Ø): CLK INH
Clear PI CYC

IF PI OV (Ø) follow only this path, otherwise both, but note that PIT2 clears INST DONE

INST DONE EN

Go to Instruction cycle (IC) for return to interrupted program or first instruction in interrupt service routine

Note:
In memory subroutine

MC PAGE DLY OVER — FTG (1): FMC SEL Ø SET (To give FM ADR AC)

PI INC MEM
PI FCN 3-5 = Ø11

Operand fetch from lower left with FTG (1) C(E) → AR
MC RST1

SWITCHES
FCE
FCE PSE
ETØ EN
ET1 EN
SAC INH
ST INH

MC SYNC READ (1) ∧ PAGE SYNC REFILL (Ø)

F CYC ACT EN

110 ns

ETØ

BR AR EN (Memory word)
AR MQ EN A (Function word)
MQ Ø6 (Ø): SCAD DATA EN
CLK LONG CYCLE
ET1

110/170 ns

ET1

AR POS SCAD EN
↳ AR RT AR RT
↳ AR RT AUX EN
↳ AR 12-17 SELF
ET2

SCAD 3-8 → AR ØØ-Ø5 & AD Ø6-11 self via ARI inputs (ARI AR Ø1 AUX DATA 1)

110 ns

ET2

AR RT AR LT
MQ Ø6 (1): AD PI COND → AR LT AD EN
AD AR + EN B
AD BR + EN B
AD ADD EN D
DMOVNT3

170 ns

DMOVNT3

AR AD EN G
ST1 COND B

110 ns

ST1 — ST2 COND

Write restart to write incremented word into same memory location — see store cycle (S)

110 ns — MC RSTØ

ST2 — CLK LONG CYCLE

If MC STORE IN AC (1) see AC Write in store cycle (S)

170 ns

ST5 — CLK EN INST DONE

Go to Instruction cycle (IC)

REVISIONS	REV	CHK	CHANGE NO	REV
ORIGINATED		—	KT1Ø-ØØ41	—

BRUNING 40-522 15840
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

DRN	D. Stephenson	DATE 9/28/72
CHK'D	David Gross	DATE 31 Jan 72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD	[illegible]	DATE 31 JAN 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PI CYCLE

MATERIAL

FINISH

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE ~

SHEET 1 OF 1

SIZE D | CODE FD | NUMBER K11Ø-Ø-PI | REV —

DIST

~PI RQ

ANY → ~PI RQ ∧ [(BIO PI nT ∧ PI CAY n(1)) ∨ PI GEN n(1)]: PIR n EN

When any PIR flags are set, PIN generates PI RQ and, for the lowest numbered PIR n set, generates PI REQ n and encodes n into PI ENC

~PI RQ PI RQ

EVERY → Hold PIR flags stable
PI RQ ∧ IOB IOT(Ø) ∧ PI CYC(Ø) ∧ IOB RESETTING SYNC(Ø): IOB PI IN

PI CYC(1) ∨ IOB IOT(1) ∨ IOB RESETTING SYNC(1) ∨ PI READY(1) ∨ PIR DONE(1)

IOB PI IN

These may be same time state

EVERY → IOB PI(1) ∧ PIR DONE(Ø) ∧ PI RQ ∧ IOB RESETTING SYNC(Ø): IOB PI IN

PIR DONE(Ø)

KT1(Ø) ∧ ~PI CYC COND ∧ PIR CYC STARTED(Ø) ∧ PI READY(1)

PIR CHAN BDCST
PI ENC on IOB ØØ-Ø2

IOB PI(1)

PI READY(Ø) ∧ PIR DONE(Ø)

300 ns

PI RDY SYNC EN

Wait until interrupt is started (See PI)

Remaining flow shown only for completion of PI Request cycle; for complete flow see PI

PIT1 → PI CYC COND → PI CYC EN, clear PI RDY SYNC

170 ns

PIT2 → (PI CYC(1):) PIR CYC STARTED EN

110 ns

PI READY(1): PIR CYC STARTED EN

PIR CYC STARTED(1) | PIR UNGRANT TIMER(Ø)

Usually PIT3

SOME → PIR DONE EN → PIR DONE(1)

PI REQ SYNC PULSE CLEAR
PI REQ GRANT CLEAR
PIR RETURN SYNC CLEAR
PIR COUNT Ø-2 CLEAR
PI READY CLEAR

PIR UNGRANT TIMER SET

Usually IT0 or FTG

NEXT → PI CYC(Ø) [∧ PI READY(Ø)]: clear PIR CYC STARTED
(PIR UNGRANT TIMER(1):) clear PIR DONE
(PIR DONE(1):) clear IOB PI
IOB DISCHARGE START
→ IOB DISCHARGE EN
→ IOB RESETTING SYNC EN

1 PIR ASYNC CLK → PI REQ SYNC PULSE EN, PIR COUNT Ø EN

300 ns

2 PIR ASYNC CLK → (PI REQ SYNC PULSE(1) ∧ PIR RETURN SYNC(Ø):) PI REQ GRANT EN, PIR COUNT Ø EN, PIR COUNT 1 EN

300 ns

Possible 3-8 PIR ASYNC CLK → PI REQ GRANT EN, PIR COUNT 2(Ø): PIR COUNT Ø EN, PIR COUNT Ø(1): PIR COUNT 1 EN, PIR COUNT 1(1): PIR COUNT 2 EN

IOB Ø3-Ø5 = Ø ∧ ~IOB PI GRANT RETURN T ∧ (PIR COUNT Ø(Ø) ∨ PIR COUNT 1(1))

IOB Ø3-Ø5 ≠ Ø ∨ IOB PI GRANT RETURN T ∨ (PIR COUNT Ø(1) ∧ PIR COUNT 1(Ø) ∧ PI REQ GRANT(1))

Every PIR ASYNC CLK loads IOB Ø3-Ø5 into PI FCN 3-5

PIR RETURN SYNC EN

300 ns

PIR ASYNC CLK → (PIR RETURN SYNC(1):) clear PI REQ GRANT, PI READY EN

PI READY(1) stops PIR ASYNC CLK

PI READY(1)

Release PIR UNGRANT TIMER (integrating one-shot)

145

PIR UNGRANT TIMER CLEAR

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES: DECIMALS .XXX ±.005, .XX ±.02, .X ±.1; ANGLES ±0° 30'	PARTS LIST		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	DRN: R. Stephenson 5/29/72	CHK'D: David Gross 31 Jan 72	ENG: Mary Kotok 31 Jan 72
MATERIAL	PROJ. ENG: Allan Kent 31 Jan 72	PROD: T. Mueller 31 JAN 72	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
FINISH	SCALE: ½	SHEET 1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PI REQUEST CYCLE

SIZE D | CODE FD | NUMBER KI1Ø-Ø-PIR | REV —

DIST

REVISIONS	CHK	CHANGE NO	REV
ORIGINATED	—	KI1Ø-00041	—

BRUNING 40-522 15840

DEC FORM NO DRD 102-B

IR PUSHX = IR PUSHJ v IR PUSH

IR PUSHPOP = IR PUSH v IR POP

IR POPX = IR POP v IR POPJ

IR PUSHJ

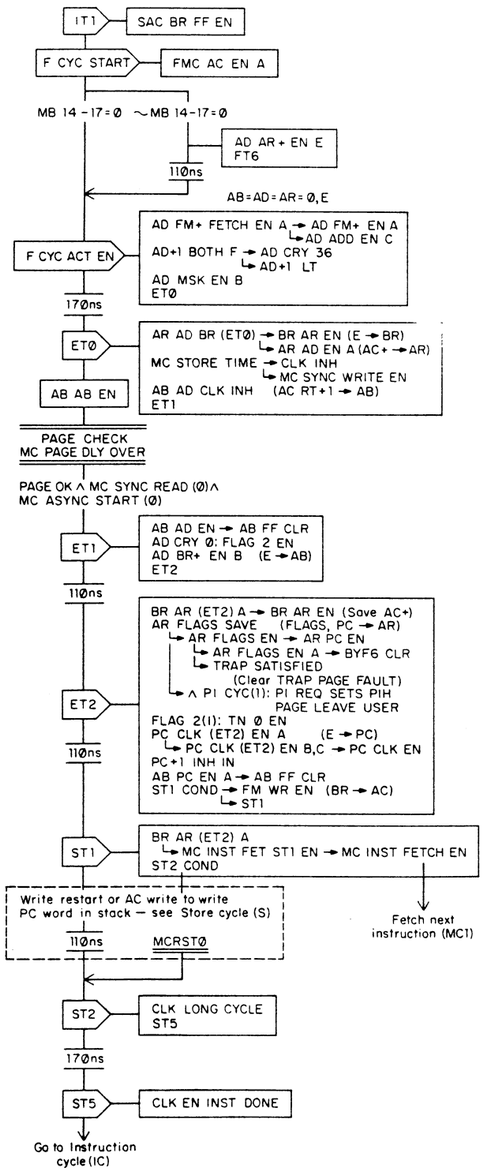
260
IR = Ø10 110 000
IR 2XX IR 26X

Action

FLAGS, PC → C(AC RT + 1)
AC LT + 1 = Ø: Set TN Ø
AC + (1,1) → AC
E → PC

Switches

SAC BR
STORE
ETØ EN
ET1 EN



IR PUSH

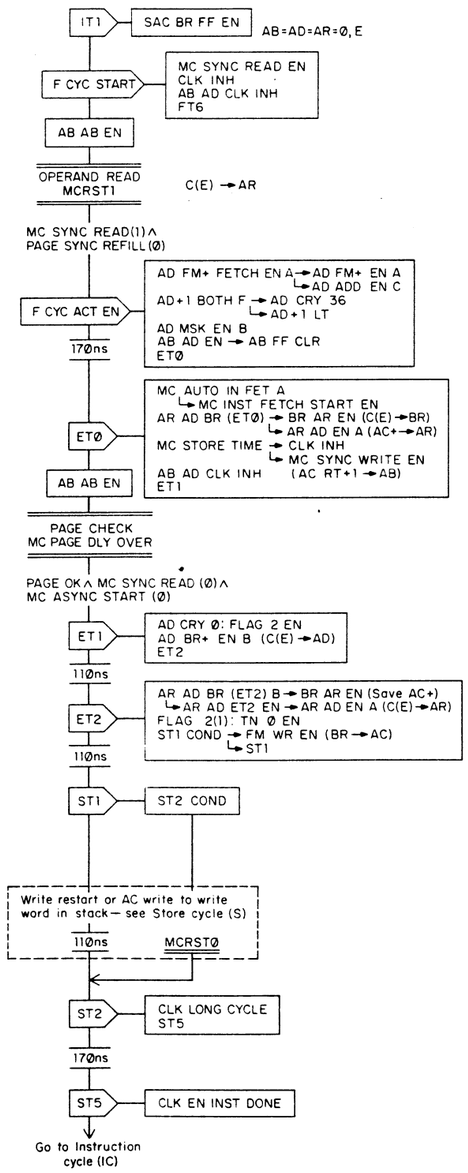
261
IR = Ø10 110 001
IR 2XX IR 26X

Action

C(E) → C(AC RT + 1)
AC LT + 1 = Ø: Set TN Ø
AC + (1,1) → AC

Switches

FCE
SAC BR
STORE
ETØ EN
ET1 EN



IR POP

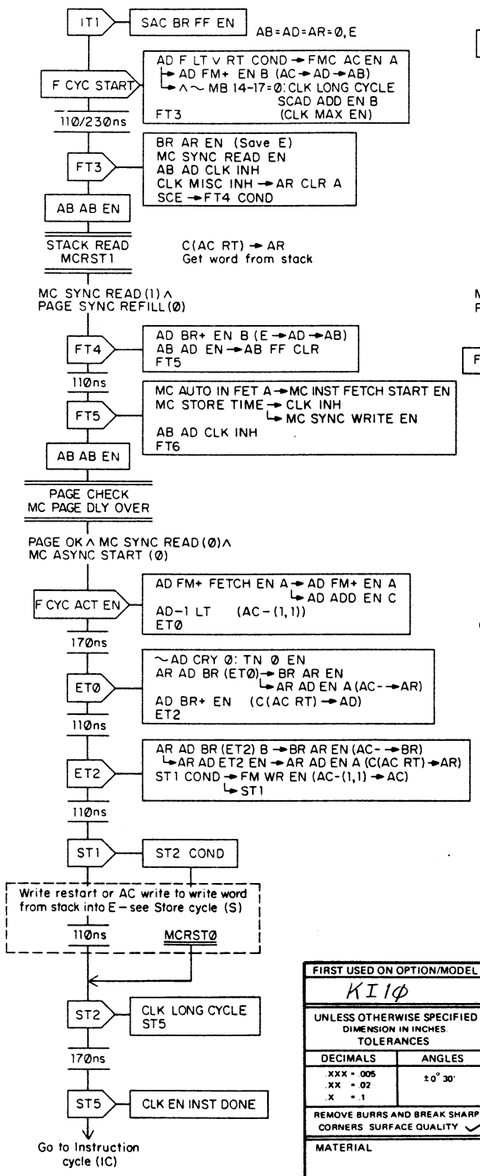
262
IR = Ø10 110 Ø10
IR 2XX IR 26X

Action

C(AC RT) → E
AC LT = Ø: Set TN Ø
AC − (1,1) → AC

Switches

FCE2, LT OR RT
SAC BR
SCE
ETØ EN



IR POPJ

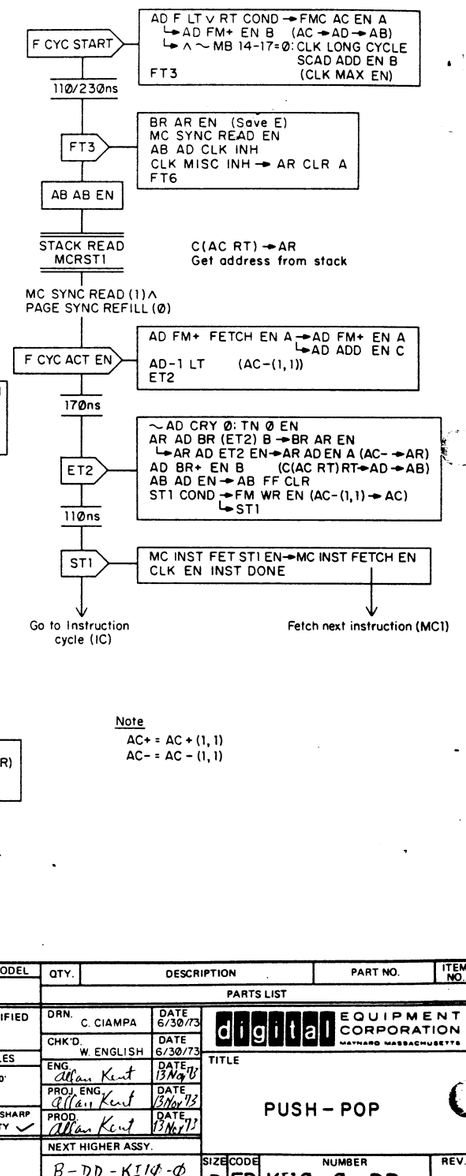
263
IR = Ø10 110 011
IR 2XX IR 26X

Action

C(AC RT) RT → PC
AC LT = Ø: Set TN Ø
AC − (1,1) → AC

Switches

FCE2, LT OR RT
PC CHANGE



Note
AC+ = AC + (1, 1)
AC− = AC − (1, 1)

REVISIONS	REV
CHANGE NO	1
CHK	KI10-0004)
	ORIGINATED

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13 Nov 73	TITLE
PROJ. ENG. Allan Kent	DATE 13 Nov 73	PUSH - POP
PROD. Allan Kent	DATE 13 Nov 73	

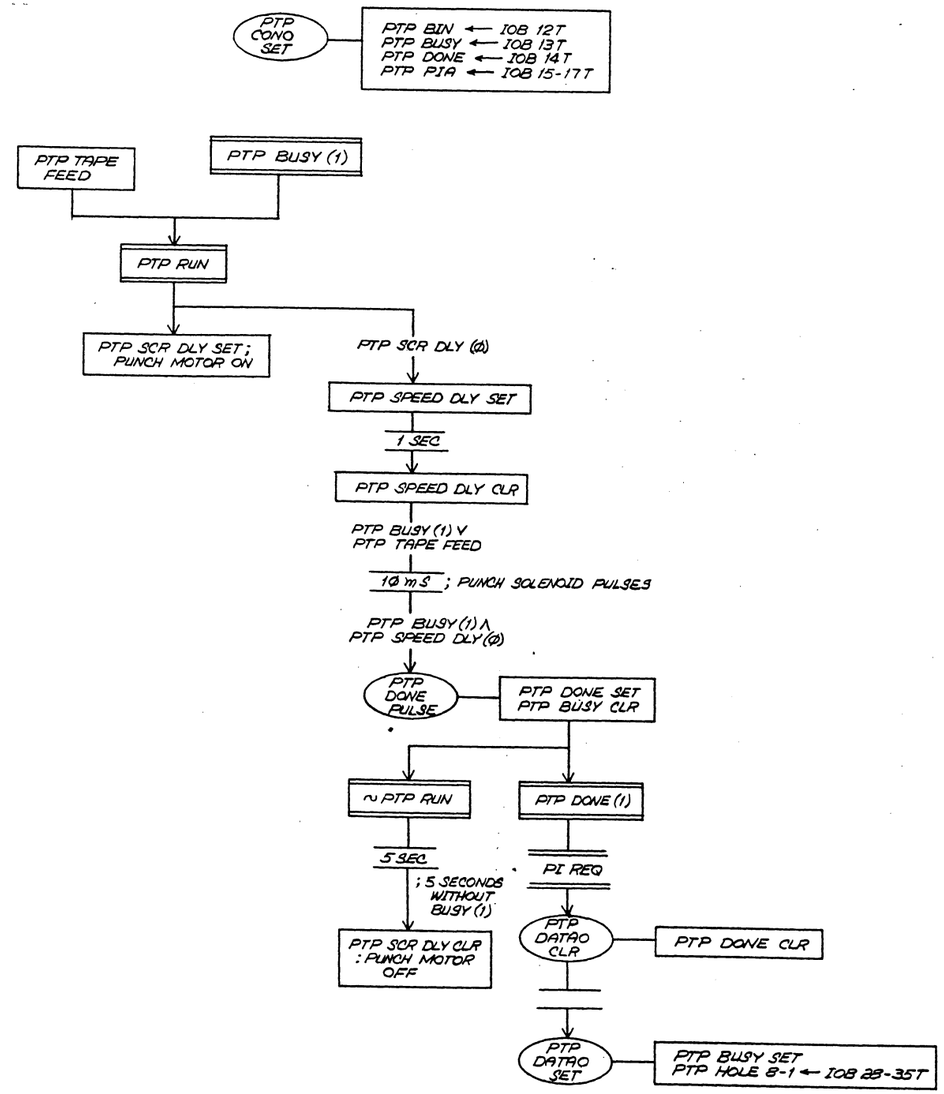
NEXT HIGHER ASSY. B-DD-KI10-Ø
SCALE —
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	FD	KI10-Ø-PP	—

DIST.

DEC FORM NO DRD 102-B

KI10-Ø-PP FD D SIZE CODE NUMBER REV 1



REVISIONS	REV	CHK	CHANGE NO

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 6/11/70	
CHK'D. David Gross	DATE 21 Jun 72	
ENG. Mary Kotch	DATE 21 Jun 72	
PROJ. ENG. Allen Kent	DATE 21 Jun 72	
PROD.	DATE	

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
PAPER TAPE PUNCH FLOW

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-PTP	

DIST.

REV	NUMBER	SIZE	CODE
	KI1Ø-Ø-PTP	D	FD

TYPICAL OPERATION IN BINARY MODE

PTR CONO SET

PTR BIN ← IOB 12.T
PTR BUSY ← IOB 13.T
PTR DONE ← IOB 14.T
PTR PIA ← IOB 15-17.T

PTR BUSY (1)

PTR TAPE FEED

PTR CLR

PTR CNT CLR
PTR END CLR

PTR RUN

PTR RUN ∧ PTR SHUT DOWN (Ø)

PTR ENABLE SET

PTR CNT : ØØØ
PTR A,B : Ø Ø (TYPICAL)

TAPE MOTION

PTR STROBE EN = (PTR HOLE 8 ∨ PTR BIN (Ø))
PTR LAST = PTR BIN (Ø) ∨ (PTR CNT = XØ1)

PTR CNT SEQUENCE	PTR A,B SEQUENCE
ØØØ	ØØ
1ØØ	1Ø
11Ø	11
111	Ø1
Ø11	ØØ
ØØ1	
ØØØ	

PTR CLK

5.6 m.s WHEN STARTING

1.66 m.s WHEN UP TO SPEED

PTR CLK DLY

PTR ENABLE (1)

PTR MOTOR SHIFT

PTR A = PTR B : PTR DATA PHASE SET
PTR A ← ~PTR B
PTR B ← PTR A
PTR TAPE SYNC SET
PTR TAPE ← ~PTR TAPE SYNC
PTR POWER SET

PTR RUN ∧ ~PTR FEED HOLE CLEARS PTR TAPE SYNC. IF PTR TAPE SYNC IS STILL SET (BY CONTINOUS ILLUMINATION OF THE FEED HOLE PHOTO DETECTOR) WHEN THE NEXT MOTOR SHIFT PULSE OCCURS PTR TAPE IS CLEARED INDICATING OUT OF TAPE

PTR FEED HOLE

PTR DATA PHASE (1) ∧ PTR BUSY (1)

PTR FEED HOLE PLS

PTR STROBE

PTR Ø Ø-35 ← PTR HOLE 8-1
PTR CNT ← +1

PTR DATA PHASE CLR

PTR CNT : ØØØ
PTR A,B : Ø Ø

PTR CNT : 1ØØ
PTR A,B : 11

PTR CNT : Ø11
PTR A,B : 11

PTR CNT : ØØ1
PTR A,B : Ø1

8 CLOCK PULSES NOT SHOWN (2 FOR EACH CHARACTER)

PTR A ← ~PTR B
PTR B ← PTR A
PTR TAPE SYNC SET
PTR TAPE ← ~PTR TAPE SYNC
PTR POWER SET

PTR A ← ~PTR B
PTR B ← PTR A
PTR A = PTR B : PTR DATA PHASE
PTR TAPE SYNC SET
PTR TAPE ← ~PTR TAPE SYNC
PTR POWER SET

PTR A ← ~PTR B
PTR B ← PTR A
PTR TAPE SYNC SET
PTR TAPE ← ~PTR TAPE SYNC
PTR POWER SET

IF PTR BUSY IS SET BEFORE THIS CLOCK PULSE, OPERATION CONTINUES AT SYNCHRONOUS SPEED (3ØØ CHARACTERS PER SECOND). IF PTR BUSY IS STILL CLEARED WHEN THIS CLOCK PULSE OCCURS, NO FURTHER CLOCK PULSE OCCURS FOR 4Ø m.S AND THE TAPE IS NOT MOVED. (SPEED IS ≤ 25 CHARACTERS PER SECOND.)

PTR CLK DLY

PTR ENABLE (1)

PTR MOTOR SHIFT

PTR A ← ~PTR B
PTR B ← PTR A
PTR TAPE SYNC SET
PTR TAPE ← ~PTR TAPE SYNC
PTR POWER SET

~PTR RUN : PTR ENABLE CLR

PTR ENABLE (Ø)

PTR SHUTDOWN SET

4Ø m.S

PTR SHUTDOWN CLR

PTR RUN

PTR SHUTDOWN PULSE

~PTR RUN

PTR POWER CLR

PTR END (1)

PTR END COND

PTR BUSY CLR : ~PTR RUN
PTR DONE SET

PTR DONE (1)

PI REQ

PTR DATAI

PTR DONE CLR

~PTR DATAI

PTR BUSY SET ; PTR RUN

SEE NOTE ON D-ES-K11Ø-Ø-PTR 2

REVISIONS			
CHK	CHANGE NO.	REV	
DW	K11Ø-ØØØ23	A	

A KENT 31 May 73

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 6/2/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 6/7/72	
ENG. Allan Kotok	DATE 6/7/72	
PROJ. ENG. Allan Kent	DATE 6/7/72	
PROG. M. Williams	DATE 6/7/72	

NEXT HIGHER ASSY B-DD-K11Ø-Ø

SCALE

SHEET 1 OF 1

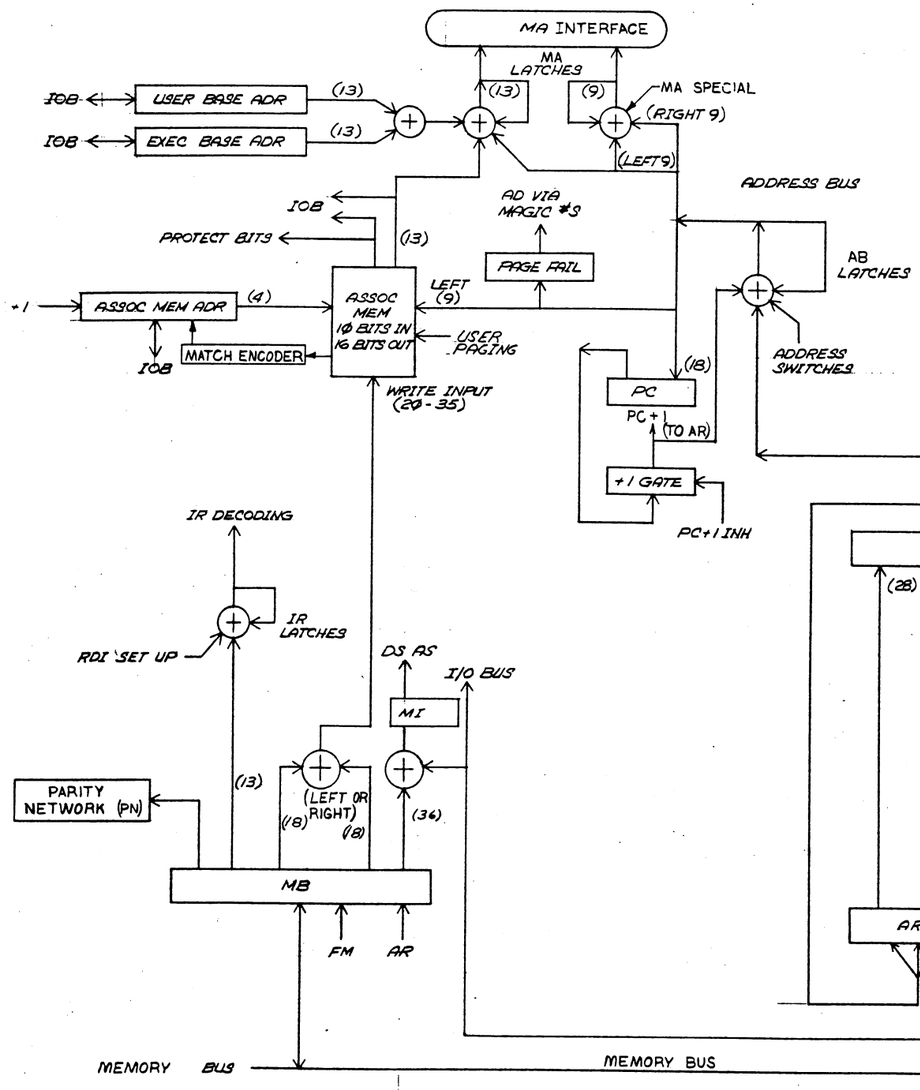
TITLE: PAPER TAPE READER FLOW

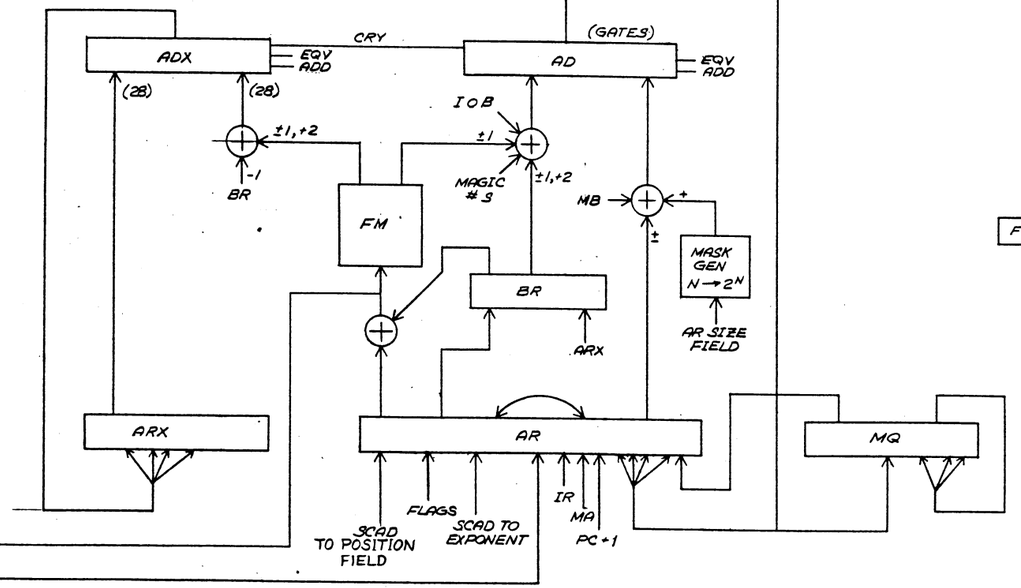
SIZE	CODE	NUMBER	REV.
D	FD	K11Ø - Ø - PTR	1

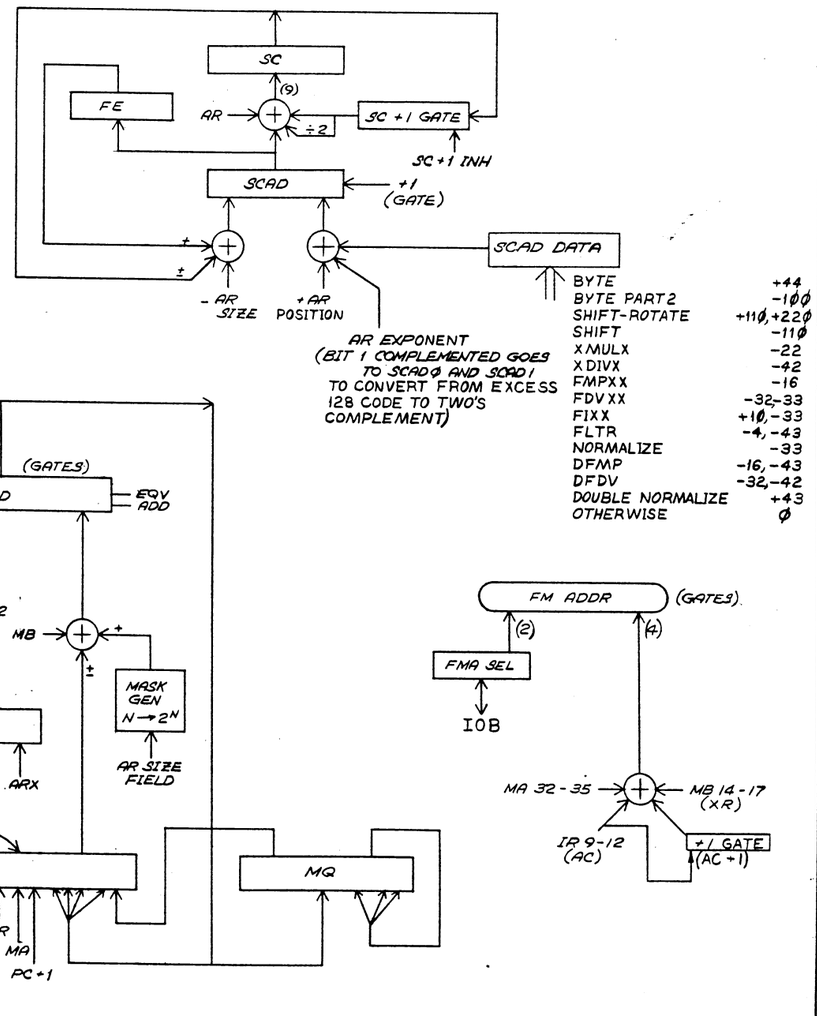
DIST.

DEC FORM NO DRD 102A

NOTE: THE SYMBOL ⊕ MEANS LEVEL MIXER GATE.







BYTE	+44
BYTE PART2	-10Ø
SHIFT-ROTATE	+11Ø,+22Ø
SHIFT	-11Ø
XMULX	-22
XDIVX	-42
FMPXX	-16
FDVXX	-32,-33
FIXX	+1Ø,-33
FLTR	-4,-43
NORMALIZE	-33
DFMP	-16,-43
DFDV	-32,-42
DOUBLE NORMALIZE	+43
OTHERWISE	Ø

REVISIONS			
CHK	CHANGE NO.	REV.	
RB	K110-00041	A	
E. Allain 12-14-73			
KENT			
Allen Kent 17 Dec 73			

DEC FORM NO. SMD 102A

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 5/21/69	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	
NEXT HIGHER ASSY B-DD-KI1Ø-Ø		
SCALE		
SHEET / OF /		

TITLE: REGISTER INTERCONNECTIONS

SIZE	CODE	NUMBER	REV
D	FD	KI1Ø-Ø-REG	A

DIST.

ET2 | SCTC | JFFOT1 | FIXT1 | FIXT2 | DST5 | DST6 | NRT4

NRT1 | DFDT8 | DNT1 | DNT9 | DMOVET1 | DMOVNT3

~ IR FP LONG

~ SAC INH ∧ ~ IR FDVL: FM WR EN
ST7 (See note)

ST1 COND

~ SAC INH: FM WR EN
ST1 (See note)

110 ns

ST1

BLT F1 (1): PC CLK EN
MUUO F2 (1): MUUOF1 EN
MUUOF1 (1): MUUOF2 CLR Clear MUUOF1
PI MAY OVF ∧ PI CYC (1) ∧ PI OV (Ø): PI ACT INH
SAC BR FF CLR A
MC INST FET ST1 EN ∨ MC INST FETCH NEXT (1): MC INST FETCH EN

Fetch next instruction (MC1)

ST1 COND
ET2 (1) ∧ ~ ST INH ∧ (FCE PSE ∨ SCE ∨ STORE ∨ ~ SAC INH)
ET2 (1) ∧ ST INST FET ST1 EN
ET2 (1) ∧ IR FIXX ∧ AR ØØ = AR Ø1
FIXT1 (1) ∧ SCAD Ø (Ø)
FIXT2 (1)
ET2 (1) ∧ IR JFFO ∧ (AR ØØ (1) ∨ FLAG 1 (Ø))
JFFOT1 (1) ∧ MQ Ø1 (1)
IR SR INST ∧ SCTC DONE
DST6 (1) ∧ IR 2XX (XDIVX)
DFDT8 (1) ∧ AD ØØ - 17 = Ø ∧ AD Ø9 - 35 = Ø ∧ MQ Ø1 - 35 = Ø

AR CLR B
MQ CLR C
ST1 COND A
ST1 COND B (= DMOVET1 (1) ∨ DMOVNT3 (1) ∨ DNT9 (1) ∨ PFT3 (1))

ST INH
IR DPOP
IR JFFO
IR SR INST
IR FP SHIFT
IR XDIVX
IR BLT
PI INC MEM
ST INST FET ST1 EN

ST INST FET ST1 EN
IR 3XX
IR CONSX
MC INST FET ST1 EN A

MC INST FET ST1 EN A
PI OV (Ø) ∧ (IR 3XX ∨ IR CONSX)
IR BLT ∧ BLTF1 (Ø)
IR JRST ∧ ~ MCI JRST NO FLAGS
MUUO PART 3

MCI JRST NO FLAGS = IR JRST ∧ IR 1Ø (Ø) ∧ IR 11 (Ø)
AR CLR B = DNT1 (1) ∧ FLAG 1 (1) ∧ ARX ØØ - 19 = Ø ∧ ARX 20 - 35 = Ø ∧ AR Ø1 - Ø8 = Ø
MQ CLR C = NRT1 (1) ∧ AD ØØ - 17 = Ø ∧ AD Ø9 - 35 = Ø ∧ (MQ Ø8 - 35 = Ø ∨ IR FDVXX)

ST1 COND A = DST5 (1) ∧ IR 2XX ∧ (FLAG 3 ≠ BR ØØ)

SAC 2 | FMC AC2 EN B

~ STORE MEM | ST4

ST2 COND

MB AR EN
PAR BIT EN
MC MEM GO INH CLR
MC STORE IN AC (Ø) ∨ MC MEM STOR (1): CLK INH (ST1) EN
ST2

MC STORE IN AC (1) | FM ADR MA EN

110 ns

CLK INH (Ø)

126 ns

ST2 DLYD

CLK INH (1)

MC MA MA (1) ∧ CLK INH (1) ∧ (MC SPLIT CYC SYNC (1) ∨ KEY SINGLE PULSE SYNC (1))

See Write Restart section of memory Control (MC5)

ST2 DLYD ∧ CLK INH (1) | MC WR CYC IN PROG (1)

WRITE RESTART
MC RSTØ

(~ SAC2 ∧ ~ ST2 COND:)
CLK EN INST DONE

Return to Instruction cycle (IC)

ST2 COND = ST1 (1) ∧ STORE MEM ∧ ~ IR MAP
STORE MEM = FCE PSE ∨ SCE ∨ STORE ∨ BLTF1 (1)

ST2

ST5 INH ∧ ~ SAC2: AB AD EN
CLK PSEUDO INST DONE
CLK LONG CYCLE
↓ AB FF CLR

FM ADR MA (1): FM ADR MA EN
MC STORE IN AC (1): FM WR EN (see note)
FMC STORE IN AC EN

ST3 COND (= SAC2 ∧ MC STORE IN AC (1)) | ST3 | 170 ns | ST3 | ST4 See AC Write

SAC2 ∧ ~ ST3 COND | ST4 | 170 ns

~ ST5 INH | ST5 | 170 ns

110 ns

ST4

AR MQ EN A
IR DPOP ∧ ~ IR DMOVE: ARI MQ ØØ INH

ST5 COND A → FM WR EN A
↳ ST5 (See note)

110 ns

ST5

IR DMOVXM: BYF6 CLR
KEY DEP CYCLE (1): KEY DONE → Clear KEY CYCLE, KEY DEP CYCLE
See AC Write ↳ ∧ (KEY REPT SYNC (Ø) ∨ KEY SINGLE PULSE SYNC (1)): KEY CLR
CLK EN INST DONE
MC INST FETCH NEXT (1): MC INST FETCH EN

Return to instruction cycle (IC)

Fetch next instruction (MC1)

KT3
KEY DEP CYCLE (1) ∧ PF KEY (1) (: ST5 COND B)
ST5

FDT7 | NRT6 | DFDT12
PFT4 | ST5

BLT T4 | ST1

PFT3 | (ST1 COND:) ST1

BLT T9 | ST1

PFF1 (1) (: STORE)

KT3
KEY DEP CYCLE (1) ∧ ~ ST5 COND B
ST1

PFF1 (Ø)
110 ns

MC STORE TIME → CLK INH
↳ MC SYNC WRITE EN
↳ ∧ KEY SINGLE PULSE SYNC (1): MC MEM GO INH EN

MA SPECIAL EN A

AB AB EN

PAGE CHECK
MC PAGE DLY OVER

PAGE OK ∧ MC SYNC READ (Ø) ∧ MC ASYNC START (Ø)

AC WRITE

FMC STORE IN AC (1)
MC MEM GO CLR

NEXT | ST3 ST5 | BLT I | FT3 FT5 | FT6

FMC STORE IN AC (1)

Clear FM ADR MA

Clear FMC STORE IN AC

MCM AC STORE DONE

MC SPLIT CYC SYNC CLEAR
MC MA MA CLEAR

Enter Synchronizer to allow next page check (MC1)

SAC INH

BYTE FIRST PART
BYTE XDPB
IR DMOVEM
IR DMOVNM
IR LUUO
IR MUUO
IR TEST ∧ IR Ø3 (Ø) ∧ IR Ø4 (Ø)
IR SKIPS ∧ IR Ø9 - 12 = Ø
IR HWTFWT ∧ IR XXS ∧ IR Ø9 - 12 = Ø
IR XXXM ∧ (IR BOOLE, IR ADSUB, IR FWT, IR HWT, IR XMULX, IR XDIVX, IR FP ~ IMM, IR XCT)
IR CAXX
IR JSR
IR JFCL
IR JRST
IOT INST
PI INST
PFF1 (1)

Note
SOME | FM WR EN ∧ COMP FMA = AS: COMP AC WRITE EN
COMP MI FM EN
NEXT | COMP AC WRITE (1): COMP MI CLOCK EN

BLT F1 (1)
AD BR + EN B
ST2 BR + 1 → AD + 1 LT
↳ AD MSK EN A
↳ AD ADD
↳ AD CRY 36
BLT I

Go to Block Transfer (BLT)

ST5 INH
SAC2
BLTF1 (1)
IR DMOVXM PART 1
MUUOF1 (1)
IR BLKX
PFF1 (1)

IR DMOVXM PART 1 | AD BR + EN B, PI CYC (Ø): BYF6 EN, FT6
MUUOF2 (1) | FT6
MUUO PART 3 | FT3
IR BLKX | AD AR + EN K, IR BLKO: FT3, IR BLKI: FT5, MC MEM GO INH EN
PFF1 (1) | CLK EN INST DONE, IT2 COND

Return to Fetch cycle (F)

Go to Instruction cycle for trap (IC)

REVISIONS

CHK	CHANGE NO	REV
—	KI1Ø-00041 ORIGINATED	—

DRAWING 40-522 15840
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. W. Stephenson	DATE 9/21/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 9/15/72	
ENG. Alan Kotok	DATE 9/16/72	TITLE: STORE CYCLE
PROJ. ENG. Allen Kent	DATE 9/16/72	
PROD.	DATE 9/16/72	

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE ~
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-S	—

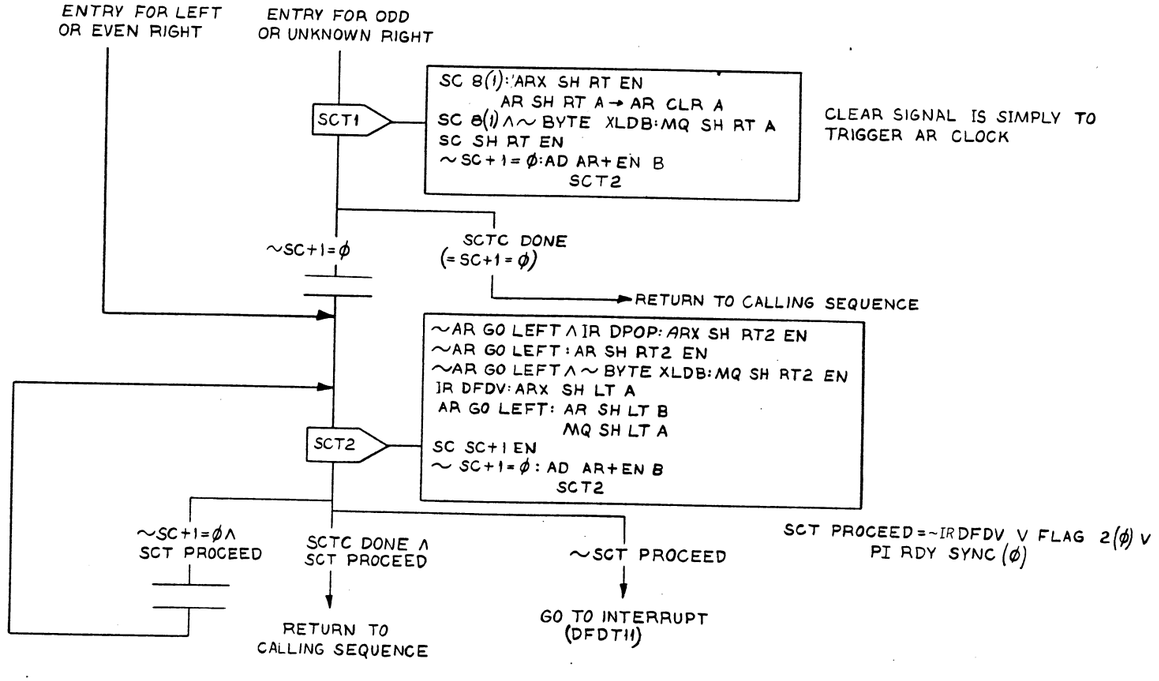
DIST.

INSTRUCTIONS	SIM-ULATOR CODE	LEFT SHIFT *					RIGHT 1 SHIFT						RIGHT 2 SHIFT									
		ARX 35 GETS	AR Ø GETS	AR 35 GETS	MQ Ø GETS	MQ 35 GETS	ARX Ø GETS	AR Ø GETS	AR 1 GETS	MQ Ø GETS	MQ 1 GETS	MQ 8 GETS	ARX Ø GETS	ARX 9 GETS	AR Ø GETS	AR 1 GETS	AR 2 GETS	MQ Ø GETS	MQ 1 GETS	MQ 2 GETS	MQ 8 GETS	MQ 9 GETS
XDPB V JFFO V XLDB V LSH	Ø		AD1	Ø	MQ1	Ø		Ø	AD Ø						Ø	Ø	AD Ø					
ROT	1		AD1	AR Ø				AR 35	AD Ø						AR 34	AR 35	AD Ø					
ROTC	2		AD1	MQ Ø	MQ1	AR Ø		MQ 35	AD Ø	AR 35	MQ Ø	MQ 7			MQ 34	MQ 35	AD Ø	AD 34	AD 35	MQ Ø	MQ 6	MQ 7
LSHC	3		AD1	MQ Ø	MQ1	Ø		Ø	AD Ø	AR 35	MQ Ø	MQ7			Ø	Ø	AD Ø	AD 34	AD 35	MQ Ø	MQ 6	MQ 7
ASH	4		AR Ø	Ø				AR Ø	AD Ø						AR Ø	AR Ø	AD Ø					
ASHC	5		AR Ø	MQ1	AD Ø	Ø		AR Ø	AD Ø	AD Ø	AD 35	MQ 7			AR Ø	AR Ø	AD Ø	AD Ø	AD 34	AD 35	MQ 6	MQ 7
XMULX	6		AD1	MQ Ø	MQ1										AD-2	AD-1	AD Ø	AD 34	AD 35	MQ Ø	MQ 6	MQ 7
DFMP V DFAD V DFSB	7	AD1	Ø	MQ1	Ø	Ø	ADX-1	Ø	ADX 35	Ø	AD 35	MQ 7	ADX-2	ADX-1	Ø	ADX 34	ADX 35	Ø	AD 34	AD 35	MQ 6	MQ 7
FAD V FSB V UFA V FMP V FLTR V FSC V FIXX	1Ø		AD1	MQ8		Ø		AD-1	AD Ø			AD 35			AD-2	AD-1	AD Ø				AD 34	AD 35
DFDV	11	AD1'	Ø	Ø **	MQ1	ADX CRY Ø	Ø			Ø	ARX 35	MQ 7										
XDIVX	12		AD1	MQ1	MQ1	AD CRY Ø ∧ DSF2																
FDV	1Ø		AD1	MQ 8 ∧ DSF2		AD CRY Ø ∧ DSF2		ADH	AD Ø			AD 35										

* MQ Ø7 GETS MQ Ø8 EXCEPT DURING FLOATING POINT SHIFTS, WHEN IT GETS Ø.

** EXCEPT AT DFDT3 WHEN AR 35 GETS MB 35

BASIC SHIFT-COUNT SUBROUTINE



INSTRUCTIONS THAT USE SHIFT COUNT

INSTRUCTION	FLOW CHART
BLT	BLT
XDPB	BYTE
XLDB	BYTE
ASHX	SR
LSHX	SR
ROTX	SR
XMULX	ASBM
XDIV X	DIVS
FADXX	FASU
FSBXX	FASU
UFA	FASU
FMPXX	FMSC
FDVXX	FD
FIXX	FFDN
FLTR	FFDN
DFAD	DFAS
DFSB	DFAS
DFMP	DFFN
DFDV	DFD

REVISIONS					
CHK	CHANGE NO	REV			
E.A	K11Ø-00041	A			
E. Allain	12-17-73				
Allen Kent	KENT	19 Dec 73			

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. A. Stephenson	DATE 14 Feb 72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Allen Kotok	DATE 31 Jan 72	
PROJ. ENG. Allen Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE

SHEET / OF /

TITLE: SHIFT CONNECTIONS

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø - Ø - SCON	A

DIST.

NUMBER KI1Ø-Ø-SCON REV A SIZE D CODE FD

IR SR INST
= IR 24X ∧ ~ IR XXXS

IR (A,L)SHX = IR 24X ∧ IR Ø8(Ø)
IR SR XXXC = IR 24X ∧ ~ IR XXXS ∧ IR Ø6(1)

Action

IR Ø6(Ø): ƒ[AC] → AC
IR Ø6(1): ƒ[AC, AC2] → AC, AC2
ASHX or LSHX: Shift E places but at most 72
ROTX: Shift E mod 72 places except 72 places if E = 72N, N = 1, 2, 3

IR = Ø1Ø 1ØØ XXX
IR 2XX IR 24X

IR ASH	IR ROT	IR LSH	IR ASHC	IR ROTC	IR LSHC
240	241	242	244	245	246

Switches

ETØ EN
ET1 EN
ST INH
IR Ø6(1): SAC2

F CYC START
FMC AC EN A
AB PC EN A → AB FF CLR
MC IN FET COND → MC INST FETCH NEXT EN

MB 14-17=Ø
~ MB 14-17=Ø
AD=AR=Ø, E
AD AR+ EN A
FT6
110ns

F CYC ACT EN
AD FM+ EN A
ETØ

110ns
ETØ
230ns

SC AR EN
AR AD BR (ETØ) → BR AR EN (E → SC & BR)
↳ AR AD EN A (AC → AR)
IR Ø6(1): FMC AC2 EN A
SCAD +22Ø EN → SCAD MISC DATA EN
AR 18(1): SCAD SC+ EN
AR 18(Ø): SCAD SC- EN (SCAD = -|E|+144 = SCAD +1 -(|E|-144))
SCAD ADD EN B
CLK LONG CYCLE (CLK MAX EN)
ET1

ET1
230ns

IR SR XXXC: AD FM+ EN B (AC2)
SCAD +11Ø EN → SCAD MISC DATA EN
SCAD POS SR INST ∧ SC Ø(Ø): SCAD SC- EN (Ø ≤ E ≤ 144)
SCAD +1 EN
SCAD Ø(1): SC SCAD EN C
FLAG 1 EN (|E| > 144)
SR SC+ EN: SCAD SC+ EN (E < Ø or |E| > 144)
SCAD ADD EN B
CLK LONG CYCLE (CLK MAX EN)
ET2

SCAD POS SR INST = IR SR INST ∧ SCAD Ø(Ø)
SR SC+ EN = IR SR INST ∧ (SC Ø(1) ∨ SCAD Ø(1))

After ET1, SCAD = -|SCI + 72 = -(|SCI - 72), -144 ≤ SC ≤ 144

ET2
170/230ns

IR SR XXXC: MQ AD EN A (AC2 → MQ)
FMC AC EN A (Ready to store)
SCAD POS SR INST ∧ SC Ø(Ø): SCAD NEGATE A → SCAD SC- EN
(Ø ≤ E ≤ 72) ↳ SCAD +1
↳ SCAD DATA EN
(CLK MAX EN) ↳ SCAD ADD
SCAD POS SR INST ∧ SC Ø(1) ∧ FLAG 1(Ø): SCAD SC+ EN (-72 ≤ E < Ø)
SCAD Ø(1): SC SCAD EN C (|SCI > 72)
IR (A,L)SHX ∧ (SCAD Ø(1) ∨ FLAG 1(1)): SCAD -11Ø EN (-72)
(|E| > 72 in ASHX or LSHX) ↳ SCAD MISC DATA EN
IR XXXI ∧ SR SC+ EN: SCAD SC+ EN (|E| > 72 in ROTX)
SRT1 COND → CLK LONG CYCLE
↳ SRT1

After ET2 either SCAD = - |SCI, -72 ≤ SC ≤ 72
or SCAD = - 72 (ASHX or LSHX only)

SRT1
SC SCAD EN D (-|SHIFT|)
SCAD Ø(1): AD AR+ EN D (AC → AD for shifting)

(BS for SR is SCSR)

SCAD Ø(Ø) Zero shift
CLK EN INST DONE
Go to Instruction cycle (1C)

SCAD Ø(1)

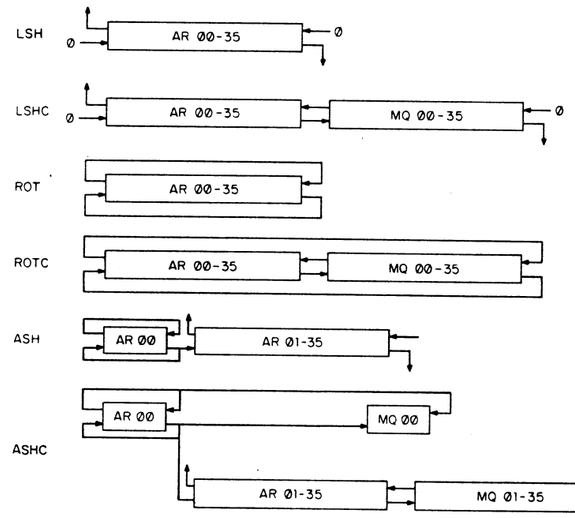
BR 18(1)
SCT1
For right shift, do single 1-place shift if odd, then continue to SCT2
110ns
SCT1
SC 8(1): AR SH RT A → AR CLR A
MQ SH RT A
AR ASH LEFT ∧ ~ AR ØØ = AR Ø1: AR OV EN
TN 1 EN
SC SH RT EN
~ SC+1 = Ø AD AR+ EN B

~ SC+1 = Ø
SCT2
110ns
SCT2
AR GO LEFT: AR SH LT B
MQ SH LT A
AR ASH LEFT ∧ ~ AR ØØ = AR Ø1: AR OV EN
TN 1 EN
~ AR GO LEFT: AR SH RT2 EN
MQ SH RT2 EN
SC SC+1 EN
~ SC+1 = Ø: AD AR+ EN B
~ SC+1 = Ø

SCTC DONE
ST1 COND → FM WR EN
↳ ST1
AR → AC
110ns
ST1

SAC2
2-word shift
FMC AC2 EN B
ST4
~ SAC2
CLK EN INST DONE
Go to Instruction cycle (1C)
110ns
ST4
AR MQ EN A
ST5 COND A → FM WR EN A
↳ ST5
MQ → AC2
110ns
ST5
CLK EN INST DONE
Go to Instruction cycle (1C)

BR 18(Ø)
Left shift
~ IR ASHX: ARI SH LT COND
MQ SH ORDINARY
AR SH RT A: AR LT SH RT EN B → ARI AR Ø1 SH RT
(IR ROT ∧ AR ØØ(1)) ∨ [(IR LSHC ∧ IR ROTC) ∧ MQ ØØ(1)] ∨ (~ MQ SH ORDINARY ∧ MQ Ø1(1)): ARMC AR 35 AUX MIX
(IR ROT ∧ AR 34(1)) ∨ (IR ROTC ∧ MQ 34(1)): ARI SR2 DATA
(IR ROT ∧ AR 35(1)) ∨ (IR ROTC ∧ MQ 35(1)): ARI ROTX DATA
ARI ROTX DATA ∧ AR SH RT A: ARI AR ØØ SH RT B → ARI AR ØØ DATA
(IR ROTC ∨ IR LSHC) ∧ MQ SH RT A: MQ RT ROTC ∨ LSHC
ARI ROTX DATA ∧ AR SH RT2 EN: ARI AR Ø1 AUX DATA 2
(MQ SH RT2 EN ∧ MQ SH ORDINARY) ∨ (MQ SH RT A ∧ ~ MQ SH ORDINARY): MQ Ø1 GETS AD 35
MQ LT SH LT EN A ∧ MQ Ø1(1): MQ Ø1 & SH LT
AR ASH LEFT = IR ASHX ∧ AR GO LEFT ∧ SCTC ∧ PI CYC(Ø)
IR ASHX ∧ (AR LT SH RT EN B ∨ AR SH RT2 EN ∨ AR SH LT B): ARI AR ØØ SELF
ARI AR ØØ SELF DATA = AR ØØ
IR ASHX ∧ AR ØØ(1) ∧ AR SH RT2 EN: ARI AR Ø1 AUX DATA 2
IR ASHC ∧ (MQ SH RT A ∨ MQ SH RT2 EN ∨ MQ SH LT A): MQ ØØ GETS ADD ØØ



REVISIONS		
REV	CHANGE NO	CHK
—	KI10-00041	—
ORIGINATED		

DEC FORM NO. DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. C. CIAMPA	DATE 6/30/73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. W. ENGLISH	DATE 6/30/73	
ENG. Allan Kent	DATE 13 Nov 73	
PROJ ENG. Allan Kent	DATE 13 Nov 73	TITLE: SHIFT-ROTATE
PROD. Allan Kent	DATE 13 Nov 73	
NEXT HIGHER ASSY. B-DD-KI10 1		SIZE D CODE FD NUMBER KI10-0-SR REV.
SCALE —		
SHEET 1 OF 1		DIST

IR TEST
600 - 677

IR = 110 VVW XYZ

VV specifies action on masked bits — do nothing, zeros, complement, ones
W specifies source of mask — immediate, memory
X specifies whether or not skip is on condition Y, which is "equals zero"
XY together define relation R — never, = Ø, always, ≠ Ø
Z specifies swapping mask selected by W
WZ together specify mask — (Ø,E), (E, Ø), C(E), C(E) RT LT

Action R [Mask ∧ AC]: PC + 1 → PC
        ƒ [Mask, AC] → AC

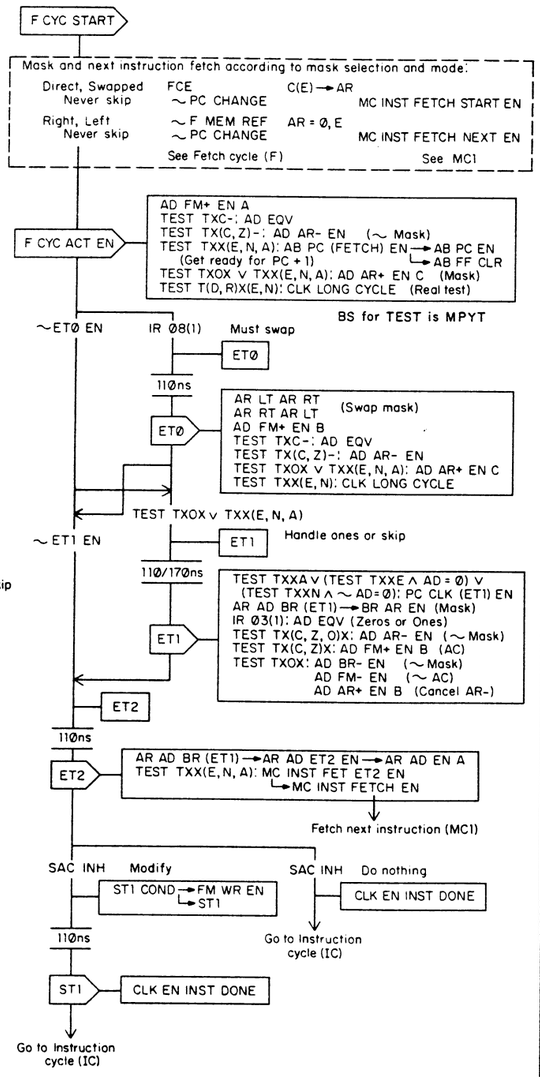
Decoding	Meaning
TEST TXOX = IR TEST ∧ IR Ø3(1) ∧ IR Ø4(1)	Ones
IR TEST → MPYT TEST	
Remaining decoding enabled by MPYT TEST:	
TEST T(D, S)XX = IR Ø5(1)	Memory
TEST T(D, R)X(E, N) = IR Ø7(1) ∧ IR Ø8(Ø)	No swap, real test
TEST TXX(E, N) = IR Ø7(1)	Real test
TEST TXXE = IR Ø6(Ø) ∧ IR Ø7(1)	Equal
TEST TXXN = IR Ø6(1) ∧ IR Ø7(1)	Not equal
TEST TXXA = IR Ø6(1) ∧ IR Ø7(Ø)	Always skip
TEST TXX(E, N, A) = IR Ø6(1) ∨ IR Ø7(1)	May skip
TEST TX(C, Z, O)X = IR Ø3(1) ∨ IR Ø4(1)	Modify
TEST TX(C, Z)- = (IR Ø3 ≠ IR Ø4) ∧ IR Ø6(Ø) ∧ IR Ø7(Ø)	Complement or Zeros, never skip
TEST TX(C, Z)X = (IR Ø3 ≠ IR Ø4)	Complement or Zeros
TEST TXC- = (IR XX1Ø ∨ IR XX12) ∧ IR Ø7(Ø) X4ØX X5ØX	Complement, never skip

Setup for Ones

Mask	AC	ADB Output	Equivalence of ADB with ADA = Ø
Ø	Ø	1	Ø
Ø	1	Ø	1
1	Ø	Ø	1
1	1	Ø	1

AD AR+ EN and AD AR- EN make ADA output all Øs.
AD BR- EN and AD FM- EN make ADB output the NOR of the mask and AC.

Switches
TEST T(D, S)XX: FCE (Memory)
TEST TXX(E, N, A): PC CHANGE (May skip)
IR Ø8(1): ETØ EN (Swapped or Left)
TEST TXOX ∨ TXX(E, N, A): ET1 EN (Ones or may skip)
IR Ø3(Ø) ∧ IR Ø4(Ø): SAC INH (Do nothing)



IR 3XX
300 - 377 (Arithmetic Testing)

IR = Ø11 VVW XYZ

VV specifies instruction type — 2-word test, test, +1 and test, -1 and test
For 2-word test W specifies whether AC is compared with E or C(E)
For others W specifies whether AC or C(E) is compared with zero, ie jump or skip
VVW together define instruction:

IR CAIX	IR CAMX	IR JUMPX	IR SKIPX
300-307	310-317	320-327	330-337
IR AOJX	IR AOSX	IR SOJX	IR SOSX
340-347	350-357	360-367	370-377

X specifies whether or not action is on condition YZ
Y specifies condition "equals"
Z specifies condition "less than"
XYZ together define relation R:

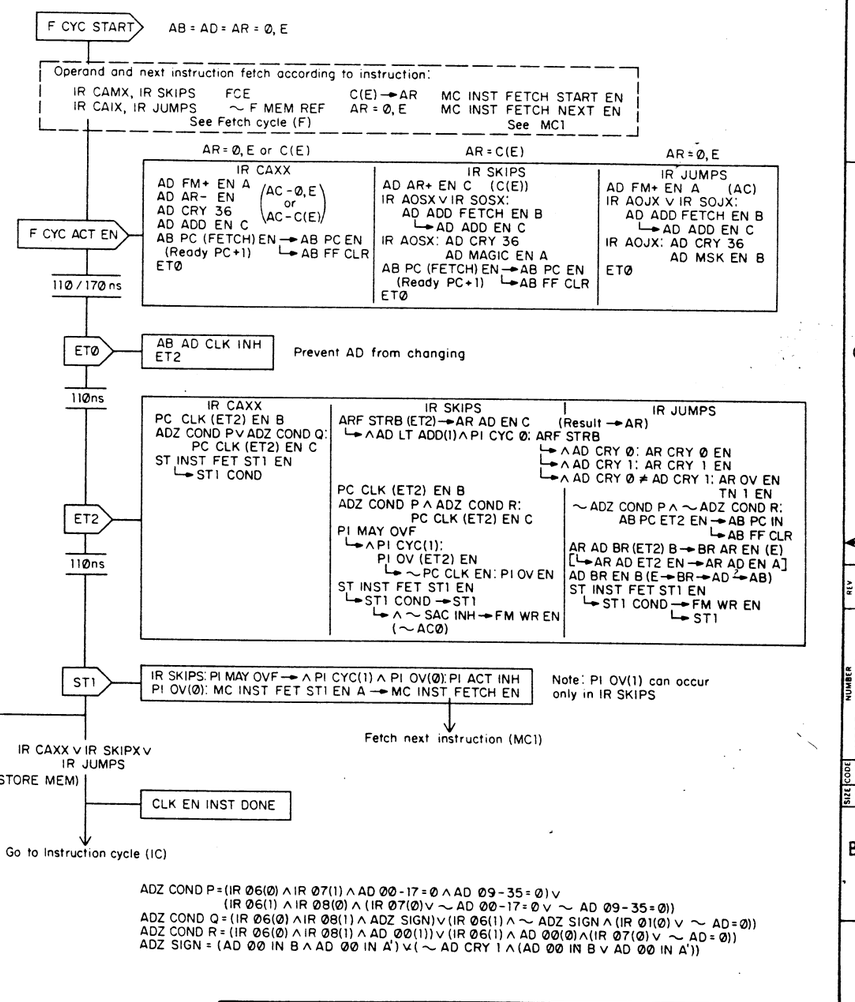
XYZ	R
ØØØ	Never
ØØ1	<
Ø1Ø	=
Ø11	≤
1ØØ	Always
1Ø1	≥
11Ø	≠
111	>

Action

CAIX AC R (Ø,E): PC + 1 → PC
CAMX AC R C(E): PC + 1 → PC
SKIPX C(E) R Ø: PC + 1 → PC
       ~ AC Ø: C(E) → AC
AOSX C(E) + 1 R Ø: PC + 1 → PC
       C(E) + 1 → C(E)
       ~ AC Ø: C(E) + 1 → AC
SOSX C(E) - 1 R Ø: PC + 1 → PC
       C(E) - 1 → C(E)
       ~ AC Ø: C(E) - 1 → AC
JUMPX AC R Ø: E → PC
AOJX AC + 1 R Ø: E → PC
       AC + 1 → AC
SOJX AC - 1 R Ø: E → PC
       AC - 1 → AC

Common switches by IR 3XX
PC CHANGE A
ETØ EN
ST INST FET ST1 EN → ST INH

IR CAXX	IR SKIPS	IR JUMPS
= IR CAIX ∨ IR CAMX	= IR SKIPX ∨ IR AOSX ∨ IR SOSX	= IR JUMPX ∨ IR AOJX ∨ IR SOJX
IR CAMX: FCE	FCE	
SAC INH	IR AOSX ∨ IR SOSX: FCE PSE	
	PI MAY OVF	
	IR Ø9-12 = Ø: SAC INH	



ADZ COND P = (IR Ø6(Ø) ∧ IR Ø7(1) ∧ AD ØØ-17 = Ø ∧ AD Ø9-35 = Ø) ∨ (IR Ø6(1) ∧ IR Ø8(Ø) ∧ (IR Ø7(Ø) ∨ ~ AD ØØ-17 = Ø ∨ ~ AD Ø9-35 = Ø))
ADZ COND Q = (IR Ø6(Ø) ∧ IR Ø8(1) ∧ ADZ SIGN) ∨ (IR Ø6(1) ∧ ~ ADZ SIGN ∧ (IR Ø1(Ø) ∨ ~ AD = Ø))
ADZ COND R = (IR Ø6(Ø) ∧ IR Ø8(1) ∧ AD ØØ(1)) ∨ (IR Ø6(1) ∧ AD ØØ(Ø) ∧ (IR Ø7(Ø) ∨ ~ AD = Ø))
ADZ SIGN = (AD ØØ IN B ∧ AD ØØ IN A') ∨ (~ AD CRY 1 ∧ (AD ØØ IN B ∨ AD ØØ IN A'))

Table for ADZ SIGN

AC	AR	AD ØØ IN B	AD ØØ IN A'	Relation	Algorithm Case	AD CRY 1B	ADZ SIGN
+	-	Ø	Ø	AC > AR	X	X	F
-	+	1	1	AC < AR	X	X	T
-	+	Ø	1	AC ≥ AR	III	1	F
				AC < AR	IV	Ø	T
-	-	1	Ø	AC ≥ AR	III	1	F
				AC < AR	IV	Ø	T

REVISIONS
REV | CHANGE NO | CHK
— | KI10-00041 ORIGINATED | —

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1; ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL
FINISH

	NAME	DATE
DRN.	C. CIAMPA	6/30/73
CHK'D.	W. ENGLISH	6/30/73
ENG.	Allan Kent	13 Nov 73
PROJ. ENG.	Allan Kent	13 Nov 73
PROD.	Allan Kent	13 Nov 73

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: LOGICAL & ARITHMETIC TESTING

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1
SIZE D | CODE FD | NUMBER KI1Ø-Ø-TEST | REV —
DIST

DEC-10-HW-NG
DRD 102-B

~ TTI MARK

TTI ACTIVE SET

TTI FD D C B A = Ø Ø Ø Ø

TTI ACTIVE PULSE → TTI SPIKE DETECTOR SET
PRESET TTI TO ONES

1 1 1 1 1 1 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

Ø.ØØØ TO Ø.125 UNITS AFTER START TRANSITION

TTI F8X = Ø Ø Ø 1

TTI F8X = Ø Ø 1 1

TTI F8X = Ø 1 1 1

TTI F8X = 1 1 1 1 — Ø.5 SHIFT (TTI FD D (1)) → TTI SPIKE DETECTOR CLR
TTI SPIKE DETECTOR (1) ∧ TTI MARK: TTI ACTIVE CLR

Ø.375 TO Ø.5ØØ UNITS

Ø 1 1 1 1 1 1 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

TELEGRAPH DISTORTION TOLERANCE ≈ 37.5 %

TTI F8X = 1 1 1 Ø

TTI F8X = 1 1 Ø Ø

TTI F8X = 1 Ø Ø Ø

TTI F8X = Ø Ø Ø Ø

TTI F8X = Ø Ø Ø 1

TTI FD STATES REPEAT

1.5 TTI SHIFT → b1 Ø 1 1 1 1 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

2.5 TTI SHIFT → b2 b1 Ø 1 1 1 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

(A)

(A)

3.5 TTI SHIFT → b3 b2 b1 Ø 1 1 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

4.5 TTI SHIFT → b4 b3 b2 b1 Ø 1 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

5.5 TTI SHIFT → b5 b4 b3 b2 b1 Ø 1 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

6.5 TTI SHIFT → b6 b5 b4 b3 b2 b1 Ø 1 — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

7.5 TTI SHIFT → b7 b6 b5 b4 b3 b2 b1 Ø — 1 TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

TTI FD D C B A = 1 1 1 1

TTI 8X

SHIFT (TTI FD D (1)) → TTI 1(Ø): TTI FLAG SET

b8 b7 b6 b5 b4 b3 b2 b1 — Ø TTI ACTIVE
TTI 8 7 6 5 4 3 2 1

TTI FD D C B A

TTI 8X → TTI ACTIVE (Ø): Ø Ø Ø Ø

CYCLE HANGS HERE UNTIL TTI MARK GOES FALSE FOR START OF NEXT CHARACTER

(THIS CLOCK PULSE MAY BE THE SAME PULSE AS STARTING PULSE.)

REVISIONS | REV. | CHANGE NO. | CHK

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL				
FINISH				

DRN. W. Stephenson	DATE 9/29/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	
ENG. Hilary Kotik	DATE 31 Jan 72	
PROJ. ENG. Allen Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

TITLE: TELETYPE INPUT FLOW

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SIZE D | CODE FD | NUMBER KI1Ø-Ø-TTIF | REV.

SCALE

SHEET 1 OF 1

DIST.

DEC FORM NO DRO 102A

TTY DATAO SET

TTO 8-1 ← IOB 28-35
TTO STOP 1 SET
TTO 110 BAUD: TTO STOP 2 SET

IOB RESET & TTO RESET

TTO STOP 2,1 CLR
TTO 8-1 CLR
TTO DATAO SYNC CLR
TTO SHIFT SET
TTO ACTIVE CLR
TTO ACTIVE LATE CLR

TTO ACTIVE PULSE
= TTO ACTIVE (1) ∧
TTO ACTIVE LATE (Ø)

11 UNIT												
	1	1	b8	b7	b6	b5	b4	b3	b2	b1	1	Ø
STOP 2	STOP 1	8	7	6	5	4	3	2	1	LINE	ACTIVE	

10 UNIT												
	Ø	1	b8	b7	b6	b5	b4	b3	b2	b1	1	Ø
STOP 2	STOP 1	8	7	6	5	4	3	2	1	LINE	ACTIVE	

NOT EARLIER THAN 10.5 OR 9.5 OF PREVIOUS; CHAR

TTO F2X — TTO SHIFT (1)
- TTO STOP 1 (1): TTO DATAO SYN SET

11.Ø OR 10.Ø OF PREVIOUS CHAR

TTO F2 — Ø.Ø — TTO DATA SYNC (1): TTO ACTIVE SET
- TTO ACTIVE PULSE — TTO LINE CLR

	11 UNIT		10 UNIT	
Ø.5 — TTO F2X — TTO ACTIVE (1). TTO ACTIVE LATE SET TTO SHIFT CLR	1 1 b8 b7 b6 b5 b4 b3 b2 b1 Ø	1	Ø 1 b8 b7 b6 b5 b4 b3 b2 b1 Ø	1
1.Ø — TTO F2X — TTO SHIFT SET; SHIFT	Ø 1 1 b8 b7 b6 b5 b4 b3 b2 b1	1	Ø Ø 1 b8 b7 b6 b5 b4 b3 b2 b1	1
TTO F2X — TTO SHIFT CLR	Ø Ø 1 1 b8 b7 b6 b5 b4 b3 b2	1	Ø Ø Ø 1 b8 b7 b6 b5 b4 b3 b2	1
2.Ø — TTO F2X — TTO SHIFT SET	Ø Ø Ø 1 1 b8 b7 b6 b5 b4 b3	1	Ø Ø Ø Ø 1 b8 b7 b6 b5 b4 b3	1
3.Ø — TTO SHIFT SET	Ø Ø Ø Ø 1 1 b8 b7 b6 b5 b2	1	Ø Ø Ø Ø Ø 1 b8 b7 b6 b5 b4	1
4.Ø — TTO SHIFT SET	Ø Ø Ø Ø Ø 1 1 b8 b7 b6 b5	1	Ø Ø Ø Ø Ø Ø 1 b8 b7 b6 b5	1
5.Ø — TTO SHIFT SET	Ø Ø Ø Ø Ø Ø 1 1 b8 b7 b6	1	Ø Ø Ø Ø Ø Ø Ø 1 b8 b7 b6	1
6.Ø — TTO SHIFT SET	Ø Ø Ø Ø Ø Ø Ø 1 1 b8 b7	1	Ø Ø Ø Ø Ø Ø Ø Ø 1 b8 b7	1
7.Ø — TTO SHIFT SET	Ø Ø Ø Ø Ø Ø Ø Ø 1 1 b8	1	Ø Ø Ø Ø Ø Ø Ø Ø Ø 1 b8	1
8.Ø — TTO SHIFT SET	Ø Ø Ø Ø Ø Ø Ø Ø Ø 1 1	1	; TTO EMPTY	
; 11 UNIT ONLY 9.Ø — TTO SHIFT SET	; TTO EMPTY			

9.5 OR 8.5 — TTO F2X — TTO SHIFT CLR

10.Ø OR 9.Ø — TTO F2X — TTO EMPTY ∧ TTO SHIFT (Ø): TTO ACTIVE CLR; TTO DONE PULSE; TTO SHIFT SET

Ø Ø Ø Ø Ø Ø Ø Ø Ø 1	Ø	Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø 1	Ø

SECOND F2X PULSE FOLLOWING THIS WILL SET ACTIVE IF A DATAO HAS BEEN DONE PRIOR TO NEXT F2X PULSE

REVISIONS	REV.	CHANGE NO	CHK

DEC FORM NO DRD 102A

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stedman	DATE 12/20/71
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allen Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
TELETYPE OUTPUT FLOW

SIZE	CODE	NUMBER	REV.
D	FD	KI1Ø-Ø-TTOF	

DIST.

SIZE D CODE FD NUMBER KI1Ø-Ø-TTOF REV

MUUO PART 1 = MUUOF1 (Ø)

Switches
ETØ EN STORE
ET1 EN SAC INH

MB 14-17 = Ø ~MB 14-17 = Ø
AD AR + EN E FT6
110 ns
AD = AR = Ø, E

F CYC ACT EN — ETØ
110 ns
ETØ
MUUOF2 EN
MC STORE TIME → CLK INH
↳ MC SYNC WRITE EN
MA SPECIAL EN A → MA SPECIAL EN
↳ MA SPECIAL UBR EN
ET1
MUUOF2(1) → MA SPECIAL 27,31
↳ MA SPECIAL 33
Location 424
AB AB EN
PAGE CHECK
MC PAGE DLY OVER
MA SPECIAL (1) → PAGE OK
[PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START (Ø)]
ET1
AD AR + EN B ET2
110 ns
ET2
AR RT AD EN (E)
AR IR EN (ARI AR DATA, ARI AR ØØ SH RT B, ARI AR Ø1 AUX DATA 2)
ST1 COND
110 ns
ST1
MUUOF1 EN
ST2 COND
Write restart to write IR, E in location 424 of user process table — see Store cycle (S)
MC RSTØ
ST2
AB AD EN → AB FF CLR
CLK LONG CYCLE
[MUUOF2 (1):] FT6
170 ns

IR MUUO

= IR MUUO EN ∨ IR ILLEGAL INST ∨ IR UNUSED ∨ IR 1ØX
ØØØ, Ø4Ø - Ø77 114 - 117, 123, 247, 1ØØ - 1Ø7

IR MUUO EN = IR ØXX ∧ [IR Ø3(1) ∨ (IR XXØØ ∨ IR XXX-)]
IR ILLEGAL INST = (IR 7XX ∧ ~IR XX17 ∧ USER IOTS ILLEGAL(1) ∧ PI CYC(Ø)) ∨ (IR 25Ø ∧ USER OR SUPERVISOR(1) ∧ (IRØ9(1) ∨ IR 1Ø(1)))

Illegal instructions are JRST 4 and JRST 1Ø in user or supervisor mode, and all IOT's with device codes less than 74Ø in supervisor mode or in user mode with USER IOT (Ø)

IR UNUSED = [IR 1XX ∧ (IR XXØ3 ∨ (IR XXØ4 ∧ IRXXX3))] ∧ (IR 2XX ∧ IR XX11 ∧ IR XXX5)

Action
Part 1: IR, E → 424 — All locations in user process table
Part 2: FLAGS, PC → 425
Part 3: NEW PC WORD → FLAGS, PC (43Ø - 437)

MUUOF1(1) ∧ MUUOF2(1) (MUUO PART 2)

Switches ETØ EN, STORE, SAC INH

F CYC ACT EN — ETØ
110 ns
ETØ
MC STORE TIME → CLK INH ↳ MC SYNC WRITE EN
MA SPECIAL EN A → MA SPECIAL EN
↳ MA SPECIAL UBR EN
ET2
MA SPECIAL 27, 31
MA SPECIAL 33
MA SPECIAL 35
Location 425
AB AB EN
PAGE CHECK
MC PAGE DLY OVER
MA SPECIAL (1) → PAGE OK
[PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START (Ø)]
ET2
AR FLAGS SAVE
↳ AR FLAGS EN → AR PC EN
↳ AR FLAGS ENA → BYFG CLR
↳ TRAP SATISFIED
↳ Clear TNØ, TN1, KEY CYCLE, TRAP PAGE FAULT, KEY XCT, COMP ADR BRK INH
↳ ∧ PI CYC(1): PI REQ SETS PIH, PAGE LEAVE USER
ST1 COND
110 ns
ST1
MUUOF1 EN
MUUOF2 CLR
ST2 COND
Write restart to write PC word in location 425 of user process table — see store cycle (S)
MC RSTØ
ST2
AB AD EN → AB FF CLR
CLK LONG CYCLE
MUUO PART 3 → FT3
170 ns

MUUO PART 3 = MUUOF1(1) ∧ MUUOF2(Ø)

Switches PC CHANGE, MC INST FET ST1 EN A → ST INH, SAC INH

FT3
MA SPECIAL EN A → MA SPECIAL EN
↳ MA SPECIAL UBR EN
MC SYNC READ EN
CLK MISC INH → AR CLR A
[~FT4 COND:] FT6
AB AB EN
MA SPECIAL 27, 31
MA SPECIAL 32
USER MODE(1): MA SPECIAL 33
PAGE LAST INST PUBLIC(1): MA SPECIAL 34
TRAP CYC(1) ∧ PI CYC(Ø): MA SPECIAL 35
Locations 43Ø - 437
PC WORD READ MCRST1
[MC SYNC READ(1) ∧ PAGE SYNC REFILL(Ø)] C(SELECTED LOCATION) → AR
F CYC ACT EN (FT6) — AB AD EN → AB FF CLR ET2
110 ns
ET2
ARF LOAD → BYFG CLR
↳ PAGE LEAVE USER
↳ ∧ AR Ø7(1): PAGE ENTER PUBLIC
↳ PAGE CLR PRIVATE EN
↳ ∧ ~PAGE ENTER PUBLIC: PAGE SET PRIVATE EN
AD AR + EN B (New PC → AB)
MC INST FET ST1 EN A
↳ ST INST FET ST1 EN
↳ ST INH
↳ ST1 COND
110 ns
PAGE CLR PRIVATE (1)
PAGE PRIVATE INST SET
PAGE CLR PRIVATE (Ø)
PAGE PRIVATE INST CLEAR
ST1
Clear MUUOF1
MC INST FET ST1 ENA → MC INST FETCH EN
CLK EN INST DONE
Go to Instruction cycle (IC)
Fetch next instruction (MC1)

* MA SPECIAL 27 & 27,31 represent TRAP ANY and inhibit MA SPECIAL 3Ø & 35 during a trap instruction fetch from IT2 in case IR should happen to contain an LUUO

IR LUUO

ØØ1 - Ø37
= IR ØXX ∧ ~IR MUUO EN

Action
IR, E → 9Ø
Execute 41
User mode: virtual 9Ø, 41
Executive mode: 9Ø, 41 in executive process table

Switches
ETØ EN TN CLR INH
ET1 EN STORE
SAC INH

MB 14-17 = Ø — MB 14-17 ≠ Ø
AD AR + EN E FT6
110 ns
AB = AD = AR = Ø, E
F CYC ACT EN
AD MAGIC EN A
XCTF EN
ETØ
AD 3Ø - 35 MAGIC (1)
110 ns
(XCTF(1): Clear KEY RDY SYNC
MC STORE TIME → CLK INH
↳ MC SYNC WRITE EN
AB AD CLK INH
USER MODE(Ø): MA SPECIAL EN
ET1
AD 3Ø IN B (9Ø)
ETØ
AB AB EN
[~MA SPECIAL 27:]* MA SPECIAL 3Ø
MA SPECIAL (1) ∧ ~INST DONE
MA SPECIAL EN B
PAGE CHECK
MC PAGE DLY OVER
This keeps MA SPECIAL set thruout instruction
PAGE OK ∧ MC SYNC READ(Ø) ∧ MC ASYNC START (Ø)
ET1
AR IR EN (ARI AR DATA, ARI AR ØØ SH RT B, ARI AR ØØ AUX DATA 2)
AR SIGN SMEAR A → AR 12-17 SELF B (ØS)
↳ AR RT AR RT (E)
↳ AR RT AUX EN
AD MAGIC EN D → E
MAGIC # + 1 EN (41)
MA SPECIAL (1): MA SPECIAL EN B
AB AD EN → AB FF CLR
ET2
110 ns
AD 3Ø - 35 MAGIC (1)
AD 3Ø IN B (9Ø)
ET2
MA SPECIAL (1): MA SPECIAL EN B
MC INST FET ET2 EN → MC INST FETCH EN
ST1 COND
[~MA SPECIAL 27:]* MA SPECIAL 3Ø
110 ns
Fetch next instruction (MC1) from location 41 MAGIC # + 1 (1) → MAGIC # 35 → AD 35 IN B → AB 35
↳ [∧ ~MA SPECIAL 27, 31:] MA SPECIAL 35
ST1
ST2 COND
Write restart to write IR, E in location 9Ø of user virtual space or executive process table — see Store cycle (S)
MC RSTØ
XCTF(1) Kills PC MEM COND (MC2)
ST2
CLK LONG CYCLE
ST5
170 ns
ST5
CLK EN INST DONE
Go to Instruction cycle (IC) to execute instruction from location 41 of user virtual space or executive process table

REVISIONS			
CHK	CHANGE NO		REV
—	KIØ-00041	ORIGINATED	—

BRUNING 40-822 19840
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. W. Stephenson	DATE 12/29/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. Edward Grass	DATE 2 Jan 73	
ENG. Allan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	
NEXT HIGHER ASSY. B-DD-KIØ-Ø		
SCALE		
SHEET 1 OF 1		

TITLE: MUUO & LUUO

SIZE	CODE	NUMBER	REV.
D	FD	KIØ - Ø - UUO	

DIST.

M143 2PØ4

AB 18 (+3, B1, C1, A1) — M174 2PRØ3 PD2 — PD1 PE2 PF2 PH2 — PC+1 18 | AS+1 18 | AD 18(1)

AB 19 (+3, D1, E1, D2) — PF1 — PH1 PJ1 PK2 PL2 — PC+1 19 | AS+1 19 | AD 19(1)

AB 2Ø (+3, E2, F2, F1) — PL1 — PK1 PM1 PR2 PS2 — PC+1 2Ø | AS+1 2Ø | AD 2Ø(1)

AB 21 (+3, K2, J2, H2) — PR1 — PP1 PS1 PU2 PV2 — PC+1 21 | AS+1 21 | AD 21(1)

AB 22 (+3, K1, J1, L1) — RA1 — RB1 RC1 RD2 RE2 — PC+1 22 | AS+1 22 | AD 22(1)

AB 23 (+3, M1, N2, M2) — RD1 — RE1 RF1 RF2 RH2 — PC+1 23 | AS+1 23 | AD 23(1)

AB 24 (+3, R1, P1, N1) — RH1 — RJ1 RK1 RK2 RL2 — PC+1 24 | AS+1 24 | AD 24(1)

AB 25 (+3, R1, S1, P2) — RM1 — RN1 RP1 RP2 RR2 — PC+1 25 | AS+1 25 | AD 25(1)

AB 26 (+3, S2, R2, T2) — RS2 — RU1 RV1 RU2 RV2 — PC+1 26 | AS+1 26 | AD 26(1)

AB PC (1) PE1
AB AS (1) PA1
AB AD (1) PC1
AB AB (1) PB1

M143 2RØ4

AB 27 (+3, B1, C1, A1) — M174 2PRØ5 PD2 — PD1 PE2 PF2 PH2 — PC+1 27 | AS+1 27 | AD 27(1)

AB 28 (+3, D1, E1, D2) — PF1 — PH1 PJ1 PK2 PL2 — PC+1 28 | AS+1 28 | AD 28(1)

AB 29 (+3, E2, F2, F1) — PL1 — PK1 PM1 PR2 PS2 — PC+1 29 | AS+1 29 | AD 29(1)

AB 3Ø (+3, K2, J2, H2) — PR1 — PP1 PS1 PU2 PV2 — PC+1 3Ø | AS+1 3Ø | AD 3Ø(1)

AB 31 (+3, K1, J1, L1) — RA1 — RB1 RC1 RD2 RE2 — PC+1 31 | AS+1 31 | AD 31(1)

AB 32 (+3, M1, N2, M2) — RD1 — RE1 RF1 RF2 RH2 — PC+1 32 | AS+1 32 | AD 32(1)

AB 33 (+3, R1, P1, N1) — RH1 — RJ1 RK1 RK2 RL2 — PC+1 33 | AS+1 33 | AD 33(1)

AB 34 (+3, R1, S1, P2) — RM1 — RN1 RP1 RP2 RR2 — PC+1 34 | AS+1 34 | AD 34(1)

AB 35 (+3, S2, R2, T2) — RS2 — RU1 RV1 RU2 RV2 — PC+1 35 | AS+1 35 | AD 35(1)

AB PC B PE1
AB AS B PA1
AB AD B PC1
AB AB B PB1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H"

REVISIONS	CHANGE NO.	CHK	REV.

FIRST USED ON OPTION/MODEL: KI1Ø

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL —
FINISH —

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN. L.A. Lee	DATE 3-25-70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Gross	DATE 3 JUN 72	
ENG. Allan Kotok	DATE 31 JUN 72	TITLE: ADDRESS BUS
PROJ. ENG. Allen Kent	DATE 31 JUN 72	
PROD.	DATE 31 JUN 72	
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		
SCALE —		SIZE D CODE BS NUMBER KI1Ø-Ø-AB REV.
SHEET 1 OF 1		DIST.

DEC FORM NO. DRO 100

AB AB (1) — M1Ø3 2M13 — AB AB ON PULSE

AB AB ON PULSE — M177 2M14 — M363 2M1Ø — AB AB C

2KØ6C1 AB AB (1) L — 3Ø ns — ABCØ43 2M1Ø K2

IR CAXX, IOT INST, TEST TXX(E,N,A), MCI JFCL INST FET, IR SKIPS — M139 1B32 — AB PC (FETCH) EN

KEY EXEC PAGING (Ø) — M177 2J07 — AB AS C

M143 2J06 — AB PC B

M143 2R04 — AB AD B

M143 2S04 — AB AS B

~AB 19, ~AB 2Ø, ~AB 21 — M6Ø3 2M13 — AB 19-21 = Ø

~AB 22, ~AB 23, ~AB 24, AS AB 14-17: Ø — M177 2M14

~AB 25, ~AB 26, ~AB 27, ~AB 28 — M177 2M14

~AB 29, ~AB 3Ø, ~AB 31, ~AB 18 — M177 2M14 — AB 18-31 = Ø

M147 2M12

IR 3XX, ETØ A (1) — M143 1H4Ø

MCT AB AB CLR — AB AB — MCT AB AB SET — AB AB IN

M241 2KØ6

CLK DRIVE C2

AB AD — AB AD IN — M126 2HØ5 — MCT RECYCLE, MCS FCE2 START (1) — M143 2J06

AB AS — AB AS IN — M126 2HØ5 — KTI A (1), KEY AB AS EN — AB AS (1)

AB PC — AB PC IN — M171 2HØ6 — AB PC (1), AB PC ENA, ET2 K(1) — AB PC (FETCH) EN, KEY RDI FFØ (Ø), F CYC ACT EN E

M143 2J06 — MCT RECYCLE — MC INST FETCH START (1)

~AB FF CLR — ~AB AS EN, AB AD (1)

FCE, IR DPOP, AB FETCH ITI COND — M143 1B3Ø

KEY AB AS EN KT2 (1), +3 — FT5 (1), FT3 (1), BLTT4 (1) — M145 1K42 — F CYC START A, SCE, ~IR POP — M17Ø 1K26

PIT2 (1), +3 — ETØ A (1) STORE — BLTT1 (1), ~AD CRY Ø, PI RDY SYNC (Ø)

AB AD (1) — M181 1H3Ø — AB AD CLK INH

M177 1E34 — MA SPECIAL EN A, MC INST FETCH EN, +3 — M147 1H42 — AB AB EN

MUUO PART 3, IR JRA, IR PUSH, IR JSA — M147 1B33 — FTG (1), IR POPJ, +3 — M143 1B3Ø — ET2 N(1), IR LUUO, IR PUSH J A — M143 1B3Ø — ET1 J (1), ST2 (1), ST5 INH, ~SAC 2 — M171 1E39 — T2

BLTT8 (1), FT4 (1), IT Ø (1), PICT Ø (1), PIT1 (1), PET2 (1), AB AS EN — M139 1E38 — AB AD EN

AB AD EN, +3, AB PC ET2 EN, ET2 K (1), AB PC EN A, +3, F CYC ACT EN E, KEY RDI FFØ (Ø), AB PC (FETCH) EN — M171 2HØ6 — AB FF CLR

AB AB EN, ~AB FF CLR, AB AB (1) — M126 2HØ5 — AB AB IN

ET2 A (1), +3, IR AOBJX, IR JSR, ADØØ A (Ø), IR ØB (Ø), ADØØ (1), IR JSR, IR AOBJN — M181 1H3Ø

FCE2 WAIT (1), PET1 (Ø), IR JAFO, ETI J (1), IR JSA, ETØ F (1), IR PUSH X, ET2 N(1), IR XXX — M171 1E39 — KEY AB PC EN, AR AR MA EN, BF7Ø (1) — M139 1E38 — AB PC EN A

ITI A (1), MB13 A (Ø), ~F MEM REF, ~STORE, ~PC CHANGE, +3 — M139 1E38 — BLTT3 (1), BLTT9 (1)

IR JUMPS, ~ADE COND A, ~ADZ COND A — M175 1X15 — AB PC ET2 EN

KEY AB AS EN, KT1 A (1) — M143 2J06 — AB AS EN

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson	DATE 6/1/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	
PROJ. ENG. Alan Kotok	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	
NEXT HIGHER ASSY B-DD-KI1Ø-Ø		
SCALE ~		
SHEET 1 OF 1		

TITLE: ADDRESS BUS CONTROL

SIZE D | CODE BS | NUMBER KI1Ø - Ø - ABC | REV | DIST.

DEC FORM NO DRD 102A

AD CG* Ø2-Ø5 A +3 — R2 V1
AD CG* Ø6-Ø9 B — U1 V2
AD CP* Ø2-Ø5
AD CG* 21-24 B — R1 S1 U2
AD CP* 17.5-2Ø
AD CP* Ø2-17
P1 T2
M17Ø 1RØ3 — S2 — AD C IN Ø1 A

AD CG* 21-24 A — B1 D1 E1
AD CP* 17.5-2Ø
AD CP* 1Ø-17
AD CP* Ø6-13 — A1
AD CG* 25-28A — E2 F1
AD CP* 14-24 +3 — D2
M128 1MØ7 — C1 — AD C IN Ø5 B

AD CG* 29-32 B — J1 K1 L1
AD CP* 25-28
AD CP* Ø6-13
AD CP* 14-24 — H1 F2
AD CG* 33-36 B — J2 K2
AD CP* 25-32
AD CP* Ø6-13
M128 1MØ7 — H2 — AD C IN Ø5 C

AD CG* Ø6-Ø9 A +3 — P1 T2
AD CG* 1Ø-13 A — R2 V1
AD CP* Ø6-Ø9
AD CG* 14-17 A — U1 V2
AD CP* Ø6-13
AD CG* 17.5-2ØA — R1 S1 U2
AD CP* 1Ø-17
AD CP* Ø6-13
M17Ø 1SØ3 — S2 — AD C IN Ø5 A

AD CG* 29-32 A — S2 R2 R1
AD CP* 21-28
AD CP* 1Ø-13
AD CP* 14-24 — M1
AD CG* 33-36 B — N1 M2
AD CP* 25-32
AD CP* 1Ø-13
M128 1S14 — P2 — AD C IN Ø9 C

AD CG* 1Ø-13 A +3 — H1 N1
AD CG* 14-17 A — J1 J2
AD CP* 1Ø-13
AD CG* 17.5-2Ø A — L1 M1
AD CP* 1Ø-17
AD CG* 21-24 A — L2 M2 N2
AD CP* 17.5-2Ø
AD CP* 1Ø-17
M171 1TØ2 — K2 — AD C IN Ø9 A

AD Ø8 (1) — D1 E1 +3
M143 1PØ5 — D2 — AD Ø8 (1)

AD-2(1) AD-1 (1) AD ØØ(1) AD Ø1 (1)
~AD CRY ØA — ~AD CRY 1
PA1 PK2 PF1 PT2 RL2 RP2
PU2 PV2 RR2 RF2
4 BIT ADDER M142 1PRØ2
RS2 RU2 RV2 — AD C IN Ø1 B, AD C IN Ø1 C
PR2 — AD LT ADD (1)
RK2 — AD EQV (1)
PH1 PD2 PS2 PL2 RK1 RH1 RM2 RN2
ADAM AD-2 IN B — ADAM AD-1 IN B — AD ØØ IN B — AD Ø1 IN B
AD ØØ IN A — AD ØØ IN A' — AD ØØ IN A — AD Ø1 IN A

AD Ø2(1) AD Ø3(1) AD Ø4(1) AD Ø5(1)
PA1 PK2 PT2 RP2
AD CG* Ø2-Ø5 A — PU2 PV2
AD CP* Ø2-Ø5 — RR2 RF2
4 BIT ADDER M142 1PRØ8
RS2 RU2 RV2 — AD C IN Ø5 B, AD C IN Ø5 C
PR2 — AD LT ADD (1)
RK2 — AD EQV (1)
PH1 PD2 PS2 PL2 RK1 RH1 RM2 RN2
AD Ø2 IN B — AD Ø3 IN B — AD Ø4 IN B — AD Ø5 IN B
AD Ø2 IN A — AD Ø3 IN A — AD Ø4 IN A — AD Ø5 IN A

AD CG* 25-28 A — B1 C1
AD CP* 21-24
M143 1PØ5 — A1 — AD C IN 2Ø C

AD Ø6(1) AD Ø7(1) AD Ø8(1) AD Ø9(1)
PA1 PK2 PT2 RP2
AD CG* Ø6-Ø9 A — PU2 PV2
AD CG* Ø6-Ø9 B
AD CP* Ø6-Ø9 — RR2 RF2
4 BIT ADDER M142 1PR1Ø
RS2 RU2 RV2 — AD C IN Ø9 B, AD C IN Ø9 C
PR2 — AD LT ADD (1)
RK2 — AD EQV (1)
PH1 PD2 PS2 PL2 RK1 RH1 RM2 RN2
AD Ø6 IN B — AD Ø7 IN B — AD Ø8 IN B — AD Ø9 IN B
AD Ø6 IN A — AD Ø7 IN A — AD Ø8 IN A — AD Ø9 IN A

AD CG* 1Ø-13 B — P1 T2
AD CP* Ø2-Ø9
AD CG* 14-17 B — R2 V1
AD CP* Ø2-13
AD CG* 17.5-2Ø B — U1 V2
AD CP* Ø2-17
AD CG* 25-28 B — R1 S1 U2
AD CP* 14-24
AD CP* Ø2-13
M17Ø 1PØ3 — S2 — AD C IN Ø1 B

AD CG* 29-32 B — S2 R2 R1
AD CP* 25-28
AD CP* 14-24
AD CP* Ø2-13 — M1
AD CG* 33-36 B — N1 M2
AD CP* 25-32
AD CP* 14-24
M128 1MØ7 — P2 — AD C IN Ø1 C

AD CG* 25-28 A — B1 C1 D1
AD CP* 17.5-24
AD CP* 1Ø-17
M145 1RØ9 — A1 — AD C IN Ø9 B

AD CG* 33-36 A — J1 K1 L1
AD CP* 29-32
AD CP* 25-28
AD CP* 21-24 — H1 F2
AD CG* 29-32A — J2 K2
AD CP* 25-28
+3
M128 1M17 — H2 — AD C IN 2Ø A

AD CG* 14-17 A +3 — A1 E1
AD CG* 17.5-2ØA — B1 D1
AD CP* 14-17
AD CG* 25-28 A — F1 H2
AD CP* 14-24
AD CG* 21-24 A — D2 E2 F2
AD CP* 17.5-2Ø
AD CP* 14-17
M171 1S3Ø — C1 — AD C IN 13 A

AD CG* 17.5-2Ø A +3 — H1 N1
AD CG* 21-24 A — J1 J2
AD CP* 17.5-2Ø
AD CG* 25-28 A — L1 M1
AD CP* 17.5-24
AD CG* 29-32 A — L2 M2 N2
AD CP* 25-28
M171 1S3Ø — K2 — AD C IN 17 A

AD CG* 33-36 A — D2 E2 F2
AD CP* 25-32
AD CP* 17.5-24
M145 1RØ9 — E1 — AD C IN 17 B

AD C IN 2Ø B — +3 C1 N1, +3 E1 M2
AD CG* 21-24 A
M172 1S33 — M1

AD CG* 29-32 A — B1 D1 E1
AD CP* 21-28
AD CP* 17.5-24
AD CP* 14-17 — A1
AD CG* 33-36 B — E2 F1 D2
AD CP* 25-32
AD CP* 17.5-24
M128 1M17 — C1 — AD C IN 13 B

AD 1Ø(1) AD 11 (1) AD 12(1) AD 13(1)
PA1 PK2 PT2 RP2
AD CG* 1Ø-13 A — PU2 PV2
AD CG* 1Ø-13 B
AD CP* 1Ø-13 — RR2 RF2
4 BIT ADDER M142 1PR15
RS2 RU2 RV2 — AD C IN 13 B +3
PR2 — AD LT ADD (1)
RK2 — AD EQV (1)
PH1 PD2 PS2 PL2 RK1 RH1 RM2 RN2
AD 1Ø IN B — AD 11 IN B — AD 12 IN B — AD 13 IN B
AD 1Ø IN A — AD 11 IN A — AD 12 IN A — AD 13 IN A

AD 14(1) AD 15(1) AD 16(1) AD 17(1)
PA1 PK2 PT2 RP2
AD CG* 14-17 A — PU2 PV2
AD CG* 14-17 B
AD CP* 14-17 — RR2 RF2
4 BIT ADDER M142 1PR21
RS2 RU2 RV2 — AD C IN 17 B +3
PR2 — AD LT ADD (1)
RK2 — AD EQV (1)
PH1 PD2 PS2 PL2 RK1 PH1 RM2 RN2
AD 14 IN B — AD 15 IN B — AD 16 IN B — AD 17 IN B
AD 14 IN A — AD 15 IN A — AD 16 IN A — AD 17 IN A

AD 17.5(1) AD 18(1) AD 19(1) AD 2Ø(1)
PA1 PK2 PT2 RP2
AD CG* 17.5-2Ø A — PU2 PV2
AD CG* 17.5-2Ø B
AD CP* 17.5-2Ø — RR2 RF2
4 BIT ADDER M142 1PR24
RS2 RU2 RV2 — AD C IN 2Ø C
PR2 — AD RT ADD (1)
RK2 — AD EQV (1)
PH1 PD2 PS2 PL2 RK1 RH1 RM2 RN2
AD-1 LT(Ø) — AD 18 IN B — AD 19 IN B — AD 2Ø IN B
AD +1 LT(1) — AD 18 IN A — AD 19 IN A — AD 2Ø IN A

NOTE: CARRY SKIPPING LOGIC IS DRAWN WITH CARRY PROPAGATE AND GENERATE CORRECT FOR LOW ASSERTION ADDER INPUTS AND OUTPUTS. SEE MAINTENANCE MANUAL FOR ADDITIONAL INFORMATION.

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS | REV | CHANGE NO | CHK

FIRST USED ON OPTION / MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES: DECIMALS ± .005 — FRACTIONS ± 1/64 — ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

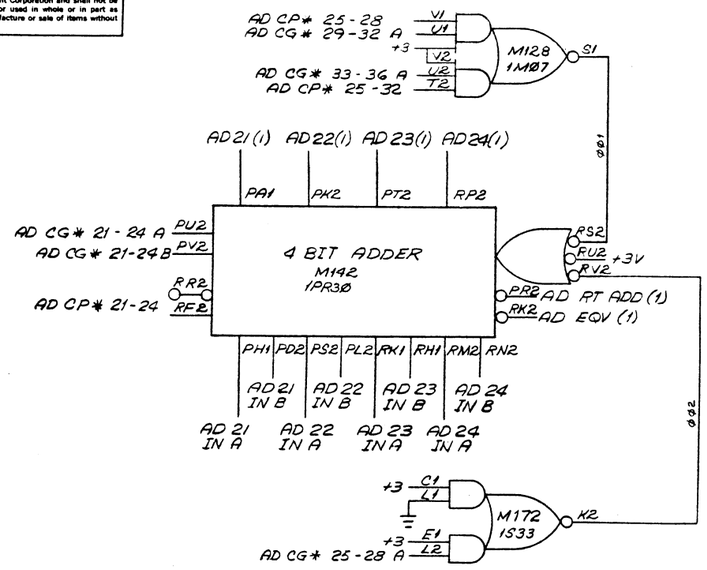
DRN M. Stephenson — DATE 3/23/72
CHKD David Grant — DATE 31 JAN 72
ENGR Glen Kurtz — DATE 31 Jan 72
PROJ. ENG. Allan Kent — DATE 31 Jan 72
PROD. [illegible] — DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

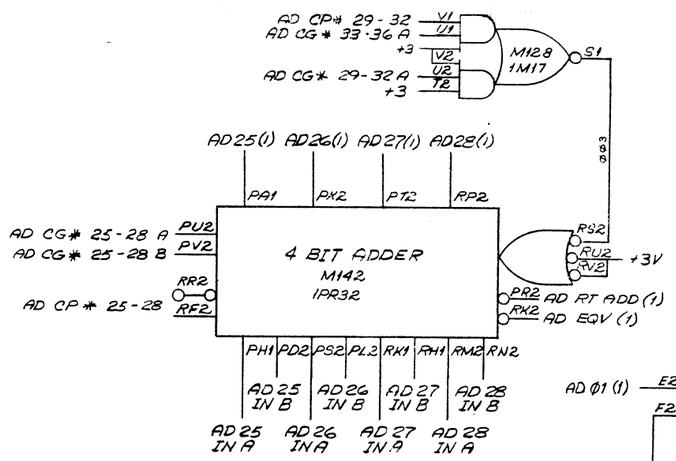
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

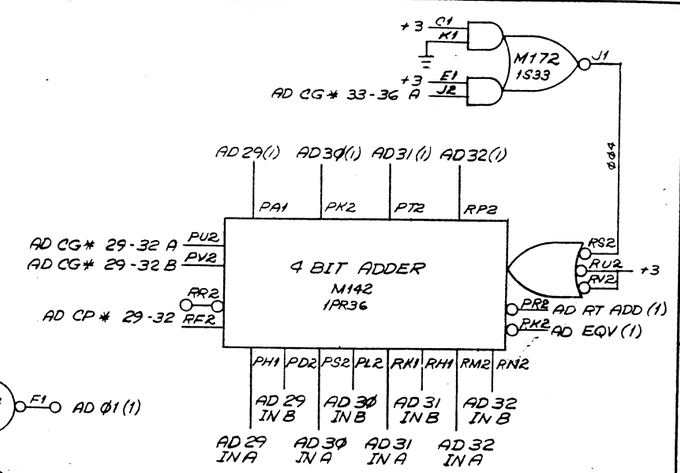
TITLE: ADDER BITS -2 TO 2Ø

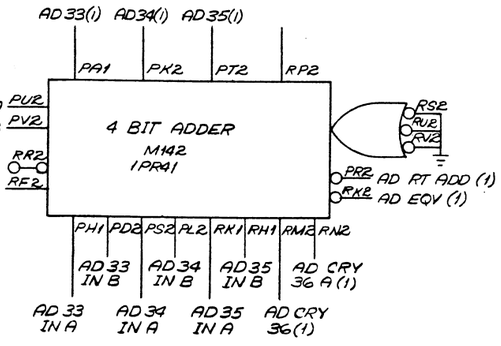
SIZE D | CODE BS | NUMBER KI1Ø-Ø-AD1 | REV | DIST.

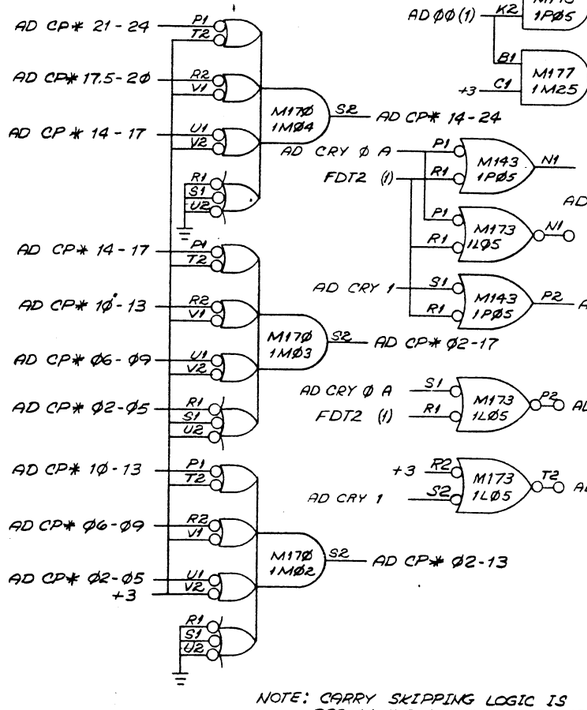
DEC FORM NO DRD 102A

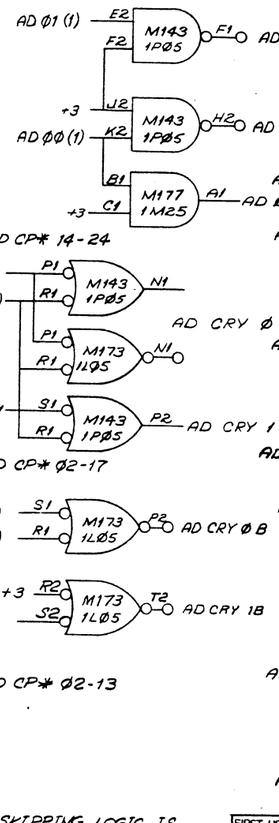


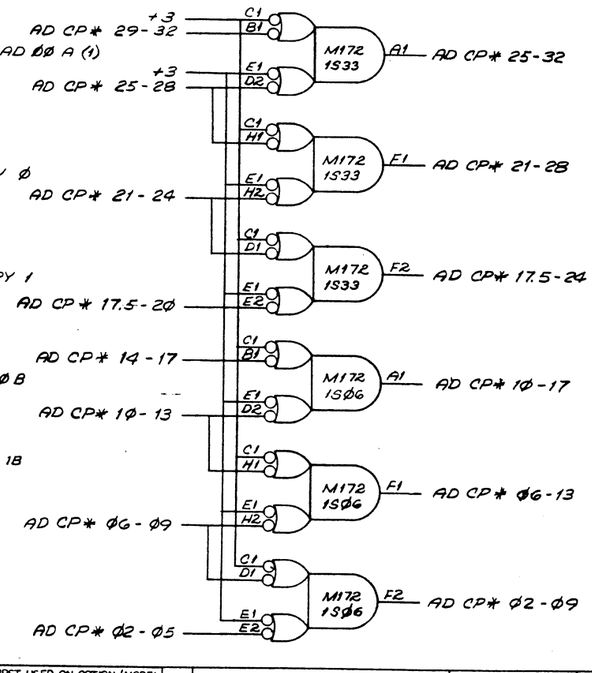












NOTE: CARRY SKIPPING LOGIC IS DRAWN WITH CARRY PROPAGATE AND CARRY GENERATE CORRECT FOR LOW ASSERTION ADDER INPUTS AND OUTPUTS. SEE MAINTENANCE MANUAL FOR ADDITIONAL INFORMATION.

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

DRN	W. Stephenson	DATE 2/24/72
CHKD	David Frost	DATE 31 Jan 72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

MATERIAL
FINISH
NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ADDER BITS 21-36

SIZE D | CODE BS | NUMBER KI1Ø-Ø-AD2 | REV
DIST.

REVISIONS: REV | CHANGE NO. | CHK

DEC FORM NO DRO 102A

AD ØØ-Ø8 MB (1) MB Ø1 (Ø) — H1, N1
AD ØØ-Ø8 AR + (1) AR Ø1 (Ø) — J1, J2
AD ØØ-Ø8 AR - (1) AR Ø1 (1) — L1, M1
AD ØØ-Ø8 MSK GEN (1) ~MSK GEN Ø1 *3 — L2, M2, N2
M171 1MØ6 — K2 — ~AD Ø1 IN A'

AD Ø9-17 MB (1) MB ØØ (Ø) — A1, E1
AD Ø9-17 AR + (1) AR ØØ (Ø) — B1, D1
AD Ø9-17 AR - (1) AR ØØA (1) — F1, H2
AD Ø9-17 MSK GEN (1) ~MSK GEN ØØ *3 — D2, E2, F2
M171 1MØ6 — C1 — ~AD ØØ IN A'

M179 1PRØ7

~AD ØØ IN A	~AD Ø1 IN A	~AD Ø2 IN A	~AD Ø3 IN A	~AD Ø4 IN A	~AD Ø5 IN A	~AD Ø6 IN A	~AD Ø7 IN A	~AD Ø8 IN A
PD2	PF1	PL1	PR1	RA1	RD1	RH1	RM1	RS2
PD1 MB ØØ (Ø)	PE2 AR ØØ (Ø)	PF2 AR ØØ (1)	PH2 ~MSK GEN ØØ	PH1 MB Ø1 (Ø)	PJ1 AR Ø1 (Ø)	PK2 AR Ø1 (1)	PL2 ~MSK GEN Ø1	PK1 MB Ø2 (Ø)
PM1 AR Ø2 (Ø)	PR2 AR Ø2 (1)	PS2 ~MSK GEN Ø2	PP1 MB Ø3 (Ø)	PS1 AR Ø3 (Ø)	PU2 AR Ø3 (1)	PV2 ~MSK GEN Ø3	RB1 MB Ø4 (Ø)	RC1 AR Ø4 (Ø)
RD2 AR Ø4 (1)	RE2 ~MSK GEN Ø4	RE1 MB Ø5 (Ø)	RF1 AR Ø5 (Ø)	RF2 AR Ø5 (1)	RH2 ~MSK GEN Ø5	RJ1 MB Ø6 (Ø)	RK1 AR Ø6 (Ø)	RK2 AR Ø6 (1)
RL2 ~MSK GEN Ø6	RN1 MB Ø7 (Ø)	RP1 AR Ø7 (Ø)	RP2 AR Ø7 (1)	RR2 ~MSK GEN Ø7	RU1 MB Ø8 (Ø)	RV1 AR Ø8 (Ø)	RU2 AR Ø8 (1)	RV2 ~MSK GEN Ø8

PE1 — AD ØØ-Ø8 MB (1)
PA1 — AD ØØ-Ø8 AR + (1)
PC1 — AD ØØ-Ø8 AR - (1)
PB1 — AD ØØ-Ø8 MSK GEN (1)

M174 1PRIØ

~AD Ø9 IN A	~AD IØ IN A	~AD 11 IN A	~AD 12 IN A	~AD 13 IN A	~AD 14 IN A	~AD 15 IN A	~AD 16 IN A	~AD 17 IN A
PD2	PF1	PL1	PR1	RA1	RD1	RH1	RM1	RS2
PD1 MB Ø9 (Ø)	PE2 AR Ø9 (Ø)	PF2 AR Ø9 (1)	PH2 ~MSK GEN Ø9	PH1 MB IØ (Ø)	PJ1 AR IØ (Ø)	PK2 AR IØ (1)	PL2 ~MSK GEN IØ	PK1 MB 11 (Ø)
PM1 AR 11 (Ø)	PR2 AR 11 (1)	PS2 ~MSK GEN 11	PP1 MB 12 (Ø)	PS1 AR 12 (Ø)	PU2 AR 12 (1)	PV2 ~MSK GEN 12	RB1 MB 13 (Ø)	RC1 AR 13 (Ø)
RD2 AR 13 (1)	RE2 ~MSK GEN 13	RE1 MB 14 (Ø)	RF1 AR 14 (Ø)	RF2 AR 14 (1)	RH2 ~MSK GEN 14	RJ1 MB 15 (Ø)	RK1 AR 15 (Ø)	RK2 AR 15 (1)
RL2 ~MSK GEN 15	RN1 MB 16 (Ø)	RP1 AR 16 (Ø)	RP2 AR 16 (1)	RR2 ~MSK GEN 16	RU1 MB 17 (Ø)	RV1 AR 17 (Ø)	RU2 AR 17 (1)	RV2 ~MSK GEN 17

PE1 — AD Ø9-17 MB (1)
PA1 — AD Ø9-17 AR + (1)
PC1 — AD Ø9-17 AR - (1)
PB1 — AD Ø9-17 MSK GEN (1)

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK	REV.

DEC FORM NO. DRD 102A

FIRST USED ON OPTION / MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —
FINISH —

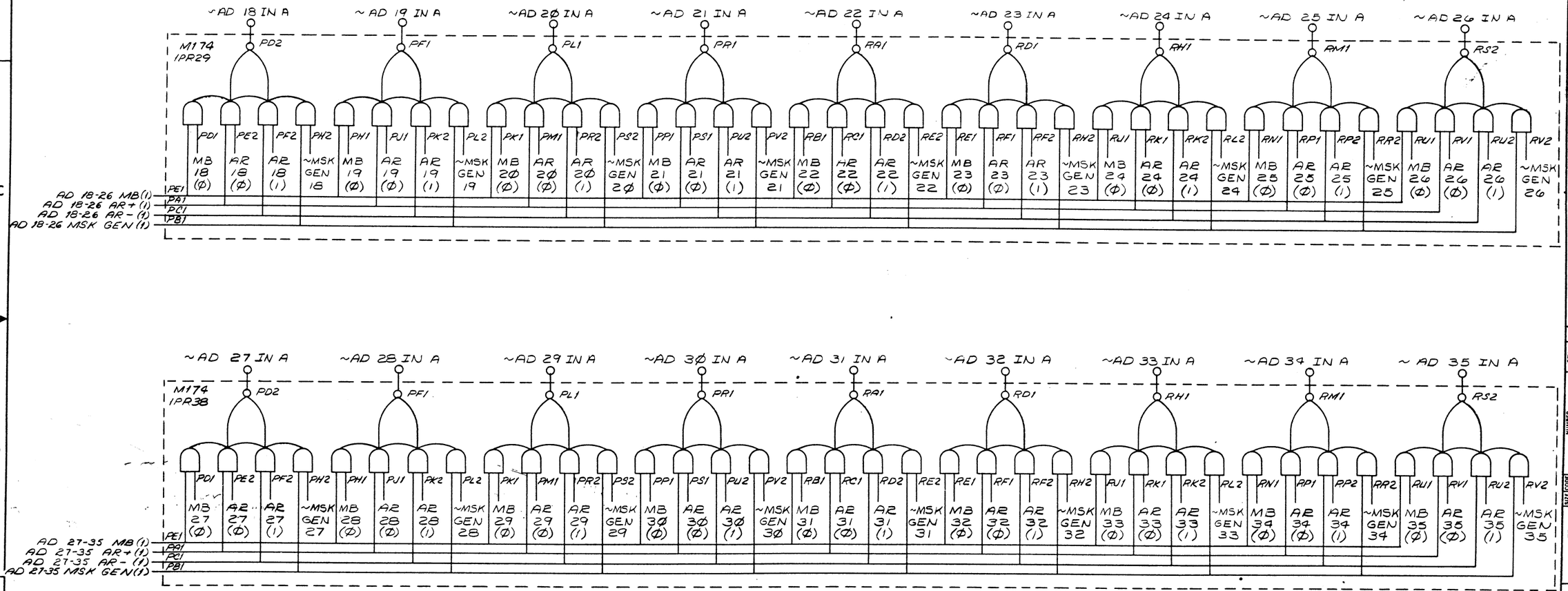
QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. — DATE 7/11/72
CHK. David Gross — DATE 5/JUN72
ENG. Dan Kotok — DATE 7 Jun 72
PROJ. ENG. Allan Kent — DATE 31 JUN 72
PROD. — DATE 31 JUN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
ADDER "A"
INPUT MIXER
BITS ØØ-17

SIZE D | CODE BS | NUMBER KI1Ø - Ø - ADA1 | REV.
DIST.



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
REV.	CHANGE NO.		CHK

FIRST USED ON OPTION/MODEL KI10	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

DRN		DATE 2-16-70
CHKD		DATE 31 Jun 72
ENG		DATE 31 Jun 72
PROJ. ENG.		DATE 31 JUN 72
PROG		DATE 31 JUN 72

NEXT HIGHER ASSY
B-DD-KI10-Ø

SCALE —

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ADDER "A"
INPUT MIXER
BITS 18-35

SIZE	CODE	NUMBER	REV.
D	BS	KI10-Ø-ADA2	

DIST.

DEC FORM NO. DRD 102A

SIZE D CODE BS NUMBER KI10-Ø-ADA2 REV.

IR BOOLE (4,7,1Ø,13,14)
IR SUBX
IR MOV(N,M)(-,I,S)
TEST TX(C,Z)-
IR CMXX
+3
IR BLT
IR FSBXX
M139 1B09 → V2

IR BOOLE
IR MOV(N,M)X
TEST TX(C,Z)-
IR FSBXX
M147 1A18 → T2

TEST TX(C,Z,O)X
DFDV NEG DIVIDEND
FDV NEG DIVIDEND
M147 1B02 → E1

IR IMULX
AD Ø1 (1)
M193 1P05 → L1

ØØ1 → F CYC ACT EN B

T2 → ØØ2 → B1
ET Ø B (1)
SCAD CRY Ø
BYTE XDPB PART 2
M171 1J22 → C1

E1 → ØØ4 → ET1 B (1)

ØØ3 → K1
IOT INST
M193 1E17 → L1

IR XDIVX
FM ØØ(Ø)
ET Ø J (1)
M145 1K42 → L2

C1 → ØØ5
DFAT2 COND
DFMT1 (1)
BYTE DPB SH EXIT
AD MAGIC EN B
DFDT9 COND
M139 1K25 → J2

ØØ6

ØØ4
ØØ3
ØØ2
ØØ1
ØØ5
ØØ6
ØØ7
ØØ8
ØØ9
Ø1Ø
Ø11
Ø12
Ø13
Ø14

M243 1R13
J1 K1 J1 K1
H2 ØAD ØØ-ØB AR- 1 J2
B1 H1
N2 M2 N2 M2
H2 ØAD Ø9-17 AR- 1 J2
U2 L2
M243 1P31
J1 K1 J1 K1
H2 ØAD 18-26 AR- 1 J2
B1 H1
N2 M2 N2 M2
H2 ØAD 27-35 AR- 1 J2
U2 L2

MCF AD FM+ SET B
AD CLOCK B
MCF AD FM+ SET A
AD CLOCK A

M243 1R13
D1 E1 D1 E1
H2 ØAD ØØ-ØB MB 1 J2
B1 C1
P2 P1 P2 P1
H2 ØAD Ø9-17 MB 1 J2
U2 R2
M243 1P31
D1 E1 D1 E1
H2 ØAD 18-26 MB 1 J2
B1 C1
P2 P1 P2 P1
H2 ØAD 27-35 MB 1 J2
U2 R2

MCF AD FM+ SET B
AD CLOCK B
MCF AD FM+ SET A
AD CLOCK A

AD Ø6-11 BR+ (1) BR ØØ (Ø) P1 R1
AD Ø6-11 BR- (1) BR ØØA (1) P2 U1
AD Ø6-11 BR+2 (1) BR ØØ (Ø) R2 S2
AD Ø6-11 MAGIC (1) +3 S1 U2 V2
M171 1M06 → T2 → ~ ADAM AD-1 IN B

AD Ø6-11 BR+ (1) BR ØØ (Ø) P1 T2
AD Ø6-11 BR- (1) BR ØØA (1) R2 V1
AD Ø6-11 BR+2 (1) BR ØØ (Ø) U1 V2
AD Ø6-11 MAGIC (1) +3 F1 S1 U2
M17Ø 1N03 → S2 → ~ ADAM AD-2 IN B

IT Ø (1) MB14 (Ø) MB15 (Ø) MB16 (Ø) MB17 (Ø) +3V
B1 A1 C1 D1 U2 F2 D2 E2
M139 1L22 → U2 → ØØ7
DFMT2 COND
M195 1K28 → A1 → ØØ8

DFDT5 (1) DFDT7 (1) DFDT9 (1) DFDT11 (1)
N1 P1 R1 R2
M147 1K31 → P2 → ØØ9
+3V → J2
ET2 C (1) IR DPOP A → H1 N1
DFDT Ø (1) → L1 M1
M171 1J22 → K2 → Ø11
~MQ Ø1-35=Ø
~AD ØØ-17=Ø
~AD Ø9-35=Ø
F1 N1 P1
M145 1K28 → H1 → Ø1Ø
DFDT8 (1) FLAG 3 (Ø) L2 M2 N2

D2 E2 F2
DFMT2 COND ITØ (1)
M145 1K28 → E1 → Ø12

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHK	CHANGE NO.	REV.
	DBS	KI1Ø-ØØØ38	A

J. Gilbert 8-12-73
D. GROSS
D. Gross 20 Aug 73

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

DRN. [illegible] DATE 3-13-72
CHK. David Gross DATE 31 Jan 72
ENG. Dan Kotok DATE 31 Jan 72
PROJ. ENG. Allan Kent DATE 31 Jan 72
PROD. [illegible] DATE 31 JAN 72
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ADDER AR-, MB

SIZE D | CODE BS | NUMBER KI1Ø-Ø-ADAM | REV A
DIST.

DEC FORM NO DRD 102A

DS RND QUOTIENT
PICTØ (1)
DNT1 COND A
JFFOT1 (1)
M177 1F33 U1
AD AR+EN F

AD MPY FINAL
IR MPY
FLAG 2 (Ø)
M143 1E17 D2
IA FIXX A
IA FLTA
FP ADSUB
M147 1C16 M2

DST4 (1)
FLAG 3 (Ø)
ETØ B (1)
F CYC ACT EN B
IR HXR-S
IR HLLXX
~IR XXXM
M171 1J22 T2
AD LT AR+EN A

TEST TXOX
MUUO PART 1
BYF5 A (1)
DFDV POS DIVIDEND
IR JFFO
+3
M139 1B03 U2 Ø02
IR IMULX
AD Ø1(Ø)
M143 1K11 A1 Ø11

SCTC DONE B
ET1 F (1)
ET2 Z (1)
~SC+1=Ø SCTC
M171 1J35 K2
AD AR+EN B
SCT PROCEED

ST AD AR+ET2 EN
MUUO PART 3
IR FMPXX
IR FLTR
IA JFFO A
FI INC MEM A
IR FSC
FIX SHRT COND
M139 1B29 V2 Ø03

M243 1A13
D2 E2 D2 E2 S1 A1 S1 A1
Ø AD ØØ-Ø8 AR+ 1
Ø AD Ø9-17 AR+ 1
B1 F2 U2 V1
MCF AD FM+ SET B
AD CLOCK B H2
J2

AD AR+EN E
AD AR+EN F
AD AR+EN K
AD AR+EN A
AD AR+EN D
AD AR+EN C
AD LT AR+EN A
M139 1K25 P2
AD LT AR+EN

DST4 (1)
FLAG 3 (Ø)
ETØ J (1)
F CYC ACT EN A
IR HXL-S
IR HRRXX
~IR XXXM
M171 1J35 C1
AD RT AR+EN A

DFAM 3C GO
SCT2 MISC INPUTS
DFAT5 COND
M177 1J36 M2
AD AR+EN A

DFDT6 (1)
DSF2 (1)
M177 1J36 A1
AD AR+EN J

DFDF1 (1)
+3
ST2 (1)
IR BLKX
M126 1C35 S1
AD AR+EN K

IR BOOLE AD AR+F
IR SKIPS
IR ADDX
IR JSA
MUUO PART 3
BYTE PTR INC
IA DFN
IR BLKX
M139 1B03 P2 Ø04

M243 1P31
D2 E2 D2 E2 S1 A1 S1 A1
Ø AD 18-26 AR+ 1
Ø AD 27-35 AR+ 1
B1 F2 U2 V1
MCF AD FM+ SET A
AD CLOCK A H2

AD AR+EN E
AD AR+EN F
AD AR+EN K
AD AR+EN A
AD AR+EN D
AD AR+EN B
AD RT AR+EN A
M139 1K25 V2
AD RT AR+EN

FT2 (1)
FDTØ (1)
FMT2 (1)
NRT1 (1)
NRT2 (1)
DST6 (1)
FDT1 (1)
FDT6 (1)
M139 1J37 V2 Ø06
+3

IOTT9 (1)
BLTTØ (1)
DNT7 (1)
DNT6 (1)
M177 1J36 J1 Ø09

SCADØ A (1)
M171 1J2Ø T2
DS FP EXIT Ø08
DN RND NEG
M177 1J36 E1
AD AR+EN D

DNT4 (1)
FAT3 (1)
FAT4 (1)
IOTT8 (1)
M147 1H42 T2 Ø10
+3

SRT1 (1)
FIXT1 (1)
M143 1J15 F1 Ø07

IR DMOVXM PART 2
+3
M145 1B21 T2
V2 F CYC ACT EN A Ø12

IR XMULX A
IR DMOVNM
TEST TXOXVTXX (ENA)
DS NEG DIVIDEND(ETØ)
M147 1B29 T2 Ø05

P1 A1
P2 U1
R2 S2
S1 U2 V2
M171 1J35 T2
AD AR+EN C
ETØ J (1)
BYF5 (1)
~SCAD CRY Ø

IT1 (1)
MB13 (Ø)
~F MEM REF
~MB 14-17=Ø
M147 1K2Ø E1
AD AR+EN E

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN	J McGee	DATE 3-23-70
CHKD	David Frost	DATE 31 Jan 72
ENG	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	William Kent	DATE 31 JAN 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE ADDER AR+

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-ADAP	
DIST.			

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102A

~AD 00 IN B — PD2 — M178 1PR06

~AD 01 IN B — PM1

~AD 02 IN B — PS1

~AD 03 IN B — RD2

~AD 04 IN B — RK1

~AD 05 IN B — RS1

PN1 RL1

PH1 FM 00 (0) | PE2 FM 00 (1) | PF2 BR 00A (0) | PE1 BR 00A (1) | PJ1 BR 01 (0) | PK1 ~IOB 00 T | PC1 | PA1 DFDT9 (0) | PL2 FM 01 (0) | PM2 FM 01 (1) | PN2 BR 01 (0) | PK2 BR 01 (1) | PP1 BR 02 (0) | PR1 ~IOB 01 T | PJ2 | PL1 +3 | PT2 FM 02 (0) | PU2 FM 02 (1) | PV2 BR 02 (0) | PS2 BR 02 (1) | PU1 BR 03 (0) | PV1 ~IOB 02 T | PR2 | PP2 +3 | RD1 FM 03 (0) | RE1 FM 03 (1) | RF1 BR 03 (0) | RC1 BR 03 (1) | RE2 BR 04 (0) | RF2 ~IOB 03 T | RB1 | RA1 +3 | RJ2 FM 04 (0) | RK2 FM 04 (1) | RL2 BR 04 (0) | RJ1 BR 04 (1) | RM1 BR 05 (0) | RN1 ~IOP 04 T | RH1 | RH2 +3 | RS2 FM 05 (0) | RR2 FM 05 (1) | RU1 BR 05 (0) | RP1 BR 05 (1) | RT2 BR 06 (0) | RV2 ~IOB 05 T | RN2 | RM2 +3

AD 00-05 FM + (1) PD1
AD 00-05 FM - (1) RR1
AD 00-05 BR + (1) RP2
AD 00-05 BR - (1) PE1
AD 00-05 BR + 2 (1) PH2
AD 00-05 IOB (1) RU2
AD 00-05 MAGIC (1) RV1

PB1

~AD 06 IN B — PD2 — M178 1PR14

~AD 07 IN B — PM1

~AD 08 IN B — PS1

~AD 09 IN B — RD2

~AD 10 IN B — RK1

~AD 11 IN B — RS1

PN1 RL1

PH1 FM 06 (0) | PE2 FM 06 (1) | PF2 BR 06 (0) | PE1 BR 06 (1) | PJ1 BR 07 (0) | PK1 ~IOB 06 T | PC1 | PA1 +3 | PL2 FM 07 (0) | PM2 FM 07 (1) | PN2 BR 07 (0) | PK2 BR 07 (1) | PP1 BR 08 (0) | PR1 ~IOB 07 T | PJ2 | PL1 +3 | PT2 FM 08 (0) | PU2 FM 08 (1) | PV2 BR 08 (0) | PS2 BR 08 (1) | PU1 BR 09 (0) | PV1 ~IOB 08 T | PR2 | PP2 ~MAGIC # 08 | RD1 FM 09 (0) | RE1 FM 09 (1) | RF1 BR 09 (0) | RC1 BR 09 (1) | RE2 BR 10 (0) | RF2 ~IOB 09 T | RB1 | RA1 ~MAGIC # 09 | RJ2 FM 10 (0) | RK2 FM 10 (1) | RL2 BR 10 (0) | RJ1 BR 10 (1) | RM1 BR 11 (0) | RN1 ~IOB 10 T | RH1 | RH2 ~MAGIC # 10 | RS2 FM 11 (0) | RR2 FM 11 (1) | RU1 BR 11 (0) | RP1 BR 11 (1) | RT2 BR 12 (0) | RV2 ~IOB 11 T | RN2 | RM2 ~MAGIC # 11

AD 06-11 FM + (1) PD1
AD 06-11 FM - (1) RR1
AD 06-11 BR + (1) RP2
AD 06-11 BR - (1) PE1
AD 06-11 BR + 2 (1) PH2
AD 06-11 IOB (1) RU2
AD 06-11 MAGIC (1) RV1

PB1

~AD 12 IN B — PD2 — M178 1PR20

~AD 13 IN B — PM1

~AD 14 IN B — PS1

~AD 15 IN B — RD2

~AD 16 IN B — RK1

~AD 17 IN B — RS1

PN1 RL1

PH1 FM 12 (0) | PE2 FM 12 (1) | PF2 BR 12 (0) | PE1 BR 12 (1) | PJ1 BR 13 (0) | PK1 ~IOB 12 T | PC1 | PA1 ~MAGIC # 12 | PL2 FM 13 (0) | PM2 FM 13 (1) | PN2 BR 13 (0) | PK2 BR 13 (1) | PP1 BR 14 (0) | PR1 ~IOB 13 T | PJ2 | PL1 ~MAGIC # 13 | PT2 FM 14 (0) | PU2 FM 14 (1) | PV2 BR 14 (0) | PS2 BR 14 (1) | PU1 BR 15 (0) | PV1 ~IOB 14 T | PR2 | PP2 ~MAGIC # 14 | RD1 FM 15 (0) | RE1 FM 15 (1) | RF1 BR 15 (0) | RC1 BR 15 (1) | RE2 BR 16 (0) | RF2 ~IOB 15 T | RB1 | RA1 ~MAGIC # 15 | RJ2 FM 16 (0) | RK2 FM 16 (1) | RL2 BR 16 (0) | RJ1 BR 16 (1) | RM1 BR 17 (0) | RN1 ~IOB 16 T | RH1 | RH2 ~MAGIC # 16 | RS2 FM 17 (0) | RR2 FM 17 (1) | RU1 BR 17 (0) | RP1 BR 17 (1) | RT2 BR 18 (0) | RV2 ~IOB 17 T | RN2 | RM2 ~MAGIC # 17

AD 12-17 FM + (1) PD1
AD 12-17 FM - (1) RR1
AD 12-17 BR + (1) RP2
AD 12-17 BR - (1) PE1
AD 12-17 BR + 2 (1) PH2
AD 12-17 IOB (1) RU2
AD 12-17 MAGIC (1) RV1

PB1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MODEL: KI10

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

	NAME	DATE
DRN.	W. Stephenson	13 JAN 69
CHK.	David Gross	31 JAN 72
ENG.	Sam Kotok	31 JAN 72
PROJ. ENG.	Allan Kent	31 JAN 72
PROD.		31 JAN 72

NEXT HIGHER ASSY: B-DD-KI10-0

SCALE

SHEET 1 OF 1

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ADDER "B" INPUT MIXER BITS 0-17

SIZE	CODE	NUMBER	REV.
D	BS	KI10-0-ADB1	

DIST.

~AD 18 IN B — PD2 — M178 1PR28

~AD 19 IN B — PM1

~AD 20 IN B — PS1

~AD 21 IN B — RD2

~AD 22 IN B — RK1

~AD 23 IN B — AS1

PN1 RL1

PH1	PE2	PF2	PE1	PJ1	PK1	PC1	PA1	PL2	PM2	PN2	PK2	PP1	PR1	PJ2	PL1	PT2	PU2	PV2	PS2	PU1	PV1	PR2	PP2	RD1	RE1	RF1	RC1	RE2	RF2	RB1	RA1	RJ2	RK2	RL2	RJ1	RM1	RN1	RH1	RH2	AS2	AR2	RU1	RP1	RT2	RV2	RN2	RM2
FM 18 (Ø)	FM 18 (1)	BR 18 (Ø)	BR 18 (1)	BR 19 (Ø)	~JOB 18 T		+3	FM 19 (Ø)	FM 19 (1)	BR 19 (Ø)	BR 19 (1)	BP 20 (Ø)	~JOB 19 T		+3	FM 20 (Ø)	FM 20 (1)	BR 20 (Ø)	BR 20 (1)	BR 21 (Ø)	~JOB 20 T		+3	FM 21 (Ø)	FM 21 (1)	BR 21 (Ø)	BR 21 (1)	BR 22 (Ø)	~JOB 21 T		+3	FM 22 (Ø)	FM 22 (1)	BR 22 (Ø)	BR 22 (1)	BR 23 (Ø)	~JOB 22 T		+3	FM 23 (Ø)	FM 23 (1)	BR 23 (Ø)	BR 23 (1)	BR 24 (Ø)	~JOB 23 T		+3

AD 18-23 FM+ (1) AD1
AD 18-23 FM- (1) AR1
AD 18-23 BR+ (1) AP2
AD 18-23 BR- (1) PF1
AD 18-23 BR+2 (1) PH2
AD 18-23 IOB (1) RU2
AD 18-23 MAGIC (1) RV1

PB1

~AD 24 IN B — PD2 — M178 1PR35

~AD 25 IN B — PM1

~AD 26 IN B — PS1

~AD 27 IN B — RD2

~AD 28 IN B — RK1

~AD 29 IN B — AS1

PN1 RL1

PH1	PE2	PF2	PE1	PJ1	PK1	PC1	PA1	PL2	PM2	PN2	PK2	PP1	PR1	PJ2	PL1	PT2	PU2	PV2	PS2	PU1	PV1	PR2	PP2	RD1	RE1	RF1	RC1	RE2	RF2	RB1	RA1	RJ2	RK2	RL2	RJ1	RM1	RN1	RH1	RH2	AS2	AR2	RU1	RP1	RT2	RV2	RN2	RM2
FM 24 (Ø)	FM 24 (1)	BR 24 (Ø)	BR 24 (1)	BR 25 (Ø)	~JOB 24 T		+3	FM 25 (Ø)	FM 25 (1)	BR 25 (Ø)	BR 25 (1)	BP 26 (Ø)	~JOB 25 T		+3	FM 26 (Ø)	FM 26 (1)	BR 26 (Ø)	BR 26 (1)	BR 27 (Ø)	~JOB 26 T		+3	FM 27 (Ø)	FM 27 (1)	BR 27 (Ø)	BR 27 (1)	BR 28 (Ø)	~JOB 27 T		+3	FM 28 (Ø)	FM 28 (1)	BR 28 (Ø)	BR 28 (1)	BR 29 (Ø)	~JOB 28 T		+3	FM 29 (Ø)	FM 29 (1)	BR 29 (Ø)	BR 29 (1)	BR 30 (Ø)	~JOB 29 T		+3

AD 24-29 FM+ (1) PD1
AD 24-29 FM- (1) AR1
AD 24-29 BP+ (1) RP2
AD 24-29 BP- (1) PF1
AD 24-29 BR+2 (1) PH2
AD 24-29 IOB (1) RU2
AD 24-29 MAGIC (1) RV1

PB1

~AD 30 IN B — PD2 — M178 1PR12

~AD 31 IN B — PM1

~AD 32 IN B — PS1

~AD 33 IN B — RD2

~AD 34 IN B — RK1

~AD 35 IN B — AS1

PN1 RL1

PH1	PE2	PF2	PE1	PJ1	PK1	PC1	AA1	PL2	PM2	PN2	PK2	PP1	PR1	PJ2	PL1	PT2	PU2	PV2	PS2	PU1	PV1	PR2	PD2	RD1	RE1	RF1	RC1	RE2	RF2	RB1	RA1	RV2	RK2	RL2	RJ1	RM1	RN1	RH1	RH2	RS2	RR2	RU1	RP1	RT2	RV2	RN2	RM2
FM 30 (Ø)	FM 30 (1)	BR 30 (Ø)	BR 30 (1)	BR 31 (Ø)	~JOB 30 T		MR LULO	FM 31 (Ø)	FM 31 (1)	BR 31 (Ø)	BR 31 (1)	BR 32 (Ø)	~JOB 31 T		~MAGIC #31	FM 32 (Ø)	FM 32 (1)	BR 32 (Ø)	BR 32 (1)	BR 33 (Ø)	~JOB 32 T		~MAGIC #32	FM 33 (Ø)	FM 33 (1)	BR 33 (Ø)	BR 33 (1)	BR 34 (Ø)	~JOB 33 T		~MAGIC #33	FM 34 (Ø)	FM 34 (1)	BR 34 (Ø)	BR 34 (1)	BR 35 (Ø)	~JOB 34 T		~MAGIC #34	FM 35 (Ø)	FM 35 (1)	BR 35 (Ø)	BR 35 (1)	+3	~JOB 35 T		~MAGIC #35

AD 30-35 FM+ (1) PD1
AD 30-35 FM- (1) AR1
AD 30-35 BR+ (1) RP2
AD 30-35 BR- (1) PF1
AD 30-35 BR+2 (1) PH2
AD 30-35 IOB (1) RU2
AD 30-35 MAGIC (1) RV1

PB1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stephenson	DATE 1/30/69
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Dan Hotek	DATE 31 Jan 72
PROD. ENG.	Allen Kent	DATE 31 Jan 72
PROD.	Mauritano	DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE ½
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ADDER "B" INPUT
MIXER
BITS 18-35

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø - Ø - ADB2	

DIST.

DEC FORM NO.
DRD 102A

M243 1A04 M243 1P13 M243 1P19 M243 1P27 M243 1P34 M243 1A40

AD ØØ-Ø5 BR + | AD Ø6-11 BR + | AD 12-17 BR + | AD 18-23 BR + | AD 24-29 BR + | AD 3Ø-35 BR +

MCF AD FM+ SET B
AD CLOCK B
AD CLOCK A
MCF AD FM+ SET A

IR JRA
BYTE PTR INC
M143 1A37 → ØØ9

IR DFN
FLAG 3 (1)
M143 1B3Ø → Ø14

FT6 (1)
SCTC DONE B
BYTE XDPB
M181 1U33 → AD BR+EN A

BYF5 A (1) +3
IR PUSH
IR PUSHJ
IR DFAS
IR DFMP +3
M139 1B03 → ET1 ØØ6 F (1)

ETØ A (1)
BYTE XDPB PART 2
SCAD CRY Ø

IR JR3T
IR JSP
M143 1A37 → Ø5Ø

ET2 Y (1)
M126 1J32 → Ø13

BLTF1 (1) +3
IR DMOVXM PART 1
M145 1K42 → R2 Ø15 ST2 A

DFAM MUL STEP 1
DFAT5 COND
DFAT3 COND
FAT4 COND
DFDV CONT ADD
M139 1J31 → J2 AD BR+EN B

DNT7 (1)
FT7 (1)
IOTT8 (1)
IOTT9 (1)
M177 1E34 → M2 Ø17

IR JUMPS
IR POPJ
IR AOBJX
PI INC MEM
M147 1B04 → E1 Ø16

ET2 Y (1)
IR JFFO
IR POP
M147 1B04 → A1 Ø16
ETØ B (1)
BR ØØ A (Ø)
DS FIRST STEP
FDT1 (Ø)
+3
M171 1H26 → C1

FT4 (1)
FAT2 (1)
BLTTØ (1)
BLTT5 (1)
M147 1K31 → T2 Ø11

DFDV POS DIVISOR ~ADX CRY Ø
DFDV NEG DIVISOR ADX CRY Ø
DS POS DIVISOR ~AD CRY Ø
DS NEG DIVISOR AD CRY Ø
AD BR+EN A +3
AD BR+EN B
ETØ D (1) IR HXX-X IRØ3 (1)
MQV FCN A ~MPY FLAG 1 = MQ35 IN ~MQ 34 IN
M170 1L03 → K2 Ø02

DFDV POS DIVISOR ~ADX CRY Ø
DFDV NEG DIVISOR ADX CRY Ø
DS POS DIVISOR ~AD CRY Ø
DS NEG DIVISOR AD CRY Ø
AD BR+EN A +3
AD BR+EN B
ETØ D (1) IR HXX-X IRØ3 (Ø)
MPY FCN A ~MPY FLAG 1 = MQ35 IN ~MQ 34 IN
M170 1L02 → K2 Ø03

IR DFN
FLAG 3 A (Ø)
M143 1E17 → N1 AD DFN ⊄ ~FLAG 3

TEST TXOX
M143 1E17 → M2 Ø06

ETI F (1)
FT6 (1)
BYTE PTR INC
DMOVNT2 (1) +3
DS FIRST STEP
FDT1 (Ø)
BR ØØ A (Ø)
M181 1U33 → K2 Ø07

DFDV POS DIVISOR ~ADX CRY Ø
DFDV NEG DIVISOR ~ADX CRY Ø
DS POS DIVISOR AD CRY Ø
DS NEG DIVISOR AD CRY ØB
+3
DFDV CONT SUB
+3
SCTC DONE B
MPY CORRECTION
MPY FCN A ~MPY FLAG 1 = MQ35 IN MQ 34 IN
M170 1L06 → K2 Ø04

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	S. LYONNAIS	DATE 7-2-70
CHKD	David Gross	DATE 31 JUN 70
ENG	Alan Kotok	DATE 31 Jun 70
PROJ ENG	Wm Kent	DATE 31/JUN 70
PROD		DATE 31/JUN 70

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
ADDER BR+, BR− LOGIC

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-ADBR	

DIST.

M243 1A09 · M243 1A13 · M243 1A19 · M243 1A27 · M243 1A10 · M243 1A40

AD ØØ-Ø5 BR+2 · AD Ø6-11 BR+2 · AD 12-17 BR+2 · AD 18-23 BR+2 · AD 24-29 BR+2 · AD 30-35 BR+2

~MQ 34 IN · MQ 35 IN · FLAG 1 (1) · MPY FCN · MQ 34 IN · ~MQ 35 IN · FLAG 1 (Ø) → M128 1M40 → C1 → AD BR+2 EN

MCF AD FM+ SET B · AD CLOCK B · AD CLOCK A · MCF AD FM+ SET A

AD AR+1 EN J · AD MAGIC EN B · FAT+1 COND · DFAT5 COND → M177 1U36 → T2 → AD ADD EN G

MPY CORRECTION · IR FIXX A → M143 1F18 → F1 → AD ADD SC TERM

FIT(1) +3 · IR DMOVNM ET1 C (1) → M126 1U32 → F1 → Ø1Ø

ST2 BR+1 · DMOVN NEG HI WORD · DS NEG DIVIDEND (ET1) → M177 1U36 → P2 → AD MSK EN A

AD MSK EN B · BLTTØ (1) → M145 1K28 → J2

AD ØØ-Ø8 MSK GEN · AD Ø9-17 MSK GEN · AD 18-26 MSK GEN · AD 27-35 MSK GEN

MCF AD FM+ SET B · AD CLOCK B · MCF AD FM+ SET A · AD CLOCK A

AD ADD SC TERM · SCTC DONE B

AD DFN &~FLAG 3 · IR BLT A → M143 1F18 → ET1 C (1) · ET 2 N (1)

PI INC MEM · IR JFFO · IR XDIVX · FDVL & FLAG 3 (1) → M147 1B04 → MPY FCN · ~MPY SHIFT STEP

BYTE FIRST PART · ETØ A (1) · +3 · FDTØ (1) · FDVL & FLAG 3 (1) · ~AD Ø9-35=Ø · +3 · AD ADD EN E · ETØ A (1) → M170 1U29 → K2 → AD ADD EN D

IR DMOVNM · IR FSBXX → M173 1C04 → D2

DS NEG DIVIDEND (ET1Ø) · AD DFN ZERO COND · IR MOV (N,M)X → M147 1E13 → T2 → AD ADD ETØ EN A

IR AOSX · IR SOSX · IR AOJX · IR SOJX · +3 · IR MOV(N,M)(-,J,S) · IR FSBXX → M139 1B05 → J2 → AD ADD FETCH EN B

AD ADD EN C · AD ADD EN D · +3 · AD IT Ø INDEX · AD ADD EN Q · AD MSK EN A · AD AR+1 EN F · AD MAGIC EN C → M139 1K29 → J2

MCF AD FM+ SET A · AD CLOCK B

CLK B1 → M362 1A23 (11) RD → K2 → AD CLOCK A · L2 → AD CLOCK B

~AB AD CLK INH

M241 1R26

D2 C1 D2 C1 · AD LT ADD · D1 · U2 B1

K2 J2 K2 J2 · AD RT ADD · J1 · U2 K1

M243 1D09

P2 P1 P2 P1 · AD ADD · J2 · MR STATE CLR B · U2 R2 · CLK DRIVE A2

BYTE PTR ~INC · IR AOBJX · IR AOJX → M147 1B33 → J1 → ØØ7

F CYC ACT EN B → M1

IR BOOLE · IR XXØØ → M126 1C35 → U1 → ØØ2

IR PUSHX · +3

FDVL & FLAG 3 (1) · ET2 Y (1) · ETØ A (1) · IR DFN · FLAG 3 (Ø) · ET1 F (1) → M171 1H33 → K2 → AD MSK EN B

ØØ4

BYTE FIRST PART · IR DFN · AD Ø9-35=Ø → M143 1E17 → F1 · P2 → AD DFN ZERO COND

F CYC ACT EN B · AD ADD FETCH EN B · AD FM+ FETCH EN A · IR DMOVXM PART 2 · BYTE FIRST PART · AD+1 BOTH BLKX · ET1 F (1) · AD MAGIC ET1 EN · +3 → M171 1H33 → T2 → AD ADD EN C

M145 1F28 → E1 → ØØ5

DFDF1 (1) · DFDT9 COND · BLTTØ (1) · DFAM MUL STEP 1 → M147 1D25 → M2 → AD ADD EN E

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø	PARTS LIST			

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 · FRACTIONS ± 1/64 · ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	J. McGlew	DATE 3-23-72
CHKD	David Gross	DATE 3/24/72
ENG	Dan Kotik	DATE 3 Jun 72
PROJ. ENG	Allan Kent	DATE 3 Jun 72
PROD	M. Matthews	DATE 3 JUN 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ADDER BR+2, MASK GEN, ADD.

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-ADC1	

SCALE · SHEET 1 OF 1 · DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102A

M243 1R01 — AD ØØ-Ø5 IOB — MCF AD FM+ SET B, AD CLOCK A
M243 1P13 — AD Ø6-11 IOB — AD CLOCK B
M243 1P19 — AD 12-17 IOB — AD CLOCK A
M243 1P27 — AD 18-23 IOB — MCF AD FM+ SET A
M243 1R40 — AD 24-29 IOB
M243 1R49 — AD 3Ø-35 IOB
M243 1T25 — AD -1 LT — AD CLOCK B

PI T1 (1), IOTT2 (1), KT1 (1) → M175 2E22 → AD IOB EN

BYTE PTR INC, IR POPX → M143 1A37 → F CYC ACT EN A → M143 1J26 (Ø14)

IR SUBX, IR MOV(N,M)(-1,S), AD+1 BOTH F, IR AOJX, IR CAMX, IR CAIX, IR FSBXX, IR DMOVXM PART 2 → M139 1B32 → ØØ7 F CYC ACT EN D

DFDV POS DIVISOR ADX CRY Ø, DS POS DIVISOR AD CRY Ø, DS NEG DIVISOR ~AD CRY Ø, DFDV NEG DIVISOR ~ADX CRY Ø → M170 1L10 → Ø10

M243 1P27 AD CRY 36A; M243 1R40 AD CRY 36; M243 1P19 AD+1 LT; MCF AD FM+ SET A; AD CLOCK A; MCF AD FM+ SET B

M241 1R26 — AD EQV — MCF AD FM+ SET A, AD CLOCK B → +3

BYTE PTR INC, IR AOSX → M143 1A37 → ØØ4 → M181 1M38

ETØ J (1), AD ADD ETØ EN A; FT6 (1); JFFOT1 (1) +3V; MQ 34 IN, MPY FCN, ~MPY FLAG 1 = MQ 35 IN; ETI F (1), AD MAGIC ETI EN; FDVL Λ FLAG 3 (1), IR JFFO A → M145 1H32 → ØØ5 ET2 M (1); IR XDIVX, BRØØ A (Ø) → M143 1K11 → Ø01; SCTC DONE, AD ADD SC TERM; IR DFN FLAG 3 (Ø), ETI F (1) → M181 1H34 → ØØ6

AD MAGIC EN B, DFAT2 COND, AD NSK EN A, NRT1 NORMAL RND, DFDT9 COND, NRT2 NORMAL RND, DNT 5 COND → M139 1U31 → P2

PICTØ (1), DFDV CONT SUB, DS RND QUOTIENT → M175 1K15 → Ø02 → R2

ST2 BR +1, AD ITØ INDEX → M175 1K06 → Ø18

F CYC ACT EN A → M113 1J26 → P2 → Ø11

IR BLT → M143 1E17 → H2

TEST TXC-, IR BOOLE (6,11) → M143 1A37 → Ø13

IR AOBJX, IR PUSH, IR PUSHJ → M177 1B34 → AD+1 BOTH F

PI CYC (1), IR BLKX → M126 1A36 → AD+1 BOTH BLKX

AD AR+EN F, AD ADD EN C, AD ADD EN D, AD ADD EN G, AD ITØ INDEX, AD MSK EN A, AD MAGIC EN C → M139 1K29 → P2 → Ø17

+3V, DFDT9 (1); ETØ A (1), TEST TXC-; F CYC ACT EN A; ETI C (1), IR TEST, IR Ø3 (1) → M171 1U28 → C1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —
FINISH —

DRN	L. McGee	DATE 3-11-70
CHKD	David Frost	DATE 31 Jan 72
ENGR	Dan Kotok	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 Jan 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: AD CARRY 36 IOB & MISC.

SIZE D | CODE BS | NUMBER KI1Ø-Ø-ADCR | REV | DIST

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 102A

M243 1RØ4 — AD ØØ-Ø5 FM-
M243 1P13 — AD Ø6-11 FM-
M243 1P19 — AD 12-17 FM-
M243 1P27 — AD 18-23 FM-
M243 1P4Ø — AD 24-29 FM-
M243 1R4Ø — AD 3Ø-35 FM-

MCF AD FM+ SET B
AD CLOCK B
AD CLOCK A
MCF AD FM+ SET A

IR BOOLE AD FM- F
IR MOV(N,M)(-,I,S)
IR DMOVNM PART 1
IR XDIVX
→ M147 1BØ2 → ØØ3 → F CYC ACT EN D

IR DFN A
DS NEG DIVIDEND (ET1)
ETØ J (1)
→ M126 1E28 → ØØ5 *3
TEST TXOX
IR DMOVNM
→ M143 1A37 → ØØ6
ET2 D (1)
NRT4 (1)
→ M143 1F18 → ØØ7
ET1 B (1)
FDVL & FLAG 3(1) *3
→ M17Ø 1L21 → ØØ1

IR LUUO ET1 C (1)
ET2 Z (1) IR JFFO
BLTT7 (1) PFF1 (1)
IR IDIVX ET1 C (1) *3
→ M171 1J28 → AD MAGIC EN D

M243 1RØ4 — AD ØØ-Ø5 MAGIC
M243 1P13 — AD Ø6-11 MAGIC
M243 1P19 — AD 12-17 MAGIC
M243 1P27 — AD 18-23 MAGIC
M243 1P4Ø — AD 24-29 MAGIC
M243 1R4Ø — AD 3Ø-35 MAGIC

MCF AD FM+ SET B
AD CLOCK A
AD CLOCK B
AD CLOCK A
MCF AD FM+ SET A

AD MAGIC EN A
AD MAGIC EN E
AD MAGIC EN C
AD AR + EN F
→ M177 1H35 → T2 → ØØ2

AD +1 BOTH BLKX
IR ADSX
IR F9BXX
IR LUUO
IR DMOVXM PART 2
*3
→ M139 1B32 → J2 → ØØ4 → F CYC ACT EN A

ETØ A (1)
AD ADD ETØ EN A
~IR DFN A
SCTC DONE B
IR FIXX A
ET1 C (1)
→ M171 1J28 → T2 → AD MAGIC EN A

DFAT2 COND
NRT1 NORMAL RND
NRT2 NORMAL RND
DNT5 COND
→ M177 1E19 → J1 → AD MAGIC EN C

DFDV NEG DIVIDEND
FDV NEG DIVIDEND
→ M143 1K11 → U1 → AD MAGIC ET1 EN

AD MAGIC EN D
DFDT9 (1)
PFT1 (1)
→ M175 1K32 → P2 → ØØ5 → M1
DFDT9 COND
AD MAGIC EN B
→ M175 1K32 → L2 → AD MAGIC EN E

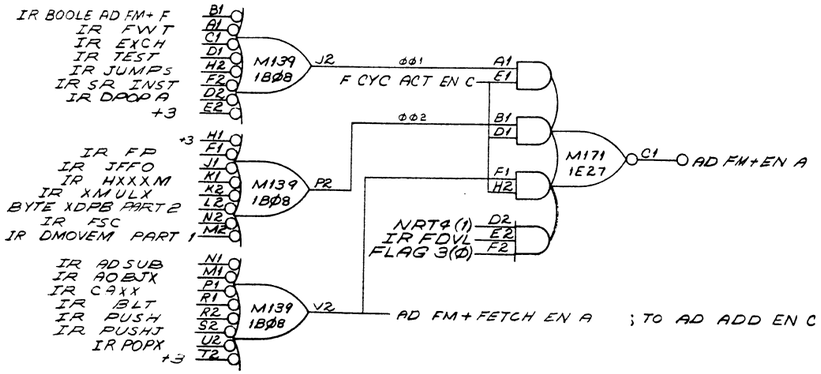
DS NEG QUOTIENT
DS NEG REMAINDER
DMOVNT1 (1)
DFDT8 TWOS COMP
→ M177 1E19 → M2 → AD MAGIC EN B

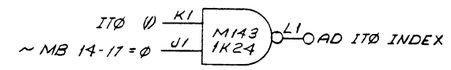
NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

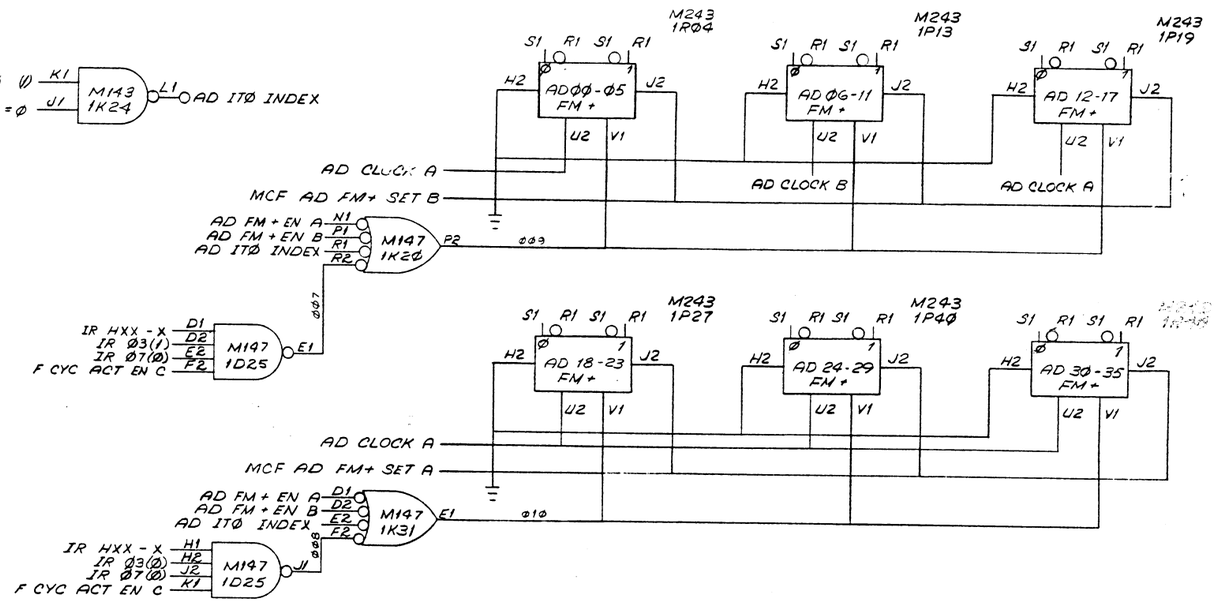
REVISIONS | REV | CHANGE NO | CHK

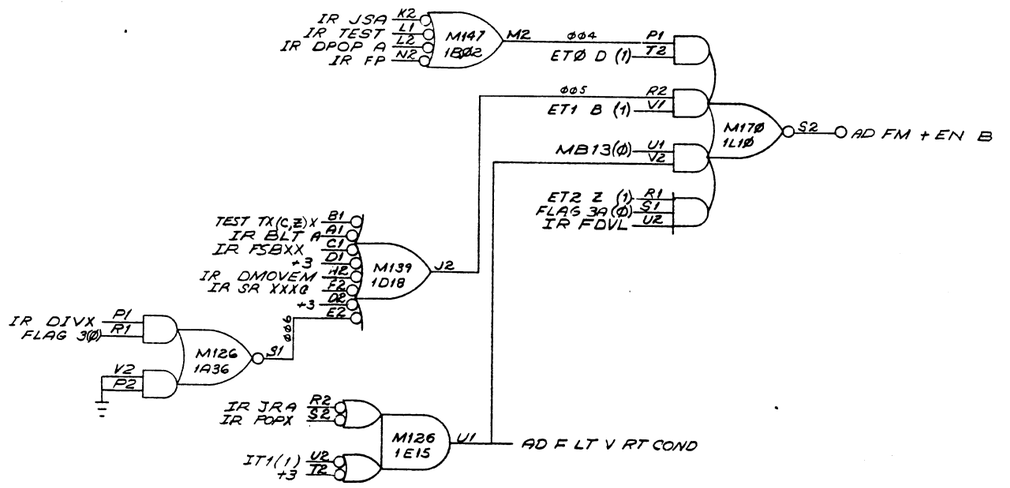
FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS	DRN.	DATE 3-12-70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
	CHKD. David Gross	DATE 31 Jan 72	
	ENG. Stan Kotik	DATE 31 Jan 72	TITLE: ADDER FM—, MAGIC
	PROJ. ENG. Allan Kent	DATE 31 Jan 72	
MATERIAL: — / —	PROD.	DATE 31 JAN 72	
	NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-ADFM REV
FINISH: — / —	SCALE — / —		
	SHEET 1 OF 1		DIST.

DEC FORM NO DRD 102A









NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	D McGee	DATE 3-27-72
CHK'D	David Gross	DATE 31 JUN 72
ENG	Allan Kotok	DATE 31 JUN 72
PROJ ENG	Allan Kent	DATE 31 JUN 72
PROD		DATE 31 JUN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ADDER FM +

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-ADFP	

DIST.

FORM NO

ADX CG * Ø9-12 A +3 P1 R1
ADX CG * 13-16 A ADX CP * Ø9-12 P2 U1
ADX CG * 17-2Ø A ADX CP * Ø9-16 R2 S2
ADX CG * 21-24 B ADX CP * 17-Ø2 S1 U2 V2
M171 1S16 T2
ADX -2(1) ADX -1(1) ADX ØØ(1) ~ADX CRY Ø A
SA1 SK2 ST2 TL2 TP2
4 BIT ADDER M142 1ST04
SU2 SV2 TR2 TF2 TS2 TU2 TV2 SR2 TK2
ADX C IN ØØ B
ADX ADD A (1)
ADX EQV (1)
SH1 SD2 SS2 SL2 TK1 TH1 TM2 TN2
+3
ARX ØØA(1)
ADX -1 IN A
ADX -1 IN B
ADX ØØ IN B
Ø81 Ø83
ARX ØØA (1) V1 C1 +3 E1 U1
M172 1SØ6 S1
ADX -1 IN A
ADX CG * 33-Ø1'B ADX CP * 29-32 ADX CP * Ø9-16 B1 D1 E1
ADX CP * 17-28 A1
ADX CG * Ø2-36 ADX CP * 29-Ø1' E2 F1
ADX CP * Ø9-16 D2
M128 1S14 C1
ADX CG * 21-24 A +3 P1 R1
ADX CG * 25-28 A ADX CP * 21-29 P2 U1
ADX CG * 29-32 A ADX CP * 21-28 R2 S2
ADX CG * 33-Ø1'A ADX CP * 29-32 S1 U2 V2
M171 1S3Ø T2
ADX 17(1) ADX 18(1) ADX 19(1) ADX 2Ø(1)
4 BIT ADDER M142 1ST23
ADX CG * 17-2Ø A ADX CP * 17-2Ø
ADX C IN 2Ø B +3
ADX ADD A (1)
ADX EQV (1)
ADX 17 IN B ADX 18 IN B ADX 19 IN B ADX 2Ø IN B
ARX 17 (1) ARX 18 (1) ARX 19 (1) ARX 2Ø (1)
Ø82
ADX CG * 25-28 B ADX CP * 21-29 ADX CP * 13-2Ø ADX CP * Ø9-16 ADX CG * 29-32 B ADX CP * 17-28 J1 L1 H1 F2 J2 K2 +3
M128 1S14 H2
ADX C IN ØØ B
AD CG * Ø2-36 ADX CP * 29-Ø1' ADX CP * 21-28 T2 U1 U2
M145 1RØ9 V2
ADX C IN 2Ø B
ADX CG * 13-16 A +3 H1 N1
ADX CG * 17-2Ø A ADX CP * 13-16 J1 J2
ADX CG * 21-24 A ADX CP * 13-2Ø L1 M1
ADX CG * 25-28 B ADX CP * 21-24 L2 M2 N2
M171 1S16 K2
ADX Ø9(1) ADX 1Ø(1) ADX 11(1) ADX 12(1)
4 BIT ADDER M142 1ST1Ø
ADX CG * Ø9-12 A ADX CP * Ø9-12
ADX C IN 12 B
ADX ADD A (1)
ADX EQV (1)
ADX Ø9 IN B ADX 1Ø IN B ADX 11 IN B ADX 12 IN B
ARX Ø9 (1) ARX 1Ø (1) ARX 11 (1) ARX 12 (1)
Ø84 Ø85
ADX CG * 33-Ø1'B ADX CP * 25-32 ADX CP * 13-16 ADX CP * 17-28 AD CG * Ø2-36 ADX CP * 29-Ø1' ADX CP * 13-16 S2 P2 R1 M1 N1 M2 N2
M128 1T3Ø P2
ADX CG * 29-32 B ADX CP * 21-28 ADX CP * 13-2Ø P2 S1 S2
M145 1RØ9 R2
ADX C IN 12 B
ADX CG * 17-2Ø A +3 A1 E1
ADX CG * 21-24 A ADX CP * 17-2Ø B1 D1
ADX CG * 29-32 B ADX CP * 17-28 F1 H2
ADX CG * 25-28 A ADX CP * 21-24 ADX CP * 17-2Ø D2 E2 F2
M171 1S16 C1
ADX 13(1) ADX 14(1) ADX 15(1) ADX 16(1)
4 BIT ADDER M142 1ST18
ADX CG * 13-16 A ADX CP * 13-16
+3
ADX ADD A (1)
ADX EQV (1)
ADX 13 IN B ADX 14 IN B ADX 15 IN B ADX 16 IN B
ARX 13 (1) ARX 14 (1) ARX 15 (1) ARX 16 (1)
Ø87 Ø88
ADX CG * 33-Ø1'B ADX CP * 25-32 ADX CP * 21-28 ADX CP * 17-2Ø AD CG * Ø2-36 ADX CP * 29-Ø1' ADX CP * 21-28 J1 K1 L1 H1 F2 J2 K2
M128 1T3Ø H2
ADX CG * 25-28 A +3 C1 L1
ADX CG * 29-32 A +3 E1 L2
M172 1SØ6 K2
ADX C IN 24 B
ADX CP * 25-28 ADX CG * 29-32 A V2 U2
M143 1PØ5 U1
ADX C IN 24 C
ADX CP * 29-Ø1' AD CG * Ø2-36 ADX CP * 29-32 ADX CG * 33-Ø1'A V1 U1 V2 +3 U2 T2
M128 1S19 S1
ADX 21(1) ADX 22(1) ADX 23(1) ADX 24(1)
4 BIT ADDER M142 1ST26
ADX CG * 21-24 A ADX CG * 21-24 B ADX CP * 21-24
ADX C IN 24 B
ADX C IN 24 C
ADX ADD B (1)
ADX EQV (1)
ADX 21 IN B ADX 22 IN B ADX 23 IN B ADX 24 IN B
ARX 21 (1) ARX 22 (1) ARX 23 (1) ARX 24 (1)
Ø86 Ø89
ADX CG * 29-32 A +3 K1 E1 J2 +3
M172 1SØ6 J1
ADX C IN 28 B
ADX 25(1) ADX 26(1) ADX 27(1) ADX 28(1)
4 BIT ADDER M142 1ST31
ADX CG * 25-28 A ADX CG * 25-28 B ADX CP * 25-28
ADX C IN 28 B +3
ADX ADD B (1)
ADX EQV (1)
ADX 25 IN B ADX 26 IN B ADX 27 IN B ADX 28 IN B
ARX 25 (1) ARX 26 (1) ARX 27 (1) ARX 28 (1)

FIRST USED ON OPTION MODEL KI1Ø

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN L McGill DATE 5/8/70
CHKD David Gross DATE 31 Jan 72
ENG Allen Kotok DATE 31 Jan 72
PROJ ENG Allen Kent DATE 31 Jan 72
PROD [illegible] DATE 31 JAN 72
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

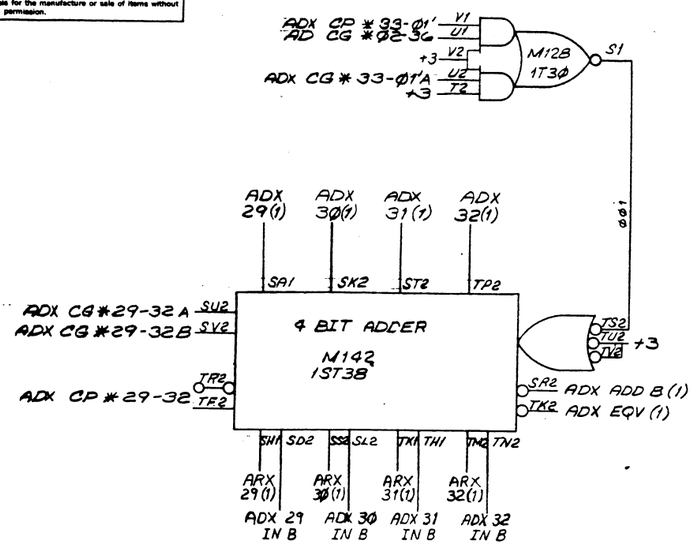
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

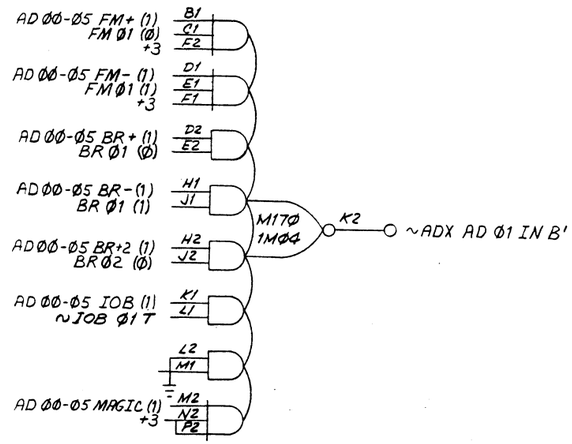
TITLE
ADX ADDER
-2 TO 28

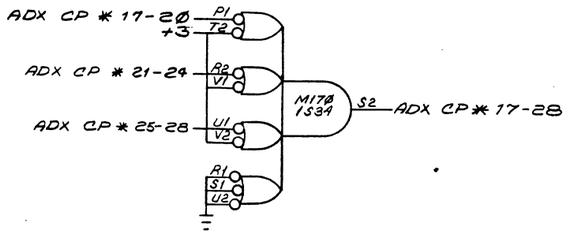
SIZE D CODE BS NUMBER KI1Ø-Ø-ADX1 REV
DIST.

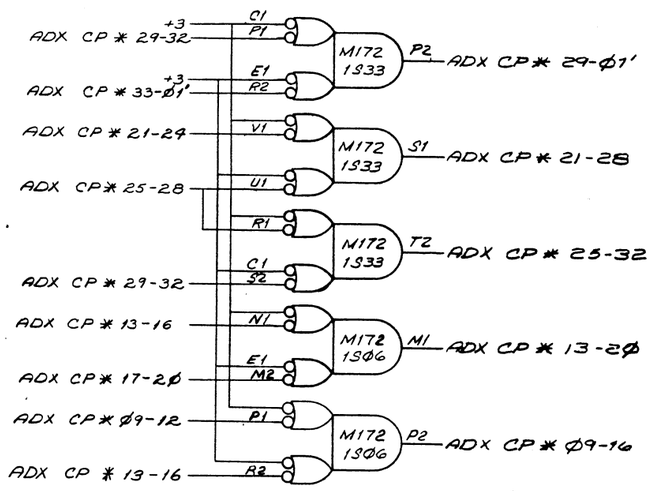
REVISIONS | REV | CHANGE NO | CHK

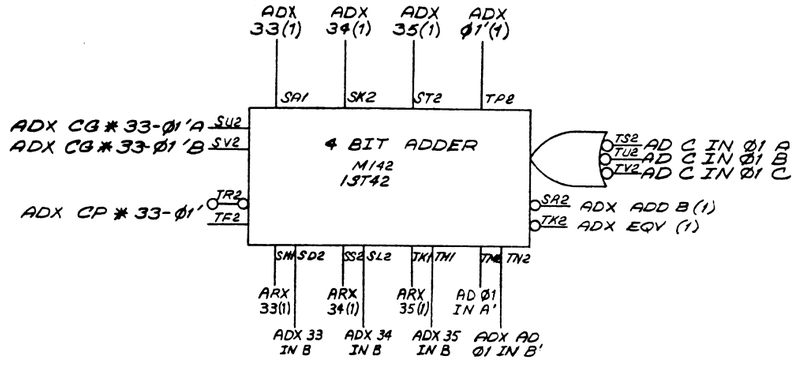
DEC FORM NO DRD 102A

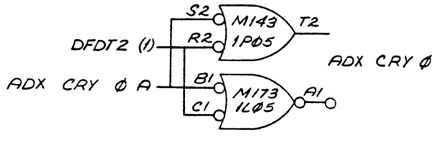












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	L McGee	DATE 3-9-70
CHKD	David Grose	DATE 31 Jan 72
ENG	Allen Kotok	DATE 31 Jan 72
PROJ. ENG	Alan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY.
B-DD-KI1Ø-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ADX ADDER
29 TO 35 & Ø1'

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-ADX2	

DIST.

DEC FORM NO DRD 102A

M243 1T11 — ADX ØØ-16 BR −
M243 1T25 — ADX 17-25 BR −
M243 1T34 — ADX 26-35 BR −
M243 1T11 — ADX ØØ-16 FM +2
M243 1T25 — ADX 17-25 FM +2
M243 1T34 — ADX 26-35 FM +2
M243 1T25 — ADX EQV

AD CLOCK B

AD BR+2 EN

M145 1K28 — DFAT3 (1), DNT2 (1) → ØØ1

M143 1J26 — ETØ A(1), IR DFAS A → ØØ3

M145 1F28 — FINAL

M171 1H29 — IR DFDV B, F CYC ACT EN B; IR DPOP A, ETØ A(1); IR DFSB, FT6(1); ØØ6 → ADX ADD EN A; ADX ADD EN B

M145 1H32 — DFAT3 COND, DFAT3 (1), DNT2 (1) → ØØ7 → +3

M1B1 1M11 — IR DFSB, FT6(1); ETØ K(1); IR DFDV A; ARX ØØ A(1), ETI B(1) → ADX FM+-A

M145 1H32 — DFAT2 COND, DNT1 COND A, DNT5 COND → ADX FM+-B

M243 1T11 — ADX ØØ-16 FM +
M243 1T25 — ADX 17-25 FM +
M243 1T34 — ADX 26-35 FM +
M243 1T25 — ADX ADD A
M243 1T25 — ADX ADD B

AD CLOCK B

M243 1T11 — ADX ØØ-16 FM −
M243 1T25 — ADX 17-25 FM −
M243 1T34 — ADX 26-35 FM −

AD CLOCK B

ADX FM+-A, +3, ADX FM+-B, DFMT1 (1) MB 35 (1), DFDV POS DIVISOR ~ADX CRY Ø, DFDV NEG DIVISOR ADX CRY Ø, MPY FCN ~MPY FLAG1=MQ35 IN ~MQ 34 IN, +3, M2 N2 P2 → M170 1L14 → K2 → ØØ8

DFAT5 COND, DFDV CONT ADD → M143 1J26 → A1 → ØØ5

M170 1L13 — ADX FM+-A, +3, ADX FM+-B, IR DFDV A, F CYC ACT EN D, DFDV POS DIVISOR ADX CRY Ø, DFDV NEG DIVISOR ~ADX CRY Ø, MPY FCN ~MPY FLAG1=MQ35 IN MQ 34 IN, MPY CORRECTION SCTC DONE B, +3 → K2 → ØØ9

DFAT3 COND, DFDV CONT SUB → M143 1J26 → D2 → ØØ4

M177 1H39 — DFAT2 COND, DNT1 COND A, DNT5 COND, DFAT5 COND → T2 → ADX ADD EN B

ADX FM+-A, +3, ADX FM+-B, DFDF1 (1), DFMT1 (1) MB 35 (1), DFDT6 (1), +3, ET1 B(1), IA DFDV A, ARX ØØ(1), SCTC DONE B, MPY CORRECTION, IR DFMP, ~MPY SHIFT STEP, MPY FCN → M170 1L15 → K2 → ADX ADD EN A

ADX ADD EN B, C1 → M177 1J30 → A1 → ADX ADD EN

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHK	CHANGE NO
	A	&D	KI10-00042

J. McInnis 3-1-71
D. GROSS

FIRST USED ON OPTION/MODEL: KI10

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

PARTS LIST

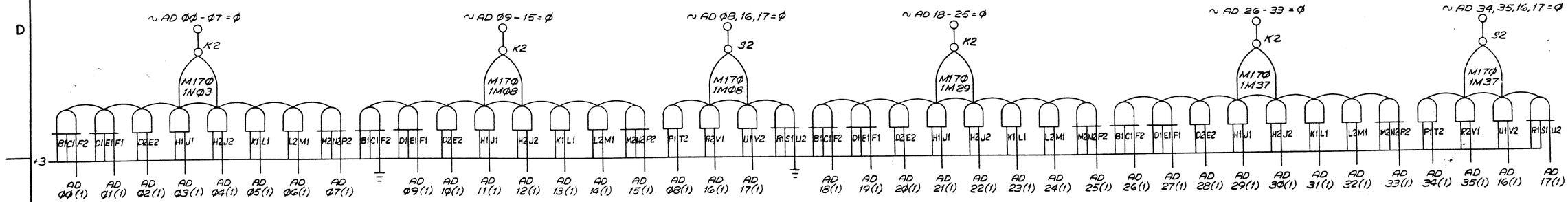
QTY.	DESCRIPTION	PART NO.	ITEM NO.

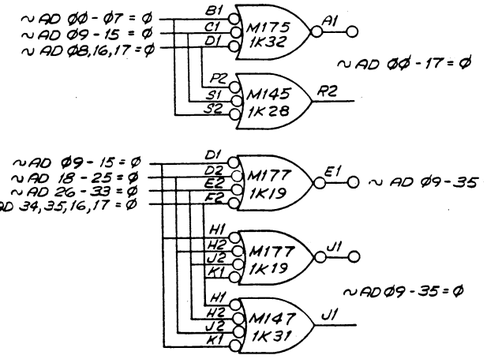
DRN S. LYONNAIS DATE 4/3/70
CHKD David Gross DATE 31 Jan 72
ENG Alan Kotok DATE 31 Jan 72
PROJ. ENG. DATE 31 Jan 72
PROG DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KI10
SCALE ~
SHEET 1 OF 1

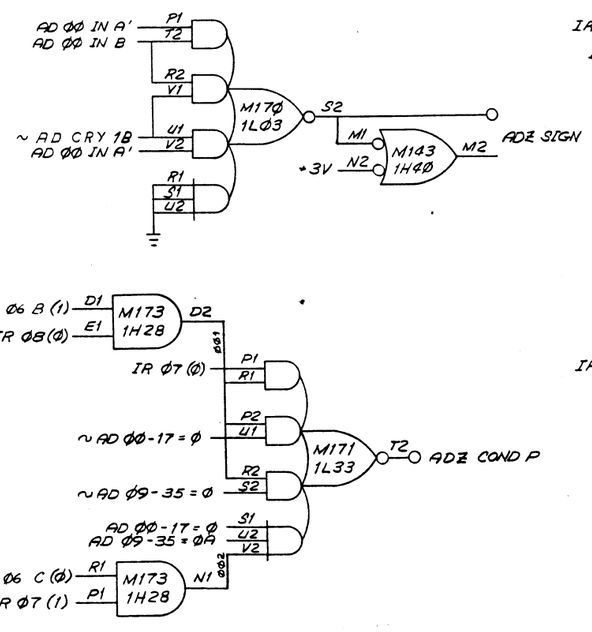
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

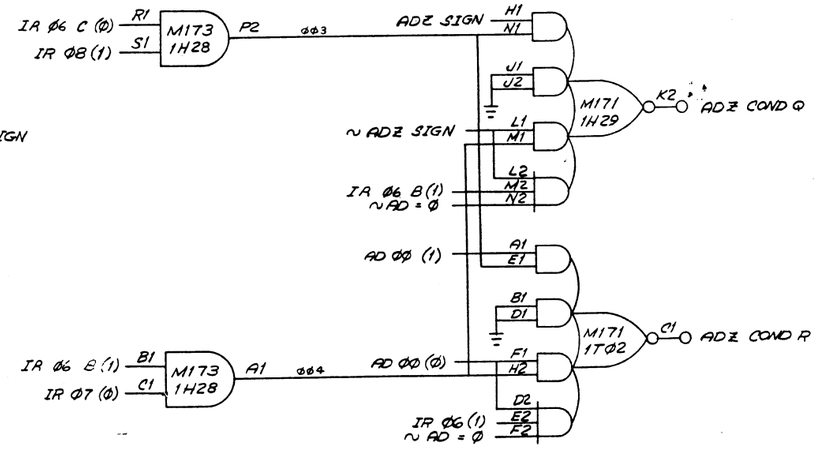
TITLE: ADX CONTROL

SIZE D | CODE BS | NUMBER KI10-Ø-ADXC | REV A
DIST.









REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS = .005 FRACTIONS = 1/64 ANGLES = 0°30
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

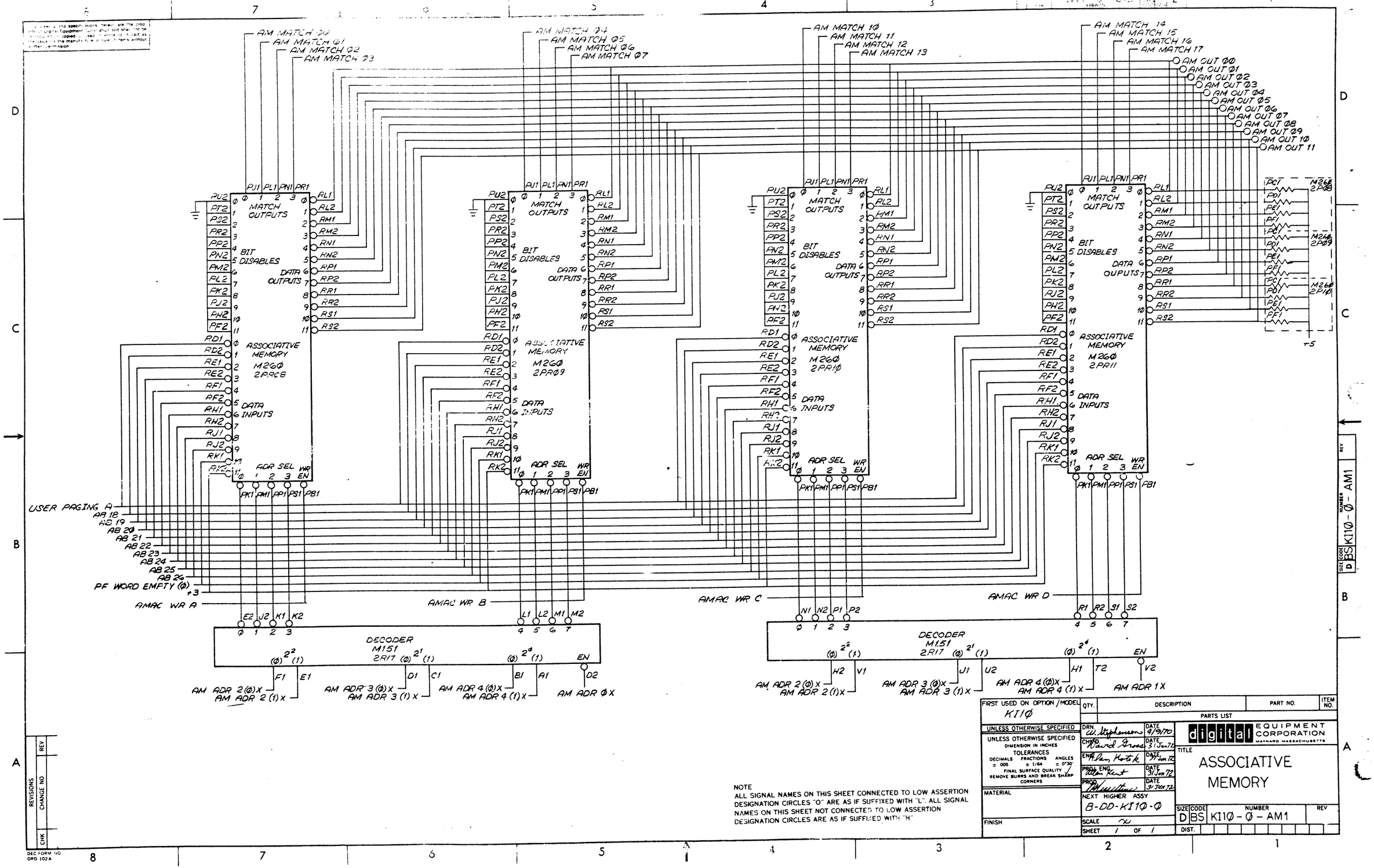
MATERIAL

FINISH

DRN. C. Stephenson	DATE 11/17/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D P. J. Grant	DATE 2-Jan-72	
ENG. Mary Hatch	DATE 7-Jan-72	
PROJ. ENG. Bill Kent	DATE 7 Jan 72	TITLE: ADDER ZERO LOGIC
PROD. [illegible]	DATE 3 JAN 72	
NEXT HIGHER ASSY B-DD-A-"C-C		SIZE D CODE BS NUMBER KI1C-0-ADZ REV
SCALE		
SHEET		

DEC FORM NO DRD 102A

SIZE D CODE BS NUMBER KI1Ø - Ø - ADZ REV



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H"

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stephenson	DATE 4/9/70
CHKD	David Frost	DATE 31 Jan 72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allen Kent	DATE 31 JAN 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
ASSOCIATIVE MEMORY

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø - Ø - AM1	

DIST.

REVISIONS	CHANGE NO	CHK
REV		

SIZE D CODE BS NUMBER KI1Ø-Ø-AM1 REV

DEC FORM NO DRD 102A

AM MATCH 2Ø
AM MATCH 21
AM MATCH 22
AM MATCH 23
AM MATCH 24
AM MATCH 25
AM MATCH 26
AM MATCH 27
AM MATCH 3Ø
AM MATCH 31
AM MATCH 32
AM MATCH 33
AM MATCH 34
AM MATCH 35
AM MATCH 36
AM MATCH 37

AM OUT ØØ
AM OUT Ø1
AM OUT Ø2
AM OUT Ø3
AM OUT Ø4
AM OUT Ø5
AM OUT Ø6
AM OUT Ø7
AM OUT Ø8
AM OUT Ø9
AM OUT 1Ø
AM OUT 11

MATCH OUTPUTS
BIT DISABLES
DATA OUTPUTS
ASSOCIATIVE MEMORY
M26Ø
2PR12
2PR13
2PR14
2PR15
DATA INPUTS
ADR SEL
WR EN

USER PAGING A
AB 18
AB 19
AB 2Ø
AB 21
AB 22
AB 23
AB 24
AB 25
AB 26
PF WORD EMPTY (Ø)
+3
AMAC WR A
AMAC WR B
AMAC WR C
AMAC WR D

DECODER
M151
2R18

AM ADR 2(Ø)X
AM ADR 2(1)X
AM ADR 3(Ø)X
AM ADR 3(1)X
AM ADR 4(Ø)X
AM ADR 4(1)X
AM ADR 2X
AM ADR 3X

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO	CHK
REV		

DEC FORM NO DRD 102A

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .ØØ5 FRACTIONS ± 1/64 ANGLES ± Ø°3Ø'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W. Stephenson	DATE 4/9/70
CHK'D	Harold Greed	DATE 31 Jan 72
ENG.	Dan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 JAN 72

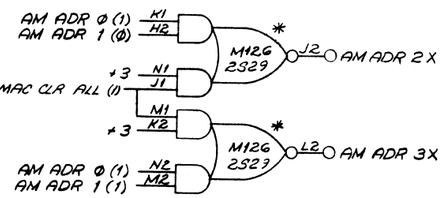
NEXT HIGHER ASSY E-DD-K11Ø-Ø
SCALE ∞
SHEET 1 OF 1

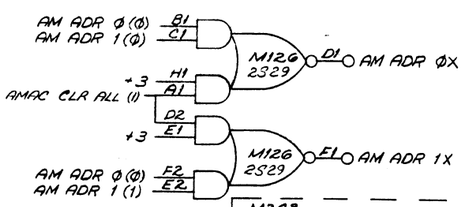
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

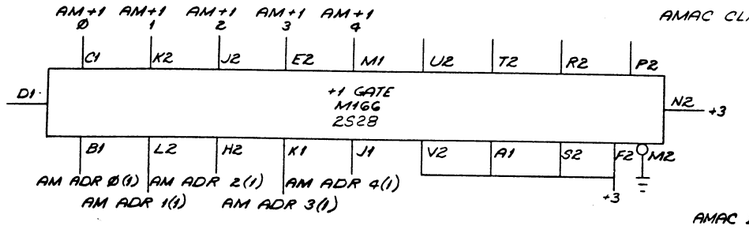
TITLE
ASSOCIATIVE MEMORY

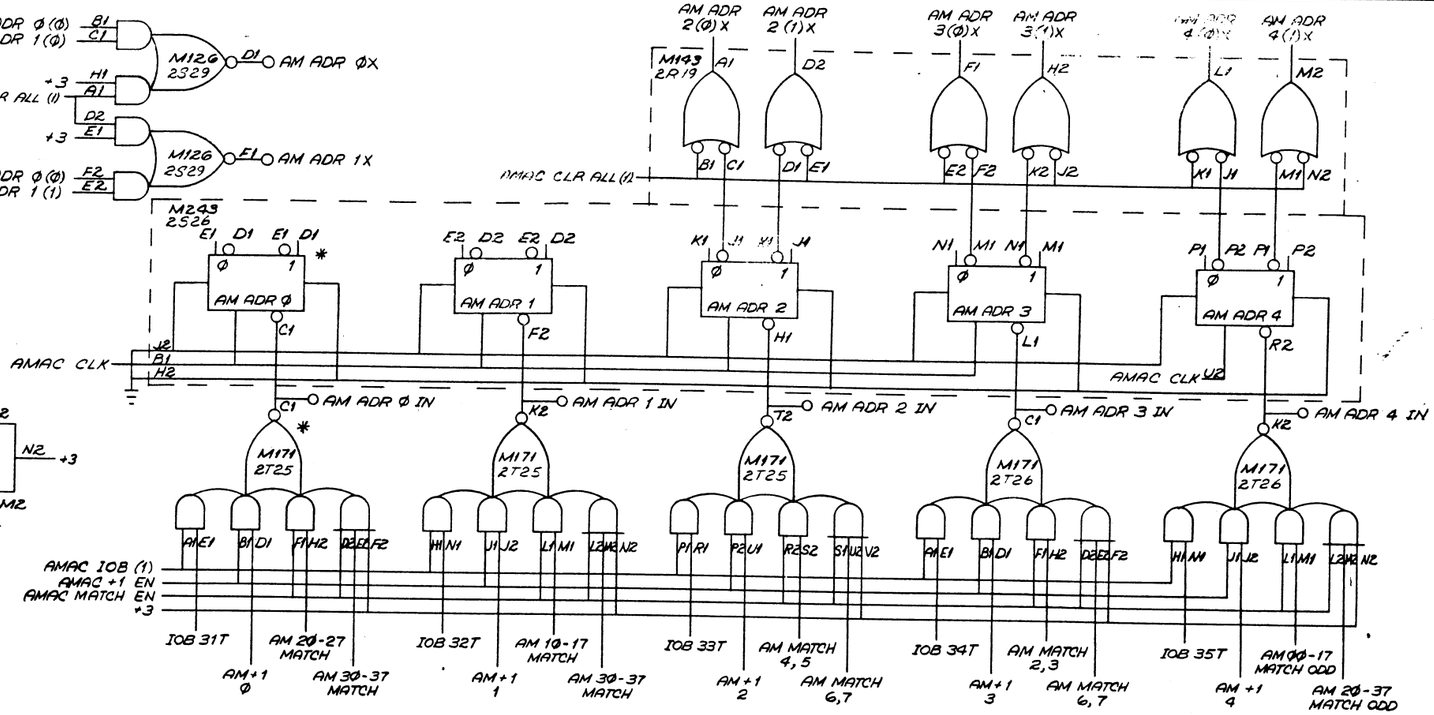
SIZE	CODE	NUMBER	REV
D	BS	K11Ø-Ø-AM2	

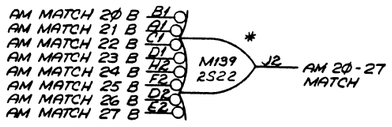
DIST.

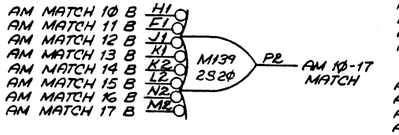


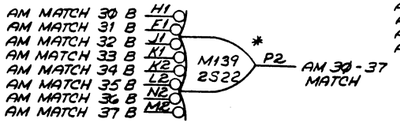


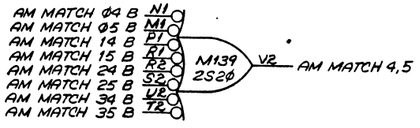


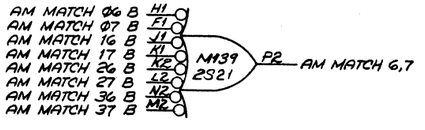


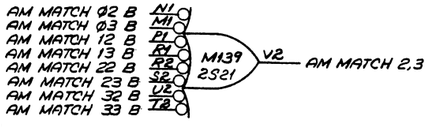


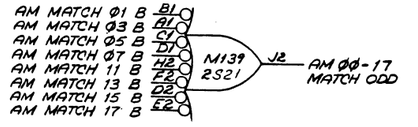


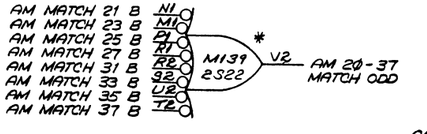


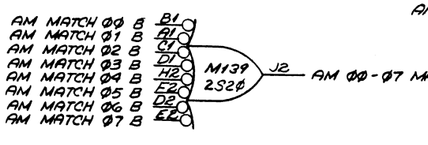


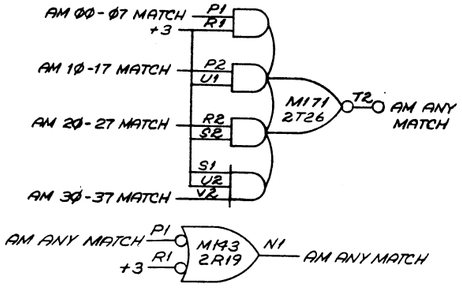












NOTE: * DESIGNATES AN OPTIONAL MODULE USED ONLY WHEN 32 ASSOCIATIVE REGISTERS ARE INSTALLED

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION / MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED	PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS	DRN. W. Stephenson DATE 4/23/70		
	CHKD. David Stroud DATE 31 Jan 72		
	ENG. Dan Kotok DATE 31 Jan 72		
	PROJ. ENG. Pat DATE 31 Jan 72		
	PROD. DATE 31 JAN 72		
MATERIAL	NEXT HIGHER ASSY B-DD-KI1Ø-Ø		
FINISH	SCALE ∞		
	SHEET 1 OF 1		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ASSOC. MEMORY ADDRESS

SIZE D | CODE BS | NUMBER KI1Ø - Ø - AMA | REV. | DIST.

DEC FORM NO DRD 102A

AM ADR Ø(1) ~AM ADR Ø IN
AM 2Ø-27 MATCH AM ADR Ø(Ø)
AM 3Ø-37 MATCH
M171 2S25 → ØØ1

AM ADR 1(1) ~AM ADR 1 IN
AM 1Ø-17 MATCH AM ADR 1(Ø)
AM 3Ø-37 MATCH
AM ADR 2(1) ~AM ADR 2 IN
M171 2S24 → ØØ2

AM MATCH 4,5 AM ADR 2(Ø)
AM MATCH 6,7
AM ADR 3(1) ~AM ADR 3 IN
AM MATCH 2,3
AM ADR 3(Ø)
M171 2S24 → ØØ3

AM MATCH 6,7
AM ADR 4(1) ~AM ADR 4 IN
AM Ø4-17 MATCH ODD AM ADR 4(Ø)
AM 2Ø-37 MATCH ODD
M171 2S24 → ØØ4

ØØ1, ØØ2, ØØ3, ØØ4 → M177 2R21 → ~AMAC EQUAL

AMAC CLR → M6Ø3 2R23 → Ø; AMAC EQUAL REF; 1

MC PAGE DLY OVER
AMAC EQUAL
PAGE OK
PAGED REF
M147 2P25 → ØØ5

MCTØ → M6Ø3 2R24 → ØØ7

AMAC CLR → M6Ø3 2R23 → Ø; AMAC AM+1; 1

AMAC CLR MR RESET D → M145 2P24 → Ø; AMAC IOB; 1

IOB CONO CLR T
BIO PAGE SEL
M143 2E16 → ØØ8 → M6Ø3 2R24

AMAC AM+1 (1) → M177 2R21 → AMAC +1 EN
AMAC IOB (Ø)
AMAC AM+1 (Ø) → M173 2R22 → AMAC MATCH EN

AMAC CLK, +3 → M6Ø3 2R24 → AMAC CLR

MC PAGE DLY OVER
PAGE FAIL
AB AB ON PULSE AMAC AM+1 (1)
IOB CONO SET T
BIO PAGE SEL
AB AB ON PULSE AMAC CLK +3
M181 2P23 → AMAC CLK

ADJUST M6Ø3 2R23 FOR 8Ø ns INDICATED
ADJUST M6Ø3 2R24 FOR 15Ø ns INDICATED
150 ns / 8Ø ns → AMAC WRITE 2R32U1

MR RESET D
AMAC DATAO SET
M145 2P24 → Ø; AMAC CLR ALL; M6Ø3 2R24 → 1

IOB DATAO CLR T
BIO PAGE SEL
M143 2E16 → AMAC DATAO CLR

IOB DATAO SET T
M143 2E16 → AMAC DATAO SET

MC PF QUICK DLYD ~ PF CODE 2X
MC REFILL DONE AM ACCESS IN
M126 2S29 → M6Ø3 2R23 → AMAC WRITE PULSE 1

AMAC WRITE PULSE 1 → M6Ø3 2R24 → AMAC WRITE PULSE 2

AMAC WRITE PULSE 1, +3 → M126 2R32 → AMAC WRITE

AMAC DATAO CLR
M173 2R22 → AMAC WR A; AMAC WR B; AMAC WR C; AMAC WR D

~AMAC WRITE PULSE 2 → M6Ø3 2R23 → M143 2R19 → AMAC WRITE DONE

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHK	CHANGE NO.	REV
		K11Ø-00038	A
		K11Ø-00040	B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

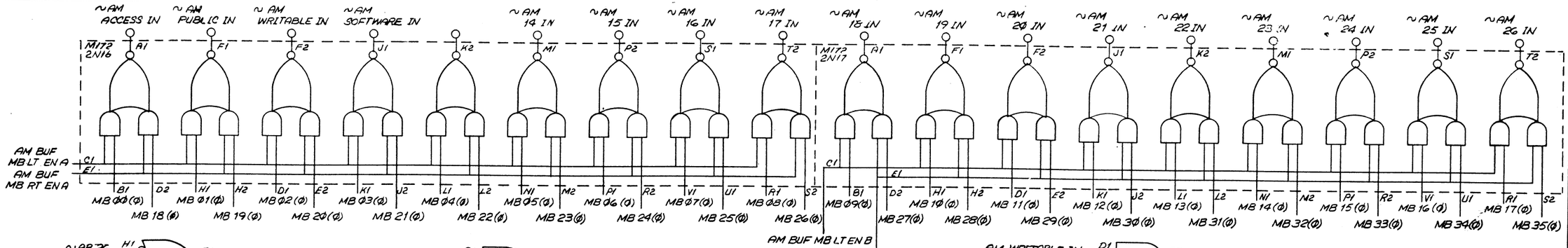
DRN D. J. Irwin DATE 8/3/70
CHKD David Gross DATE 5/Jan/72
ENG A. Van Kotok DATE 5/Jan/72
PROJ. ENG. Allan Kent DATE 31 Jan 72
PROD. M. Smith DATE 31 JAN 72
NEXT HIGHER ASSY E-DD-K1Ø-Ø
SCALE √
SHEET 1 OF 1

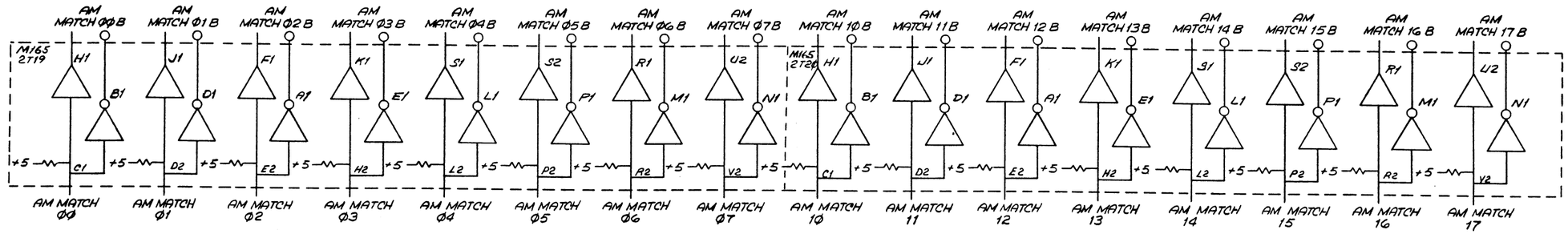
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

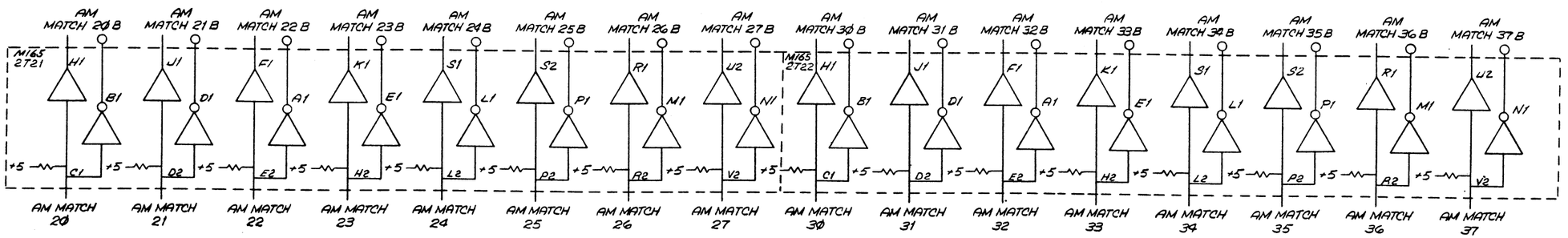
TITLE ASSOCIATIVE MEMORY ADDRESS CONTROL

SIZE D | CODE BS | NUMBER K1Ø-Ø-AMAC | REV B | DIST.

DEC FORM NO DRD 102A







NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHK
CHANGE NO		

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

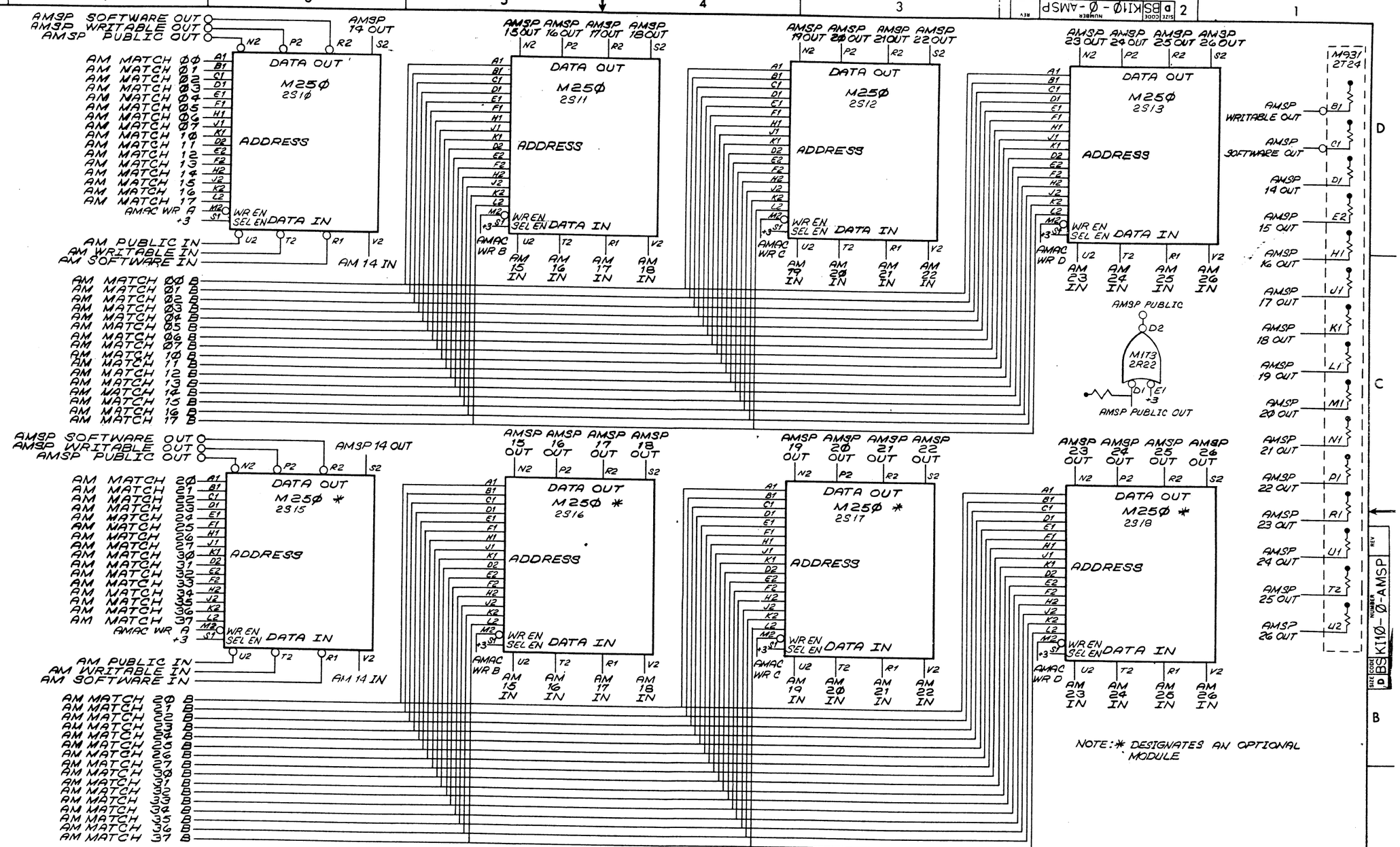
UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 4/16/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Grosz	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	TITLE ASSOC MEMORY BUFFER INPUTS & MATCH BUFFERS
PROJ. ENG. Alan Kent	DATE 31 Jan 72	
PROD.	DATE 31 Jan 72	
NEXT HIGHER ASSY 8-DD-K1Ø-Ø		SIZE D | CODE BS | NUMBER K1Ø-Ø-AMB | REV
SCALE ~		DIST.
SHEET 1 OF 1		

DEC FORM NO DRO 102A



NOTE: * DESIGNATES AN OPTIONAL MODULE

FIRST USED ON OPTION MODEL
KI1Ø

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO	CHK	REV.

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

		DATE
DRN	J. McFee	4-9-70
CHK	David Gross	3 Jan 72
ENG	Ron Kotok	31 Jan 72
PROD ENG	Ken Kent	31 Jan 72
PROD	[illegible]	2 Feb 72

NEXT HIGHER ASSY.
8-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
ASSOCIATIVE MEMORY SCRATCH PAD

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-AMSP	

DIST.

DEC FORM NO
DRO 102A

IOB 26T K1 / APR2 CONO CLR J1 → M143 2D35 → L1

MR PWR CLR EN C +3 R2 S2 / PI CONO CLR IOB 18T U2 T2 → M126 2E3Ø → U1

M246 2D33

APR1 I/O PF FLAG: D1 E1 D1 E1 / A1 F1 / C1 B1
APR1 NXM FLAG: D2 E2 D2 E2 / H1 F2 / H2 J2
APR1 CLK FLAG: S1 U1 S1 U1 / S2 U2 +3 / V2 T2
APR1 PWR FAIL FLAG: K2 L2 K2 L2 / J1 M2 +3 / L1 K1 +3

MR RESET B
APR2 CONO CLR

ØØ4 → M173 2E32 → D2 / D1 E1 → ~IOB 28T → APR1 I/O PF FLAG (1)
PFFT4 (1)

ØØ5 → M173 2E32 → F1 / E2 F2 → ~IOB 29T → APR1 NXM FLAG (1)
MC NXM PULSE 1

KEY SING INST (Ø)
APR1 PWR CLK

ØØ9 → M173 2E32 → H2 / K2 J2

M9Ø8 2S02 C1
~MR PWR CLR ENA
+3 D2 C1 S1 → M564 2P41 → D1
APR1 POWER DOWN ALARM

M3Ø8 2D37

APR1 TIMER: S2 T2 S2 T2 / D2 E2 / Ø 1.2 SEC / APR1 TIMER (49) / R2 V2 U2 K2 F2 M2 L2 / P2 N2 / H2 J2 +3
ØØ8 → APR1 TIMER EN(Ø) +3
IOB 18T
APR2 CONO CLR

MR CROWBAR OFF K1 H2 +3
APR1 TIMER (Ø) N1 J1
M126 2E25 → J2
APR1 TIMER FF
MR RESTART B (1) D1 E1
M143 2D35 → D2

M243 2D41

APR1 ERR PIA 3Ø: E1 D1 E1 D1 / C1 → IOB 3ØT
APR1 ERR PIA 31: E2 D2 E2 D2 / F2 → IOB 31T
APR1 ERR PIA 32: K1 J1 K1 J1 / H1 → IOB 32T
APR1 CLK PIA 33: N1 M1 N1 M1 / L1 → IOB 33T
APR1 CLK PIA 34: P1 P2 P1 P2 / R2 → IOB 34T
APR1 CLK PIA 35: R1 S1 R1 S1 / V1 → IOB 35T
APR1 CLK EN: M2 N2 M2 N2 / L2
APR1 TIMER EN: T2 S2 T2 S2 / V2

IOB RESET I
APR2 CONO SET
J2 B1 H2 U2

APR1 CLK EN (Ø) P1 R1 / IOB 25T
~IOB 24T V2 P2 / APR1 CLK EN (1)
M126 2E3Ø → S1 → ØØ1

APR1 TIMER EN (Ø) K1 H2 / IOB 21T
~IOB 2Ø T N1 J1 / APR1 TIMER EN (1)
M126 2E3Ø → J2 → ØØ2

APR1 CLK PIA 33 (Ø) F1 / (1) E1
APR1 CLK PIA 34 (Ø) D1 / (1) C1
APR1 CLK PIA 35 (Ø) B1 / (1) A1
M151 2D4Ø DECODER
Ø 2² 1 / Ø 2¹ 1 / Ø 2Ø 1
Ø → E2
1 → J2 → APR1 CLK PI1
2 → K1 → APR1 CLK PI2
3 → K2 → APR1 CLK PI3
4 → L1 → APR1 CLK PI4
5 → L2 → APR1 CLK PI5
6 → M1 → APR1 CLK PI6
7 → M2 → APR1 CLK PI7

APR1 CLK EN (1) C1
APR1 CLK FLAG (1) B1
M143 2D35 → A1 → D2 EN
APR1 CLK PI EN

APR1 ERR PIA 3Ø (Ø) H2 / (1) V1
APR1 ERR PIA 31 (Ø) J1 / (1) U2
APR1 ERR PIA 32 (Ø) H1 / (1) T2
M151 2D4Ø DECODER
Ø 2² 1 / Ø 2¹ 1 / Ø 2Ø 1
Ø → N1
1 → N2 → APR1 ERR PI1
2 → P1 → APR1 ERR PI2
3 → P2 → APR1 ERR PI3
4 → R1 → APR1 ERR PI4
5 → R2 → APR1 ERR PI5
6 → S1 → APR1 ERR PI6
7 → S2 → APR1 ERR PI7

APR1 NXM FLAG (1) H1
APR1 PWR FAIL FLAG (1) H2
APR1 I/O PF FLAG (1) J2
X1
M177 2B22 → J1 → V2 EN
APR1 ERR PI EN

PAR ERR FLAG (1) B1
APR2 PAR ERR EN (1) C1
M143 2C32 → A1 → ØØ11

M9Ø8 2S02
APR1 6.3 VAC
D1 / 6.3V ac / E1
P/O 845 POWER CONTROL
R2
ST
M5Ø1 2D39 → E2 F2 → APR1 PWR CLK

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS | REV | CHANGE NO. | CHK

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

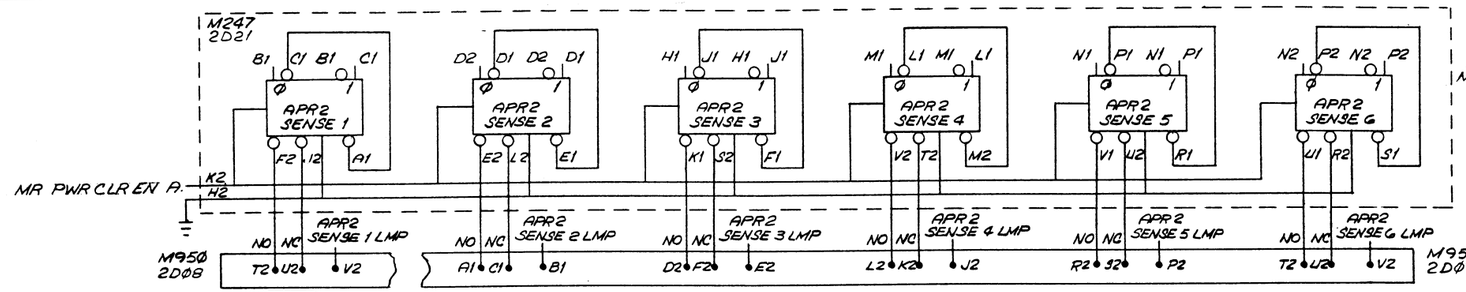
FINISH

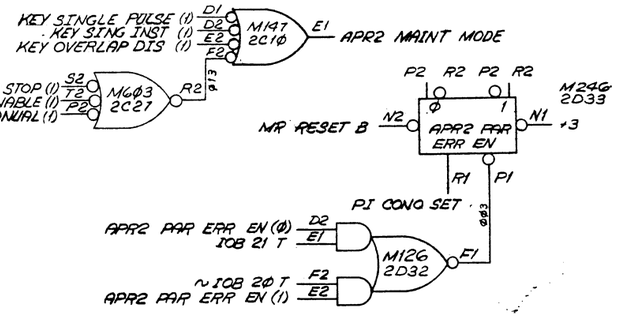
DRN. W. Stephenson DATE 12/31/71
CHKD. David Gross DATE 3/Jan 72
ENG. Allan Kotok DATE 3/Jan 72
PROJ. ENG. Allan Kent DATE 3/Jan 72
PROD. M. Mauritzen DATE 3/ JAN 72
NEXT HIGHER ASSY 8-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

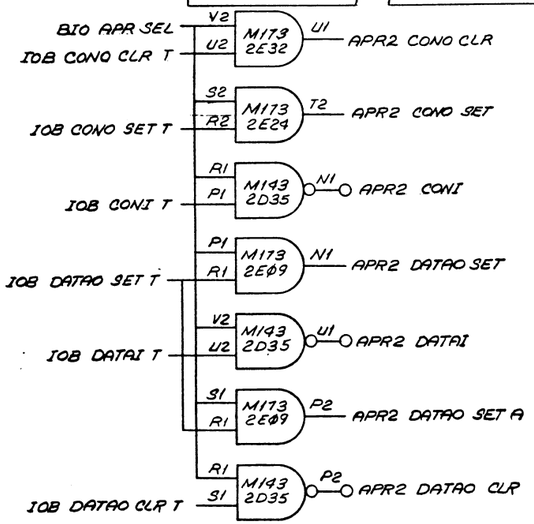
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

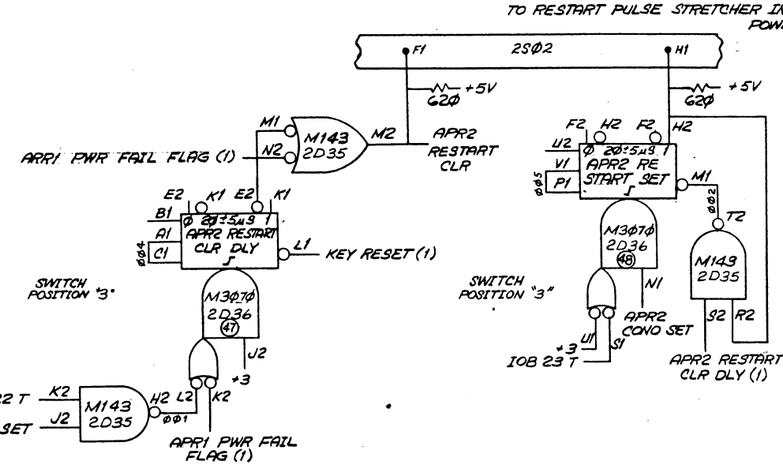
TITLE
ARITHMETIC PROCESSOR FLAGS

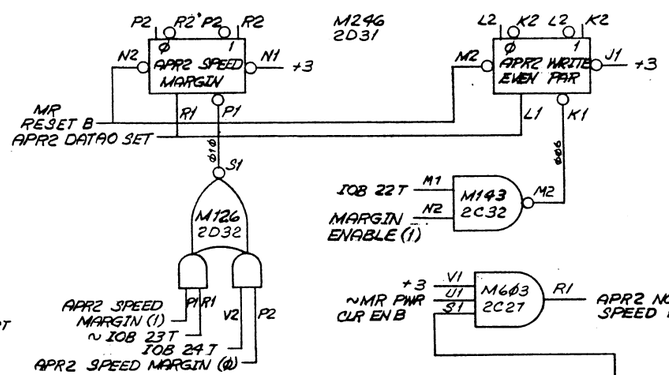
SIZE D | CODE BS | NUMBER KI1Ø-Ø-APR1 | REV
DIST.

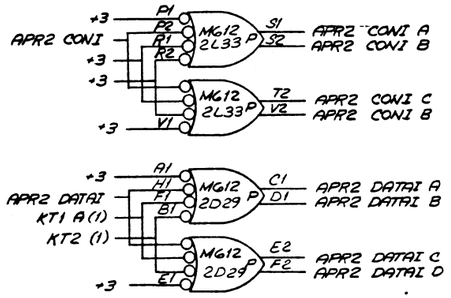


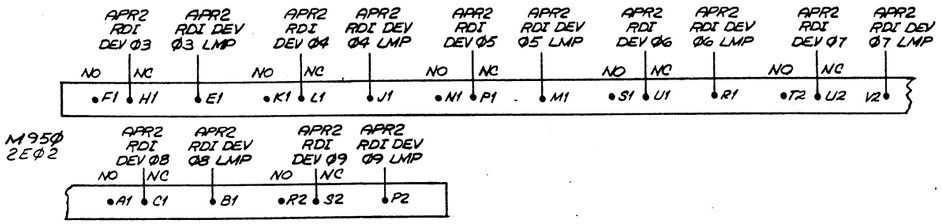


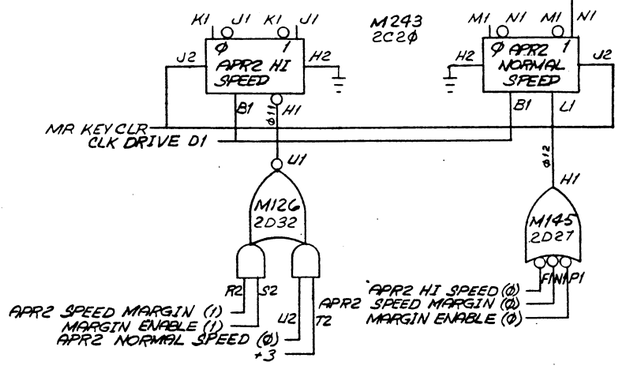












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION MODEL KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. D. Stephenson DATE 1/5/70
CHK. Conrad Gross DATE 3 Jan 72
ENG. Alan Kotok DATE 31 Jan 72
PROJ. ENG. Alan Kent DATE 31 Jan 72
PROG. [illegible] DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
ARITHMETIC PROCESSOR DEVICE LOGIC

SIZE D CODE BS NUMBER KI1Ø-Ø-APR2 REV.
DIST.

REVISIONS | REV. | CHANGE NO | CHK

DEC FORM NO DRD 102A

M241 1N06

C1 D2 | C1 D2 | F1 E1 | F1 E1 | J2 K2 | J2 K2 | N1 M1 | N1 M1 | R1 R2 | R1 R2 | T2 S2 | T2 S2

D1 | A1 MBD AR ØØ IN — AR ØØ — B1 AR ØØ IN

H1 | F2 MBD AR Ø1 IN — AR Ø1 — E2 AR Ø1 IN

J1 | H2 MBD AR Ø2 IN — AR Ø2 — K1 AR Ø2 IN

P1 | M2 MBD AR Ø3 IN — AR Ø3 — L2 AR Ø3 IN

S1 | N2 MBD AR Ø4 IN — AR Ø4 — P2 AR Ø4 IN

U1 | V2 MBD AR Ø5 IN — AR Ø5 — V1 AR Ø5 IN

+3 AR CLK A — U2

K2 — M17Ø 1M02 — D2 E2 | ARI AR ØØ DATA
H1 J1 | ARI AR ØØ SELF DATA
H2 J2 | SCAD 3 (1)
B1 C1 | AD -2 (1)
C1 F2 | AD Ø1 (1)
D1 E1 | AD ØØ (1)
F1 N2 | AD -1 (1)
P2 K1 | ARI SR 2 DATA
K1 L1 | AD Ø2 (1)
L2 M1 | AD Ø1 (1)

K2 — M17Ø 1M03 — D2 E2 | ARI AR Ø1 DATA
H1 J1 | ARI AR ØØ AUX DATA
H2 J2 | AD ØØ (1)
B1 C1 | AD -1 (1)
C1 F2 | ADX 35 (1)
D1 E1 | ADX 34 (1)
F1 N2 | AD Ø2 (1)
P2 K1 | AD Ø1 (1)
K1 L1 | AD Ø3 (1)
L2 M1 | AD Ø2 (1)

K2 — M17Ø 1P03 — D2 E2 | SCAD 2 (1)
H1 J1 | ARI AR Ø2 AUX DATA
H2 J2 | AD Ø3 (1)
B1 C1 | ARI AR Ø2 DATA
C1 F2 | AD ØØ (1)
D1 E1 | ADX 35 (1)
F1 N2 | ADX 34 (1)
P2 K1 | AD Ø2 (1)
K1 L1 | AD Ø1 (1)
L2 M1 | AD Ø4 (1)

K2 — M17Ø 1R03 — B1 C1 +3 | ARI AR Ø3 DATA
C1 E1 +3 | SCAD 3 (1)
E1 D2 | AR 21A (1)
D1 E2 | AR 21B (1)
H1 J1 | MQ Ø3 (1)
H2 J2 | AD Ø4 (1)
K1 L1 | AD Ø3 (1)
L2 M1 | AD Ø2 (1)
M2 N2 | AD Ø1 (1)
P2 +3

K2 — M17Ø 1S03 — B1 C1 +3 | ARI AR Ø4 DATA
C1 E1 +3 | SCAD 4 (1)
E1 D2 | AR 22 (1)
D1 E2 | AR 22B (1)
H1 J1 | MQ Ø4 (1)
H2 J2 | AD Ø5 (1)
K1 L1 | AD Ø4 (1)
L2 M1 | AD Ø3 (1)
M2 N2 | AD Ø2 (1)
P2 +3

K2 — M17Ø 1S02 — B1 C1 +3 | ARI AR Ø5 DATA
C1 E1 +3 | SCAD 5 (1)
E1 D2 | AR 23A (1)
D1 E2 | AR 23B (1)
H1 J1 | MQ Ø5 (1)
H2 J2 | AD Ø6 (1)
K1 L1 | AD Ø5 (1)
L2 M1 | AD Ø4 (1)
M2 N2 | AD Ø3 (1)
P2 +3

+3 AR EXP SCAD EN A
AR LT AR RT A
AR LT MQ EN A
AR LT SH LT A
AR LT AD EN A
AR LT SH RT EN A
AR LT SH RT2 B

AR LT SH RT2 A

ARI AR ØØ SELF
AR POS SCAD EN B
ARI SR 2 COND
~ ARI AR ØØ GETS Ø
ARI SH LT COND
ARI AR ØØ SH RT A
ARI AR Ø1 SH RT
ARI SR2 COND
IR DPOP
~ IR DPOP A

AR Ø7 (1) — B1 — M143 1M22 — A1 — AR Ø7A (1)
+3 — C1

AR Ø8 (1) — D1 — M143 1M22 — D2 — AR Ø8A (1)
+3 — E1

AR Ø9 (1) — E2 — M143 1M22 — F1 — AR Ø9B (1)
+3 — F2

M241 1N14

C1 D2 | C1 D2 | F1 E1 | F1 E1 | J2 K2 | J2 K2 | N1 M1 | N1 M1 | R1 R2 | R1 R2 | T2 S2 | T2 S2

D1 | A1 MBD AR Ø6 IN — AR Ø6 — B1 AR Ø6 IN

H1 | F2 MBD AR Ø7 IN — AR Ø7 — E2 AR Ø7 IN

J1 | H2 MBD AR Ø8 IN — AR Ø8 — K1 AR Ø8 IN

P1 | M2 MBD AR Ø9 IN — AR Ø9 — L2 AR Ø9 IN

S1 | N2 MBD AR 1Ø IN — AR 1Ø — P2 AR 1Ø IN

U1 | V2 MBD AR 11 IN — AR 11 — V1 AR 11 IN

+3 AR CLK A — U2

M178 1PR11

PD2 — PD1 — ARI | AR Ø6 DATA
PE2 — RE2 — SCAD 6 (1)
PF2 — RF2 — AR 24 (1)
PE1 — RE1 — MQ Ø6 (1)
PJ1 — RJ1 — AD Ø7 (1)
PK1 — RK1 — AD Ø6 (1)
PC1 — RC1 — AD Ø5 (1)
PA1 — RA1 — AD Ø4 (1)

PM2 — PM1 — RL2 — RL1 — ARI | AR Ø7 DATA
PK2 — PP1 — PR1 — PJ2 — PL1 — SCAD 7 (1)
PH2 — PJ2 — PL2 — PK1 — PM1 — AR 25 (1)
PP2 — PR2 — PM2 — PK2 — MQ 37 (1)
PR2 — PS2 — PP2 — PM2 — AD Ø8 (1)
PS2 — PU1 — PR2 — PP2 — AD Ø7 (1)
PU1 — PV1 — PS2 — PR2 — AD Ø6 (1)
PV1 — PR2 — PU1 — PS2 — AD Ø5 (1)

PT2 — PU2 — PV2 — PS2 — PU1 — PV1 — PR2 — PP2 — RD1 — RE1 — RF1 — RC1 — RE2 — RF2 — RB1 — RA1 — RJ2 — RK2 — RL2 — RJ1 — RM1 — RN1 — RH1 — RH2 — RS2 — RR2 — RU1 — RP1 — RT2 — RV2 — RN2 — RM2

ARI | AR Ø8 DATA
SCAD 8 (1)
AR 26 (1)
MQ Ø8 (1)
AD Ø9 (1)
AD Ø8 (1)
AD Ø7 (1)
AD Ø6 (1)
ARI | AR Ø9 DATA
AR 27B (1)
AR 27A (1)
MQ Ø9 (1)
AD 1Ø (1)
AD Ø9 (1)
AD Ø8 (1)
AD Ø7 (1)
ARI | AR 1Ø DATA
AR 28 (1)
MQ 1Ø (1)
AD 11 (1)
AD 1Ø (1)
AD Ø9 (1)
AD Ø8 (1)
ARI | AR 11 DATA
AR 29 (1)
MQ 11 (1)
AD 12 (1)
AD 11 (1)
AD 1Ø (1)
AD Ø9 (1)

+3 AR EXP SCAD EN A — PD1 ARI
AR LT AR RT A — RD2
AR LT MQ EN A — PE1
AR LT SH LT A — PH2
AR LT AD EN A — RU2
AR LT SH RT EN A — PB1
AR LT SH RT2 A — RV1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. W. Stephenson — DATE 1/3/70
CHK'D. David Gross — DATE 31-Jan-72
ENG. Alan Kotok — DATE 31 Jan 72
PROJ. ENG. Peter Rent — DATE 31 Jan 72
PROG. [illegible] — DATE 31 JAN 72

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
SCALE: ∞
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: AR REGISTER BITS Ø-11

SIZE D | CODE BS | NUMBER KI1Ø-Ø-AR1 | REV
DIST.

M241 1N21

C1 D2 C1 D2 — AR 12 — A1 MBD AR 12 IN; D1; B1 AR 12 IN

F1 E1 F1 E1 — AR 13 — F2 MBD AR 13 IN; H1; E2 AR 13 IN

J2 K2 J2 K2 — AR 14 — H2 MBD AR 14 IN; J1; K1 AR 14 IN

N1 M1 N1 M1 — AR 15 — M2 MBD AR 15 IN; P1; L2 AR 15 IN

R1 R2 R1 R2 — AR 16 — N2 MBD AR 16 IN; S1; P2 AR 16 IN

T2 S2 T2 S2 — AR 17 — V2 MBD AR 17 IN; U1; V1 AR 17 IN

+3 AR CLK A — U2

M178 1PR18

PD2 PN1 RL1 PM1 PS1 RD2 RK1 RS1

	PH1	PE2	PF2	PE1	PJ1	PK1	PC1	PA1	PL2	PM2	PN2	PK2	PP1	PR1	PJ2	PL1	PT2	PU2	PV2	PS2	PU1	PV1	PR2	PP2	PD1	PE1	PF1	PC1	RE2	RF2	RB1	RA1	RJ2	RK2	RL2	RJ1	RM1	RN1	RH1	RH2	RS2	RR2	RU1	RP1	RT2	RV2	RN2	RM2
ARI / AR12 DATA	AR 12 (1)	AR 30 (1)	MQ 12 (1)	AD 13 (1)	AD 12 (1)	AD 11 (1)	AD 10 (1)		AR 13 (1)	AR 31 (1)	MQ 13 (1)	AD 14 (1)	AD 13 (1)	AD 12 (1)	AD 11 (1)		AR 14 (1)	AR 32 (1)	MQ 14 (1)	AD 15 (1)	AD 14 (1)	AD 13 (1)	AD 12 (1)		PD1	AR 15 (1)	AR 33 (1)	MQ 15 (1)	AD 16 (1)	AD 15 (1)	AD 14 (1)	AD 13 (1)		AR 16 (1)	AR 34A (1)	MQ 16 (1)	AD 17 (1)	AD 16 (1)	AD 15 (1)	AD 14 (1)		AR 17 (1)	AR 35A (1)	MQ 17 (1)	AD 18 (1)	AD 17 (1)	AD 16 (1)	AD 15 (1)

+3 PD1 — AR 12-17 SELF B
RR1 — AR LT AR RT B
RD2 — AR LT MQ EN B
PF1 — AR LT SH LT B
PH2 — AR LT AD EN B
RU2 — AR LT SH RT EN B
PB1 — AR LT SH RT2 B
RV1

K2 — M143 1M22 — H2 AR 21A (1); +3 J2

AR 23 (1) — K1 — M143 1M22 — L1 AR 23A (1); +3 — J1

M241 1N27

C1 D2 C1 D2 — AR 18 — A1 MBD AR 18 IN; D1; B1 AR 18 IN

F1 E1 F1 E1 — AR 19 — F2 MBD AR 19 IN; H1; E2 AR 19 IN

J2 K2 J2 K2 — AR 2Ø — H2 MBD AR 2Ø IN; J1; K1 AR 2Ø IN

N1 M1 N1 M1 — AR 21 — M2 MBD AR 21 IN; P1; L2 AR 21 IN

R1 R2 R1 R2 — AR 22 — N2 MBD AR 22 IN; S1; P2 AR 22 IN

T2 S2 T2 S2 — AR 23 — V2 MBD AR 23 IN; U1; V1 AR 23 IN

+3 AR CLK B — U2

M178 1PR25

PD2 PN1 RL1 PM1 PS1 RD2 RK1 RS1

	PH1	PE2	PF2	PE1	PJ1	PK1	PC1	PA1	PL2	PM2	PN2	PK2	PP1	PR1	PJ2	PL1	PT2	PU2	PV2	PS2	PU1	PV1	PR2	PP2	PD1	PE1	PF1	PC1	RE2	RF2	RB1	RA1	RJ2	RK2	RL2	RJ1	RM1	RN1	RH1	RH2	RS2	RR2	RU1	RP1	RT2	RV2	RN2	RM2
	AR 18 AUX	PC+1 18	AR ØØD	MQ 18 (1)	AD 19 (1)	AD 18 (1)	AD 17 (1)	AD 16 (1)	AR 19 AUX	PC+1 19	AR Ø1 (1)	MQ 19 (1)	AD 2Ø (1)	AD 19 (1)	AD 18 (1)	AD 17 (1)	AR 2Ø AUX	PC+1 2Ø	AR Ø2 (1)	MQ 2Ø (1)	AD 21 (1)	AD 2Ø (1)	AD 19 (1)	AD 18 (1)		AR 21 AUX	PC+1 21	AR Ø3 (1)	MQ 21 (1)	AD 22 (1)	AD 21 (1)	AD 2Ø (1)	AD 19 (1)	AR 22 AUX	PC+1 22	AR Ø4 (1)	MQ 22 (1)	AD 23 (1)	AD 22 (1)	AD 21 (1)	AD 2Ø (1)	AR 23 AUX	PC+1 23	AR Ø5 (1)	MQ 23 (1)	AD 24 (1)	AD 23 (1)	AD 22 (1)	AD 21 (1)

PD1 — AR RT AUX EN A
RR1 — AR PC EN H
RD2 — AR RT AR LT A
PF1 — AR RT MQ EN A
PH2 — AR RT SH LT A
RU2 — AR RT AD EN A
PB1 — AR RT SH RT EN A
RV1 — AR RT SH RT2 A

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK.

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES: DECIMALS ± .005; FRACTIONS ± 1/64; ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. W. Stephenson	DATE 12/6/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D David Gross	DATE 5/Jan 72	
ENG Wm. Hotek	DATE 31 Jan 72	TITLE: AR REGISTER BITS 12 - 23
PROJ. ENG Dick Kent	DATE 31 Jan 72	
PROD. M. Matthews	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DC-KI1Ø-Ø
SCALE: ∾
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø - Ø - AR2	

DIST.

DEC FORM NO. DIRD 1122 A

M241 1N33

AR 24 — C1 D2 C1 D2 — D1 — A1 MBD AR 24 IN — B1 AR 24 IN
AR 25 — F1 E1 F1 E1 — H1 — F2 MBD AR 25 IN — E2 AR 25 IN
AR 26 — J2 K2 J2 K2 — J1 — H2 MBD AR 26 IN — K1 AR 26 IN
AR 27 — N1 M1 N1 M1 — P1 — M2 MBD AR 27 IN — L2 AR 27 IN
AR 28 — R1 R2 R1 R2 — S1 — N2 MBD AR 28 IN — P2 AR 28 IN
AR 29 — T2 S2 T2 S2 — U1 — V2 MBD AR 29 IN — V1 AR 29 IN

+3 AR CLK B — U2

M178 1PR33

PD2 = PH1 PE2 PF2 PE1 PJ1 PK1 PC1 PA1
- AR 24 AUX | PC+1 24 | AR Ø6A (1) | MQ 24 (1) | AD 25 (1) | AD 24 (1) | AD 23 (1) | AD 22 (1)

-M1 = PL2 PM2 PN2 PK2 PP1 PR1 PJ2 PL1
- AR 25 AUX | PC+1 25 | AR Ø7A (1) | MQ 25 (1) | AD 26 (1) | AD 25 (1) | AD 24 (1) | AD 23 (1)

PS1 = PT2 PU2 PV2 PS2 PU1 PV1 PR2 PP2
- AR 26 AUX | PC+1 26 | AR Ø8A (1) | MQ 26 (1) | AD 27 (1) | AD 26 (1) | AD 25 (1) | AD 24 (1)

RD2 = RD1 RE1 RF1 RC1 RE2 RF2 RB1 RA1
- AR 27 AUX | PC+1 27 | AR Ø9B (1) | MQ 27 (1) | AD 28 (1) | AD 27 (1) | AD 26 (1) | AD 25 (1)

RK1 = RJ2 RK2 RL2 RJ1 RM1 RN1 RH1 RH2
- AR 28 AUX | PC+1 28 | AR 10 (1) | MQ 28 (1) | AD 29 (1) | AD 28 (1) | AD 27 (1) | AD 26 (1)

RS1 = RS2 RR2 RU1 RP1 RT2 RV2 RN2 RM2
- AR 29 AUX | PC+1 29 | AR 11 (1) | MQ 29 (1) | AD 30 (1) | AD 29 (1) | AD 28 (1) | AD 27 (1)

PD1 AR RT AUX EN A
RR1 AR PC EN A
RP2 AR RT AR LT A
PE1 AR RT MQ EN A
PH2 AR RT SH LT A
RJ2 AR RT AD EN A
PB1 AR RT SH RT EN A
RV1 AR RT SH RT2 A

AR 27 (1) — M1 — M143 1M22 — M2 — AR 27A (1)
+3 — N2

AR 34 (1) — P1 — M143 1M22 — N1 — AR 34A (1)
+3 — R1

AR 35 (1) — S1 — M143 1M22 — P2 — AR 35A (1)
R1

M241 1N39

AR 30 — C1 D2 C1 D2 — D1 — A1 MBD AR 30 IN — B1 AR 30 IN
AR 31 — F1 E1 F1 E1 — H1 — F2 MBD AR 31 IN — E2 AR 31 IN
AR 32 — J2 K2 J2 K2 — J1 — H2 MBD AR 32 IN — K1 AR 32 IN
AR 33 — N1 M1 N1 M1 — P1 — M2 MBD AR 33 IN — L2 AR 33 IN
AR 34 — R1 R2 R1 R2 — S1 — N2 MBD AR 34 IN — P2 AR 34 IN
AR 35 — T2 S2 T2 S2 — U1 — V2 MBD AR 35 IN — V1 AR 35 IN

+3 AR CLK B — U2

M178 1PR39

PD2 = PH1 PE2 PF2 PE1 PJ1 PK1 PC1 PA1
- AR 30 AUX | PC+1 30 | AR 12 (1) | MQ 30 (1) | AD 31 (1) | AD 30 (1) | AD 29 (1) | AD 28 (1)

PM1 = PL2 PM2 PN2 PK2 PP1 PR1 PJ2 PL1
- AR 31 AUX | PC+1 31 | AR 13 (1) | MQ 31 (1) | AD 32 (1) | AD 31 (1) | AD 30 (1) | AD 29 (1)

PS1 = PT2 PU2 PV2 PS2 PU1 PV1 PR2 PP2
- AR 32 AUX | PC+1 32 | AR 14 (1) | MQ 32 (1) | AD 33 (1) | AD 32 (1) | AD 31 (1) | AD 30 (1)

RD2 = RD1 RE1 RF1 RC1 RE2 RF2 RB1 RA1
- AR 33 AUX | PC+1 33 | AR 15 (1) | MQ 33 (1) | AD 34 (1) | AD 33 (1) | AD 32 (1) | AD 31 (1)

K1 = RJ2 RK2 RL2 RJ1 RM1 RN1 RH1 RH2
- AR 34 AUX | PC+1 34 | AR 16 (1) | MQ 34 (1) | AD 35 (1) | AD 34 (1) | AD 33 (1) | AD 32 (1)

P91 = RS2 RR2 RU1 RP1 RT2 RV2 RN2 RM2
- AR 35 AUX | PC+1 35 | AR 17 (1) | MQ 35 (1) | ARMQ AR 35 AUX MIX | AD 35 (1) | AD 34 (1) | AD 33 (1)

PD1 AR RT AUX EN B
RR1 AR PC EN B
RP2 AR RT AR LT B
PE1 AR RT MQ EN B
PH2 AR RT SH LT B
RJ2 AR RT AD EN B
PB1 AR RT SH RT EN B
RV1 AR RT SH RT2 B

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK
REV.		

FRIST USED ON OPTION / MODEL: K11Ø

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

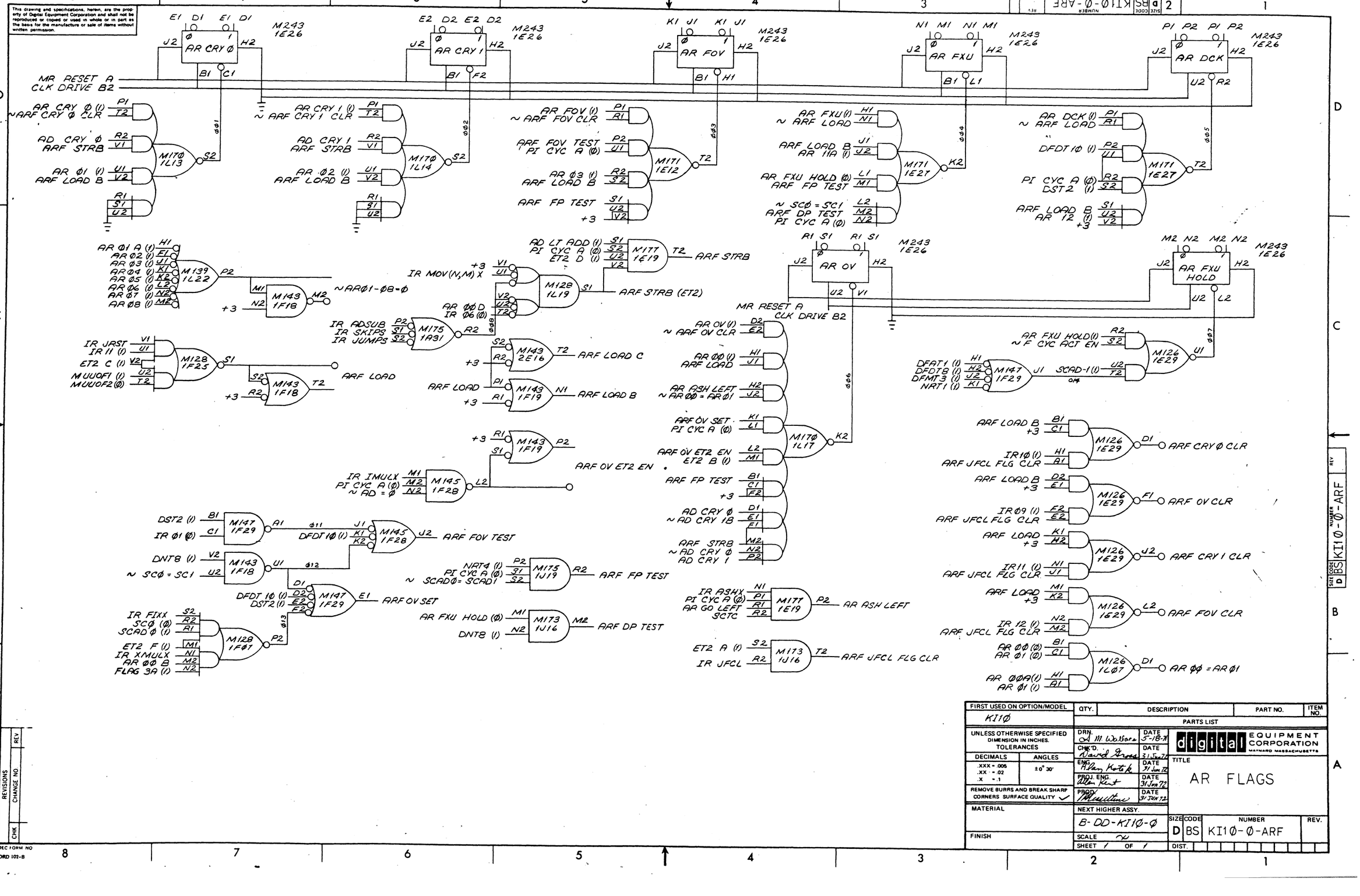
DRN. W. Stephenson	DATE 31 JAN 72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK. David Gross	DATE 31 Jan 72	
ENG. Allen Kotik	DATE 31 Jan 72	TITLE: AR REGISTER BITS 24-35
PROJ. ENG. Peter Rust	DATE 31 JAN 72	
PROD. M. Mullins	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-K11Ø-Ø
SCALE ~
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	K11Ø-Ø-AR3	

DIST.

DEC FORM NO. DRD 102A



FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION: PARTS LIST	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES: DECIMALS .XXX = .005 .XX = .02 .X = .1; ANGLES ±0° 30'. REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	DRN. A. M. Wallace DATE 5-18-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
	CHK'D. David Frost DATE 31 JAN 72	TITLE: AR FLAGS	
	ENG. Allan Kotok DATE 31 JAN 72		
	PROJ. ENG. Allan Kent DATE 31 JAN 72		
	PROD. [illegible] DATE 31 JAN 72		
MATERIAL	NEXT HIGHER ASSY. B-DD-KI1Ø-Ø	SIZE D; CODE BS; NUMBER KI1Ø-Ø-ARF; REV.	
FINISH	SCALE ~	DIST.	
	SHEET 1 OF 1		

REVISIONS: REV / CHANGE NO / CHK

DEC FORM NO DRD 102-B

AR LT SH RT EN B — E2
IR FP SHIFT — F2
M173 1H28 — F1 — ARI AR ØØ SH RT A

AR IR EN — K1
ARI ROTX DATA — H2
AR SH RT A — N1
IR ØØ(1) — U1
M126 1U32 — J2 — ARI AR ØØ SH RT B

AR LT SH RT EN B — K2
~IR DROP A — J2
M173 1H28 — H2 — ARI AR Ø1 SH RT

USER MODE (Ø) — M1
AR OV (1) — K2
USER MODE (1) — N2
PAGE LAST MUUO PUBLIC (1) — M2
M126 1U32 — L2 — ØØ1
AR FLAGS EN A — P1 — U1

ARI AR ØØ SH RT B — D2 — A2
+3
AR LT AR RT B — T2 — U2
AR 18 (1)
AR LT MQ EN B — A1 — V1
MQ ØØ (1) — V2
M181 1M13 — S2 — ARI AR ØØ DATA

IR XMULX FLAG 1(1) — B1 ~ARI MQØØ INH — D1 — E1 — A1
+3
ST4(1) — E2
IR DROP A — F1
~IR DMOVE — D2
M128 1H36 — C1 — ARI MQØØ INH

AR 34 (1) — B1
IR ROT — C1
MQ 34 (1) — H1
IR ROTC — B1
M126 1L39 — D1
+3 — J2
K2
M143 1U26 — H2 — ARI SR2 DATA

~IR ASHX — R2 — S2
+3
~IR DROP A — U2 — T2
M126 1A36 — U1 — ARI SH LT COND

AR 35 (1) — D2
IR ROT — E1
MQ 35 (1) — F2
IR ROTC — E2
M126 1L39 — F1 — ARI ROTX DATA

AR SH RT 2 EN — K1
AR SH LT B — U1
M143 1U26 — L1 — ØØ5

IR ASHx — B1
AR LT SH RT EN B — D1 — F1
+3 — F2
M181 1M13 — C1 — ARI AR ØØ SELF

AR SIGN SMEAR A — M1
AR SIGN SMEAR B — N2
AR EXP SCAD EN — N2
M145 1H32 — L2 — ØØ3

FLAG 1 A (1) — D2
IR XMULX A — E2
AR LT MQ EN B — F1

IR FP SHIFT — K1
IR XMULX A — J1
M143 1A37 — L1 — ARI SR2 COND

AR SIGN SMEAR A — B1
AR SIGN SMEAR B — C1
FDTØ (1) — D1
M145 1H32 — A1 — ØØ5

AR LT MQ EN B — H1
MQ Ø1 (1) — J2
AR LT AR RT B — U1
AR 19 (1) — L2
AR POS SCAD EN B — M1
SCAD 4 (1) — N1
SC1 = FLAG 3 — L1
DN179 (1) — M2
+3 — N2
M181 1M13 — K2 — ARI AR Ø1 AUX DATA 1

AR ØØ (1) — D2
IR OEN A — E1
~IR DFN A — F2
AR ØØA (Ø) — E2
M126 1L07 — F1 — ARI AR ØØ SELF DATA

IR DMOVNM PART 2 — S2
ET2 M (1) — R2
M143 1U26 — T2 — ARI AR ØØ GETS Ø

AR SH RT 2 EN — P1
AR IR EN — T2
A2
IR Ø1 (1) — V1
U1
V2
M170 1M19 — S2 — ARI AR Ø1 AUX DATA 2

ARI ROTX DATA — R1
S1
U2

AR ØØ C — M1
IR ASHX — N2
M143 1U26 — M2 — ØØ4

AR LT MQ EN B — H1
MQ Ø2 (1) — J2
J1
L2
M181 1M11 — K2 — ARI AR Ø2 AUX DATA
AR LT AR RT B — L1
AR 20 (1) — M2
+3 — N2

ARI AR12 DATA — K2 — M181 1M21
IR12 (1) — H1 J2
AR DCK (1) — J1 L2
M1 N1
L1 N2

ARI AR Ø1 DATA — S2 — M181 1M11
AR ØØ (1) — P1 U1
ARI AR Ø1 AUX DATA 2 — R2 A2
T2 U2
AR CRY Ø (1) — A1 S1 V2
SCAD 1 (Ø)

ARI AR Ø2 DATA — C1 — M181 1N14
A1 B1
IR Ø2 (1) — D1 E1
AR CRY 1 (1) — F2 H2
D2 E2
SCAD 5 (1) — F1

ARI AR Ø3 DATA — K2 — M181 1M14
H1 J2
IR Ø3 (1) — J1 L2
AR FOV (1) — M1 N1
L1 M2 N2
SCAD 6 (1)

ARI AR Ø4 DATA — S2 — M181 1N14
P1 U1
AR ØØ (1) — R2 A2
IR Ø4 (1) — T2 J2
BYF6 (1) — A1 S1 V2
SCAD 7 (1)

ARI AR Ø5 DATA — C1 — M181 1M15
A1 B1
IR Ø5 (1) — D1 E1
USER MODE (1) — F2 H2
D2 E2
SCAD 8 (1) — F1

AR SIGN SMEAR 1 — ARØØ B
AR IR EN B
AR FLAGS EN B
AR POS SCAD EN B
+3
AR IR EN A
AR FLAGS EN A
AR EXP SCAD EN B
DNT9 (Ø)

ARI AR Ø6 DATA — K2 — M181 1M15
H2 J2
AR ØØ B — J1 L2
IR Ø6 (1) — M1 N1
USER IOT (1) — L1 M2 N2
AR Ø6 (1)

ARI AR Ø7 DATA — S2 — M181 1M15
P1 U1
AR ØØ (1) — P2 A2
IR Ø7 (1) — T2 PAGE LAST INST PUBLIC (1) — A1 S1 V2
AR Ø7 (1)

ARI AR Ø8 DATA — C1 — M181 1M20
A1 B1
AR ØØ D — D1 E1
IR Ø8 (1) — F2 COMP ADR BRK INH (1) — D2 E2
AR Ø8 (1) — F1

ARI AR Ø9 DATA — K2 — M181 1M20
H1 J2
AR Ø9 (1) — J1 L2
IR Ø9 (1) — M1 N1
TNØ (1) — L1 M2 N2
AR Ø9 (1)

ARI AR 1Ø DATA — S2 — M181 1M20
P1 U1
AR 1Ø (1) — B2 A2
IR 1Ø (1) — T2 J2
TN1 (1) — A1 S1 V2
AR 1Ø (1)

ARI AR 11 DATA — C1 — M181 1M21
A1 B1
AR 11 (1) — D1 E1
IR 11 (1) — F2 H2
AR FXU (1) — D2 E2 F1
AR 11 (1)

AR SIGN SMEAR 2 — AR IR EN B
AR FLAGS EN B
AR POS SCAD EN A
+3

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MODEL: KT1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN. W. Stephenson	DATE 9/19/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHKD. David Gross	DATE 31 JAN 72	TITLE: AR INPUTS
	ENG. Allan Kotok	DATE 31 Jan 72	
	PROJ. ENG. Alan Kent	DATE 31 Jan 72	
MATERIAL	PROD.	DATE 31 JAN 72	
	NEXT HIGHER ASSY B-DD-KT1Ø-Ø		SIZE D | CODE BS | NUMBER K11Ø - Ø - ARI | REV
FINISH	SCALE ~		DIST.
	SHEET 1 OF 1		

IR OPODA
IR HWT
IR JFFO
IR PUSHJP
IR PUSHJ
+3
IR SR INST
IR DMOVNM
PART 1
M139 1B09 U2
AR AD BR (ET∅)
ET∅ B (1)
ET2 C (1)
AR AD ET2 EN
BYTE FIRST PART SCAD ∅∅ (1)
M171 1H29 T2
AR AD EN A

IR BOOLE
IR FSC
IR FWT
IR XDIVX
IR BLT
+3
M139 1B09 P2 ∅∅1

FDT1 (1)
FT1 (1)
DST3 (1)
DMOVNT1 (1)
DMOVNT3 (1)
DFDT1 (1)
FDT5 (1)
JFFOT1 (1)
M139 1J31 V2
AR AD EN G

IA DAOP
IR FP NI
IR DFN
M145 1A19 H1 ∅∅2

ET1 C (1)
AR FXU HOLD (1) *
DNT8 (1) *
KEY AR SETS DS KT2 (1)
IOTTB (1)
~IOT OUTGOING
+3
M171 1H27 C1
AR AD EN B

IR IOIVX
MQ ∅∅ (1)
M126 1E29 S1 ∅∅3

IT1 (1)
IR JRST
ET2 C (1)
IR HLLXX
IR∅3 (1)
IR HXX(-)0X
PI INC MEM
MQ∅6 (1)
M173 1H28 L1
AD PI COND
M171 1H27 K2 ∅1∅

IR HRRXX
AR 18 (1)
IR XXXEX
ET2 B (1)
IR HLRXX
AR∅∅ (1)
M128 1L19 C1 ∅∅9

ET2 J (1)
IR FDVXX
FLAG 3 (1)
~AD ∅9-35=∅
M147 1D34 T2 ∅∅4

IR EXCH
IR JSA
IR DFN
IR AOBJX
M177 1A14 U1
AR AD BR (ET2) A

IR JUMPS
IR DFAS
IR POPJ
IR PUSHPOP
M177 1A14 M2
AR AD BR (ET2) B

IR TEST
BYF5 (1)
M173 1A27 T2
AR AD BR (ET1)

IR DMOVNM
PART 2
+3
M139 1D18 P2
AR AD ET2 EN

IR DFMP
IR BLKX
IR BOOLE
FP A09JB
M177 1A14 T2
AAMA BLKX ETC

DFDTB TWOS COMP
AR AD EN B
AR AD EN C
AR AD EN J
M177 1K34 E1
AR AD CLK INPUT B

FAT4 ~SH RT
M177 1K34 U1 ∅11

ET1 C (1)
IR BLT
FLAG 3 (1)
M145 1H32 V2 ∅∅7

+3
AR AD EN G
M171 1L33 C1 ∅13

+3
AR AD EN E

AR AD EN D
FIXT2 (1)
M612 1P22 P
AR RT AD EN A
AR RT AD EN B

AR RT AD EN
V1

AR AD EN A
ARX ADX EN A
FAT3 AR INPUT
M177 1H35 U1 ∅∅8

AR SH RT2 EN
M177 1N39 E1
AR AD CLK INPUT A

IT1 (1)
Y3
ET2 Y (1)
IR HWT
M171 1H27 T2 ∅14

AD PI COND

ITI A (1)
+3
IR HRRXX
ET2 M (1)
M126 1J32 S1

MUUOF1 (∅)
MUUOF2 (1)
ET2 M (1)
IR∅3 (∅)
IR HXX(-)0 X
M128 1H36 S1 ∅15

IR HRLXX
AR18 (1)
IR XXXEX
ET2 B (1)
IR HLLXX
AR∅∅ (1)
M128 1L19 H2 ∅17

∅16
FAT 4 ~SH RT
M177 1K34 M2
AR RT AD EN

FIXT2 AR INPUT A
FIXT2 AR INPUT B
M149 1J26 U1
AR AD EN D

BLTT6 (1)
DNT8 (1)
BLTT1 (1)
DFDT2 (1)
DFDT6 (1)
MCF AR AD FF (1)
PFT2 (1)
M139 1H37 U2
AR AD EN E

IOTT∅ (1)
IOT OUTGOING
ARF STRB (ET2)
ET2 J (1)
M126 1E28 L2
AA AD EN C

DST6 (1)
~AR SH RT A
DST4 (1)
MQ35 (∅)
DNT5 (1)
ARX ∅∅ (1)
NRT3 (1)
~AD ∅9-35=∅
+3
M17∅ 1L19 S2
AR AD EN J

*APPARENTLY REDUNDANT TERM

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

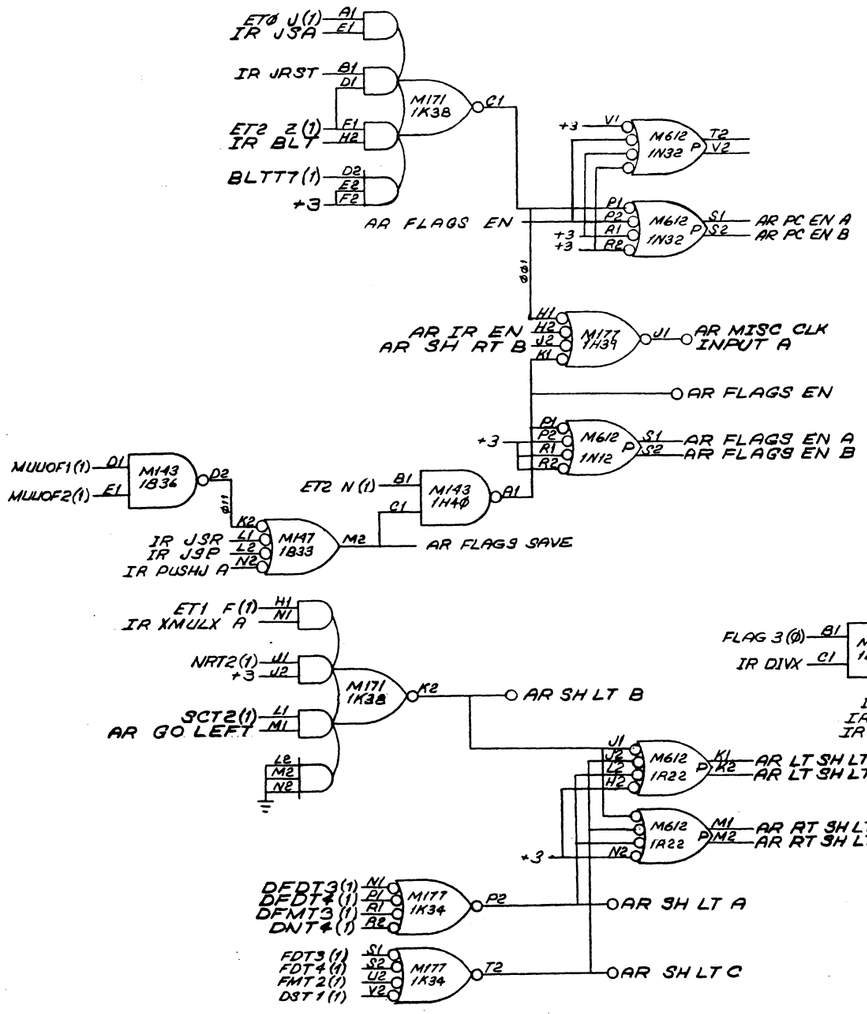
REVISIONS | REV | CHANGE NO. | CHK

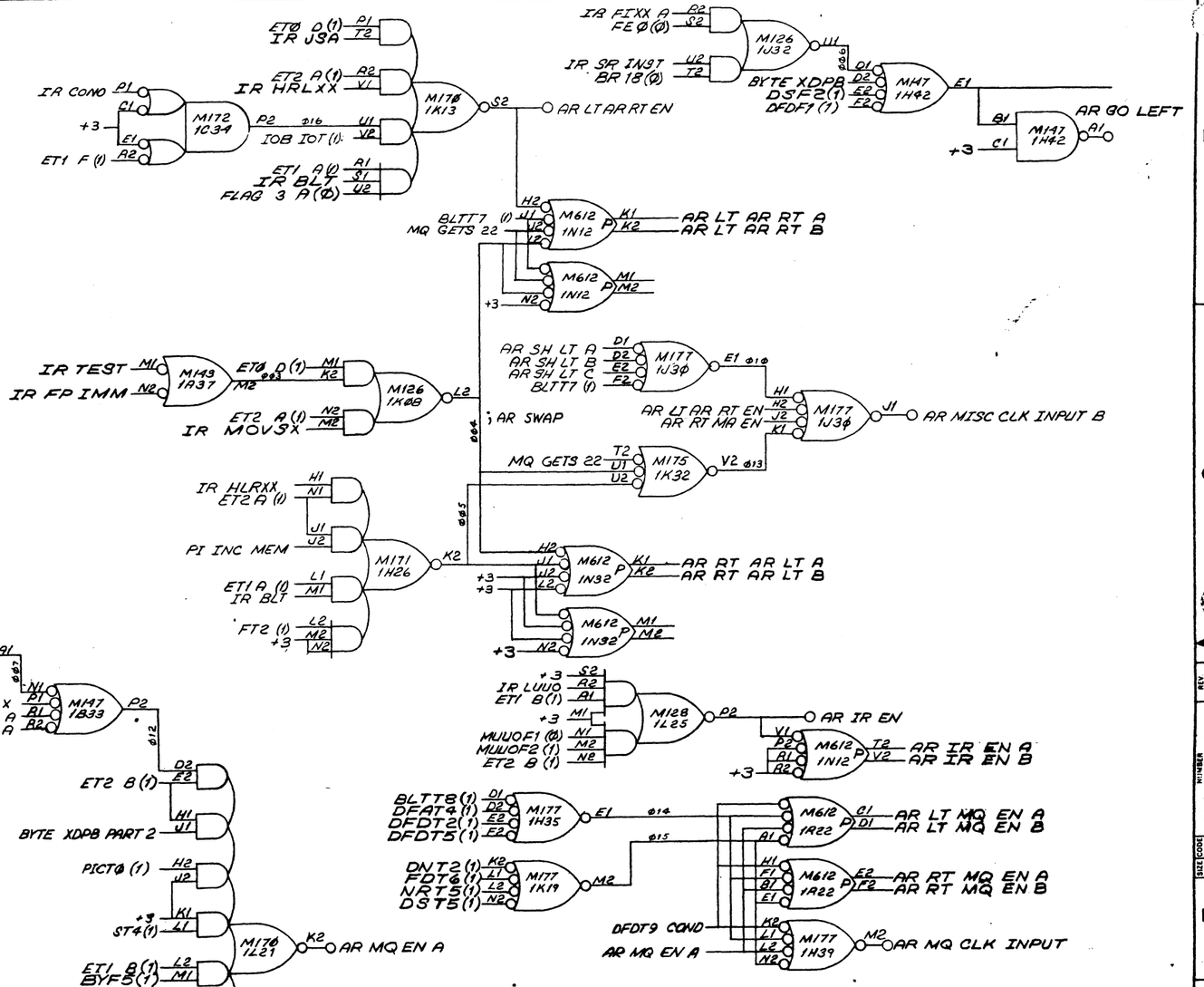
DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL KI1∅	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. S. LYON V.A.I.S	DATE 5/11/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Stroud	DATE 31 Jan 72	
ENGR. Alan Kotok	DATE 31 Jan 72	TITLE
PROJ. ENG. Allan Kent	DATE 31 Jan 72	AR MIXER CONTROL ADDER ENABLE
PROD. [illegible]	DATE 31 JAN 72	
NEXT HIGHER ASS'Y B-DD-KI1∅-∅		SIZE D CODE BS NUMBER KI1∅-∅-ARMA PFV
SCALE ~		DIST.
SHEET OF		





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	J. McCue	DATE 4-6-70
CHKD	Richard Grodt	DATE 5/Jun/72
ENG	Larry Kotok	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 Jan 72

NEXT HIGHER ASSY.
B-DD-KI10-0

SCALE

SHEET 1 OF 1

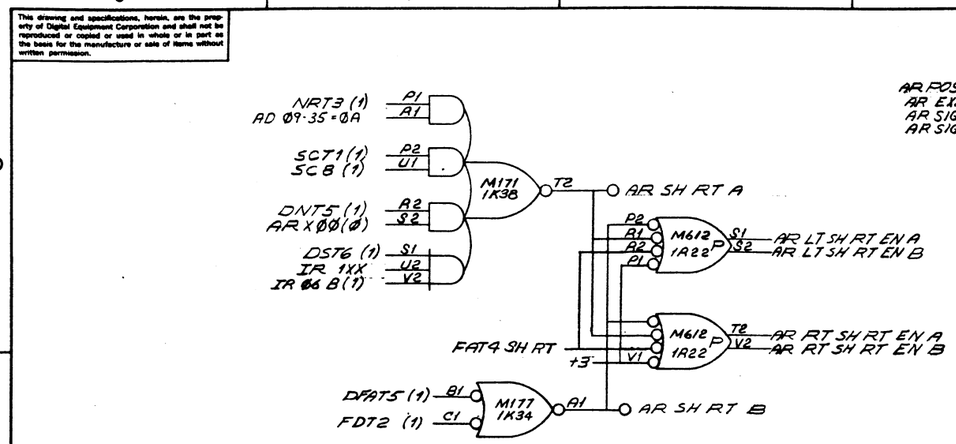
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

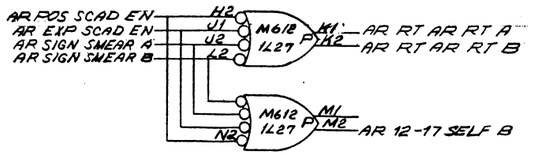
TITLE
AR MIXER CONTROL

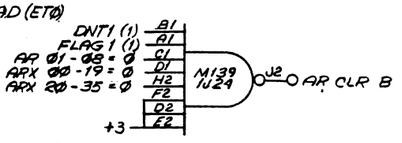
SIZE	CODE	NUMBER	REV.
D	BS	KI10-0-ARMB	

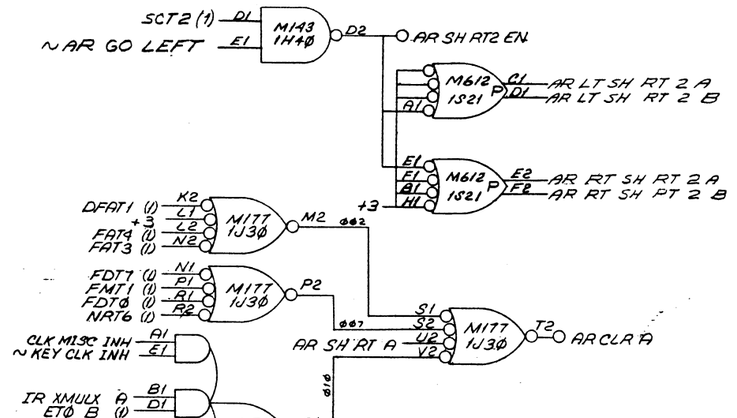
DIST.

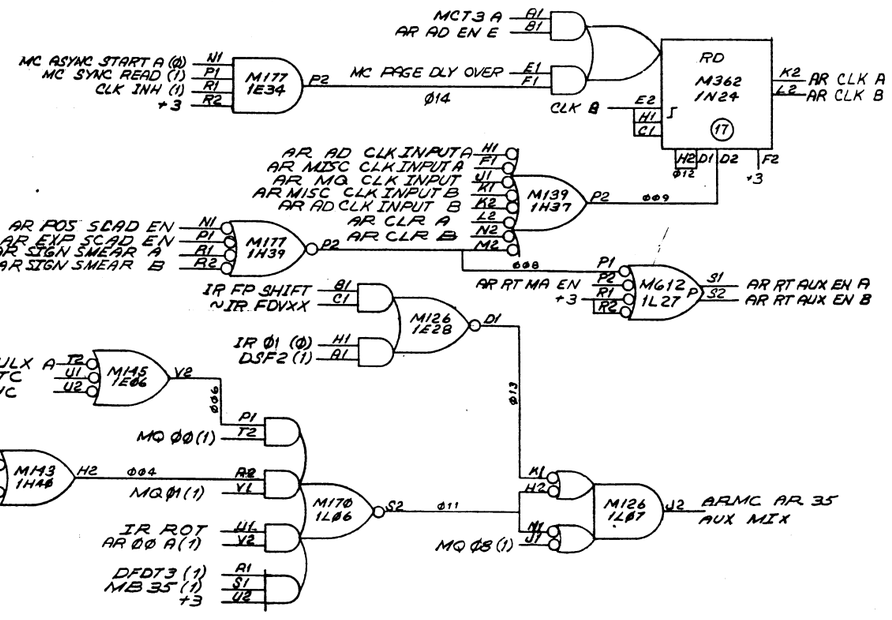
DEC FORM NO. DRD 102A











NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	S. LYONNAIS	DATE 4/15/72
CHK'D	Maurice Grenier	DATE 31 Jan 72
ENGR	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASS'Y B-DD-KI1Ø-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
AR MIXER CONTROL

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-ARMC	

SCALE ~ SHEET 1 OF 1 DIST.

DEC FORM NO DRO 102A

M172 1M26

~AR 18 AUX — A1 — B1 AR 18 (Ø) — D2 PAGE OK
~AR 19 AUX — F1 — H1 AR 19 (Ø) — H2 ~AMSP PUBLIC
~AR 20Ø AUX — F2 — D1 AR 20Ø (Ø) — E2 ~AMSP WRITABLE OUT
~AR 21 AUX — J1 — K1 AR 21 (Ø) — J2 ~AMSP SOFTWARE OUT
~AR 22 AUX — K2 — L1 AR 22 (Ø) — L2 AM ANY MATCH
~AR 23 AUX — M1 — N1 AR 23 (Ø) — M2 ~MA 14
~AR 24 AUX — P2 — P1 AR 24 (Ø) — R2 ~MA 15
~AR 25 AUX — 31 — V1 AR 25 (Ø) — U1 ~MA 16
~AR 26 AUX — T2 — R1 AR 26 (Ø) — S2 ~MA 17

AR RT AR RT A — C1
AR RT MA EN A — E1

M172 1M34

~AR 27 AUX — A1 — B1 AR 27 (Ø) — D2 ~MA 18
~AR 28 AUX — F1 — H1 AR 28 (Ø) — H2 ~MA 19
~AR 29 AUX — F2 — D1 AR 29 (Ø) — E2 ~MA 20
~AR 3Ø AUX — J1 — K1 AR 30 (Ø) — J2 ~MA 21
~AR 31 AUX — K2 — L1 AR 31 (Ø) — L2 ~MA 22
~AR 32 AUX — M1 — N1 AR 32 (Ø) — M2 ~MA 23
~AR 33 AUX — P2 — P1 AR 33 (Ø) — R2 ~MA 24
~AR 34 AUX — 31 — V1 AR 34 (Ø) — U1 ~MA 25
~AR 35 AUX — T2 — R1 AR 35 (Ø) — S2 ~MA 26

AR RT AR RT B — C1
AR RT MA EN B — E1

IR MAP +3 — A1 C1 — M772 1C34 — A1 — AR RT MA EN A
ET2 J (1) — E1 D2 — M172 1C34 — F1 — AR RT MA EN B
H1 C1
E1 H2
+3 — V2 — M143 1F38 — U1 — AR RT MA EN
U2

+3 — R1 — M143 1J15 — N1 — AR ØØB
P1
P1 — M173 1J16 — N1 — AR ØØD
+3 — R1
S1 — M143 1J15 — P2
+3 — R1

AR ØØA (1) — B1 — M147 1H21 — A1 — AR ØØC
+3 — C1

M241 1KØ5

T2 S2 T2 S2 — AR Ø6A — V2 MBD AR Ø6 IN — V1 AR Ø6 IN
C1 D2 C1 D2 — AR ØØA — A1 MBD AR ØØ IN — B1 AR ØØ IN
F1 E1 F1 E1 — AR Ø1A — F2 MBD AR Ø1 IN — E2 AR Ø1 IN
J2 K2 J2 K2 — AR Ø9A — H2 MBD AR Ø9 IN — K1 AR Ø9 IN
N1 M1 N1 N1 — AR 1ØA — M2 MBD AR 1Ø IN — L2 AR 1Ø IN
R1 R2 R1 R2 — AR 11A — N2 MBD AR 11 IN — P2 AR 11 IN

AR CLK B — U2
+3

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson	DATE 7/17/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 JAN 72	TITLE: AR MIXER AUX
ENG. Allen Kotok	DATE 31 JAN 72	
PROJ. ENG. Allen Kent	DATE 31 JAN 72	
PROD.	DATE 31 JAN 72	
NEXT HIGHER ASSY B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-ARMD REV
SCALE ½		
SHEET 1 OF 1		DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102A

M243 1TØ8: ARX ØØ (C1), ARX Ø9 (F2), ARX 1Ø (H1), ARX 11 (L1), ARX 12 (R2), ARX 13 (V1), ARX 14 (L2), ARX 15 (V2), ARX 16 (B1, C1)

ARX CLOCK A (J2, B1, H2) — ARX CLOCK A U2

M174 1ST Ø9: ARX ØØ IN (S2), ARX Ø9 IN (SF1), ARX 1Ø IN (SL1), ARX 11 IN (SR1), ARX 12 IN (TA1), ARX 13 IN (TD1), ARX 14 IN (TH1), ARX 15 IN (TM1), ARX 16 IN (TS2)

M17Ø 19Ø2

P1	T2	R2	V1	R1	S1	U2	U1	V2	SH1	SJ1	SK2	SL2	SK1	SM1	SR2	SS2	SP1	SS1	SU2	SV2	TB1	TC1	TD2	TE2	TE1	TF1	TF2	TH2	TJ1	TK1	TK2	TL2	TN1	TP1	TP2	TR2	TU1	TV1	TU2	TV2
ADX Ø9 (1)			ADX ØØ (1)			ADX -1 (1)		ADX -2 (1)	ADX 1Ø (1)	ADX Ø9 (1)	ADX ØØ (1)	ADX -1 (1)	ADX 11 (1)	ADX 1Ø (1)	ADX Ø9 (1)	ADX ØØ (1)	ADX 12 (1)	ADX 11 (1)	ADX 1Ø (1)	ADX Ø9 (1)	ADX 13 (1)	ADX 12 (1)	ADX 11 (1)	ADX 1Ø (1)	ADX 14 (1)	ADX 13 (1)	ADX 12 (1)	ADX 11 (1)	ADX 15 (1)	ADX 14 (1)	ADX 13 (1)	ADX 12 (1)	ADX 16 (1)	ADX 15 (1)	ADX 14 (1)	ADX 13 (1)	ADX 17 (1)	ADX 16 (1)	ADX 15 (1)	ADX 14 (1)

ARX LT SH LT EN A — SE1
ARX LT ADX EN A — SA1
ARX LT SH RT EN A — SC1
ARX LT SH RT2 EN A — SB1

~ IR DFDV A

M243 1T28: ARX 17 (F2), ARX 18 (H1), ARX 19 (L1), ARX 2Ø (R2), ARX 21 (V1), ARX 22 (L2), ARX 23 (V2)

M243 1T37: ARX 24 (C1), ARX 25 (F2)

ARX CLOCK A (J2, B1, H2) — ARX CLOCK A U2

ARX CLOCK B (J2, B1, H2)

M174 19T29: ARX 17 IN (SD2), ARX 18 IN (SF1), ARX 19 IN (SL1), ARX 2Ø IN (SR1), ARX 21 IN (TA1), ARX 22 IN (TD1), ARX 23 IN (TH1), ARX 24 IN (TM1), ARX 25 IN (TS2)

SD1	SE2	SF2	SH2	SH1	SJ1	SK2	SL2	SK1	SM1	SR2	SS2	SP1	SS1	SU2	SV2	TB1	TC1	TD2	TE2	TE1	TF1	TF2	TH2	TJ1	TK1	TK2	TL2	TN1	TP1	TP2	TR2	TU1	TV1	TU2	TV2
ADX 18 (1)	ADX 17 (1)	ADX 16 (1)	ADX 15 (1)	ADX 19 (1)	ADX 18 (1)	ADX 17 (1)	ADX 16 (1)	ADX 2Ø (1)	ADX 19 (1)	ADX 18 (1)	ADX 17 (1)	ADX 21 (1)	ADX 2Ø (1)	ADX 19 (1)	ADX 18 (1)	ADX 22 (1)	ADX 21 (1)	ADX 2Ø (1)	ADX 19 (1)	ADX 23 (1)	ADX 22 (1)	ADX 21 (1)	ADX 2Ø (1)	ADX 24 (1)	ADX 23 (1)	ADX 22 (1)	ADX 21 (1)	ADX 25 (1)	ADX 24 (1)	ADX 23 (1)	ADX 22 (1)	ADX 26 (1)	ADX 25 (1)	ADX 24 (1)	ADX 23 (1)

ARX LT SH LT EN B — SE1
ARX LT ADX EN B — SA1
ARX LT SH RT EN B — SC1
ARX LT SH RT2 EN B — SB1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS | REV. | CHANGE NO | CHK

DEC FORM NO. 3SD 102A

FIRST USE ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN. W Stephenson	DATE 5/19/72	
CHKD. David Gross	DATE 31 Jan 72	
ENGR. Harry Kotak	DATE 31 Jan 72	
PROJ. ENG. Alan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY: E-DD-KI1Ø-Ø

SCALE: NONE

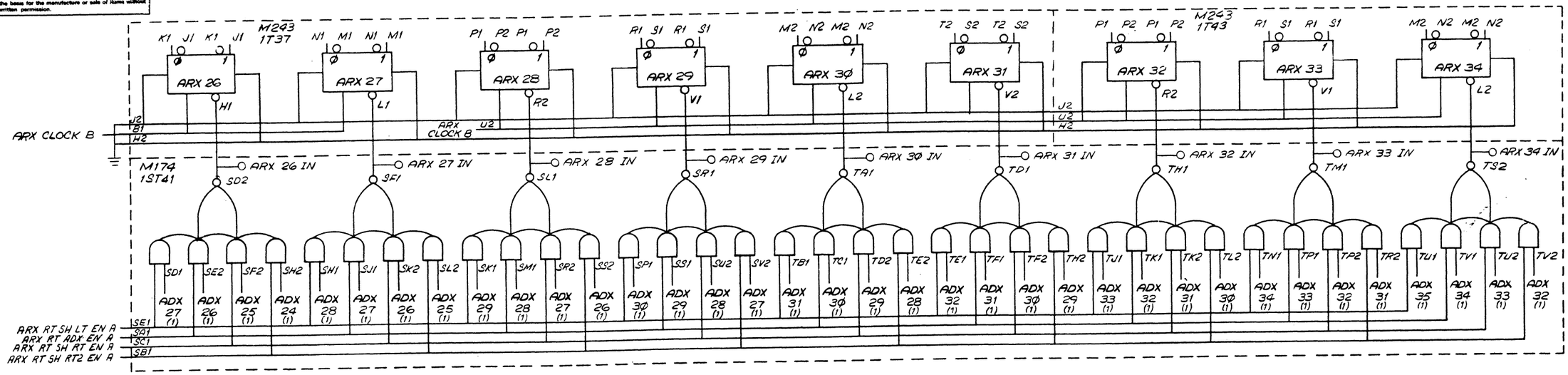
SHEET 1 OF 1

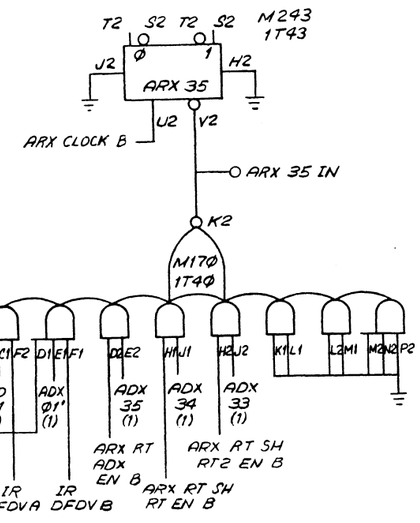
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

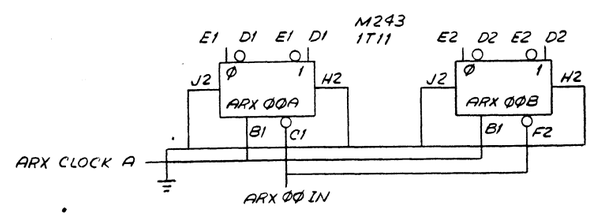
TITLE: ARX REGISTER BITS ØØ, Ø9-25

SIZE D | CODE BS | NUMBER KI1Ø-Ø-ARX1 | REV.

DIST.







NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W Stephenson	DATE 5/29/72
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Alan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72
NEXT HIGHER A.Y.	B-00-KI10-0	
SCALE	2"	
SHEET	1 OF 1	

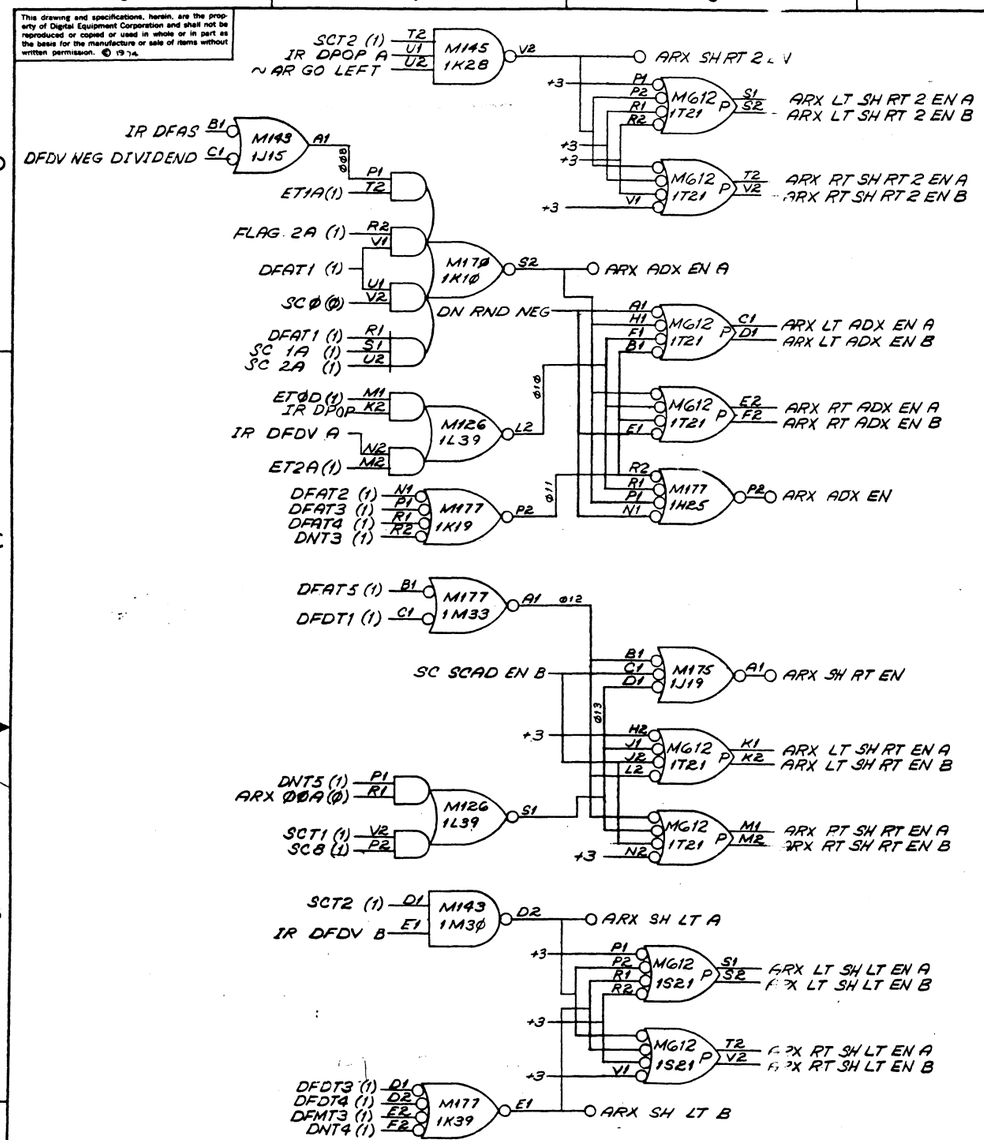
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

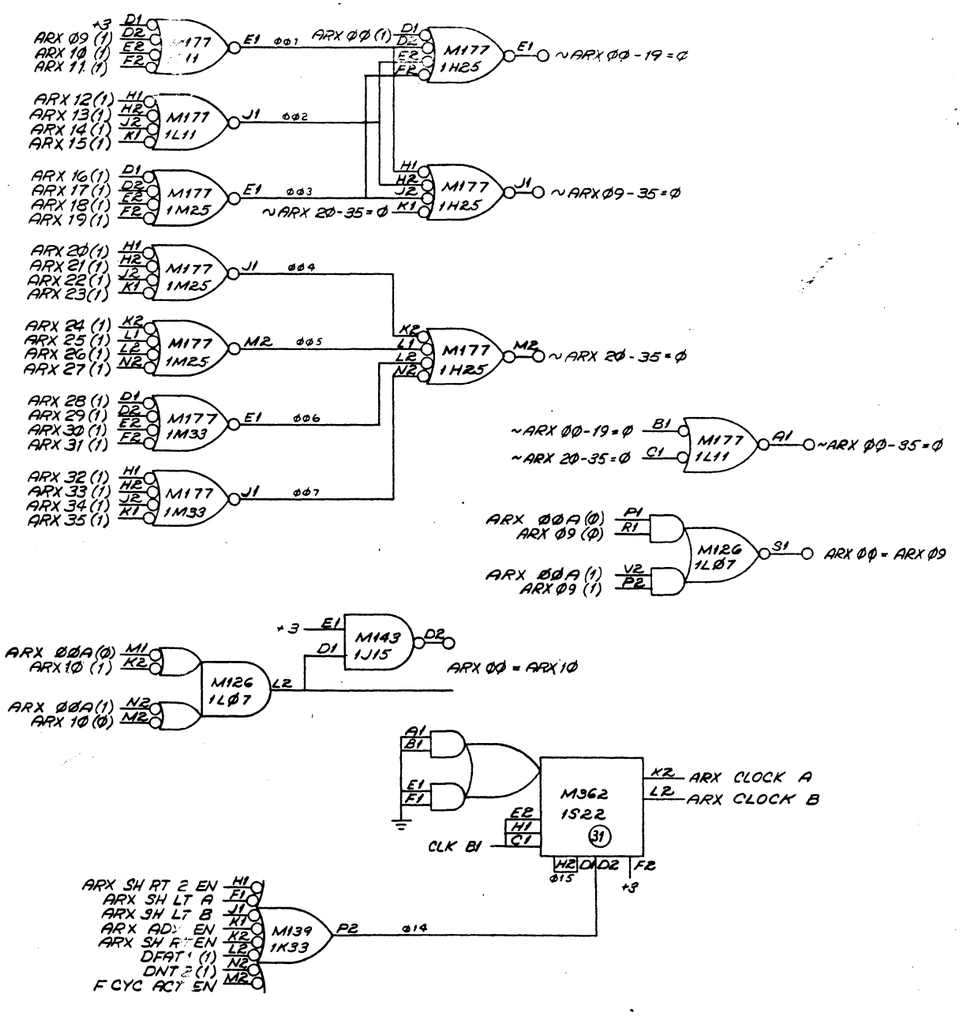
TITLE
ARX REGISTER
BITS 26 - 35

SIZE D | CODE BS | NUMBER KI10-0-ARX2 | REV.
DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 102A





NOTE:
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO.	REV.	
JMW	K11Ø-ØØØ42	A	5-JUN-74

D. GROSS

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN	W. Stephenson	DATE 4/7/70
CHKD	David Gross	DATE 31 Jan 72
ENGR	M. Dan Kotik	DATE 31 Jan 72
PROJ. ENGR	Wm. Kent	DATE 31/Jan 72
PROD		DATE 31 JAN 72

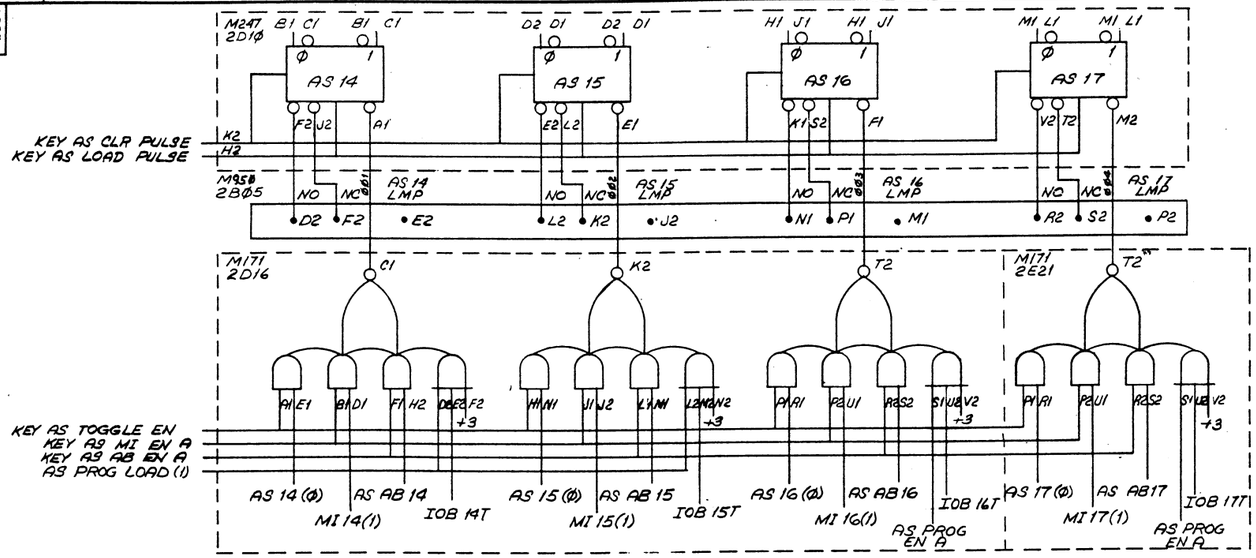
NEXT HIGHER ASSY B-DD-K11Ø-Ø
SCALE
SHEET 1 OF 1

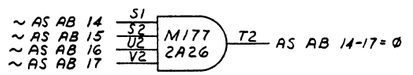
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

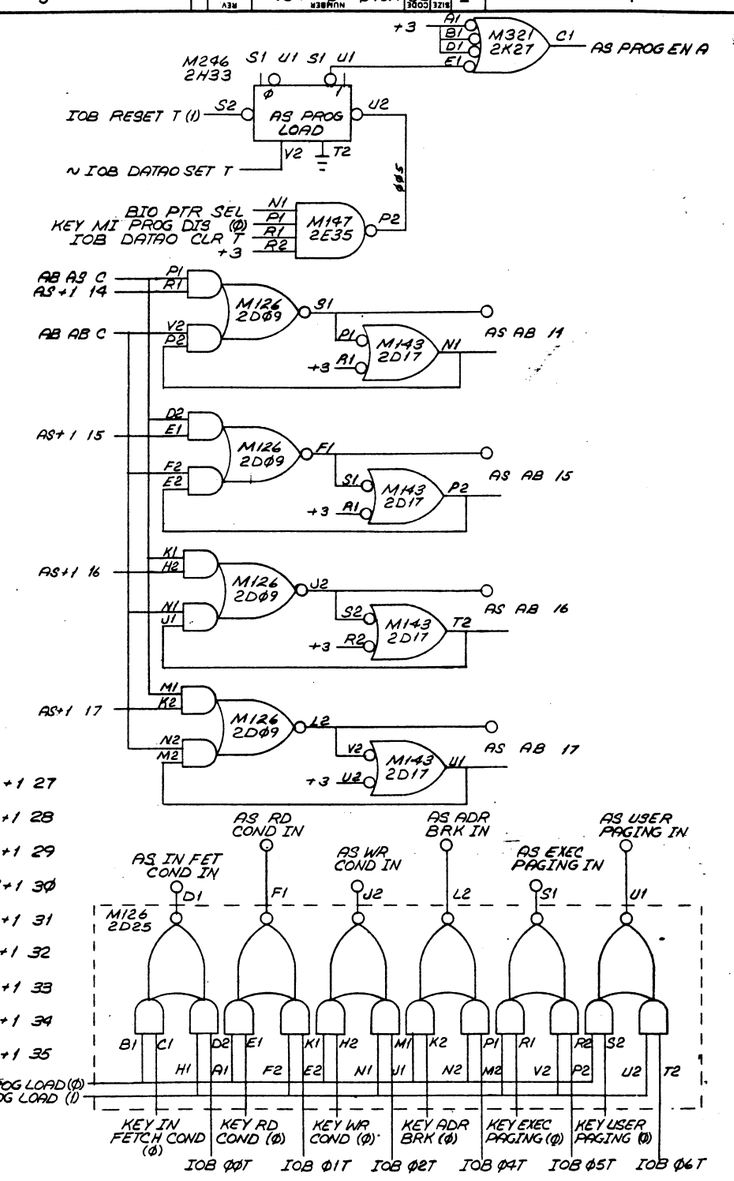
TITLE
ARX CONTROL

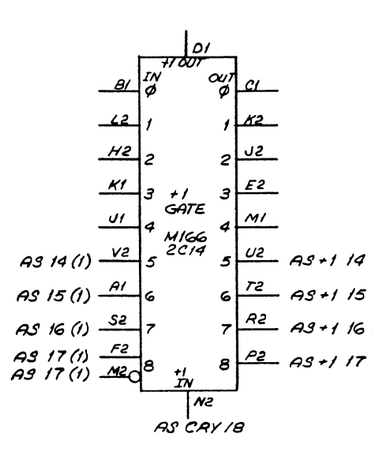
SIZE	CODE	NUMBER	REV.
D	BS	K11Ø-Ø-ARXC	A

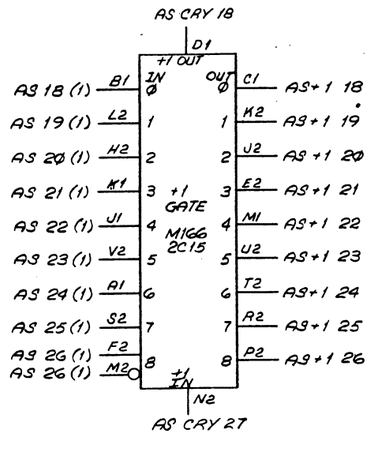
DIST.

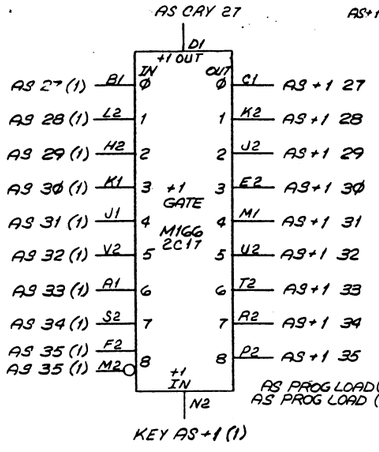












FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Mathewson	DATE 5/6/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Grose	DATE 31 Jan 72	
ENG. Peter Kotok	DATE 31 Jan 72	
PROJ. ENG. Allen Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 Jan 72	

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

TITLE
ADDRESS SWITCHES 14 - 17

SCALE NONE
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-AS1	

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

NUMBER KI1Ø-Ø-AS1 SIZE D CODE BS 3218 3205

M247 2D12

AS 18 (B1 C1 / B1 C1) — F2 J2 A1 — K2 H2 — @01 — NO NC — AS 18 LMP — D2 F2 • E2

AS 19 (D2 D1 / D2 D1) — E2 L2 E1 — @02 — AS 19 LMP — L2 K2 • J2

AS 20 (H1 J1 / H1 J1) — K1 F1 — @03 — AS 20 LMP — R2 S2 • P2

AS 21 (M1 L1 / M1 L1) — V2 T2 M2 — @04 — AS 21 LMP — T2 U2 • V2

AS 22 (N1 P1 / N1 P1) — V1 U2 R1 — @05 — AS 22 LMP — S1 U1 • R1

AS 23 (N2 P2 / N2 P2) — U1 S1 — @06 — AS 23 LMP — D2 F2 • E2

M95Ø 2A06

AS 24 (B1 C1 / B1 C1) — F2 J2 A1 — @07 — AS 24 LMP — L2 K2 • J2

AS 25 (D2 D1 / D2 D1) — E1 — @08 — AS 25 LMP — N1 P1 • M1

AS 26 (H1 J1 / H1 J1) — M1 S2 C1 — @09 — AS 26 LMP — R2 S2 • P2

KEY AS CLR PULSE — K2
KEY AS LOAD PULSE — H2

M95Ø 2B03

M174 2MN19

MD2 MF1 ML1 MR1 NA1 ND1 NH1 NM1 NS2

MD1 ME2 MF2 MH2 MH1 MJ1 MK2 ML2 MK1 MM1 MR2 MS2 MP1 MS1 MU2 MV2 N91 NC1 ND2 NE2 NE1 NF1 NF2 NH2 NJ1 NK1 NK2 NL2 NN1 NP1 NP2 NR2 NU1 NV1 NU2 NV2

KEY AS TOGGLE EN — MC1
KEY AS MI EN A — MA1
KEY AS AB EN A — MC1
AS PROG EN A — MB1

MI 18(1) IOB 18T MI 19(1) IOB 19T MI 20(1) IOB 20T MI 21(1) IOB 21T MI 22(1) IOB 22T MI 23(1) IOB 23T MI 24(1) IOB 24T MI 25(1) IOB 25T MI 26(1) IOB 26T

AS 18(Ø) AB 18 AS 19(Ø) AB 19 AS 20(Ø) AB 20 AS 21(Ø) AB 21 AS 22(Ø) AB 22 AS 23(Ø) AB 23 AS 24(Ø) AB 24 AS 25(Ø) AB 25 AS 26(Ø) AB 26

M247 2D13

AS 27 (M1 L1 / M1 L1) — V2 T2 M2 — @10 — AS 27 LMP — D2 F2 • E2

AS 28 (N1 P1 / N1 P1) — V1 U2 R1 — @11 — AS 28 LMP — L2 K2 • J2

AS 29 (N2 P2 / N2 P2) — U1 R2 S1 — @12 — AS 29 LMP — R2 S2 • P2

M247 2D15

AS 30 (B1 C1 / B1 C1) — F2 J2 A1 — @13 — AS 30 LMP — T2 U2 • V2

AS 31 (D2 D1 / D2 D1) — E2 L2 E1 — @14 — AS 31 LMP — S1 U1 • R1

AS 32 (H1 J1 / H1 J1) — K1 F1 — @15 — AS 32 LMP — D2 F2 • E2

M95Ø 2A02

AS 33 (M1 L1 / M1 L1) — V2 T2 M2 — @16 — AS 33 LMP — L2 K2 • J2

AS 34 (N1 P1 / N1 P1) — V1 U2 A1 — @17 — AS 34 LMP — N1 P1 • M1

AS 35 (N2 P2 / N2 P2) — U1 R2 S1 — @18 — AS 35 LMP — R2 S2 • P2

KEY AS CLR PULSE — K2
KEY AS LOAD PULSE — H2

M95Ø 2A04

M174 2MN2Ø

MD2 MF1 ML1 MR1 NA1 ND1 NH1 NM1 NS2

MD1 ME2 MF2 MH2 MH1 MJ1 MK2 ML2 MK1 MM1 MR2 MS2 MP1 MS1 MU2 MV2 MB1 NC1 ND2 NE2 NE1 NF1 NF2 NH2 NJ1 NK1 NK2 NL2 NN1 NP1 NP2 NR2 NU1 NV1 NU2 NV2

KEY AS TOGGLE EN — ME1
KEY AS MI EN B — MD1
KEY AS AB EN B — NC1
AS PROG EN A — MB1

MI 27(1) IOB 27T MI 28(1) IOB 28T [illegible] 29(1) IOB 29T MI 30(1) IOB 30T MI 31(1) IOB 31T M 32(1) IOB 32T MI 33(1) IOB 33T MI 34(1) IOB 34T MI 35(1) IOB 35T

AS 27(Ø) AB 27 AS 28(Ø) AB 28 AS 29(Ø) AB 29 AS 30(Ø) AB 30 AS 31(Ø) AB 31 AS 32(Ø) AB 32 AS 33(Ø) AB 33 AS 34(Ø) AB 34 AS 35(Ø) AB 35

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL: KI1Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN. W. Stephenson	DATE 2/6/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. Harold Gross	DATE 3 Jan 72	
ENG. Allan Kotok	DATE 4 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 Jan 72	

NEXT HIGHER ASSY: 8-DD-KI1Ø-Ø

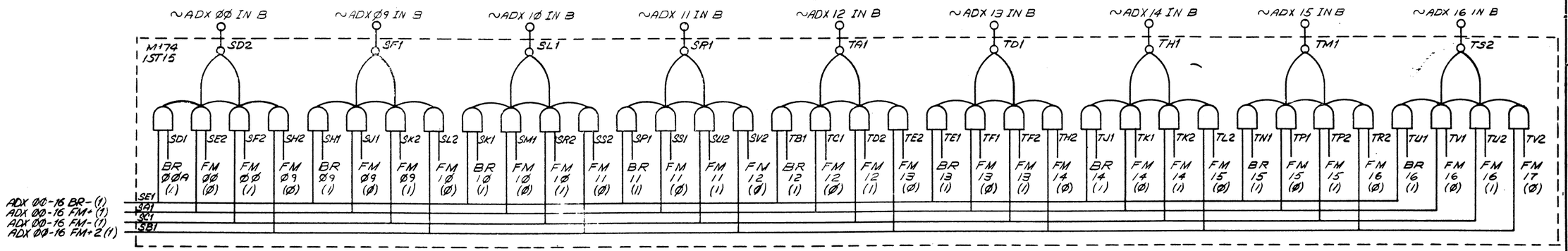
SCALE: ∞

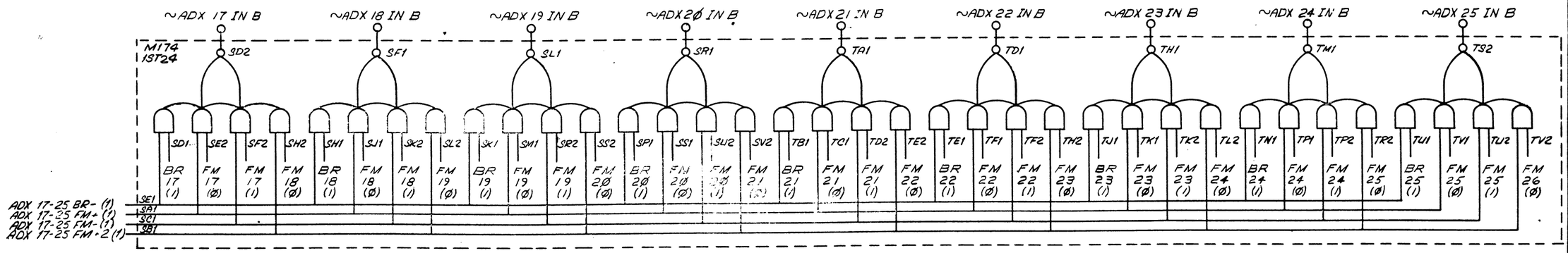
SHEET 1 OF 1

TITLE: ADDRESS SWITCHES 18 – 35

SIZE D | CODE BS | NUMBER KI1Ø-Ø-AS2 | REV | DIST.

DEC FORM NO. DRD 100





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL —
FINISH —

DRN	S. Lonnaw	DATE 3/4/70
CHKD	David Gross	DATE 3/Jan 72
ENG	Stan Kotik	DATE 30 Jan 72
PROJ ENG	Alan Kent	DATE 30 Jan 72
PROD	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY
8-00 - KI1Ø-Ø
SCALE —
SHEET 1 OF 1

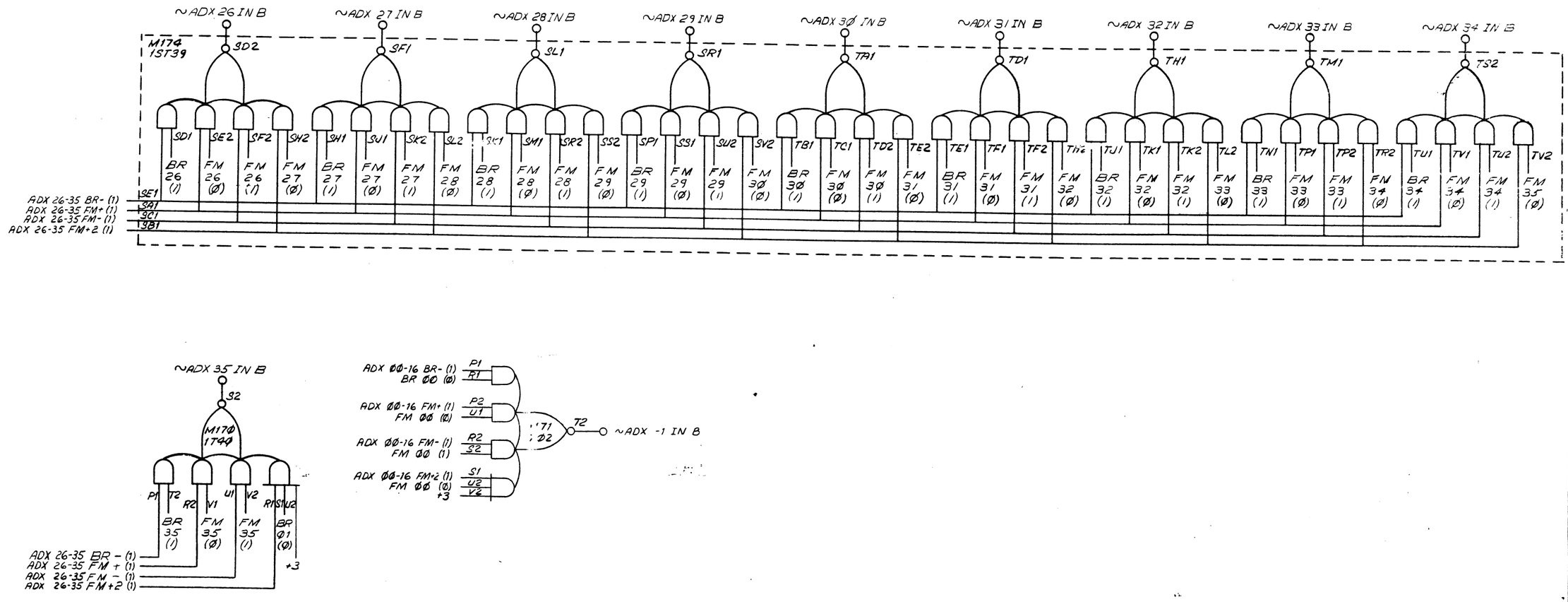
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ADX MIXERS
BITS ØØ,Ø9-25

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-AXB1	

DIST.

DEC FORM NO. DRD 102 A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK
•			

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. S. Ayromian	DATE 3/4/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Stone	DATE 31 Jan 72	
ENG. Sam Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

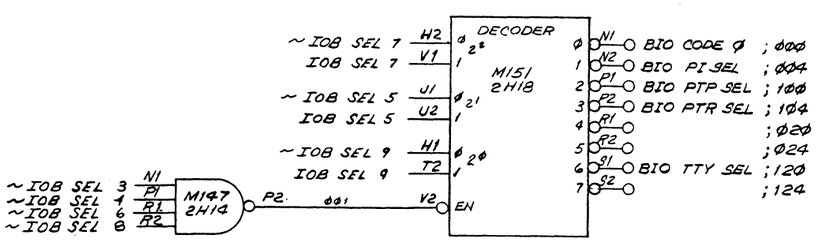
SCALE —

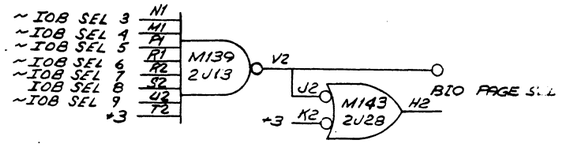
SHEET 1 OF 1

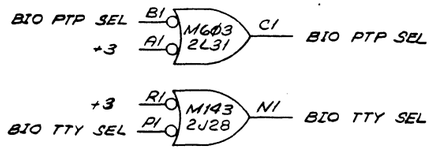
TITLE: ADX MIXERS BITS 26-35

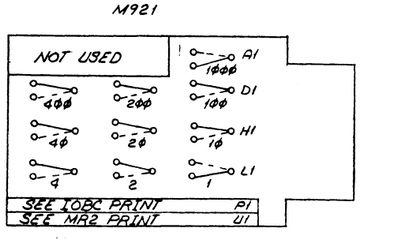
SIZE D | CODE BS | NUMBER KI1Ø-Ø-AXB2 | REV

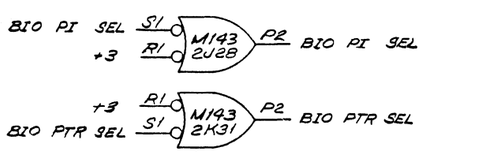
DIST.

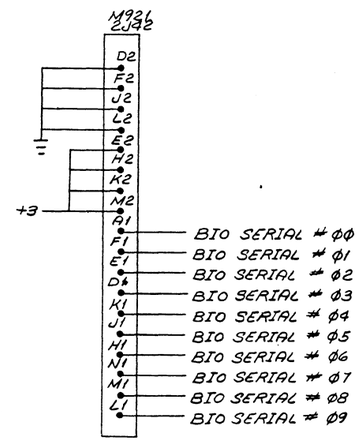




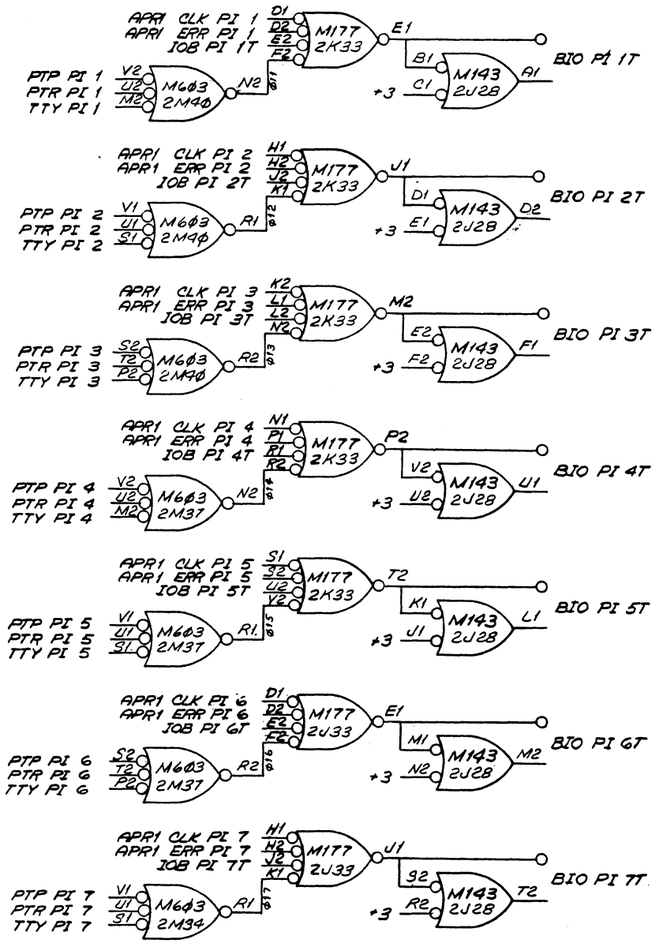








NOTE : CONVERT MACHINE SERIAL NUMBER TO OCTAL. INSTALL 1Ø JUMPERS CORRESPONDING TO THE 1Ø BIT-VALUES. THE EXAMPLE SHOWS SERIAL = 1ØØ1$_8$ (513$_{10}$). IF SERIAL NUMBER IS GREATER THAN 1Ø23$_{10}$, IGNORE HIGHEST ORDER (11TH) BIT WHEN INSERTING JUMPERS.



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	C. Stephenson	DATE 11/8/70
CHKD.	Richard Grass	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kotok	DATE 31 Jan 72
PROJ.	[illegible]	DATE 31 Jan 72

NEXT HIGHER ASSY B-DD-KIØ-Ø
SCALE none
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

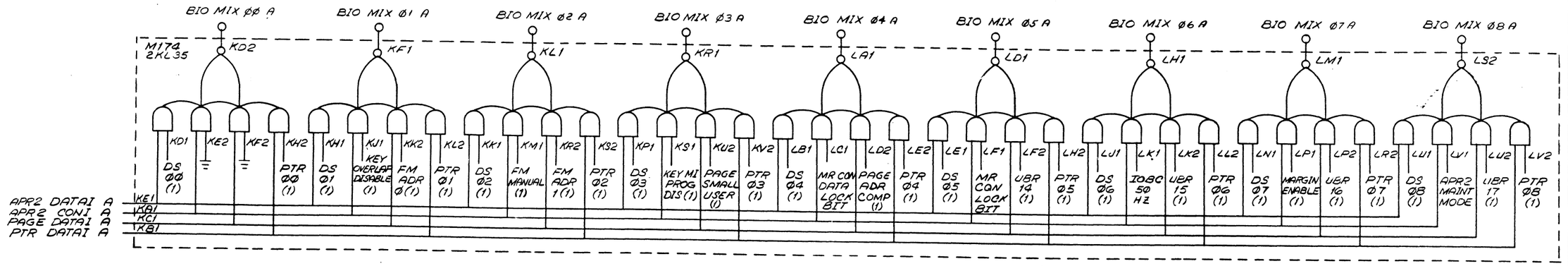
TITLE
BASIC IO
COMMON LOGIC

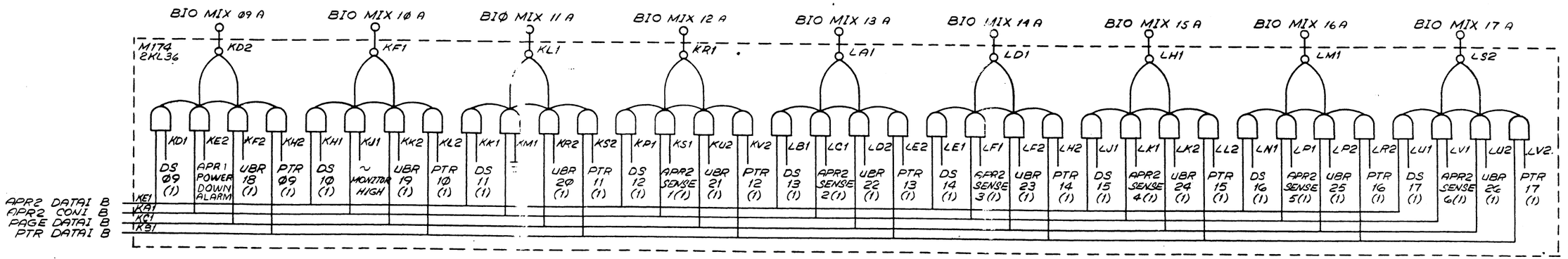
SIZE D | CODE BS | NUMBER KIØ-Ø-BIO | REV.
DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

SIZE D | CODE BS | NUMBER KIØ-Ø-BIO | REV.





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

DRN	CD Stephenson	DATE 7/14/72
CHK	David Grosz	DATE 3/Jun/72
ENG	Alan Kotok	DATE 31 Jun 72
PROJ ENG	Allen Kent	DATE 31 JUN 72
PROJ	[illegible]	DATE 31 JUN 72

NEXT HIGHER ASSY B-DD-KIØ-Ø

SCALE —

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

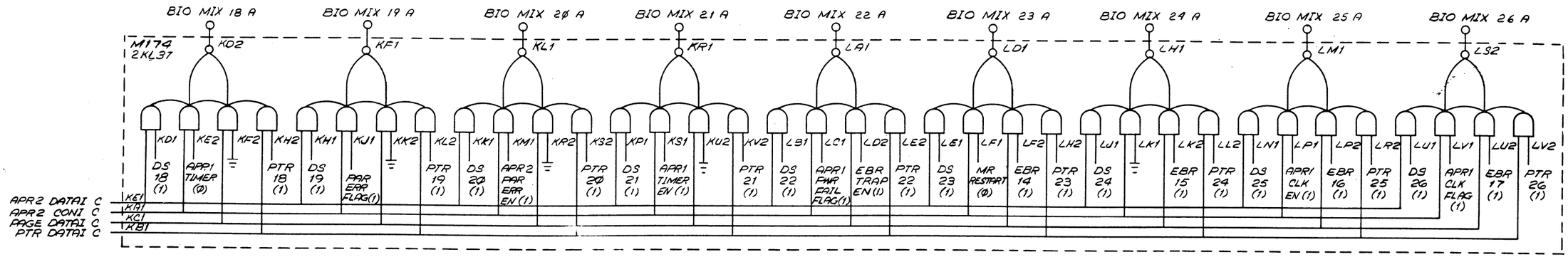
TITLE
BASIC I O
MIXER A
(ØØ THRU 17)

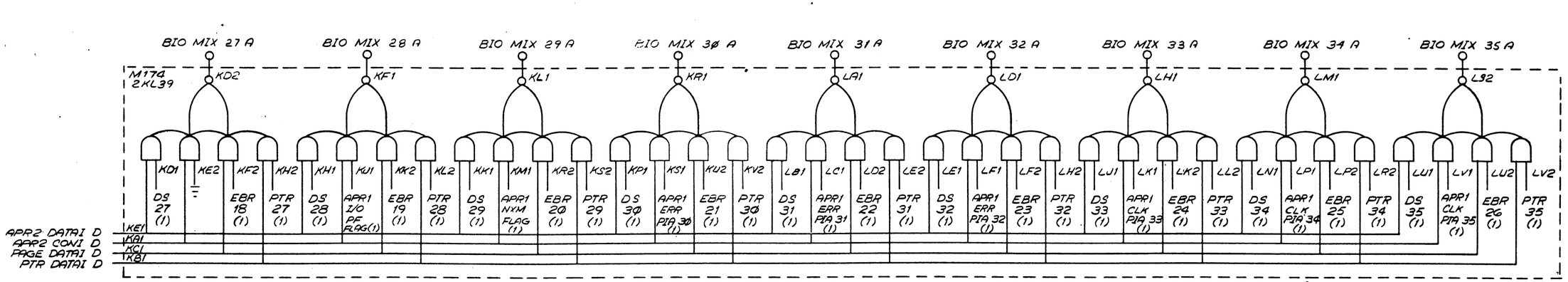
SIZE	CODE	NUMBER	REV.
D	BS	KIØ-Ø-BIX1	

DIST.

DEC FORM NO. 1D 102A

REV. KIØ-Ø-BIX1 SIZE D CODE FD 2





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W. Hodgson	DATE 7/15/70
CHKD.	David Grant	DATE 31 JAN 72
ENG.	Allan Kotok	DATE 31 JAN 72
PROJ ENG.	Allan Kent	DATE 31 JAN 72
PROD.	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-K10-0
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

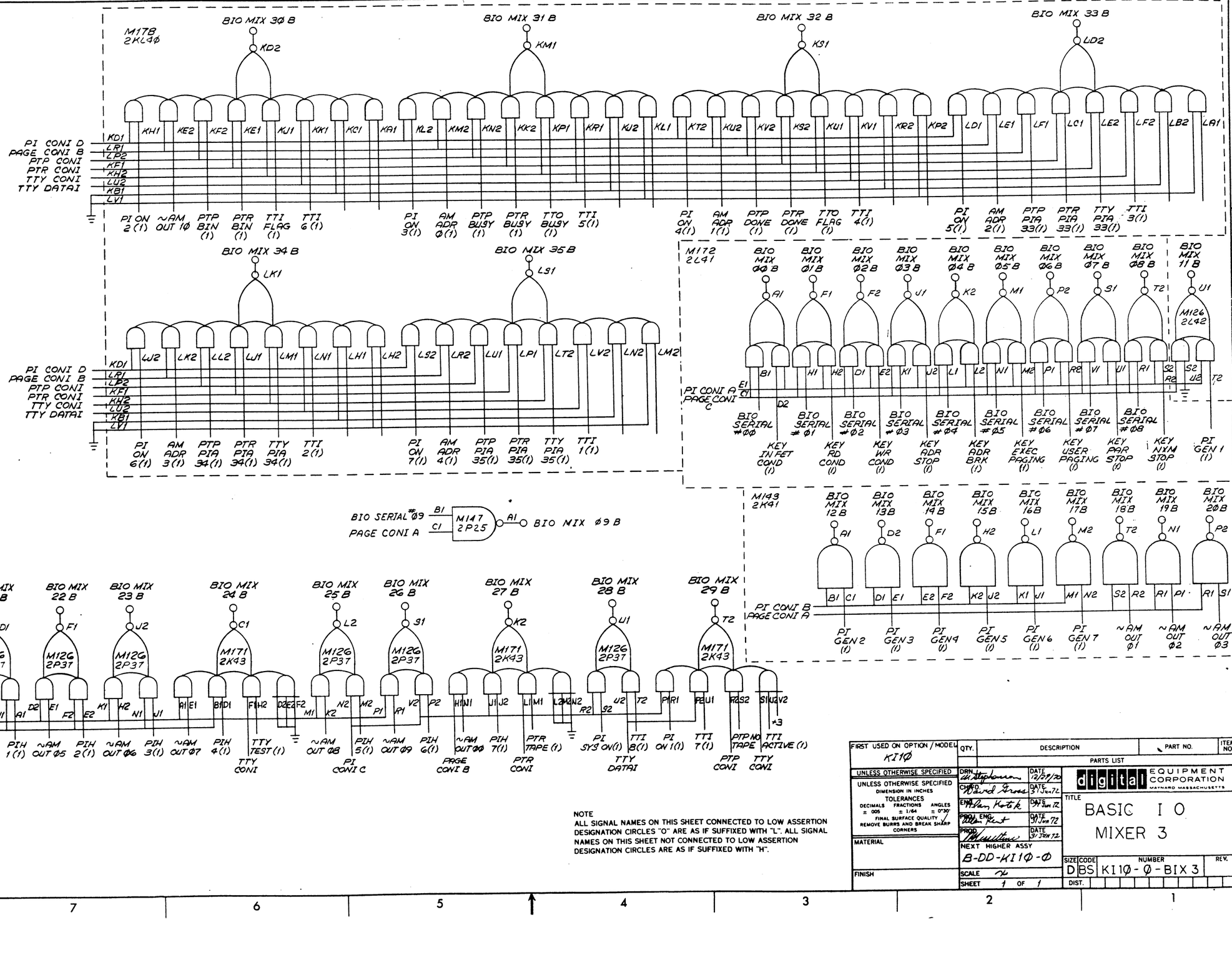
TITLE
BASIC I O
MIXER A
18 THRU 35

SIZE	CODE	NUMBER	REV.
D	BS	K10-0-BIX2	

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. .D 102 A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

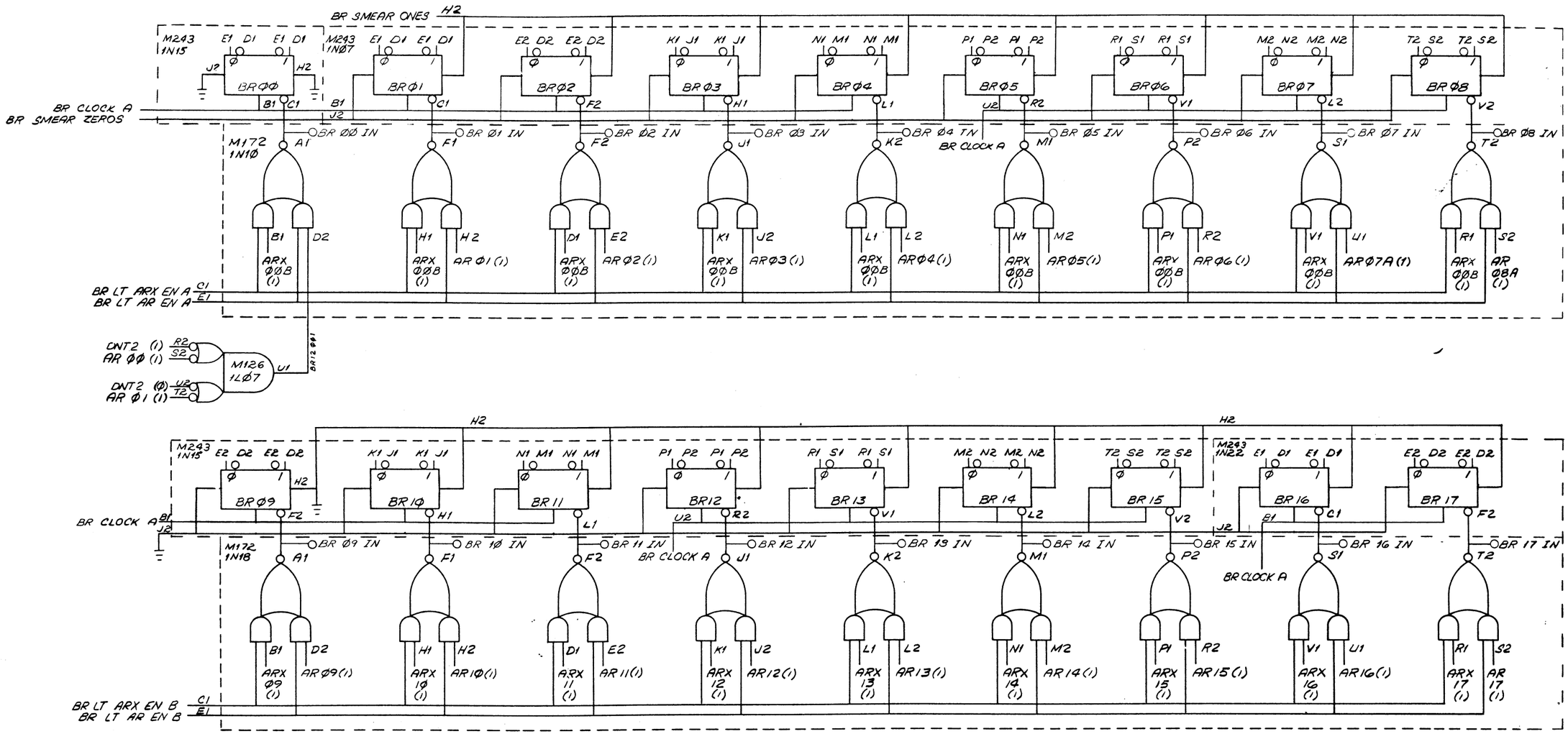
DRN W. Stephenson	DATE 12/29/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD David Gross	DATE 31 JAN 72	
ENG Alan Kotok	DATE 31 JAN 72	TITLE BASIC I O MIXER 3
PROD. ENG. Mike Kent	DATE 31 JAN 72	
PROD	DATE 31 JAN 72	

NEXT HIGHER ASSY B-DD-K11Ø-Ø
SCALE ½
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	K11Ø-Ø-BIX 3	

DIST.

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W. Hoffmann	DATE 7/9/70
CHK'D.	David Gross	DATE 31 Jan 72
ENG.	Allan Katz	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
BR REGISTER BITS ØØ - 17

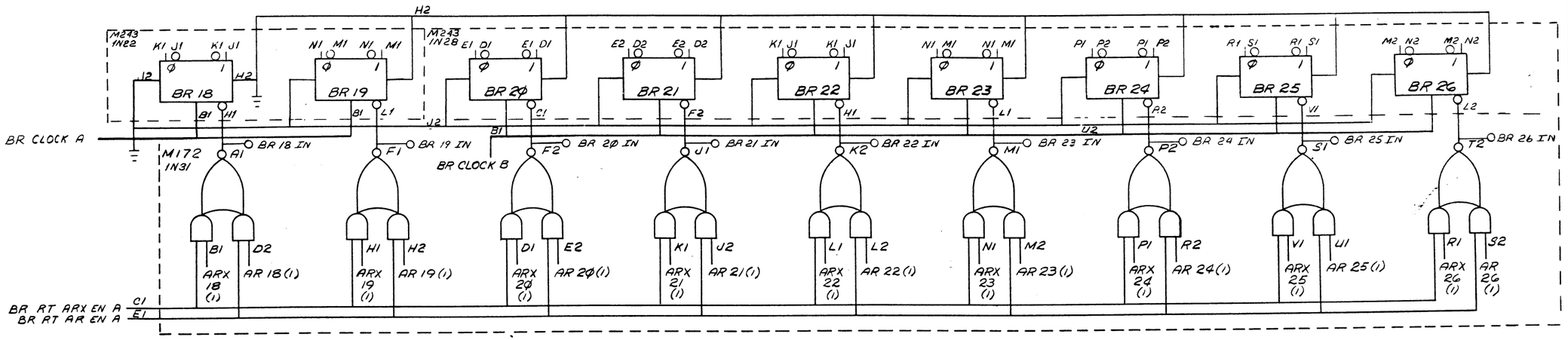
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø - Ø - BR1	

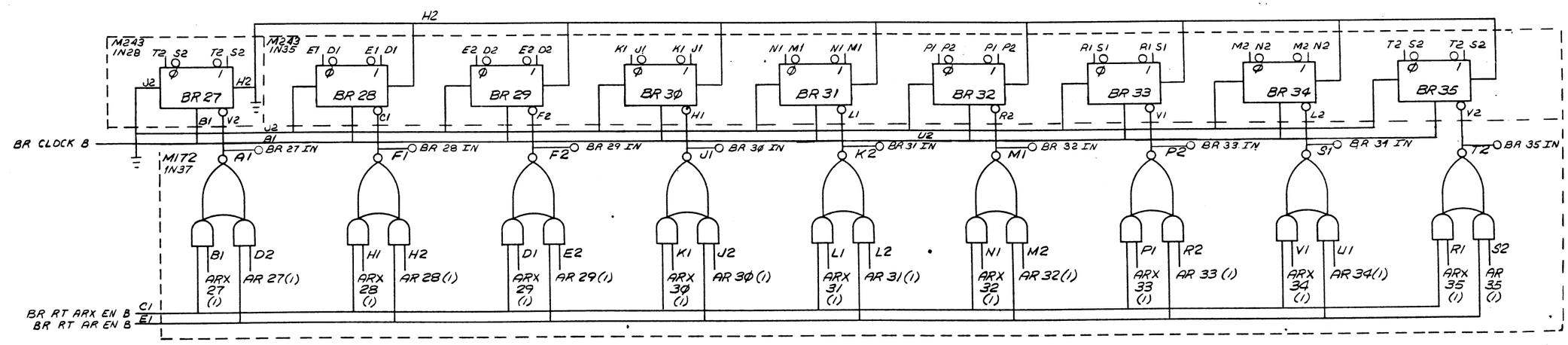
DIST.

REVISIONS

REV.	CHANGE NO.	CHK

DEC FORM NO. DRD 102 A





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Lindsay	DATE 7/13/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Adam Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE 2/1

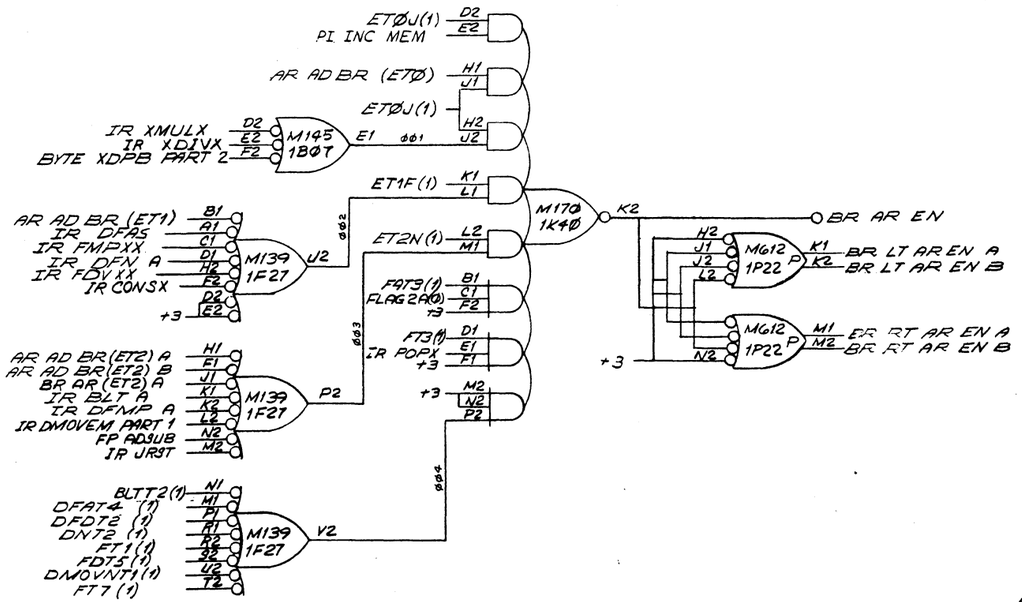
SHEET 1 OF 1

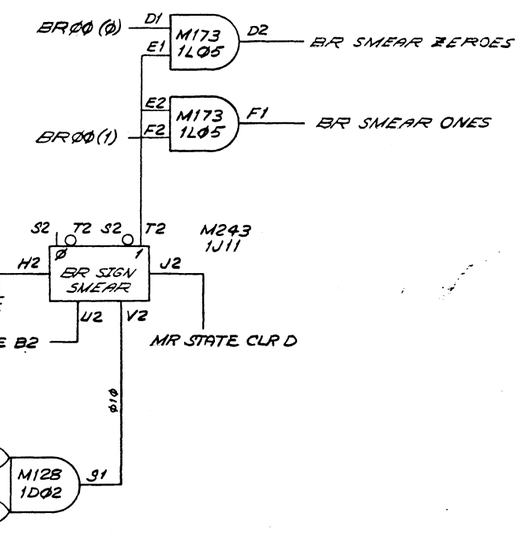
TITLE
BR REGISTER
BITS 18-35

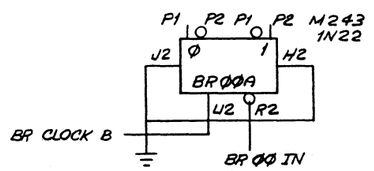
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-BR2	

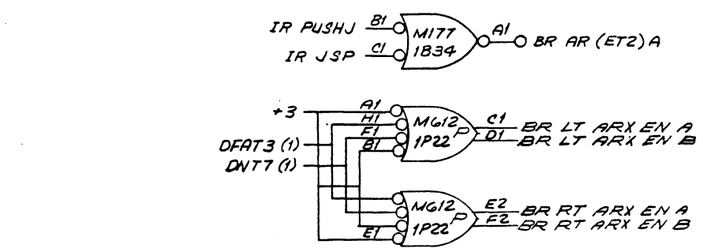
DIST.

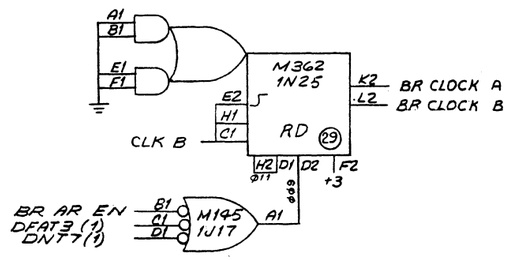
DEC FORM NO. DRD 102A











NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK
	-		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

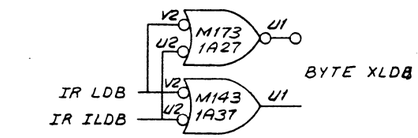
DRN.	S. LYONNAIS	DATE 1/15/70
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Alan Kotok	DATE 31 Jan 72
PROD.		DATE 31 JAN 72
NEXT HIGHER ASS'Y	B-DD-KIØ-Ø	
SCALE	∾	
SHEET	1 OF 1	

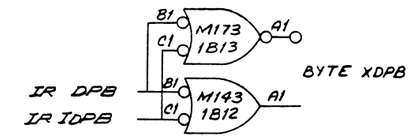
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

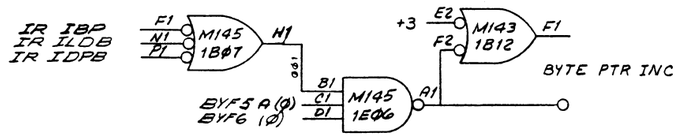
TITLE: BR CONTROL

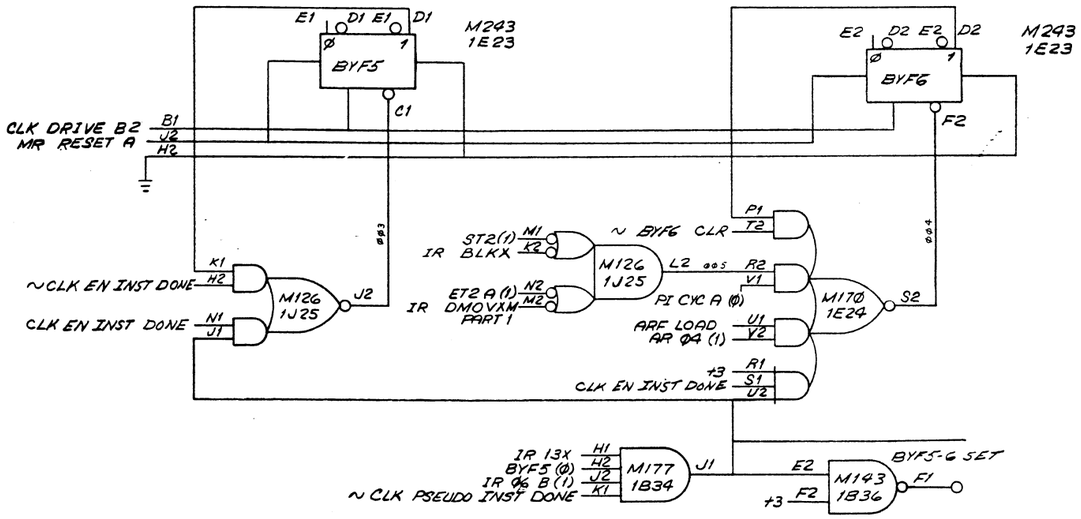
SIZE D | CODE BS | NUMBER KIØ-Ø-BRC | REV.
DIST.

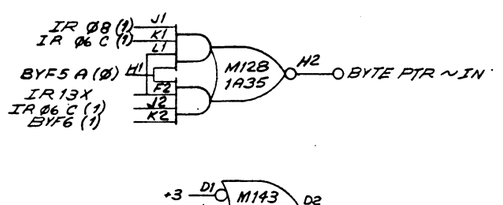
DEC FORM NO

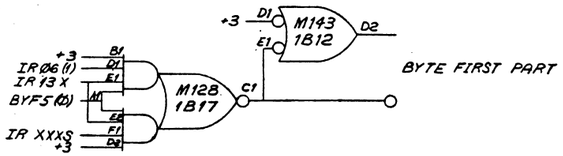


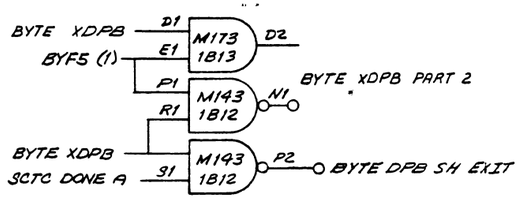


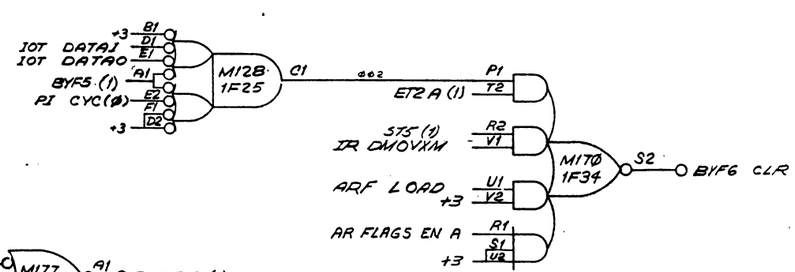












NOTE
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FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
	PARTS LIST		
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY ; REMOVE BURRS AND BREAK SHARP CORNERS	DRN. S. LYONNAIS 4/17/70	CHK'D. David Grout 31 Jun 72	ENG. Alan Hotek 31 Jun 72
MATERIAL	PROJ. ENG. Allen Kent 31 Jun 72	PROD. [illegible] 31 JUN 72	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
FINISH	SCALE: FULL	SHEET 1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: BYTE

SIZE D | CODE BS | NUMBER KI1Ø-Ø-BYTE | REV.

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRO 102A

NOTE:
WHEN ADJUSTING CLK A A1, B, B1, C, C1, USE 1F33E1 AS THE REFERENCE POINT.
WHEN ADJUSTING REGISTER CLOCKS AND CLK DRIVE A1, A2, B1, B2, C1, C2, D1, D2, USE 1H16K2 AS THE REFERENCE POINT.
ADJUST FOR 28 nS BETWEEN 1.5 V POINTS.

CLK A1 — M173 1H28 — APR2 NORMAL SPEED EN
CLK A1 — M173 1H28 — APR2 HI SPEED (1)
M363 1E32 110 ns — CLK 110 ns
M363 1E31 100 ns — CLK 100 ns
M177 1F33 — MG03 1F30 — CLK MIN DLY
AD ADD (0) / SCAD ADD (0) / CLK LONG CYCLE (0) — M177 1F33 — CLK MIN LOOP / CLK INH (0) / KEY SNGL PLS SYNC A (0)

AD ADD (1) / CLK LONG CYCLE (1) / SCAD ADD (1) — M126 1D19 — MG03 1F30 — CLK MAX EN
M177 1F23 — M363 1E36 230 ns — CLK MAX DLY

CLK MIN DLY / AD ADD (1) / ADX ADD A (0) / SCAD ADD (1) — M363 1E33 — MG03 1F30 — CLK 170 ns IN
M363 1E33 170 ns — CLK 170 ns
CLK LONG CYCLE (1) — M145 1F28 — ~CLK MAX EN
CLK MAX DLY / MCRST0 / PF CLK START — M145 1F28
CLK INH (0) / ADX ADD A (1) / CLK LONG CYCLE (0) — M147 1F29
M363 1E35 191 ns — CLK 191 ns
MC SYNC READ (0) / MC ASYNC START A (0) — M177 1E19 — MC PAGE DLY OVER PAGE OK / ;PIT0 PI CYC RDY (1) / INST DONE DLYD PULSE / ;IT0 INST RDY DLYD / INST DONE DLYD / FCE2 SYNC DLYD / FCE2 WAIT DLYD / FCE2 WAIT (1) / MCRST1 / MC SYNC READ (1) / PAGE SYNC REFILL (0)
M170 1E24

KEY CLK START — MG03 1F30 — CLK KEY INPUT
MG03 1F32 — CLK MISC INPUT

M362 1H16 — 28 ns — CLK A / CLK A1
M362 1M24 — 28 ns — CLK B / CLK B1
M362 1F35 — 28 ns — CLK C / CLK C1

RD M362 2E20 — CLK C1 — CLK DRIVE C1 / CLK DRIVE C2
RD M362 2C22 — CLK C — CLK DRIVE D1 / CLK DRIVE D2
RD M362 1D17 — CLK A — CLK DRIVE A1 / CLK DRIVE A2
RD M362 1F17 — CLK A — CLK DRIVE B1 / CLK DRIVE B2

* MAKE THESE ADJUSTMENTS IN NORMAL SPEED MODE.
** ADJUST TO STATED TIME BETWEEN CLOCK PULSES AT 1H16K2
; INDICATES COMMENT

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS		
CHK	CHANGE NO	REV
JSK	KI10-00041	A

S. Mechanic 12-20-72
A. KENT
Alan Kent 11 Dec '72

FIRST USED ON OPTION/MODEL: KI10	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. D.B. Lucas — DATE 7/20/72
CHKD. Howard Gross — DATE 31 Jan 72
ENG. Allan Kotok — DATE 31 Jan 72
PROJ. ENG. Alan Kent — DATE 31 Jan 72
PROG. [illegible] — DATE 31 JAN 72
NEXT HIGHER ASSY 8-DD-KI10-0
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CLOCK

SIZE D | CODE BS | NUMBER KI10-0-CLK | REV A
DIST.

DEC FORM NO DRD 102A

TEST T(D,R) X(E,N) H1
IR AOBJX E1
IR DFN J1
IR XMULX K1
IR JFFO K2
BYTE PTR INC L2
+3 N2
IR BLKX M2
M139 1B05
P2 ΦØ1

IR FLTR F2
AD MPY FINAL H2
MGØ3 1F32
J2 ΦØ5
F CYC ACT EN A P1 T2
SCTC DONE R2 V1

DFDT 7 (1) H1
FDT 3 (1) F1
FDT 6 (1) J1
NRT 5 (1) K1
ST 2 (1) K2
DMOVNT 1 (1) L2
FAT4 SH RT N2
FIXT1 COND M2
M139 1F16
P2 ΦØ6
+3 U1 V2
MB 13 A (Ø) R1
AD F LT V RT COND S1
~MB 14-17 = Ø U2
M17Ø 1F36
S2 ΦØ7

J1 K1 J1 K1 M243 1E23
Ø CLK LONG CYCLE 1
H2 J2 MR RESET A
B1 H1 CLK DRIVE B2
ΦØ16

NRT4 COND B1 A1
DS FP EXIT C1
NRT1 NORMAL RND D1
NRT2 NORMAL RND H2
DFMT2 COND F2
FAT4 COND D2 E2
M139 1F37
J2

ETØ F (1) B1 C1
MQ ØG (Ø) F2
PI INC MEM
DFDT1 (1) K2
BLTTØ (1) J2
M143 1F38
H2 ΦØ8
+3 D1 E1 F1

IR SR INST J1
IR DROP A K1
TEST TXX (E,N) K2
M145 1B07
J2 ΦØ2
ETØ F (1) D2 E2

IR IDIVX N1
DS NEG DIVIDEND (ET1) M1
IR DMOVNM PART 1 P1
IR SR INST R1
IR IMULX S2
IR FIXX U2
FDV NEG DIVIDEND T2
+3
M139 1B05
V2 ΦØ3
DSTG (1) H1 J1
IR FDVXX
ET1 C (1) H2 J2
ET2 M (1) K1 L1

SRT1 COND K2
FP ADSUB L1
IR FDVL L2
IR FMPXX N2
M147 1B04
M2 ΦØ4
BLTT7 (1) L2 M1
PFF1 (1)
+3 M2 N2 P2

PFT1 (1) D1
KT1 (1) E1
M143 2F15
D2
CLK LONG CYC EN A

M17Ø 1F34
K2 ΦØ9

BLTT9 (1) P1
PFF1 (1) R1
IT2 (1) V2
PI DIVERT INDIRECT (Ø) P2
M126 1J25
S1 Φ11

DFDT 8 (1) N1
+3 M1
BLTT2 (1) P1
FT3 (1) R1
KEY CLK INH R2
FT7 (1) S2
PIT3 (1) U2
T2
M139 1J24
V2
CLK MISC INH

MC STORE IN AC (Ø) S2
MC MEM STOP (1) R2
M143 2F15
T2
CLK INH (ST1) EN

IR FIXX A V2
SCAD Ø (1) U2
SC ØA (Ø) V1
ET2 M (1) U1
SAC INH N1
~ST INH R1
~STORE MEM S1
M2
M363 1E31
P1
Φ16

~ST2 COND S1
~ST1 (1) S2
~SAC 2 U2
+3 V2
M147 1F29
T2 Φ17
N1
PIT3 (1) M1
+3 P1
KEY EN INST DONE R1
DST2 (1) R2
ST5 (1) S2
U2
T2
M139 1F16
V2

SRT1 (1) R2
SCAD Ø (Ø) S2
M126 1J25
U1 Φ18
ST2 (1) U2
PFF1 (1) T2

ST2 (1) V1
PIT3 (1) U1
+3 S1
M6Ø3 1F3Ø
R1
CLK PSEUDO INST DONE

N1 M1 N1 M1 M243 1E23
MR RESET A J2 Ø CLK INH 1 H2
B1 L1
CLK DRIVE B2
Φ13

F CYC START A B1
SCE C1
~IR POP F2
MB 13 (1) D1
IT1 A (1) E1
PI DIVERT INDIRECT(Ø) F1
DFDT 8 (Ø) D2 E2
ET2 N (1) H1
IR DROP A J1
M17Ø 1F36
K2
FCE H2
F CYC START A J2
MC STORE TIME K1
+3 L1
ST2 COND L2 M1
CLK EN INST DONE M2
PI DV (Ø) N2
~CLK PSEUDO INST DONE P2

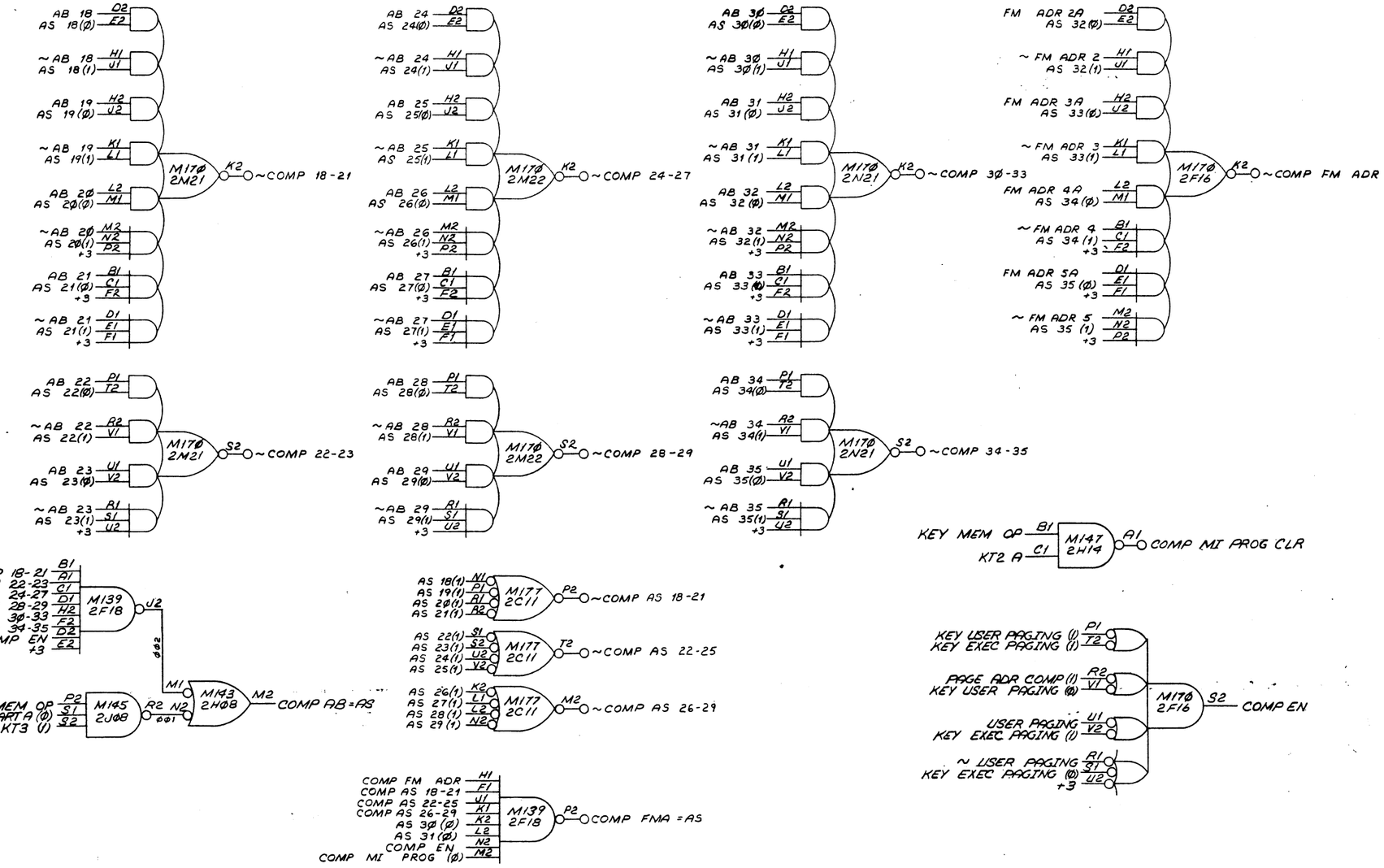
+3 H1 F1
MGØ3 1F3Ø
E1
CLK EN INST DONE

FIRST USED ON OPTION / MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN W. Stephenson	DATE 1/22/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHKD David Grosz	DATE 31 Jan 72	TITLE: CLOCK CONTROL
	ENG Gary Kotok	DATE 31 Jan 72	
	PROJ. ENG.	DATE 31 Jan 72	
MATERIAL	PROD	DATE 31 JAN 72	
	NEXT HIGHER ASSY B-DD-KI1Ø-Ø		
FINISH	SCALE ½		SIZE D CODE BS NUMBER KI1Ø-Ø-CLKC REV
	SHEET 1 OF 1		DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

SIZE D CODE BS NUMBER KI1Ø-Ø-CLKC REV



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. P D Sweeney DATE 6/9/70
CHKD. David Gross DATE 31 Jan 72
ENGR. Allan Kotok DATE 31 Jan 72
PROJ. ENG. Allan Kotok DATE 31 Jan 72
PROG. DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
ADDRESS COMPARATOR

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-CMP1	

DIST.

DEC FORM NO DRD 102A

M241 2J16

C1 D2 C1 D2 — COMP SYNC AB = AS — A1
D1 — U2 B1
F1 E1 F1 E1 — COMP ASYNC AB = AS — F2
H1 — U2 E2 — Ø02
MR RESET D
MC PAGE DLY OVER A
+3
Ø12
H2
M143 2F15
K2 J2
COMP AB = AS
MC ASYNC START (1)

COMP AB = AS D2 E1
MC A SYNC START A (Ø)
M126 2H13 F1
COMP SYNC AB = AS (1) F2 E2
MC ASYNC START (1)

M246 2H33

D1 E1 D1 E1 — COMP MEM READ — F1 +3
+3 A1 — C1 B1
Ø07
MAI RD RS K1
MCT3 J1
M143 2L18 L1 Ø13
PAGE REFILL CYCLE (Ø) V2
COMP MI PROG (Ø) U2 M2
M6Ø3 2H22 N2
Ø05
MC SYNC READ (1) K1 H2
COMP ASYNC AB = AS (1)
M126 2H13 J2
COMP SYNC AB = AS (1) N1 J1
MC SYNC READ (Ø)
COMP MEM READ (1) R2 S2
MCT4 DLYD
M126 2H13 U1
MC WR RS U2 T2
COMP SYNC AB = AS (1)
+3 R1 M143 2F15 N1 P1
COMP MI CLK IN

COMP MI CLK IN A1
COMP MI PROG (Ø) B1
MC PAR CHK A E1
COMP MEM READ (1) F1
RD M362 2F19 (19)
E2 H1 C1 — CLK C
H2 D1 D2 F2 — Ø09
+3
K2 L2 — COMP MI CLOCK A, COMP MI CLOCK B

BIO PI SEL K2
KEY MI PROG DIS (Ø) L1 L2
IOB DATAO CLR T N2
+3
M147 2H14 M2 Ø10 M1
M143 2F15 M2
N2
COMP AC WRITE (1)
Ø03

M241 2H16

MR RESET D V1
KEY MI PROG DIS (1) U1 S1
+3
M6Ø3 2H17 R1 P1
N1 M1 N1 M1 — COMP MI PROG — M2
Ø08
U2 L2
CLK DRIVE C2 U2
Ø11
F1
M143 2F15
E2 F2
~ COMP MI PROG CLR
COMP MI PROG (1)

M243 2F11

S1 R1 S1 R1 — COMP AC WRITE — J2
MR RESET A H2
U2 V1
CLK DRIVE C1
Ø06

COMP FMA = AS M1 K2
COMP MI PROG CLR
M126 2H13 L2
FM WR EN N2 M2

M243 2J11

M2 N2 M2 N2 — COMP ADR BRK INH — H2
MR RESET B J2
U2 L2
CLK DRIVE C2
Ø04

~ ARF LOAD V2
COMP ADR BRK INH (1) U2
+3 N2
M6Ø3 2H17
~ TRAP SATISFIED B1 C1
Ø01
M126 2H13 D1
ARF LOAD C H1
AR ØB (1) A1

M612 2F22 P
+3 A1 H1 F1 B1
COMP AC WRITE (Ø)
+3 +3
C1 D1 — COMP MI MB EN A, COMP MI MB EN B
E2 F2 — COMP MI MB EN C, COMP MI MB EN D
+3 E1

M612 2F22 P
+3 H2 J1 J2 L2
COMP AC WRITE (1)
+3 +3
M1 K2 — COMP MI FM EN A, COMP MI FM EN B
M1 M2 — COMP MI FM EN C, COMP MI FM EN D
N2
+3

M181 2F2Ø
H1 J2
MC SYNC WRITE (1) J1
KEY WR COND (1) L2
MC INST FETCH M1
KEY IN FET COND (1) N1
MA RD RQ L1
~ MC INST FETCH M2
KEY RD COND (1) N2
K2 — COMP CYC TYPE

M139 2F18
COMP 18-21 N1
COMP 22-23 M1
COMP 24-27 P1
COMP 28-29 R1
COMP 30-33 R2
COMP 34-35 S2
COMP EN U2 T2
V2 — COMP ADR BRK

M177 2C11
COMP ADR BRK INH (Ø) H1
KEY ADR BRK (1) H2
+3 J2 K1
J1 Ø14

NOTE
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REVISIONS	CHANGE NO.	CHK
REV.		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	C.P. Wallace	DATE 2-17-71
CHKD	Richard Gross	DATE 3/24/72
ENG.	Allan Hotek	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 JAN 72
NEXT HIGHER ASSY	B-DD-KI1Ø-Ø	
SCALE	~	
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
ADDRESS COMPARATOR

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-CMP 2	

DIST.

DEC FORM NO DRD 102A

SIZE D CODE BS NUMBER KI1Ø-Ø-CMP2 REV

PIN VIEW OF FEMALE CONNECTOR ON REAR

11 MORE PINS
H725 POWER SUPPLY 15V
11 MORE PINS
7 MORE PINS
H723 POWER SUPPLY 8V
8 MORE PINS
10 MORE PINS
H 725 POWER SUPPLY 15V
11 MORE PINS

J2

WIRED IN PARALLEL WITH ALL OTHER

NO
NC
C
-15V MARGIN SWITCH

7006585 SERIES PASS ELEMENT

LINE 10A LOAD
UPPER CIRCUIT BREAKER
LOWER CIRCUIT BREAKER
S

RESISTOR MODULE
Q1 Ø.1Ω
Q2 Ø.1Ω
Q3 Ø.1Ω
Q4 Ø.1Ω

UPPER G83Ø CONNECTOR ON REAR
LOWER G83Ø CONNECTION ON REAR

CURRENT LIMIT
OVER VOLTAGE SENSOR
Ø.23
OPERATE ALLOW
DEC 16A1
DEC 1641
+15V
2K
15K
6.8K

UPPER G83Ø 1AØ1 (2A44)
LOWER G83Ø 1BØ1 (2B44)

PIN VIEW OF FEMALE CONNECTOR ON FRONT

PART OF FRONT CONNECTOR

1AØ1B2 (2A44B2) -15V BUS BAR 1A (2A)
-15V BUS BAR 1B (2B)
1BØ1B2 (2B44B2)
LUG ON GND PLANE

+5V BUS BAR 1A(2A) — 1A15A2 (2A3ØA2)
DCP CROWBAR SENSE 1A(2A)
+5 MONITOR 1A (2A)
+ SENSE 1A (2A)
- SENSE 1A (2A) — TWISTED PAIR (GND 1A15C2)
+5V MARGIN 1A(2A)
GND PLANE (1A)(2A) — 1A15C2 (2A3ØC2)

+15 WHEN REQUIRED
+15 RETURN
+5V BUS BAR 1B(2B) — 1B15A2 (2B3ØA2)
DCP CROWBAR SENSE 1B (2B)
+5 MONITOR 1B (2B)
+ SENSE 1B (2B) — TWISTED PAIR (GND 1B15C2)
- SENSE 1B (2B)
+5 MARGIN 1B(2B)
GND PLANE 1B(2B)

PIN VIEW OF FEMALE CONNECTOR ON REAR
PIN VIEW OF FEMALE CONNECTOR G83Ø MODULE

COLOR CODE	
BK	BLACK
BR	BROWN
R	RED
O	ORANGE
Y	YELLOW
G	GREEN
BL	BLUE
P	PURPLE
S	SLATE
W	WHITE

NOTE:
DC WIRING SHOW IS FOR BAY 1 ROWS A & B
OTHER ROW PAIRS ARE IDENTICAL.
PINS AND SIGNAL NAMES FOR BAY 2
ROWS A & B ARE SHOWN IN PARENTHESES ( ).
• INDICATES A FEMALE PIN.

REVISIONS | REV. | CHANGE NO. | CHK.

DEC FORM NO ORD 102A

FIRST USED ON OPTION / MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

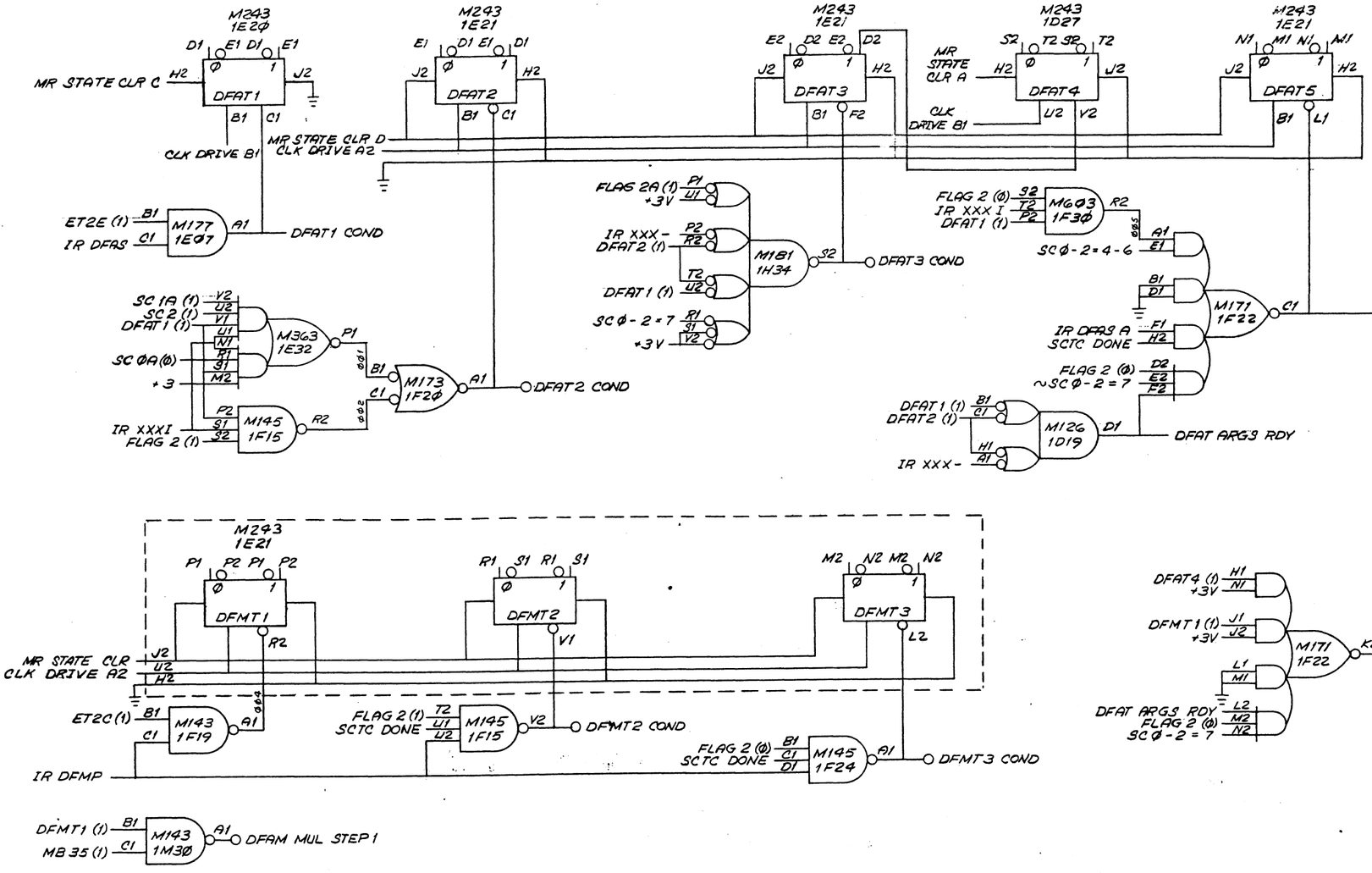
DRN.	W. Stephens	DATE 1/24/72
CHKD	David Gross	DATE 31 Jan 72
ENG	Allan Kotik	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

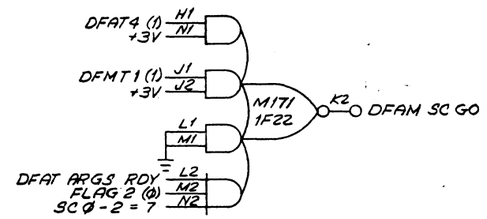
NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
SCALE: NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DC POWER REGULATION

SIZE D | CODE BS | NUMBER KI1Ø-Ø-DCP | REV.
DIST.





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson	DATE 4/21/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. Marcel Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
SCALE: ~
SHEET 1 OF 1

TITLE: DOUBLE FLOATING ADD, MULTIPLY TIME STATES

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-DFAM	.

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

SIZE D BS CODE NUMBER KI1Ø-Ø-DFAM REV.

M243 1D2Ø

DFDT1 DFDT2 DFDT3 DFDT4 DFDT5 DFDT6

MR STATE CLR B
CLK DRIVE A2

M128 1M4Ø — AR 35 (Ø) FM ØØ(Ø), DFDT6 (1), AR 35 (1) FM ØØ(1), +3 → DFDV CONT ADD

M128 1M4Ø — AR 35 (Ø) FM ØØ(1), DFDT6 (1), AR 35 (1) FM ØØ(Ø) → DFDV CONT SUB

M143 1F19 — +3V, +3V → F1

M143 1K11 — ~ADX CRY Ø, DFDT3 (1) → P2

M143 1K11 — ADX CRY Ø, DFDT4 (1) → N1

M147 1D25 — IR DFDV, SCTC DONE A, FLAG 2A (1), PI RDY SYNC (Ø) → DFDT5 COND

M3G3 1E36 — ~DFDT5 COND, ~DFDT7 COND, ~DFDT11 COND, +3 → P1

M3G3 1E35 — IR DFDV, SCTC PI RDY SYNC (1), FLAG 2A (1), +3 → DFDT 11 COND

MG03 1F3Ø — ET28 (1), IR DFDV → C1

DFDT Ø — MR STATE CLR B, CLK DRIVE A2 → M243 1DØ9

ØØ4

M243 1D2Ø

DFDT7 DFDT8

MR STATE CLR B
CLK DRIVE A2

M243 1D22

DFDT9 DFDT1Ø DFDT11 DFDT12

MR STATE CLR D
CLK DRIVE A2

M243 1E21

DFDF1

CLK DRIVE A2

M145 1F24 — SCTC DONE, IR DFDV, FLAG 2 (Ø) → DFDT7 COND

M145 1F24 — DFDT8 (1), ~MQ Ø1-35=Ø, FLAG 3 (1) → DFDT9 COND

M173 1F2Ø — ~ DFDV DIVISOR SIGN, DFDF1 (1) → DFDV POS DIVISOR

M173 1F2Ø — DFDF1 (1), DFDV DIVISOR SIGN → DFDV NEG DIVISOR

M143 1K11 — .ARXØØ (1), IR DFDV A → DFDV NEG DIVIDEND

M143 1K11 — ARX ØØA (Ø) → DFDV POS DIVIDEND

M147 1D25 — DFDT8 (1), MQ Ø1-35 = Ø, ~AD = Ø, FLAG 3 (1) → DFDT8 TWOS COMP

M126 1K08 — FM ØØ B (1), DFDT2 (Ø), BR ØØ (1), DFDT2 (1) → DFDV DIVISOR SIGN

M145 1L12 — +3 → E1

MG03 1F3Ø — DFDT1 (1), DFDT6 (1) → E2

ØØ6 ØØ7 ØØ8

NOTE
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REVISIONS		
CHK	CHANGE NO.	REV.
	KI1Ø-00038	A
K. Lee	17-JAN-73	
D. GROSS		
T. Knoza	20 Aug 73	

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

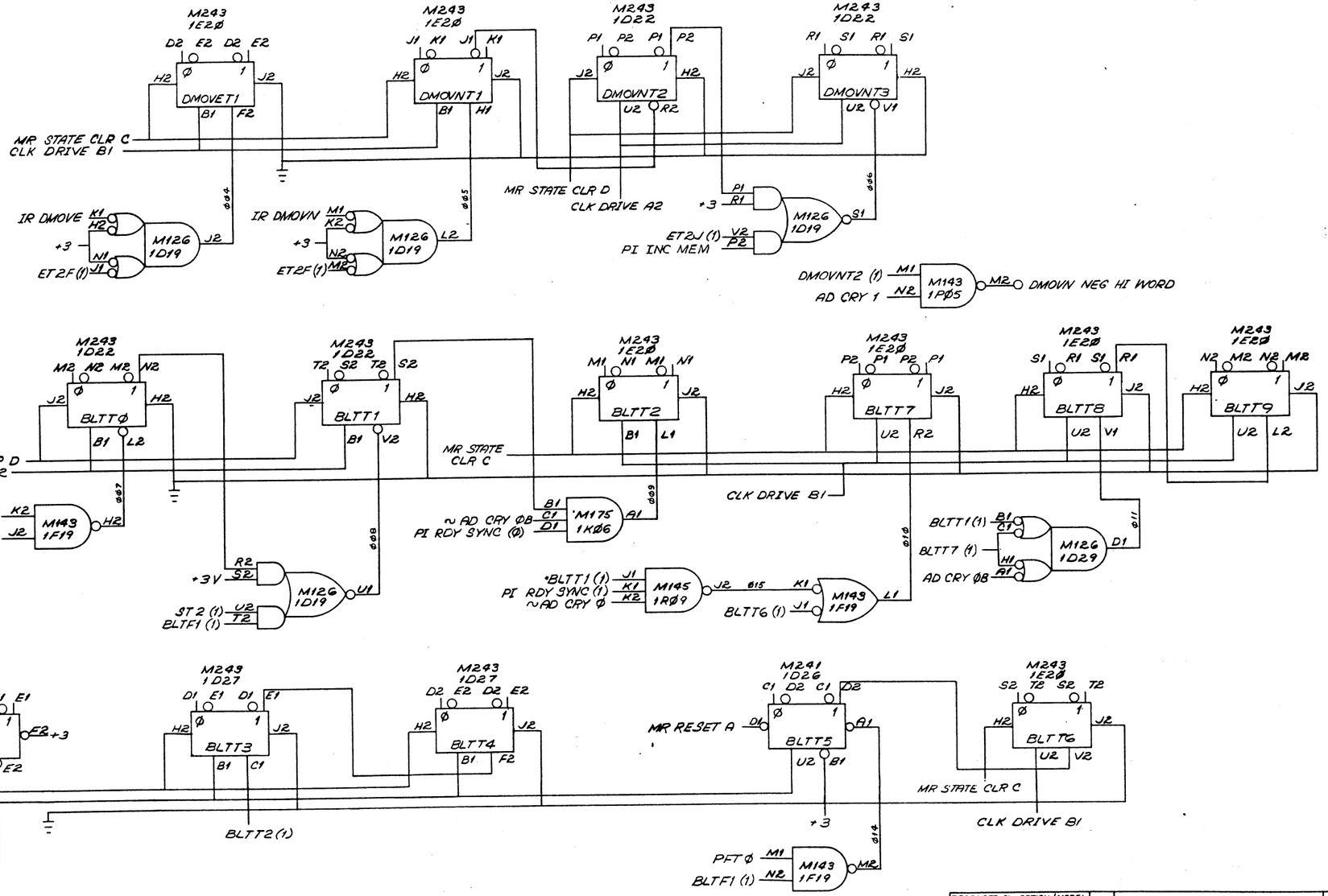
UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. S. LYONNAIS	DATE 4/17/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE: DOUBLE FLOATING DIVIDE
PROJ. ENG. Allan Kotok	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SCALE	SIZE	CODE	NUMBER	REV.
NONE	D	BS	KI1Ø-Ø-DFDV	A
SHEET 1 OF 1	DIST.			

DEC FORM NO DRD 102A



NOTE
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FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	W Stephenson	DATE 5/12/70
CHKD	David Grosz	DATE 31 JAN 72
ENG	Alan Kotok	DATE 31 JAN 72
PROJ. ENG	Bill Kent	DATE 31 JAN 72
PROD	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SCALE: ½

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DOUBLE MOVES & BLT

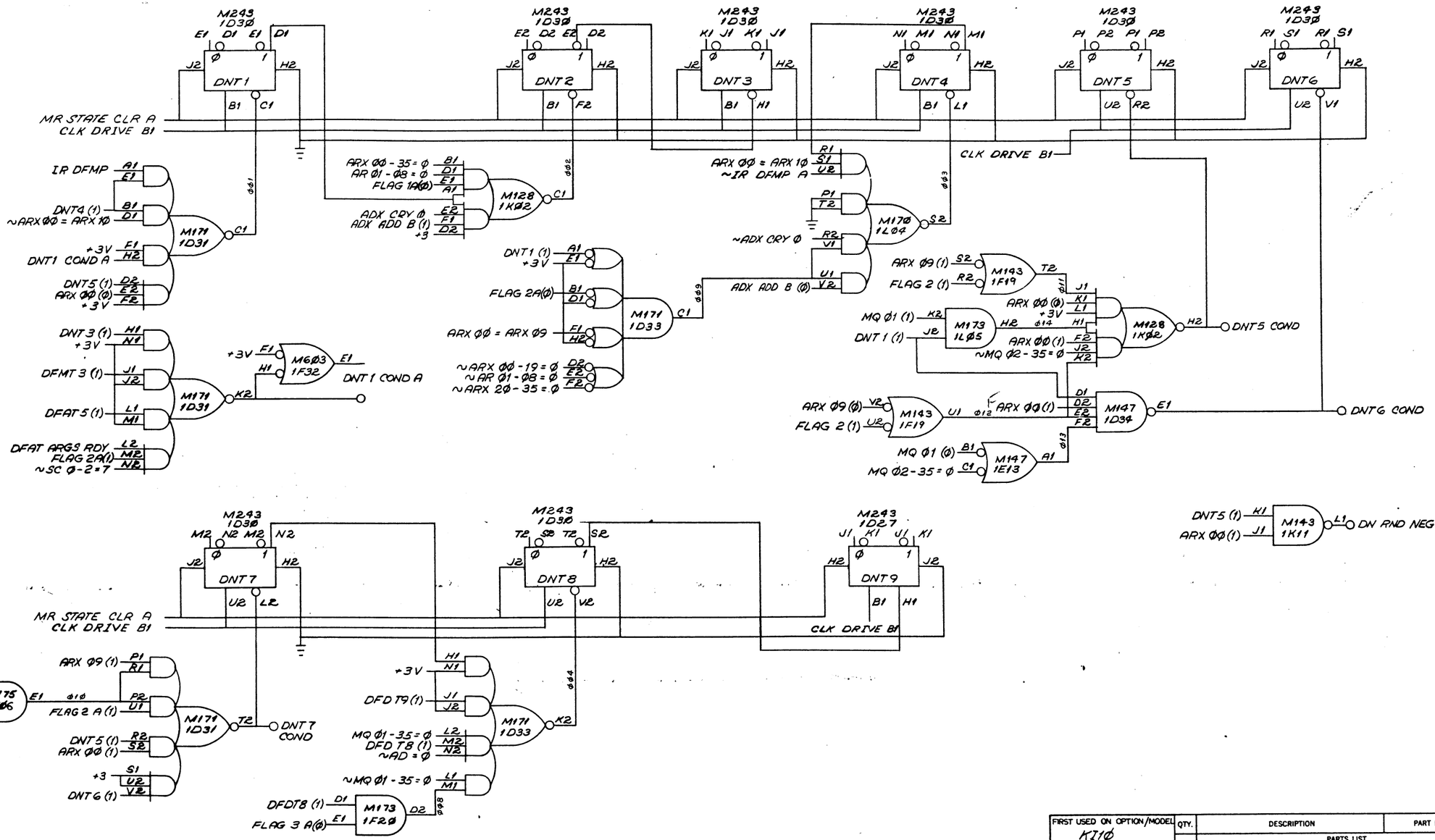
SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-DMBL	

DIST.

REVISIONS	REV	CHANGE NO	CHK

DEC FORM NO DRD 102A

SIZE D CODE BS NUMBER KI1Ø-Ø-DMBL REV



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	A. Stephenson	DATE 6/29/70
CHKD.	Ward Gross	DATE 5/Jan/72
ENG.	Mary Kotok	DATE 5/Jan/72
PROJ. ENG.	Allan Kent	DATE 31/Jan/72
PROG.	[illegible]	DATE 31/Jan/72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE ∞
SHEET 1 OF 1

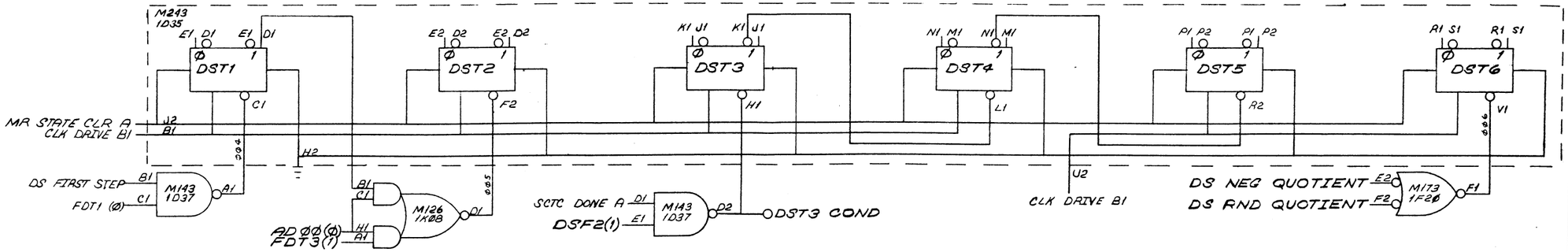
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

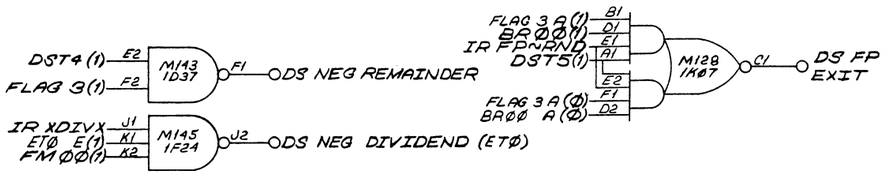
TITLE
DOUBLE NORMALIZE TIME STATES

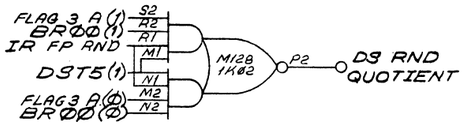
SIZE D | CODE BS | NUMBER KI1Ø - Ø - DNT | REV.
DIST.

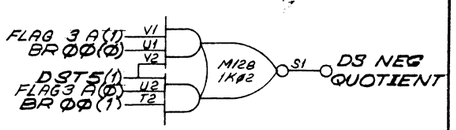
REVISIONS | REV. | CHANGE NO. | CHK

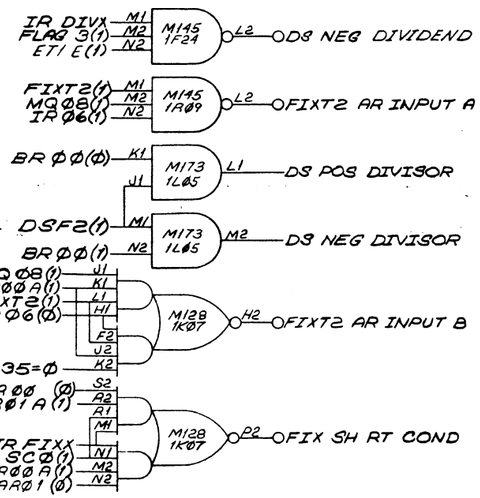
DEC FORM NO DRD 102A

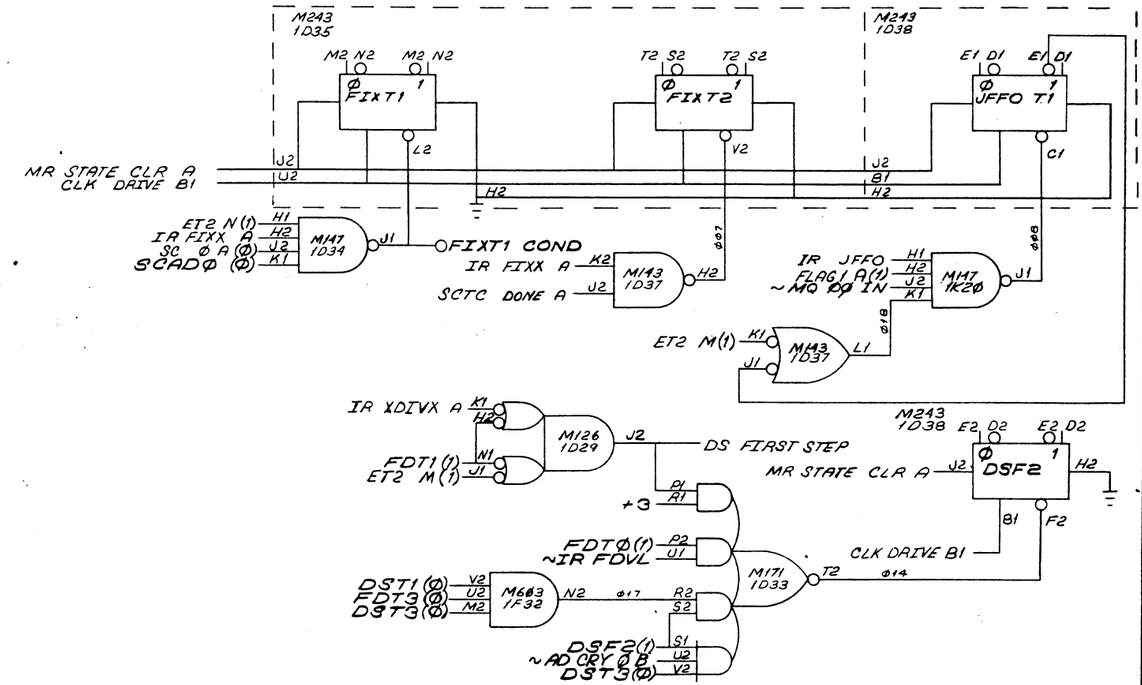












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO	CHK
REV		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. J. McGee	DATE 4-23-70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	TITLE DIVIDE SUBR. AND MISC. TIME STATES
PROJ. ENG. Alan Kotok	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		SIZE D | CODE BS | NUMBER KI1Ø-Ø-DS | REV.
SCALE		DIST.
SHEET 1 OF 1		

DEC FORM NO DRD 102A

M247 2A07

B1 C1 B1 C1 — DS ØØ — F2 J2 A1
D2 D1 D2 D1 — DS Ø1 — E2 L2 E1
H1 J1 H1 J1 — DS Ø2 — K1 S2 F1
M1 L1 M1 L1 — DS Ø3 — V2 T2 M2
N1 P1 N1 P1 — DS Ø4 — V1 U2 R1
N2 P2 N2 P2 — DS Ø5 — U1 R2 S1

M247 2A08

B1 C1 B1 C1 — DS Ø6 — F2 J2 A1
D2 D1 D2 D1 — DS Ø7 — E2 L2 E1
H1 J1 H1 J1 — DS Ø8 — K1 S2 F1

KEY DS CLR PULSE K2
KEY DS LOAD PULSE H2

M95Ø 2CØ6

	NO	NC		
DS ØØ LMP	J1	K1	L1	Ø01
DS Ø1 LMP	E1	F1	H1	Ø02
DS Ø2 LMP	B1	A1	C1	Ø03
DS Ø3 LMP	E2	D2	F2	Ø04
DS Ø4 LMP	J2	L2	K2	Ø05
DS Ø5 LMP	P2	R2	S2	Ø06
DS Ø6 LMP	V2	T2	U2	Ø07
DS Ø7 LMP	R1	S1	U1	Ø08
DS Ø8 LMP	M1	N1	P1	Ø09

M172 2B1Ø

A1 B1 D2 — DS ØØ(Ø) — MI ØØ(1)
F1 H1 H2 — DS Ø1(Ø) — MI Ø1(1)
F2 D1 E2 — DS Ø2(Ø) — MI Ø2(1)
J1 K1 J2 — DS Ø3(Ø) — MI Ø3(1)
K2 L1 L2 — DS Ø4(Ø) — MI Ø4(1)
M1 N1 M2 — DS Ø5(Ø) — MI Ø5(1)
P2 P1 R2 — DS Ø6(Ø) — MI Ø6(1)
S1 V1 U1 — DS Ø7(Ø) — MI Ø7(1)
T2 R1 S2 — DS Ø8(Ø) — MI Ø8(1)

KEY DS TOGGLE EN A C1
KEY DS MI EN A E1

M247 2A08

M1 L1 M1 L1 — DS Ø9 — V2 T2 M2
N1 P1 N1 P1 — DS 1Ø — V1 U2 R1
N2 P2 N2 P2 — DS 11 — U1 R2 S1

M247 2A1Ø

B1 C1 B1 C1 — DS 12 — F2 J2 A1
D2 D1 D2 D1 — DS 13 — E2 L2 E1
H1 J1 H1 J1 — DS 14 — K1 S2 F1
M1 L1 M1 L1 — DS 15 — V2 T2 M2
N1 P1 N1 P1 — DS 16 — V1 U2 R1
N2 P2 N2 P2 — DS 17 — U1 R2 S1

KEY DS CLR PULSE K2
KEY DS LOAD PULSE H2

M95Ø 2CØ4

	NO	NC		
DS Ø9 LMP	B1	A1	C1	Ø10
DS 1Ø LMP	E1	F1	H1	Ø11
DS 11 LMP	J1	K1	L1	Ø12

M95Ø 2CØ5

	NO	NC		
DS 12 LMP	R2	S2	P2	Ø13
DS 13 LMP	V2	T2	U2	Ø14
DS 14 LMP	B1	A1	C1	Ø15
DS 15 LMP	E1	F1	H1	Ø16

M95Ø 2BØ5

	NO	NC		
DS 16 LMP	J2	L2	K2	Ø17
DS 17 LMP	P2	R2	S2	Ø18

M95Ø 2CØ3

M172 2B12

A1 B1 D2 — DS Ø9(Ø) — MI Ø9(1)
F1 H1 H2 — DS 1Ø(Ø) — MI 1Ø(1)
F2 D1 E2 — DS 11(Ø) — MI 11(1)
J1 K1 J2 — DS 12(Ø) — MI 12(1)
K2 L1 L2 — DS 13(Ø) — MI 13(1)
M1 N1 M2 — DS 14(Ø) — MI 14(1)
P2 P1 R2 — DS 15(Ø) — MI 15(1)
S1 V1 U1 — DS 16(Ø) — MI 16(1)
T2 R1 S2 — DS 17(Ø) — MI 17(1)

KEY DS TOGGLE EN B C1
KEY DS MI EN B E1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: KI1Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 8/3/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CH'K'D. David Gross	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allen Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SCALE ~

SHEET 1 OF 1

TITLE: DATA SWITCHES ØØ - 17

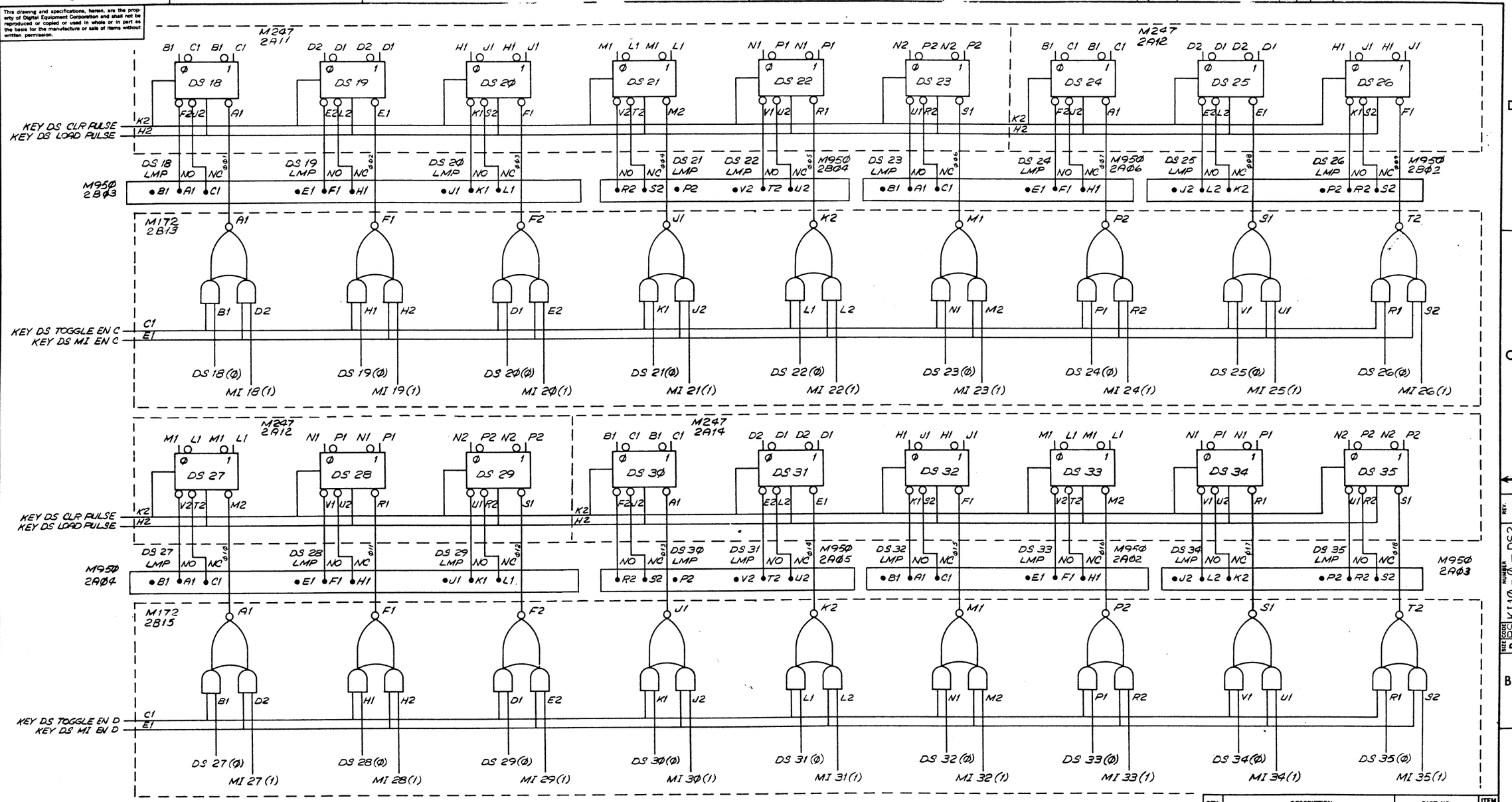
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø - Ø - DS1	

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

BEC FORM NO. BRO 100

SIZE D | CODE BS | NUMBER KI1Ø - Ø - DS1 | REV



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: KJ1Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stephenson	DATE 6/29/70
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Allan Katek	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SCALE: FULL

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: DATA SWITCHES 18 - 35

SIZE D | CODE BS | NUMBER KI1Ø-Ø-DS2 | REV.

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100

SIZE D | CODE BS | NUMBER KI1Ø-Ø-DS2 | REV.

M243 1H24
E1 D1 E1 D1 E2 D2 E2 D2
ETØ A
ETØ B
MR STATE CLR D
CLK DRIVE B2
MR STATE CLR C

M243 1D14
E1 D1 E1 D1 E2 D2 E2 D2 K1 J1 K1 J1
ETØ C
ETØ D
ETØ E
CLK DRIVE A2
MR STATE CLR A

M243 1C32
E1 D1 E1 D1 E2 D2 E2 D2
ETØ F
ETØ J
CLK DRIVE A1
MR STATE CLR D

M243 1E21
K1 J1 K1 J1
ETØ K
CLK DRIVE A2

ET1 J (1) → M143 2J06 → ET1 Z (1)

ETØ EN, F CYC ACT EN C → M147 1D34 → A1 Ø61

M243 1H24
K1 J1 K1 J1 N1 M1 N1 M1 P1 P2 P1 P2
ET1 A
ET1 B
ET1 C
MR STATE CLR D
CLK DRIVE B2
MR STATE CLR C

M243 1D14
N1 M1 N1 M1 P1 P2 P1 P2
ET1 D
ET1 E
CLK DRIVE A2
MR STATE CLR A

M243 1C32
K1 J1 K1 J1 N1 M1 N1 M1
ET1 F
ET1 J
CLK DRIVE A1

M243 1H24
R1 S1 R1 S1
ET2 A
MR STATE CLR D
CLK DRIVE B2

ET2 B (1), +3 → M143 1H40 → ET2 Y (1)
ET2 C (1) → M143 1H40 → ET2 Z (1)

IR F9C, IR 3XX → M177 1B15 → A1 Ø06

IR BOOLE, IR XX (Ø7,13,15,16), IR HWT FWT, IR XXXM, MUUOF2 (1), +3 → M171 1A32 → K2 Ø07

IR TEST, IR Ø8 (1), +3

IR POP, IR JSA, BYTE PTR INC, IR FP IMM → M177 1B11 → J1 Ø08

MUUO PART 1, IR DFDV, IR DFMP, BYF5 (1) → M177 1B11 → M2 Ø09

IR PUSH, IR PUSHJ, IR LUUO, IR BLT → M177 1B11 → P2 Ø10

IR SP INST, IR DFAS, IR DFN, IR FIXX → M177 1B11 → T2 Ø11

IR XMULX, IR XOIVX, IR UFFO, PI INC MEM A → M177 1B15 → E1 Ø12

IR FSBXX, IR FDVXX, IR FMPXX, TEST TXOX V TXX (E,N,A) → M177 1B15 → J1 Ø13

IOT INST, ~IR BLKX → M143 1D37 → M2 Ø14

IR DMOVNM, IR DMOVEM PART 2 → M177 1B11 → A1 Ø15

+3, R1, P1 → M143 1D37 → N1 → ETØ EN

M139 1F37 P2

+3, R1, S1 → M143 1D37 → P2 → ET1 EN

M139 1F37 V2

M243 1H24
M2 N2 M2 N2 T2 S2 T2 S2
ET2 B
ET2 C
MR STATE CLR D
CLK DRIVE B2

M243 1D14
R1 S1 R1 S1 M2 N2 M2 N2 T2 S2 T2 S2
ET2 D
ET2 E
ET2 F
CLK DRIVE A2
MR STATE CLR C

M243 1C32
P1 P2 P1 P2 M2 N2 M2 N2 T2 S2 T2 S2
ET2 J
ET2 M
ET2 N
CLK DRIVE A1
MR STATE CLR A

F CYC ACT EN B, ~ETØ EN, ET1 EN, ~ 9C SUBR EN, ETØ E (1), +3 → M128 1F25 → H2 Ø16

ET1 J (1), IOT INST, JOB IOT (Ø), PI DIVERT INDIRECT (Ø) → M147 2C10 → T2

ET1 IOT LOOP

IR XMULX, SCTC DONE A, BYF5 (1) → M126 1D29 → L2 Ø17

M8Ø3 1F32 → R1 Ø92

IOT T9 (1), +3, ~IOT INST, ET1 E (1), ETØ E (1), ~ET1 EN, F CYC ACT EN E, ~ETØ EN, ~ET1 EN → M171 1F22 → T2 → ET2 IN

M243 2C12
N1 M1 N1 M1
MR STATE CLR
ET2 K
CLK DRIVE D1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W Stephenson	DATE 11/1/70
CHKD.	David Gross	DATE 3/14/72
ENG.	Alan Kotok	DATE Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72
NEXT HIGHER ASSY	B-DD-KI1Ø-Ø	
SCALE	~¼	
SHEET	1 OF 1	

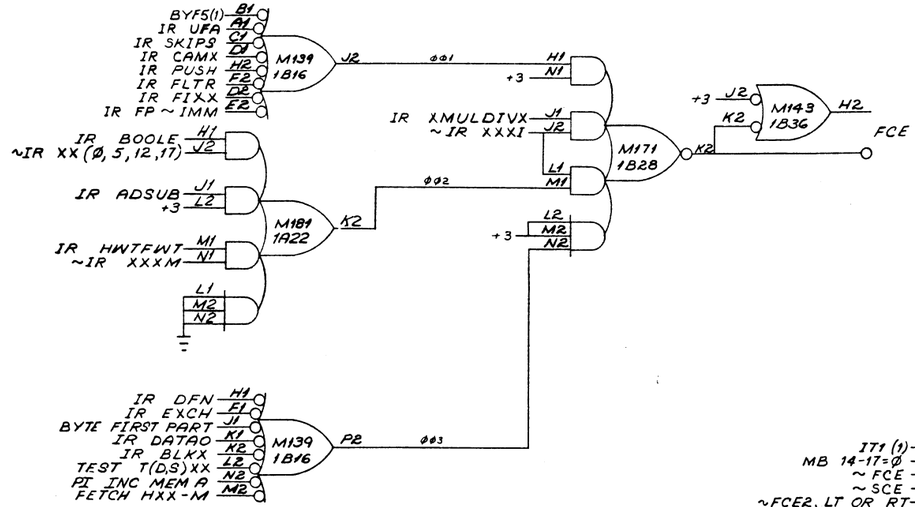
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

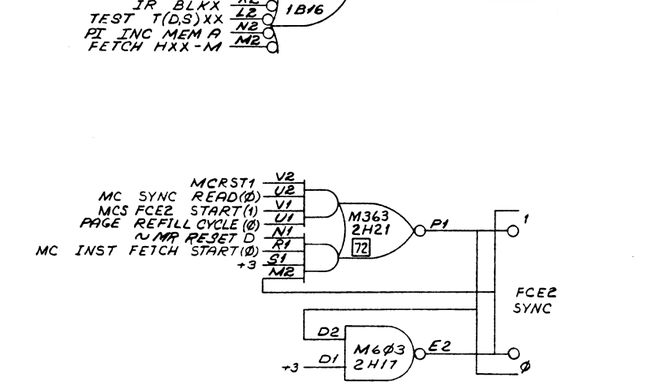
TITLE
EXECUTE CYCLE

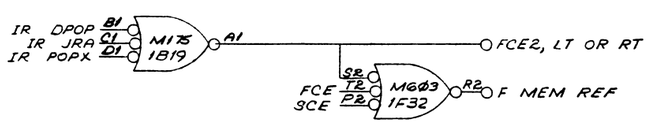
SIZE D | CODE BS | NUMBER KI1Ø-Ø-E | REV
DIST.

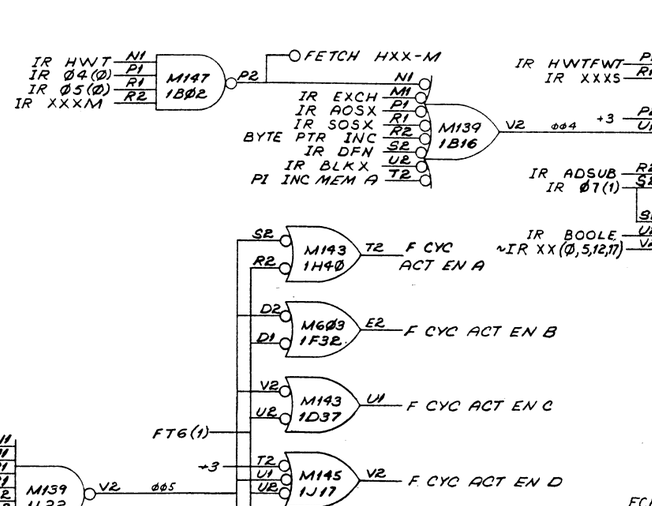
REVISIONS | REV. | CHANGE NO. | CHK

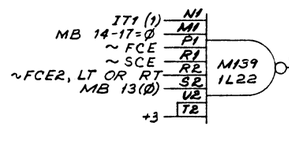
DEC FORM NO DRD 102A

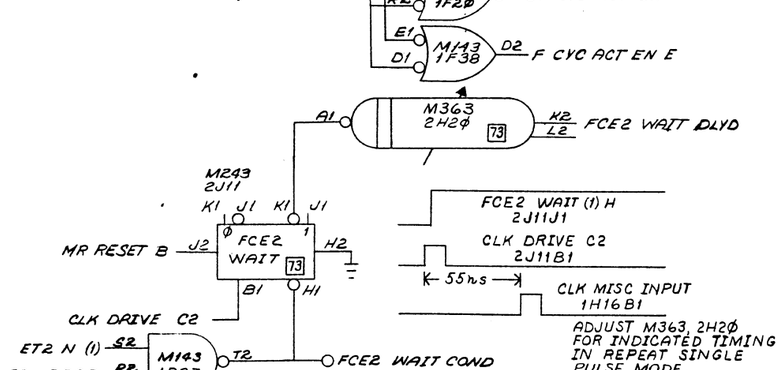


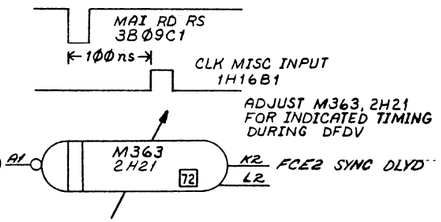










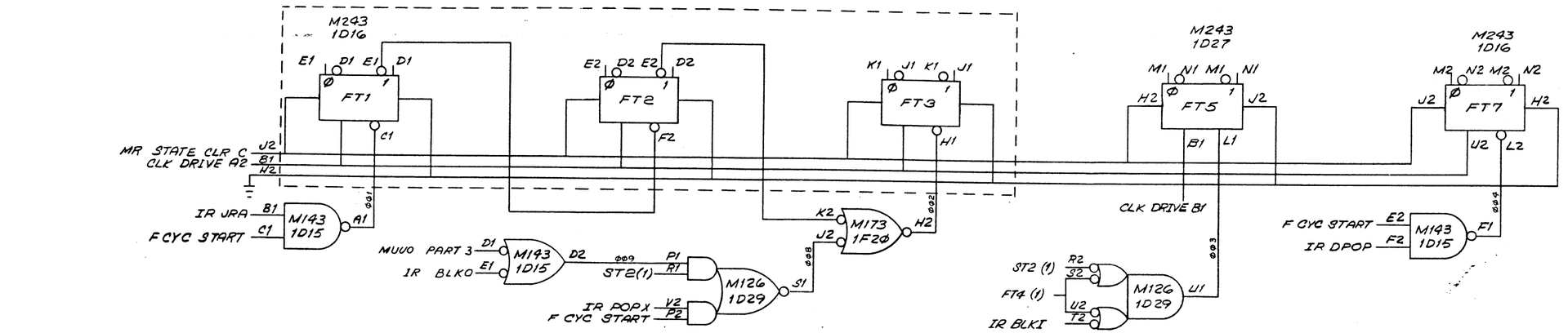


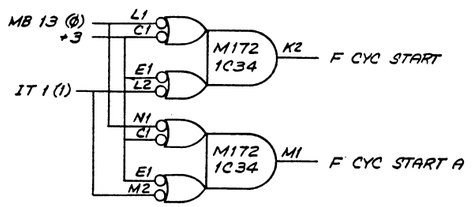
NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

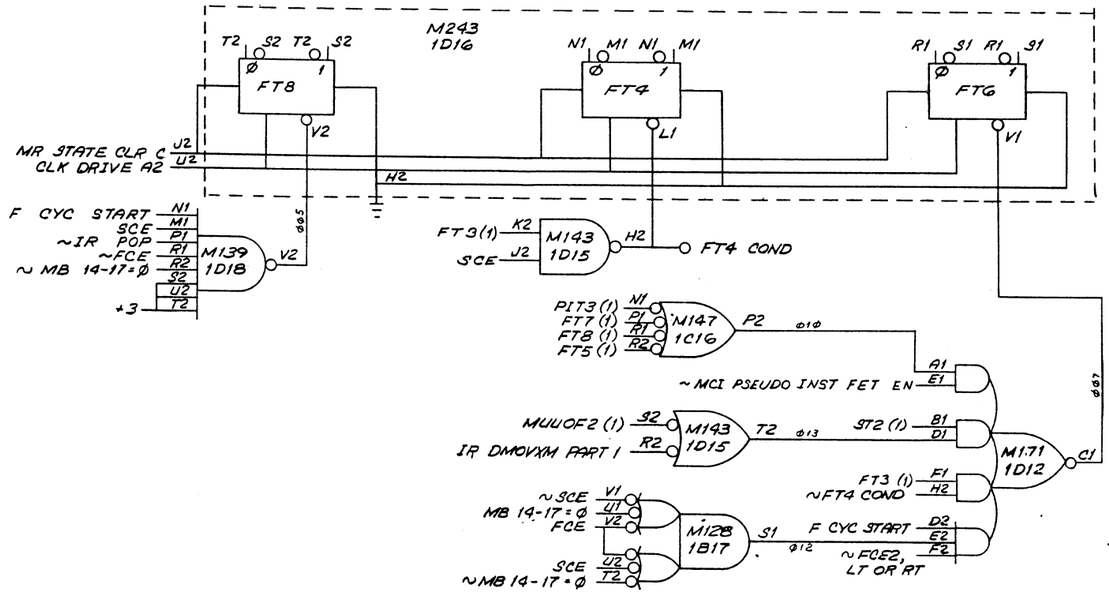
FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN.	DATE 6/11/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D David Gross	DATE 31 Jan 72	TITLE: FETCH CYCLE
	ENG. Allan Kotok	DATE 31 Jan 72	
	PROJ. ENG. Allan Kent	DATE 31 Jan 72	
MATERIAL	PROD.	DATE 31 Jan 72	
	NEXT HIGHER ASSY B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-F1 REV
FINISH	SCALE		DIST.
	SHEET 1 OF 1		

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A







FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

DRN. L. McGinn	DATE 5/18/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 JAN 72	
ENG. Allen Kotik	DATE 31 Jan 72	
PROJ. ENG. Allen Kotik	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE —

SHEET 1 OF 1

TITLE: FETCH CYCLE TIME STATES

SIZE D | CODE BS | NUMBER KI1Ø-Ø-F2 | REV.

DIST.

REVISIONS		
REV.	CHANGE NO.	CHK

DEC FORM NO DRD 102A

SIZE D | CODE BS | NUMBER KI1Ø-Ø-F2 | REV.

M243 1C24 — FLAG 1
M243 1D09 — FLAG 1A
M243 1C24 — FLAG 2
M243 1C24 — FLAG 2A
M243 1D09 — FLAG 2B
M243 1C24 — FLAG 3
M243 1D09 — FLAG 3A

MR STATE CLR B
CLK DRIVE A1
MR STATE CLR C
CLK DRIVE A2
MR STATE CLR C
CLK DRIVE A2
CLK DRIVE A2

~FLAG 1 CLR
ET1 B (1) SCAD Ø (1) IR SR INST
IR JFFO ~AD=Ø ETØ K (1)
DFDT 4 (1) ADX ØØ (1)
DNT 3 (1) +3
MPY FCN MQ 34 IN MQ 35 IN
IR XMULX A ET1 A (1)
FDT 4 (1) AD ØØ (Ø)
M170 1M19 — K2 — Ø01

ET2 J (Ø) ~IR DFAS A — M147 1D25 — A1 — Ø07
SCAD Ø (1) ~FLAG 2 CLR
DFDT 4 (1) +3
DFMT 1 (1) +3
ET1 E (1) IR PUSHX — M173 1F20 — L1 — AD Ø08 CRY Ø
ETØ K (1) IR JFFO AD ØØ-17=Ø
DNT 4 (1) +3
~SCAD Ø = AR ØØ
IR DFAS FAT1 (1) ET1 D (1) — M126 1D10 — D1 — Ø09
M170 1K10 — K2 — Ø02

FLAG 3A (1) ~FLAG 3 CLR
ETØ D (1) IR BLT AD 17.5 (1)
ETØ C (1) IR DFN AD Ø9-35=Ø
DNT 7 (1) ARX ØØA(1)
M170 1K13 — K2 — Ø03
ETØ D (1) IR XMULX A AR ØØA(1) — M175 1K06 — H1 — Ø10
ET1 A (1) IR DFDV A ARX ØØ (1)
AD ØØ (1)
+3
DS NEG DIVIDEND (ETØ) — M143 1D11 — A1 — Ø11
+3V IR FDVXX ET1 E (1) FMØØ(1) DFDT 7 (1) FLAG 3 (Ø) +3V — M128 1F25 — P2 — Ø14

IT1 (1) +3
MPY FCN ~MQ 34 IN
DFMT 3 (1) +3
M171 1L33 — K2 — FLAG 1 CLR

IT1 (1) DFMT 2 (1) DNT1 COND A — M177 1F33 — M2 — FLAG 2 CLR
+3 DFDT 5 (1) DNT 5 (1) ARX ØØA (Ø) — M126 1K08 — F1 — Ø13

IT1 (1) DNT1 (1) — M175 1J19 — V2 — FLAG 3 CLR
DFDT 7 (1) FMØØB (1) — M143 1D11 — D2 — Ø12

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN W. Stephenson 4/23/70
CHKD. David Gross 31 Jan 72
ENG Allan Kotok 31 Jan 72
PROJ ENG Allan Kotok 31 Jan 72
PROD [signature] 31 JAN 72
NEXT HIGHER ASSY 8-DD-KI1Ø-Ø
SCALE ∾
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: FLAGS

SIZE D | CODE BS | NUMBER KI1Ø-Ø-FLAG | REV | DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102A

FM ADR Ø (1) B1 / FM ADR EN C1 — M126 2E25 — D1
FM BLOCK Ø(1) H1 / FM BLOCK EN A1 — M126 2E25 — D1
FM ADR 1 (1) D2 / FM ADR EN E1 — M126 2E25 — F1
FM BLOCK 1 (1) F2 / FM BLOCK EN E2 — M126 2E25 — F1

D1 → M143 2L18 M1 / N2 → M2
+3 → S2
F1 → M143 2L18 R2 / S2 → T2
FMA GRP 1

FMA GRP Ø → R1 M173 2LØ6 N1 — FM GRP 3 SEL
P1 R1 M173 2LØ6 P2 — FM GRP 2 SEL
~FMA GRP Ø → S1 S2 M173 2LØ6 T2 — FM GRP 1 SEL
V2 U2 M173 2LØ6 U1 — FM GRP Ø SEL
~FMA GRP 1 →

M243 2P33
D1 E1 D1 E1 D2 E2 D2 E2
FM ADRØ (Ø/1) C1 — FM ADR1 (Ø/1) F2
UEBR CLR H2
UBR LOAD J1
V2
IOB Ø1T
IOB Ø2T

M247 2D2Ø
D2 D1 D2 D1 — FM MANUAL (Ø/1) K2 E2 L2 H2 E1
H1 J1 H1 J1 — FM BLOCKØ (Ø/1) K2 K1 S2 H2 F1
M1 L1 M1 L1 — FM BLOCK 1 (Ø/1) K2 V2 T2 H2 M2
MR PWR CLR ENB

M135Ø 2DØ8
FM MANUAL LMP: NO NC D2 F2 E2
FM BLOCKØ LMP: NO NC L2 K2 J2
FM BLOCK 1 LMP: NO NC R2 S2 P2

M243 2J11 T2 S2 T2 S2
MR RESET B U2 — FMA KEY CYCLE (Ø/1) H2
CLK DRIVE C2 B1 V2 ØØ1
FMA KEY CYCLE(1) V2
~KEY DONE U2
+3 V1
KEY MEM OP U1
KEY EXEC PAGING(Ø) N1
KEY USER PAGING(Ø) A1
KT1 (1) S1
M2
M363 2J21 P1

M143 2K12
+3 C1
B1 A1 FM ADR 2 A
D1 D2 FM ADR 3 A
E1
E2 F1 FM ADR 4 A
F2
K2 H2 FM ADR 5 A
U2
K1 L1 FM ADR 2 B
J1
M1 M2 FM ADR 3 B
N2
S2 T2 FM ADR 4 B
R2
V2 U1 FM ADR 5 B
U2

M143 2K13
+3 C1
B1 A1 FM ADR 2 C
D1 D2 FM ADR 3 C
E1
E2 F1 FM ADR 4 C
F2
K2 H2 FM ADR 5 C
J2
K1 L1 FM ADR 2 D
J1
M1 M2 FM ADR 3 D
N2
S2 T2 FM ADR 4 D
R2
V2 U1 FM ADR 5 D
U2

FM ADR 2

MB14(1) A1 / E1
IRØ9(1) B1 / D1
FM AC2Ø9 F1 / H2
+3 D2
MA 32 E2 / F2
M171 2KØ4 — C1 — FM ADR 2

MB15(1) H1 / N1
IR1Ø(1) J1 / J2
FM AC21Ø L1 / M1
+3 L2
MA 33 M2 / N2
M171 2KØ4 — K2 — FM ADR 3

MB16(1) P1 / R1
IR11 A(1) P2 / U1
FM AC2 11 R2 / S2
+3 S1
MA 34 U2 / V2
M171 2KØ4 — T2 — FM ADR 4

MB17(1) A1 / E1
IR12 A(1) B1 / D1
FM AC2 12 F1 / H2
+3 D2
MA 35 E2 / F2
M171 2L04 — C1 — FM ADR 5

FM ADR XR
FM ADR AC
FM ADR AC2
FM ADR MA(1)

XCTP ACTIVE (Ø) R2 / S2
FM ADR MA (1) E2
FMA USER HOLD (1) F2
M143 2J06 — F1 ØØ2 — U2 / T2
M126 2DØ9 — U1 — FM ADR EN

M241 2J16
J2 K2 J2 K2
+3 J1 — FMA USER HOLD (Ø/1) — H2 +3
MC PAGE DLY OVER A U2 — X1
ØØ3

FM MANUAL (Ø) P2 / FMA KEY CYCLE (Ø) S1 / USER PAGING S2
M145 2E13 — R2

FM MANUAL (1) V2
FMA KEY CYCLE (/) U2
M143 2E16 — U1 — FM BLOCK EN

FM AC2 ØØ9 | FM AC2 1Ø | FM AC2 11 | FM AC2 12

C1 K2 J2 E2 M1 U2 T2 R2 P2
D1 +1 OUT — +1GATE M166 2KØ3 — +1 IN — N2 +3
B1 L2 H2 K1 J1 V2 A1 S2 F2 M2
IRØ9 (1) | IR1Ø (1) | IR11 A (1) | IR12 A (1) | +3

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK
	-		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —
FINISH —

DRN	J. McGillis	DATE 4-23-70
CHKD	David Gross	DATE 5 Jun 72
ENG	Allan Kotok	DATE 5 Jun 72
PROJ ENG	Allan Kotok	DATE 31 May 72
PROD	Maurice	DATE 31 May 72

NEXT HIGHER ASSY. E-CU-KIØ-Ø
SCALE —
SHEET 1 OF 1

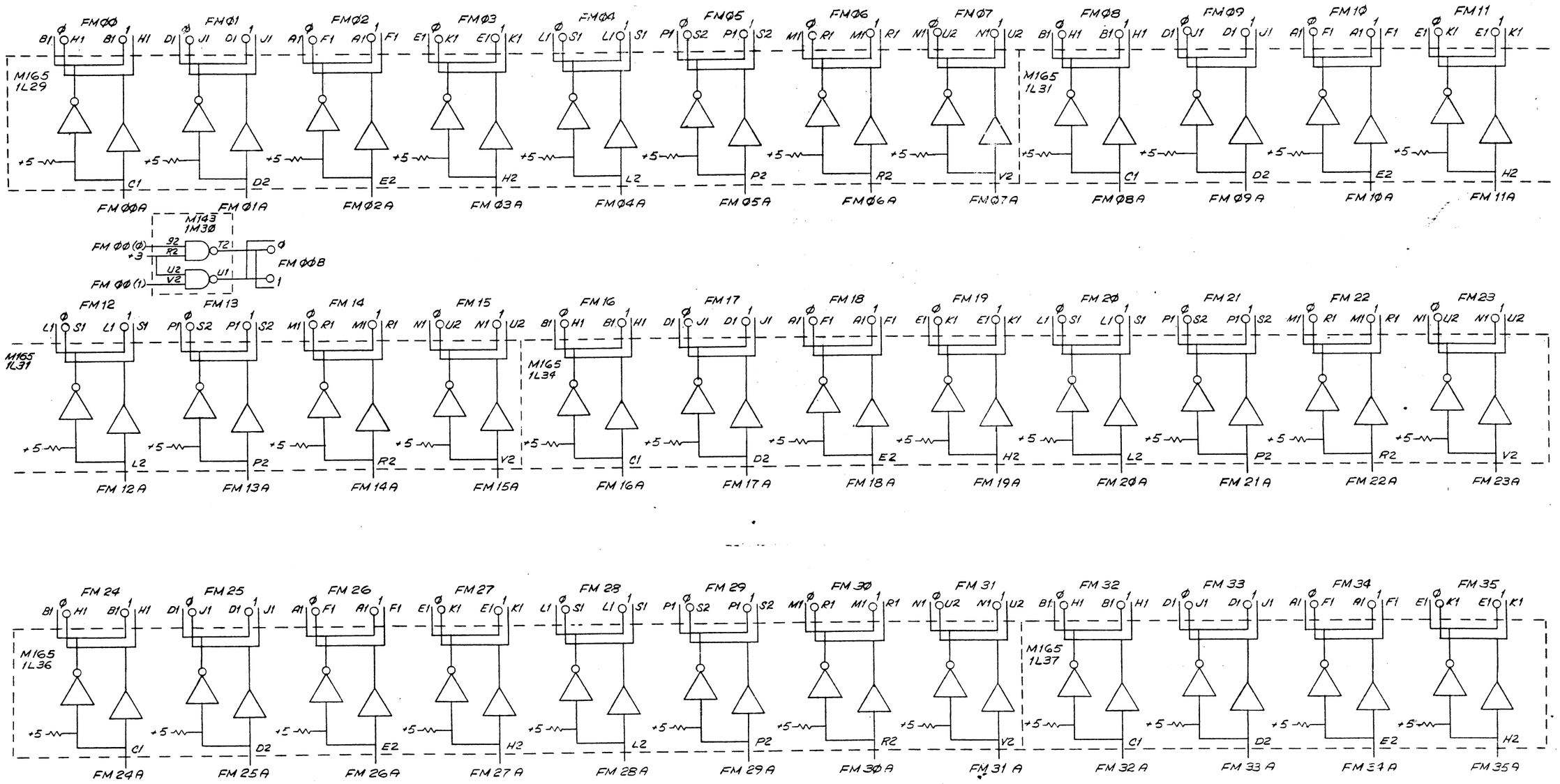
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
FAST MEMORY
ADDRESS CONTROL

SIZE	CODE	NUMBER	REV.
D	BS	KIØ-Ø-FMA	
DIST.			

SIZE D CODE BS NUMBER KIØ-Ø-FMA REV

DEC FORM NO DPD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS	DBN: W. Hardeman 3/24/70	CHKD: David Frost 31 Jan 72	ENG: Allan Kotok 31 Jan 72	PROJ ENG: Allan Kent 31 Jan 72	PROD: [illegible] 31 JAN 72
MATERIAL	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø		
FINISH	SCALE: NONE	SHEET 1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: FAST MEMORY BUFFERS

SIZE D | CODE BS | NUMBER KI1Ø - Ø - FMB | REV.

DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102A

IR DFAS
IR DFMP A
M143 1B36
ET1 J (1)
IR SR XXXC
IR XDIVX A
M143 1B3Ø
ET2 N (1)
MB 13 A(Ø)
AD F LT V RT COND
F CYC START
~IR DPOP
~FCE
~SCE
M175 1B19
~MC INST FETCH(IT1)
M171 1C33
FMC AC ENA

BLTT7 (1)
DFAT3 (1)
ST5 COND A
DFDT1 (1)
FDT5 (1)
M139 1C38
FM WR EN A

PAGE LAST INST PUBLIC (1)
PAGE PRIVATE INST (1)
M6Ø3 2M13
M363 2D19
M172 2E12
CLK DRIVE C2
M241 2E17
FM WR (1)
FM WR

FM GRP Ø SEL
FM GRP 1 SEL
FM GRP 2 SEL
FM GRP 3 SEL
M143 2K12
M143 2K13
FM GRP Ø WR
FM GRP 1 WR
FM GRP 2 WR
FM GRP 3 WR

CLOCK DRIVE C2
2E17U2
90ns
FM WR(1)H
2E17D2

ADJUST M363 2D19
FOR INDICATED
TIMING.

ET2 M(1)
IR UFA
ET1 E(1)
IR FDVL
IR DPOP
IR DMOVNM
IR DIVA
IR UFFO A
M147 1B33
ET0 F(1)
IR Ø6 C (1)
IR SR INST
M171 1A32
FMC AC2 ENA

FMC AC EN A
FT8(1)
DFDT7 (1)
FDT4 (1)
FMC AC2 EN A
FMC AC2 EN B
NRT5 (1)
FDT6 (1)
M139 1C38
M177 1B34
FMC AC V AC2 EN
FMC AC2 EN

FM WR EN A
+3
ST1 COND
~SAC INH
ST2 (1)
MC STOREINAC(1)
NRT4 (1)
~SAC INH
~IR FDVL
M171 1C40
FM WR EN

MC SYNC AC READ
MC PAGE DLY OVER A
MCT2
+3
M126 2E25

FM ADR MA (Ø)
FMC SEL Ø (Ø)
FMC SEL 1 (Ø)
M175 2E22
FM ADR XR
FM ADR AC
FM ADR AC2

M241 2E17
FMC SEL Ø
FMC SEL 1
CLK DRIVE C2
MR RESET A

M1 N1 M1 N1
FMC STORE IN AC
MR RESET A

R1 A2 R1 A2
MCT4
FM ADR MA

ST2 A
MC STORE IN AC(1)
M173 2E09
FMC STORE IN AC(Ø)
+3
MC STORE IN AC(1)
ST2 COND
M363 2D19

FMC SEL Ø (1)
~CLK EN INST DONE
FMC AC V AC2 EN
+3V
IT Ø (1)
MB 13 A (Ø)
MB 14-17 = Ø
M171 1C40
FMC SEL Ø IN

SAC2
ST1 (1)
+3
~R DMOVEM
ET0 F(1)
M128 1A35
FMC AC2 EN B

FT6(1)
MC PAGE DLY OVER
M143 2E16

FMC AC2 EN
FMC SEL 1 (1)
~CLK EN INST DONE
~FMC AC V AC2 EN
M171 2E21

FM ØØ B (1)
AR ØØ C
FM ØØ B(Ø)
AR ØØ A (Ø)
M126 1E28
FM ØØ = AR ØØ

FM ØØ B (1)
~AR ØØ C
FM ØØ B(Ø)
AR ØØ A (1)
M126 1E28

FM ADR MA	FMC SEL 1	FMC SEL Ø	FM OUTPUT
Ø	Ø	Ø	XR
Ø	Ø	1	AC
Ø	1	Ø	C(Ø) (IMPOSS)
Ø	1	1	AC2
1	X	X	MA

REVISIONS			
CHK	CHANGE NO.	REV	
PM	KI10-00024	A	M. Lewis 7-18-72
	KENT		Allan Kent 2nd 7/72
PM	KI10-00038	B	Allan Kent 8-17-73
	D.GROSS		D. Gross 20 Aug 73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	S. LYONNAIS	DATE 4/30/70
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Sam Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 JAN 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASS'Y B-CD-KI1Ø-Ø

SCALE NONE

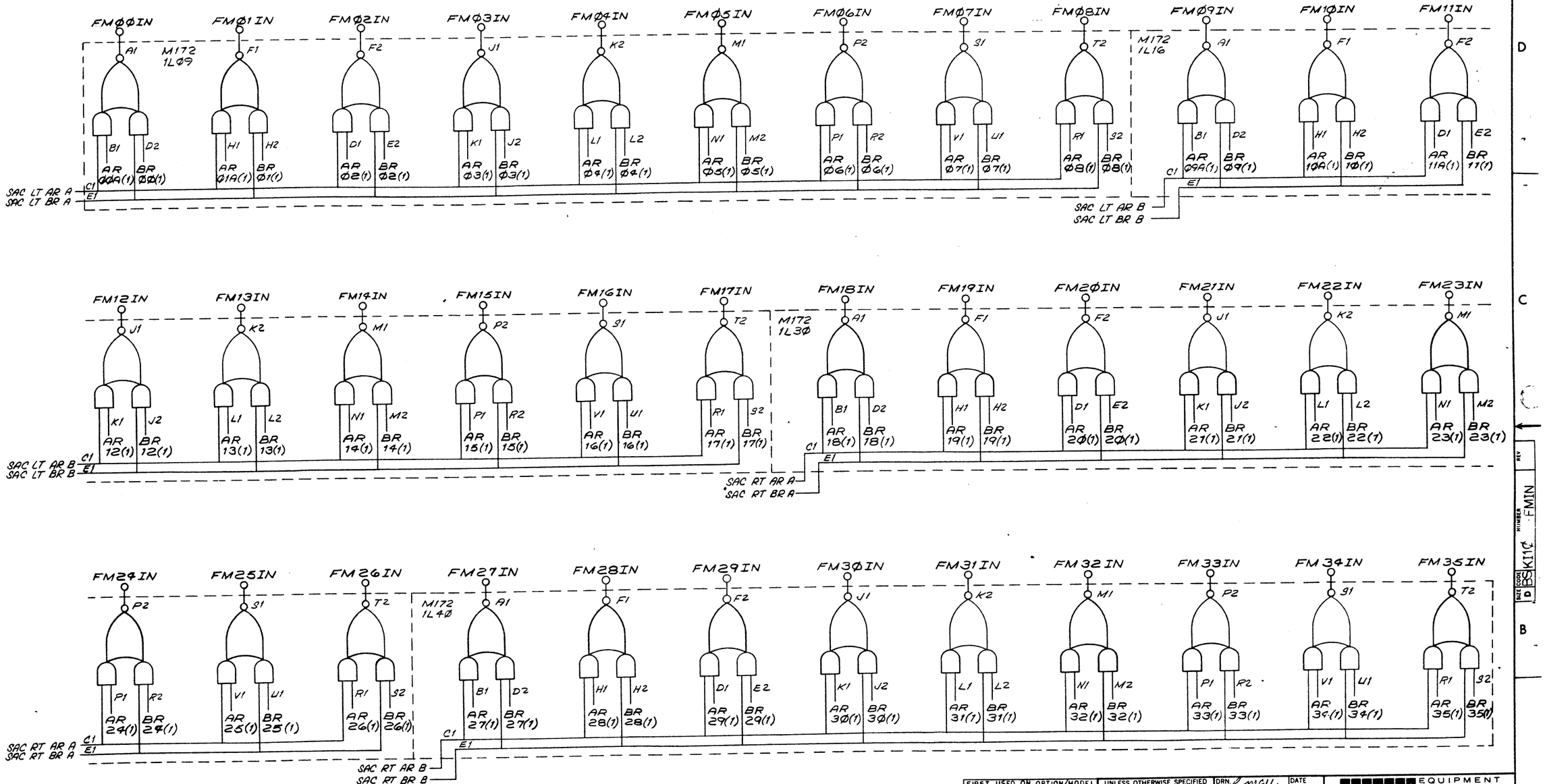
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
FAST MEMORY CONTROL

SIZE D | CODE BS | NUMBER KI1Ø-Ø-FMC | REV E | DIST.

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL —
FINISH —

DRN	L McKee	DATE 3-26-70
CHK	David Frost	DATE 31 Jan 72
ENG	Dan Hotek	DATE 31 Jan 72
PROJ ENG	Alan Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

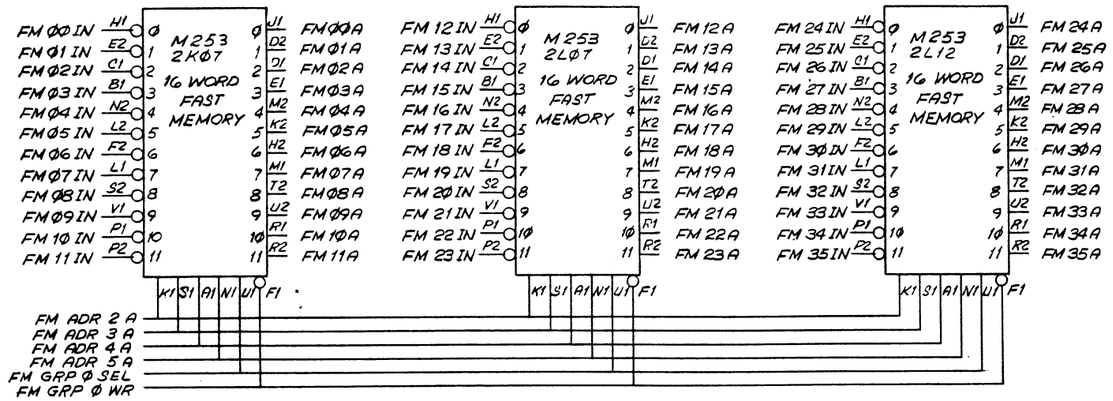
TITLE: FAST MEMORY DATA MIXERS

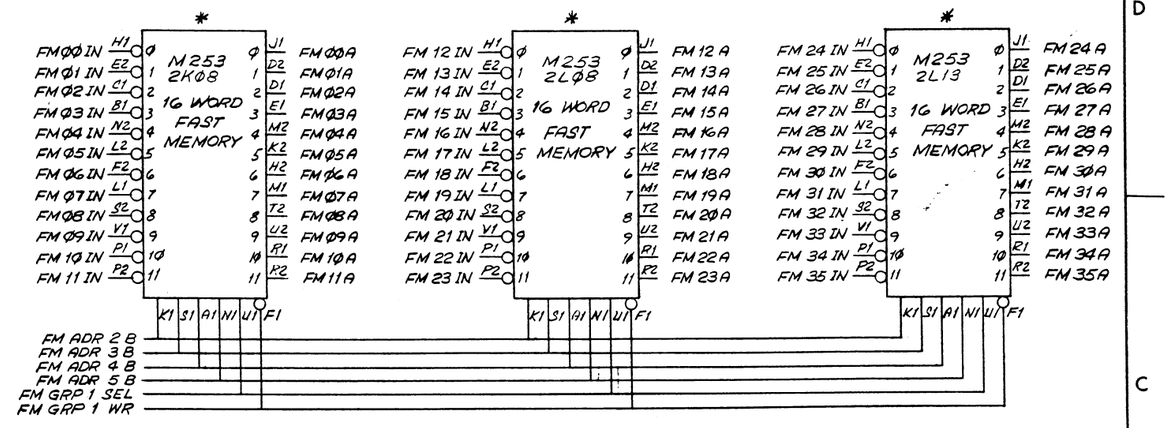
SIZE D | CODE BS | NUMBER KI1Ø-Ø-FMIN | REV.
DIST.

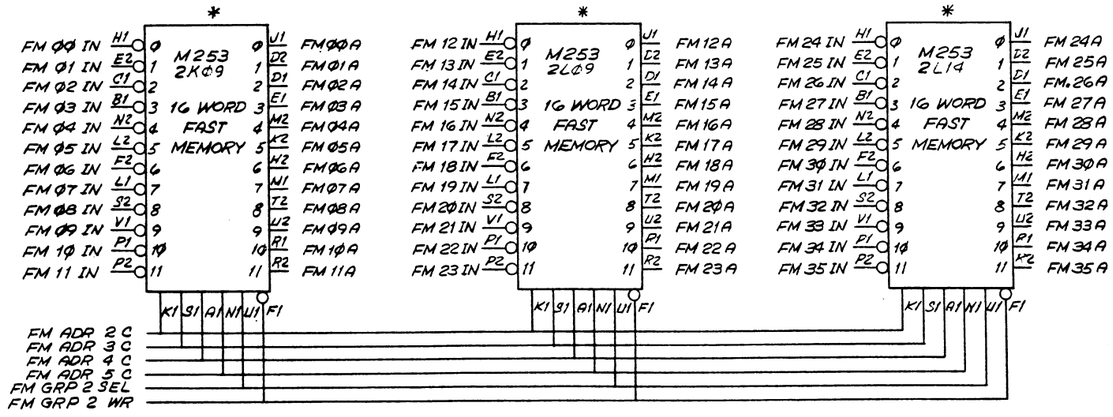
REVISIONS | REV. | CHANGE NO | CHK

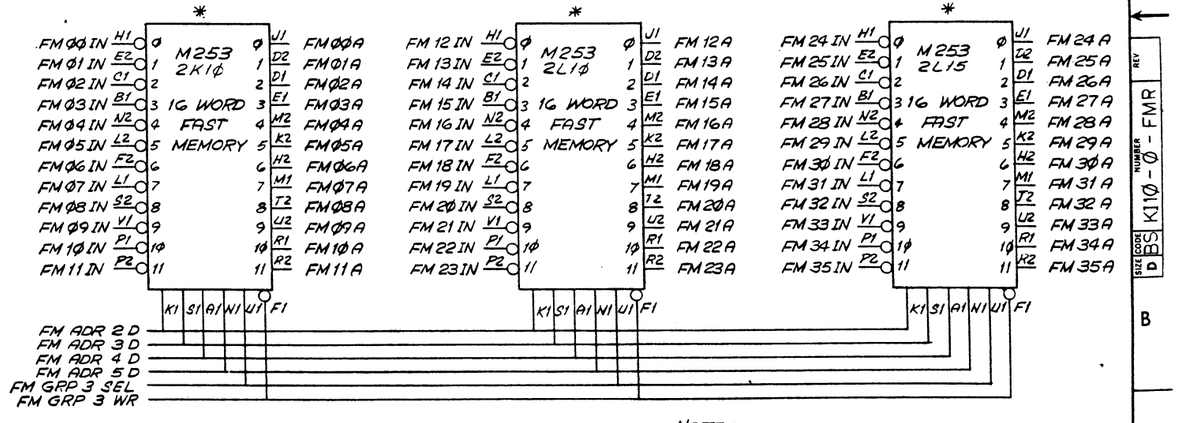
DEC FORM NO DRD 102A

SIZE D | CODE BS | NUMBER KI1Ø-Ø-FMIN | REV









NOTE 8
* MODULE IS OPTIONAL

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H"

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 3/31/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Gross	DATE 31 JAN 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE: FAST MEMORY REGISTERS
PROJ ENG. Allan Kent	DATE 31 Jan 72	
PROD. M. Swallow	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KIIØ-Ø
SCALE: ~½
SHEET 1 OF 1

SIZE D | CODE BS | NUMBER KIIØ-Ø-FMR | REV
DIST.

REVISIONS | REV | CHANGE NO | CHK.

DEC FORM NO DRD 102A

AD ØØ (Ø) V1
AD Ø8 (1) U1
FAT4 (1) V2
AD ØØ A (1) U3
AD Ø8 (Ø) T2
M128 1K07
S1
FAT4 SH RT

+3V S2
AD ØØ (Ø) R2
AD Ø8 (Ø) R1
FAT4 (1) M1
AD ØØ A (1) N1
AD Ø8 (1) M2
+3V N2
M128 1L19
P2
FAT4 ~SH RT

M243 1C26

FAT1 E1 D1 E1 D1 Ø 1 C1
FAT2 E2 D2 E2 D2 Ø 1 F2
FAT3 K1 J1 K1 J1 Ø 1 H1
FAT4 N1 M1 N1 M1 Ø 1 L1
FMT1 P1 P2 P1 P2 Ø 1 R2
FMT2 A1 S1 A1 S1 Ø 1 V1

MR STATE CLR B J2
CLK DRIVE A1 B1
H2
U2

ØØ4

ET 2 D (1) P1
A1
M143 1D11
N1
+3V S1
R1
M143 1D11
P2
FP ADSUB

IR FADXX M1
IR FSBXX M2
IR UFA N2
M145 1B07
L2

+3 J1
K1
~SCØ-2=7 L1
FP ADSUB H1
SCØ-3 ALL ONES F2
SC4-7 ALL ONES J2
K2
M128 1D02
H2
FAT4 COND

ØØ11

+3 D2
SC8 (1) E1
M126 1D10
F1
SCT1 (1) F2
SCT2 (1) E2

ET 2 J (1) P1
A1
M143 1D15
N1
FMT1 COND

IR FMPXX R1
SCTC DONE A S1
M143 1D15
P2
FMT2 COND

+3V B1
SCØ A (Ø) D1
FLAG 2 B (Ø) E1
FAT3 (1) A1
E2
F1
M128 1D02
C1
FAT3 AR INPUT

SC1 (1) D2
SC2 (1)

M243 1C25

FDTØ E1 D1 E1 D1 Ø 1 C1
FDT1 E2 D2 E2 D2 Ø 1 F2
FDT2 K1 J1 K1 J1 Ø 1 H1
FDT3 N1 M1 N1 M1 Ø 1 L1
FDT4 P1 P2 P1 P2 Ø 1 A2
FDT5 A1 S1 A1 S1 Ø 1 V1
FDT6 M2 N2 M2 N2 Ø 1 L2
FDT7 T2 S2 T2 S2 Ø 1 V2

MR STATE CLR B J2
CLK DRIVE A1 B1
H2
U2

ØØ5

ET 2 J (1) B1
IR FDVXX C1
M143 1C22
A1

P1
A1
M143 1C22
N1
FDT1 COND

IR FDVL
+3V K1 H2
N1 J1
M126 1D10
U2
~IR FDVL

ØØ6

M1
N2
M143 1K11
M2
AD ØØ (1)

ØØ7

NRT4 (1) S1
IR FDVL A1
M143 1C22
P2
FDT5 COND

IR FDVXX E2
FM ØØ B (1) F2
M143 1D11
F1
FDV NEG DIVIDEND

IR FDVL K2
FLAG 3 A (1) J2
M143 1D11
H2
M1
FDVL & FLAG 3 (1)

FLAG 3 (1) N2
M173 1F20
M2

NOTE
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REVISIONS	REV	CHANGE NO.	CHK

DEC FORM NO DRD 102A

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

FIRST USED ON OPTION / MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 9/28/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE: FLOATING POINT TIME STATES
PROJ. ENG. Allan Kotok	DATE 31 Jan 72	
PROD. [illegible]	DATE 9 JUN 72	

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SCALE ~

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø - Ø - FP	

DIST.

PIN	1A44 - 2AØ1	1B44 - 2BØ1	1C43 - 2CØ2	1C44 - 2CØ1	1D44 - 2DØ1	1E44 - 2EØ1	1F43 - 2FØ2	1F44 - 2FØ1	1H43 - 2HØ2	1H44 - 2HØ1
B1	PI CYC (1) H	MC MEM GO F CYC INH H	IR XCT L	FM ADR Ø (Ø) H	KEY DONE (XT2) H	AB AD EN H	CLK C H	MCF AR AD FF(1) L	IOT OUTGOING H	ST2 COND H
D1	PI INST L	CLK EN INST DONE H	MC SCE NOT POPX L	FM ADR 1 (Ø) H	XCTP RD (1) H	AB A9 EN L	CLK C1 H	MC ASYNC START A(Ø) H	IOT OUTGOING L	APR2 HI SPEED (1) H
D2	CLK MIN LOOP H	IR BLKI H	MC AUTO IN FET A L	XCTF (Ø) H	APR2 NORMAL SPEED EN H	AB PC (FETCH) EN H	IOT BLKX SKIP SET H	PFTØ H	AB AB EN H	PFF1 SET H
E1	PIT1 (Ø) H	IR CONI L	XCTP ACTIVE (1) L	FMC AC V AC2 EN H	KEY SNGL PLS SYNC A(Ø) H	AB PC EN A H	PF MAP COND A H	MCRSTØ L	MC PAGE DLY OVER H	IRMB KT1 EN L
E2	KEY RDI (1) H	IT2 COND L	PFT4 (1) L	FMC AC2 EN L	KEY XCT (1) H	MA SPECIAL EN A L	ARF LOAD L	FCE2 WAIT DLYD H	AR FLAG3 SAVE H	IR DATAO L
H1	CLK INH (Ø) H	IR LUUO H	USER PAGING H	FM WR EN L	IOT BLKX SKIP HOLD(1) H	MR RESET A H	F CYC ACT EN E H	CLK INH(ST1) EN H	MC WRITE KILL IN L	MAR ADR Ø (Ø) H
H2	KEY DEP CYCLE (Ø) H	IR IOT L	XCT PROT BYPASS L	FMC SEL Ø (1) H	MCI PSEUDO INST FET EN L	FCE2 SYNC DLYD H	IOT DATAI L	AM FINY MATCH H	BLTF1 (Ø) H	MAR ADR 1 (Ø) H
J1	KEY DEP CYCLE (1) H	MC SYNC READ EN A H	MC STORE IN AC (1) H	FMC SEL Ø IN L	XCTP WR (1) H	FCE2 WAIT COND L	FCE PSE L	MC STORE TIME H	USER IOT (1) H	MAR ADR 1 (1) H
K2	IR CONSX L	XCT PROT BYPASS H	IR CONO L	INST RDY SET L	PI CYC RDY (1) H	PAGE OK H	IR DPOP H	MC SYNC READ (Ø) H	PFF1 (1) H	MAR ADR 2 (Ø) H
L1	IR DATAI L	TRAP SATISFIED L	IR MAP L	PAGE LAST INST PUBLIC(1) L	PI RDY SYNC (1) H	MR RESET A L	IT2 (1) H	MC SYNC READ (1) H	PF KEY (1) H	MAR ADR 2 (1) H
M1	CLK MISC INPUT H	IR SKIP3 L	IT1 IN L	XCT SHADOW REF H	INST DONE (1) H	PFT2 (1) L	XT2 (1) H	AR Ø8 (1) H	AD IOB EN L	MAR ADR 3 (Ø) H
M2	KEY AB A9 EN H	KEY AR GETS DS H	PI OV (ET2) EN L	MC SYNC READ EN L	PIT2 (Ø) H	IOT BLKX SKIP (1) H	MA SPECIAL 27, 31 L	MCRST1 H	MONITOR VOLTAGE	MAR ADR 3 (1) H
P1	PI OV (Ø) H	IR ØØ LMP H	PI ACT INH L	BYTE MB CLR INH L	PIT2 (1) H	PI INC MEM L	FT6 (1) H	PAGE LAST MUUO PUBLIC(Ø) H	MAR VOLTAGE	MAR ADR 4 (Ø) H
P2	KEY EN INST DONE L	IR Ø1 LMP H	ST5 (1) H	PC CLK EN H	ET1 IOT LOOP L	KEY AB PC EN L	FCE H	IOB IOT (1) H	MARGIN EN H	MAR ADR 4 (1) H
S1	ET2 IN L	IR Ø2 LMP H	KT1 (Ø) H	ITØ (Ø) H	IOT INST H	MUUO PART 3 H	IOT DATAO L	PAGE SYNC REFILL (Ø) H	MC MEM GO INH (1) H	KEY RDI FIRST CYC L
S2	TRAP CYC (1) H	PI OVERFLOW INDIRECT ØØ H	PIT3 (Ø) L	PC+1 INH (1) H	PICTØ (Ø) H	FCE2 WAIT (1) H	ETØ K (1) H	PF CLK START L	SCE H	ET1 J (1) H
T2	MR BAY 1 LAMP TEST	CLK PSEUDO INST DONE L	XCTP ACTIVE (1) H	PC+1 INH IN L	EBR TRAP EN (Ø) H	KEY RDI SETUP (1) L	KEY CLK START L	PFT1 (Ø) H	ST2 A H	KT3 (1) H
V2	MR BAY 2 LAMP TEST	PI DATAI L	XCTP RD (1) L	PI RDY SYNC (Ø) H	PC CLK EN (BLT) L	CLK INH (1) H	MA SPECIAL 34 A H	CLK LONG CYC EN A H	AB AD (1) L	IR JRST H

NOTE: PINS A1, C1, C2, F1, F2, J2, K1, L2, N1, N2, R1, R2, T1, AND U2, ARE GROUNDED ON EACH CABLE CABLES ARE M9Ø4

PIN	1L42 - 2LØ3	1L43 - 2LØ2	1K44 - 2KØ1	1M42 - 2MØ3	1M43 - 2MØ2	1L44 - 2LØ1	1N42 - 2NØ3	1N43 - 2NØ2	1N44 - 2NØ1	1P43 - 2PØ2
B1	FM ØØA H	FM 18A H	FM ØØ IN L	MB ØØ (Ø) H	MAGIC #+1 (Ø) L	FM 18 IN L	MB 18 (Ø) H	MB ØØ IN L	MB 18 IN L	PC+1 18 H
D1	FM Ø1A H	FM 19A H	FM Ø1 IN L	MB Ø1 (Ø) H	MA SPECIAL 35 A L	FM 19 IN L	MB 19 (Ø) H	MB Ø1 IN L	MB 19 IN L	PC+1 19 H
D2	FM Ø2A H	FM 2ØA H	FM Ø2 IN L	MB Ø2 (Ø) H	MCF AD FM + SET L	FM 2Ø IN L	MB 2Ø (Ø) H	MB Ø2 IN L	MB 2Ø IN L	PC+1 2Ø H
E1	FM Ø3A H	FM 21A H	FM Ø3 IN L	MB Ø3 (Ø) H	MAGIC #Ø8 L	FM 21 IN L	MB 21 (Ø) H	MB Ø3 IN L	MB 21 IN L	PC+1 21 H
E2	FM Ø4A H	FM 22A H	FM Ø4 IN L	MB Ø4 (Ø) H	MAGIC #Ø9 L	FM 22 IN L	MB 22 (Ø) H	MB Ø4 IN L	MB 22 IN L	PC+1 22 H
H1	FM Ø5A H	FM 23A H	FM Ø5 IN L	MB Ø5 (Ø) H	MAGIC #1Ø L	FM 23 IN L	MB 23 (Ø) H	MB Ø5 IN L	MB 23 IN L	PC+1 23 H
H2	FM Ø6A H	FM 24A H	FM Ø6 IN L	MB Ø6 (Ø) H	MAGIC #11 L	FM 24 IN L	MB 24 (Ø) H	MB Ø6 IN L	MB 24 IN L	PC+1 24 H
J1	FM Ø7A H	FM 25A H	FM Ø7 IN L	MB Ø7 (Ø) H	MAGIC #12 L	FM 25 IN L	MB 25 (Ø) H	MB Ø7 IN L	MB 25 IN L	PC+1 25 H
K2	FM Ø8A H	FM 26A H	FM Ø8 IN L	MB Ø8 (Ø) H	MAGIC #13 L	FM 26 IN L	MB 26 (Ø) H	MB Ø8 IN L	MB 26 IN L	PC+1 26 H
L1	FM Ø9A H	FM 27A H	FM Ø9 IN L	MB Ø9 (Ø) H	MAGIC #14 L	FM 27 IN L	MB 27 (Ø) H	MB Ø9 IN L	MB 27 IN L	PC+1 27 H
M1	FM 1ØA H	FM 28A H	FM 1Ø IN L	MB 1Ø (Ø) H	MAGIC #15 L	FM 28 IN L	MB 28 (Ø) H	MB 1Ø IN L	MB 28 IN L	PC+1 28 H
M2	FM 11A H	FM 29A H	FM 11 IN L	MB 11 (Ø) H	MAGIC #16 L	FM 29 IN L	MB 29 (Ø) H	MB 11 IN L	MB 29 IN L	PC+1 29 H
P1	FM 12A H	FM 3ØA H	FM 12 IN L	MB 12 (Ø) H	MAGIC #17 L	FM 3Ø IN L	MB 3Ø (Ø) H	MB 12 IN L	MB 3Ø IN L	PC+1 3Ø H
P2	FM 13A H	FM 31A H	FM 13 IN L	MB 13 (Ø) H	MAGIC #31 L	FM 31 IN L	MB 31 (Ø) H	MB 13 IN L	MB 31 IN L	PC+1 31 H
S1	FM 14A H	FM 32A H	FM 14 IN L	MB 14 (Ø) H	MAGIC #32 L	FM 32 IN L	MB 32 (Ø) H	MB 14 IN L	MB 32 IN L	PC+1 32 H
S2	FM 16A H	FM 33A H	FM 15 IN L	MB 15 (Ø) H	MAGIC #33 L	FM 33 IN L	MB 33 (Ø) H	MB 15 IN L	MB 33 IN L	PC+1 33 H
T2	FM 16A H	FM 34A H	FM 16 IN L	MB 16 (Ø) H	MAGIC #34 L	FM 34 IN L	MB 34 (Ø) H	MB 16 IN L	MB 34 IN L	PC+1 34 H
V2	FM 17A H	FM 35A H	FM 17 IN L	MB 17 (Ø) H	MAGIC #35 L	FM 35 IN L	MB 35 (Ø) H	MB 17 IN L	MB 35 IN L	PC+1 35 H

REVISIONS	REV	CHANGE NO.	CHK

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stoplewski DATE 29 Jan 72
CH'D David Gross DATE 31 Jan 72
ENG. Mary Kotok DATE 31 Jan 72
PROJ. ENG. Allan Kent DATE 31 Jan 72
PROD. [illegible] DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-K1Ø-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
INTER - BAY CABLES

SIZE D CODE BS NUMBER K1Ø-Ø-1BC1 REV
SCALE ~
SHEET 1 OF 1
DIST.

DEC FORM NO DRD 102A

SIZE D CODE BS NUMBER K1Ø-Ø-1BC1 REV

PIN	1P44 - 2PØ1	1J43 - 2JØ2	1J44 - 2JØ1	1K43 - 2KØ2	1M44 - 2MØ1	1R43 - 2RØ2	1R44 - 2RØ1	1S44 - 2SØ1	1T44 - 2TØ1	
B1	AD 18 (1) H	MB ØØ (1) H	PIT3 (Ø) H	IR Ø3 (1) H	AMSP PUBLIC L	IOB ØØT L	IOB 18T L	MBD AR ØØ IN L	MBD AR 18 IN L	
D1	AD 19 (1) H	MB Ø1 (1) H	PICTØ (Ø) L	IR Ø4 (1) H	AMSP SOFTWARE OUT L	IOB Ø1T L	IOB 19T L	MBD AR Ø1 IN L	MBD AR 19 IN L	
D2	AD 2Ø (1) H	MB Ø2 (1) H	INST RDY DLYD H	IR Ø5 (1) H	AMSP WRITABLE OUT L	IOB Ø2T L	IOB 2ØT L	MBD AR Ø2 IN L	MBD AR 2Ø IN L	
E1	AD 21 (1) H	MB Ø3 (1) H	F CYC START A H	IR Ø6 (1) H	MB CLOCK EN H	IOB Ø3T L	IOB 21T L	MBD AR Ø3 IN L	MBD AR 21 IN L	
E2	AD 22 (1) H	MB Ø4 (1) H	AR Ø6 A (Ø) H	IR Ø7 (1) H	PAGE LAST INST PUBLIC(1)H	IOB Ø4T L	IOB 22T L	MBD AR Ø4 IN L	MBD AR 22 IN L	
H1	AD 23 (1) H	MB Ø5 (1) H	AB PC ET2 EN H	IR Ø8 (1) H	MA 14 L	IOB Ø5T L	IOB 23T L	MBD AR Ø5 IN L	MBD AR 23 IN L	
H2	AD 24 (1) H	MB Ø6 (1) H	IT2 (1) L	IR Ø9 (1) H	MA 15 L	IOB Ø6T L	IOB 24T L	MBD AR Ø6 IN L	MBD AR 24 IN L	
J1	AD 25 (1) H	MB Ø7 (1) H	MC INST FETCH EN H	IR 1Ø (1) H	MA 16 L	IOB Ø7T L	IOB 25T L	MBD AR Ø7 IN L	MBD AR 25 IN L	
K2	AD 26 (1) H	MB Ø8 (1) H	MR STATE CLR L	IR 11 (1) H	MA 17 L	IOB Ø8T L	IOB 26T L	MBD AR Ø8 IN L	MBD AR 26 IN L	
L1	AD 27 (1) H	MB Ø9 (1) H	MC WR SUBR EN H	IR 12 (1) H	MA 18 L	IOB Ø9T L	IOB 27T L	MBD AR Ø9 IN L	MBD AR 27 IN L	
M1	AD 28 (1) H	MB 1Ø (1) H	AR Ø5 (1) H	IOTTØ (1) H	MA 19 L	IOB 1ØT L	IOB 28T L	MBD AR 1Ø IN L	MBD AR 28 IN L	
M2	AD 29 (1) H	MB 11 (1) H	MUUOF1 (1) H	COMP ADR BRK INH (1) H	MA 2Ø L	IOB 11T L	IOB 29T L	MBD AR 11 IN L	MBD AR 29 IN L	
P1	AD 3Ø (1) H	MB 12 (1) H	KEY CLK INH	IOTT8 (1) H	MA 21 L	IOB 12T L	IOB 3ØT L	MBD AR 12 IN L	MBD AR 3Ø IN L	
P2	AD 31 (1) H	MB 13 (1) H	AR Ø7 A (1) H	IOTT9 (1) H	MA 22 L	IOB 13T L	IOB 31T L	MBD AR 13 IN L	MBD AR 31 IN L	
S1	AD 32 (1) H	PFF1 (Ø) H	USER MODE (Ø) H	IOTT8 (1) L	MA 23 L	IOB 14T L	IOB 32T L	MBD AR 14 IN L	MBD AR 32 IN L	
S2	AD 33 (1) H	IOT INST L	USER MODE (1) H	IOTT9 (1) L	MA 24 L	IOB 15T L	IOB 33T L	MBD AR 15 IN L	MBD AR 33 IN L	
T2	AD 34 (1) H	AR ØØC H	MB 35 (1) H	MUUOF2 (1) H	MA 25 L	IOB 16T L	IOB 34T L	MBD AR 16 IN L	MBD AR 34 IN L	
V2	AD 35 (1) H	DNT1 (1) H	MCF MB FM FF (1) L	MCT3 A H	MA 26 L	IOB 17T L	IOB 35T L	MBD AR 17 IN L	MBD AR 35 IN L	

REVISIONS		
CHK	CHANGE NO.	REV.
BS	KI1Ø-00042	A

S. Hankins 3-Jan-72
GROSS
Dave Miller 3-Jan-72

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

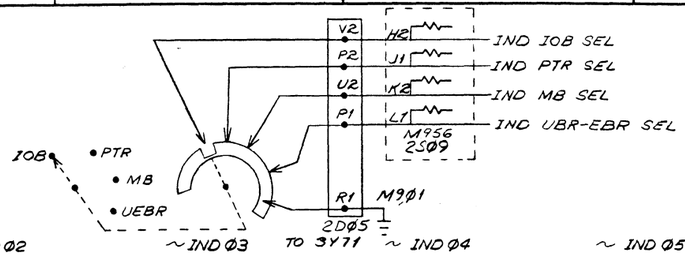
FINISH

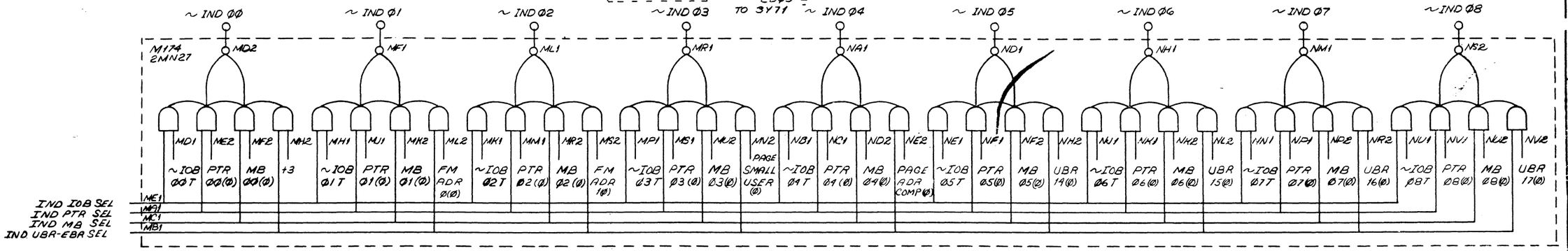
QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

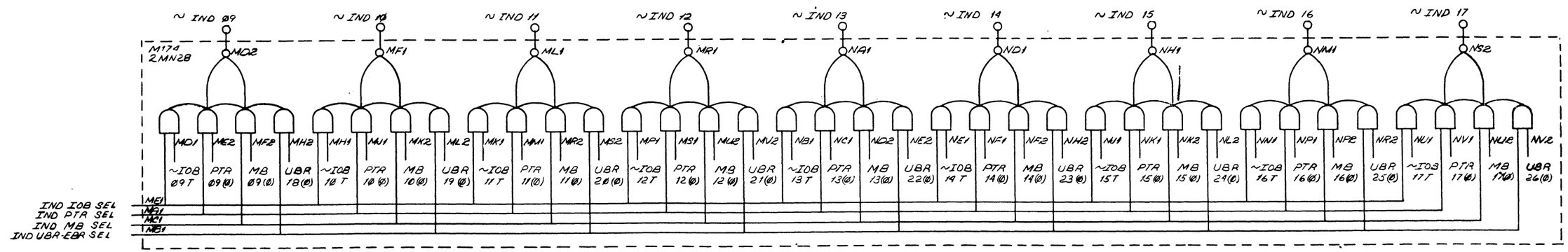
DRN. W. Stephenson	DATE 22/4/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	
ENG. Hany Kotok	DATE 31 Jan 72	TITLE: INTER - BAY CABLES
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROJ.	DATE 31 JAN 72	
NEXT HIGHER ASSY B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-IBC2 REV. A
SCALE NONE		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRO 102A

SIZE D CODE BS NUMBER KI1Ø-Ø-IBC2 REV A







NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

DRN	T.D. Wallace	DATE 10/12/71
CHK'D	Richard Gross	DATE 31 Jan 72
ENG	Allan Kotok	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE —

SHEET 1 OF 1

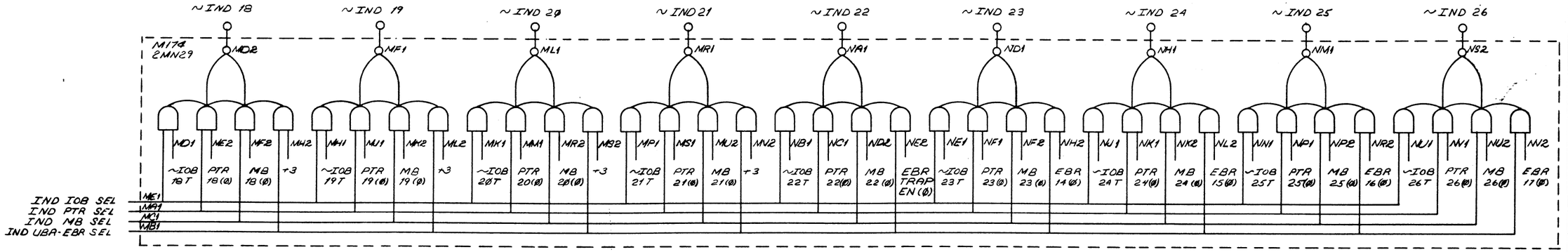
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

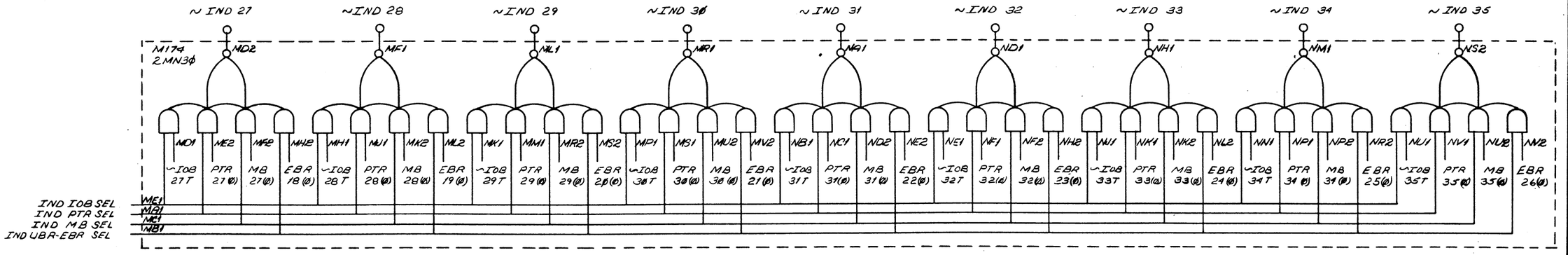
TITLE
SHARED INDICATOR MIXER
ØØ-17

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-IND1	

DIST.

DEC FORM NO. DRD 102 A





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	J. Wallace	DATE 10-12-70
CHK'D	Richard Proos	DATE 3/24/72
ENG.	Alan Kotik	DATE 3/31/72
PROJ. ENG.	William Hunt	DATE 3/31/72
PROD.	[illegible]	DATE 3/31/72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE

SHEET 1 OF 1

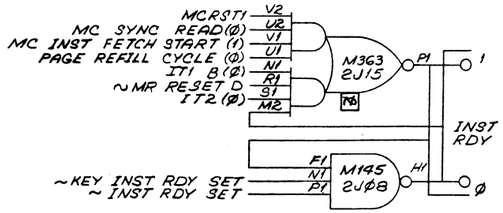
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

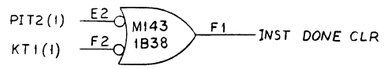
TITLE
SHARED INDICATOR MIXER
18 - 35

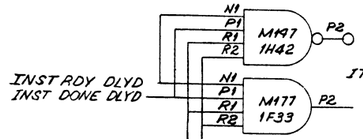
SIZE	CODE	NUMBER	REV
D	ES	KI1Ø-Ø-IND 2	

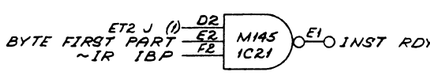
DIST.

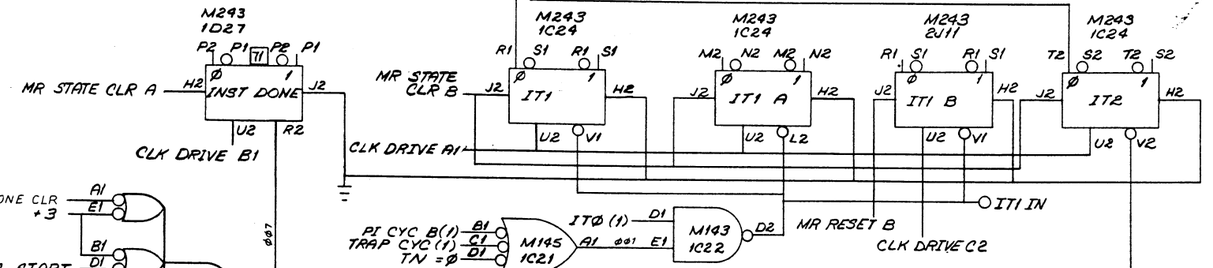
DEC FORM NO. DRD 102 A

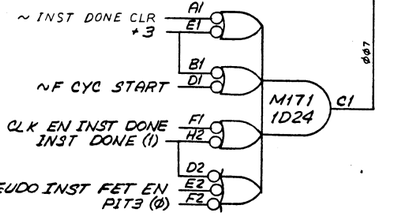


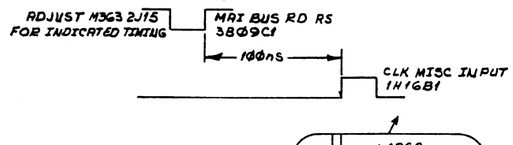


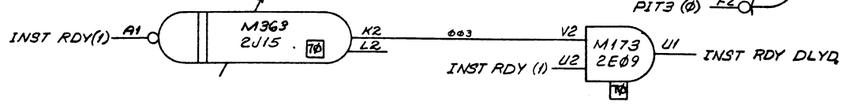


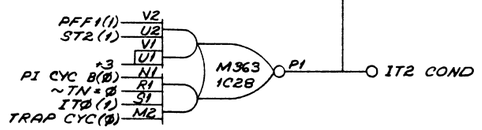


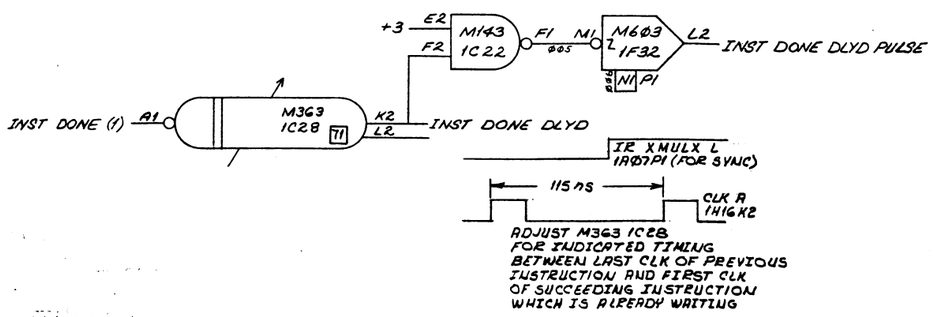












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	K11Ø-00032	A	A. KENT 11 Apr 73
[illegible]	K11Ø-00043	B	KENT 3 Jan 74

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. D.J. Green DATE 7/17/70
CHKD. David Gross DATE 31 Jan 72
ENG. Alan Kotok DATE 31 Jan 72
PROJ. ENG. [illegible] DATE 31 Jan 72
PROD. [illegible] DATE 31 Jan 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE ℅
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
INSTRUCTION CYCLE

SIZE D | CODE BS | NUMBER KI1Ø-Ø-INST | REV. B
DIST.

SIZE D | CODE BS | NUMBER K11Ø-Ø-IOB1 | REV A

IOB RESET T(1) — M663 2S31 — IOB RESET

*3 — M143 2K31 — IOB DR SPLIT T

IOB DR SPLIT — M564 2P91 — IOB DR SPLIT

IR Ø3(1), APR2 RDI DEV Ø3, ~IOB SEL 3 — M172 2K3Ø — IOB SEL 3

IR Ø4(1), APR2 RDI DEV Ø4, ~IOB SEL 4 — M143 2K31 — IOB SEL 4

IR Ø5(1), APR2 RDI DEV Ø5, ~IOB SEL 5 — M663 2T29 — IOB SEL 5

IR Ø6(1), APR2 RDI DEV Ø6, ~IOB SEL 6 — M663 2T3Ø — IOB SEL 6

IR Ø7(1), APR2 RDI DEV Ø7, ~IOB SEL 7 — M663 2T28 — IOB SEL 7

IR Ø8(1), APR2 RDI DEV Ø8, ~IOB SEL 8 — M663 2731 — IOB SEL 8

IOT IOS EN(1), IR Ø9(1), KEY RDI DEV EN, APR2 RDI DEV Ø9, ~IOB SEL 9, +3 — M663 2732 — IOB SEL 9

MR CROWBAR

	LEFT	RIGHT	I/O BUS CABLE
IOB RESET	K1	K1	IOB RESET
	K2	K2	
IOB DR SPLIT	L2	L2	
	L3	L3	IOB DR SPLIT
IOS Ø3(1)	K4	K4	
IOS Ø3(Ø)	K5	K5	
IOS Ø4(1)	L5	L5	
IOS Ø4(Ø)	L6	L6	
IOS Ø5(1)	K7	K7	
IOS Ø5(Ø)	M1	M1	
IOS Ø6(1)	M2	M2	
IOS Ø6(Ø)	N2	N2	
IOS Ø7(1)	N3	N3	
IOS Ø7(Ø)	M4	M4	
IOS Ø8(1)	M5	M5	
IOS Ø8(Ø)	N5	N5	
IOS Ø9(1)	N6	N6	
IOS Ø9(Ø)	M7	M7	

NOTE: PINS B1, A3, B4, A6, B7, D1, C3, D4, C6, F1, E3, F4, E6, F7, J1, H3, J4, H6, L1, K3, L4, K6, L7, N1, M3, N4, M6, P1, P3, P4, P6, R7, T1, S3, T4, S6 ARE GROUND ON BOTH I/O BUS CONNECTORS.

IOB DATAO CLR T — M663 2S30 — IOB DATAO CLR

IOB DATAO SET T — M663 2S33 — IOB DATAO SET

IOB CONO CLR T — M663 2S32 — IOB CONO CLR

IOB CONO SET T — IOB CONO SET

IOB DATAI T — IOB DATAI

IOB CONI T — IOB CONI

KEY RDI PULSE(1), MR CROWBAR — IOB RDI PULSE

IOB RDI LEVEL

IOB PI GRANT LOOP IN — M561 2T34 — IOB PI GRANT RETURN T

IOB PI GRANT — W1Ø6 2T33 — IOB PI GRANT LOOP OUT

PI REQ SYNC PULSE (1), PI REQ GRANT (1), MR CROWBAR — M663 2S32 — IOB PI REQ SYNC

IOB PI GRANT — M666 2S36 — IOB PI GRANT RETURN

	LEFT	RIGHT	I/O BUS CABLE
IOB DATAO CLR	P1	P1	
IOB DATAO SET	P2	P2	
IOB CONO CLR	R2	R2	
IOB CONO SET	R3	R3	
IOB DATAI	P4	P4	
IOB CONI	P5	P5	
IOB RDI PULSE	R5	R5	
IOB RDI LEVEL	R6	R6	
IOB PI GRANT RETURN T	P7	P7	
IOB PI REQ SYNC	S1	S1	
IOB PI GRANT	S2	S2	
IOB PI 1T	T2	T2	
IOB PI 2T	T3	T3	
IOB PI 3T	S4	S4	
IOB PI 4T	S5	S5	
IOB PI 5T	T5	T5	
IOB PI 6T	T6	T6	
IOB PI 7T	S7	S7	

M666 2S36: D1, F2 — PI HEAVY CLAMP A; H2 — PI HEAVY CLAMP B

THESE SIGNALS ARE ALWAYS FALSE

	LEFT	RIGHT
	D7	D7
	J7	J7
	N7	N7
-15V	T7	T7

SPARE CONDUCTOR STORAGE IN CABLE

MINUS 15 TERMINATOR (POWER) (2T36B2)

I/O BUS CONNECTOR EQUIVALENT PIN LOCATIONS (WIRELIST)

LEFT 3833 A2	3833 2	1 3834 2	1 3835 2	1 3836 2
RIGHT 3839 A1	1 3839 2	1 3840 2	1 3841 2	1 3842

	1	2	3	4	5	6	7
+A	+	+	+	+	+	+	+A
B+	+	+	+	+	+	+	B+
+C	+	+	+	+	+	+	+C
D+	+	+	+	+	+	+	D+
+E	+	+	+	+	+	+	+E
F+	+	+	+	+	+	+	F+
+H	+	+	+	+	+	+	+H
J+	+	+	+	+	+	+	J+
+K	+	+	+	+	+	+	+K
L+	+	+	+	+	+	+	L+
+M	+	+	+	+	+	+	+M
N+	+	+	+	+	+	+	N+
+P	+	+	+	+	+	+	+P
R+	+	+	+	+	+	+	R+
+S	+	+	+	+	+	+	+S
T+	+	+	+	+	+	+	T+

WIRING SIDE VIEW OF FIXED (BACKPLANE) CONNECTORS.

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
REV.	CHANGE NO.		CHK
A	K110-00025	Gasley 1-10-72	
		KENT Kent 3 Nov 72	

FIRST USED ON OPTION / MODEL: K1Ø

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

		DATE
DRN	D.J. Lucas	9/17/72
CH'D	Dave Gross	9 Nov 72
ENG	Allan Kotok	9 Nov 72
PROJ. ENG	Allan Kent	9 Nov 72
PROD	[illegible]	9 Nov 72

NEXT HIGHER ASSY: B-DD-K1Ø-Ø

SCALE: 2

SHEET 1 OF 1

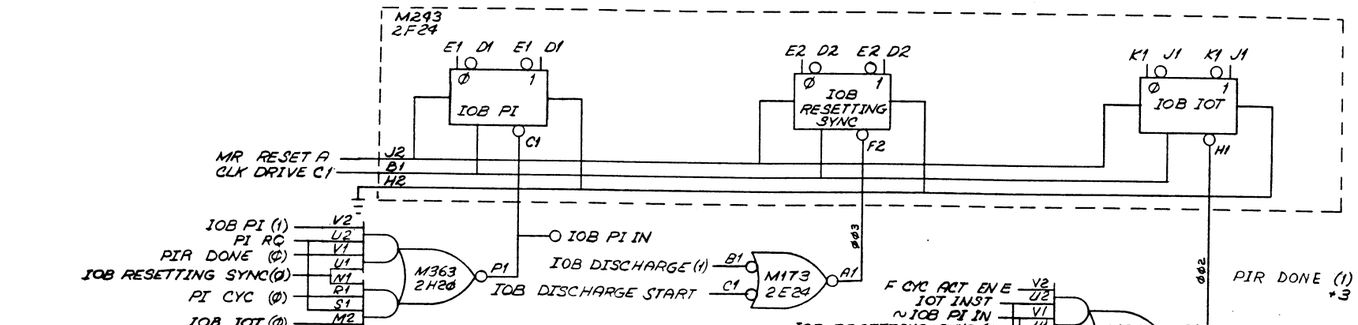
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: I/O BUS CABLE 1

SIZE	CODE	NUMBER	REV
D	BS	K1Ø-Ø-IOB1	A

DIST.

DEC FORM NO. DRD 102A



NOTE: INSTALL JUMPER AS SHOWN FOR PDP-6 SPEED I/O DEVICES (SLOW). INSTALL JUMPERS AS SHOWN ON 60 HZ PROCESSORS. INSTALL JUMPERS INDICATED BY DOTTED LINES FOR FAST I/O BUS CYCLE AND FOR 50 HZ PROCESSORS.

SEE BIO PRINT		
50 HZ / 60 HZ	FAST / SLOW	NOT USED
SEE MR2 PRINT		

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H"

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION MODEL KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN. W. Anderson	DATE 10/21/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS	CHKD. David Gross	DATE 31 Jan 72	TITLE I/O BUS CONTROL
	ENG. Allan Kotok	DATE 31 Jan 72	
	PROJ. ENG. Allen Kent	DATE 31 Jan 72	
MATERIAL	PROD. Maullin	DATE 31 Jan 72	
	NEXT HIGHER ASSY 6-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-IOBC REV
FINISH	SCALE ½		DIST.
	SHEET 1 OF 1		

DEC FORM NO DRD 102A

SIZE D CODE BS NUMBER KI1Ø-Ø-IOBC REV

IOB ØØ T
IOB Ø1 T
IOB Ø2 T
IOB Ø3 T
IOB Ø4 T
IOB Ø5 T
IOB Ø6 T
IOB Ø7 T
IOB Ø8 T

M143 2N33
M145 2N32
M143 2N36
M145 2N39

BIO MIX ØØ A
BIO MIX ØØ B
BIO MIX Ø1 A
BIO MIX Ø1 B
BIO MIX Ø2 A
BIO MIX Ø2 B
BIO MIX Ø3 A
BIO MIX Ø3 B
BIO MIX Ø4 A
BIO MIX Ø4 B
BIO MIX Ø5 A
BIO MIX Ø5 B
BIO MIX Ø6 A
BIO MIX Ø6 B
BIO MIX Ø7 A
BIO MIX Ø7 B
BIO MIX Ø8 A
BIO MIX Ø8 B

IOB BUS READ A

M564 2736 2T35

IOB RECV ØØ
IOB RECV Ø1
IOB RECV Ø2
IOB RECV Ø3
IOB RECV Ø4
IOB RECV Ø5
IOB RECV Ø6
IOB RECV Ø7
IOB RECV Ø8

LEFT IOB CABLE RIGHT

IOB ØØ
IOB Ø1
IOB Ø2
IOB Ø3
IOB Ø4
IOB Ø5
IOB Ø6
IOB Ø7
IOB Ø8

IOB DISCHARGE (L)

M666 2T37

~FM ØØ IN
~FM Ø1 IN
~FM Ø2 IN
~FM Ø3 IN
~FM Ø4 IN
~FM Ø5 IN
~FM Ø6 IN
~FM Ø7 IN
~FM Ø8 IN

M661 2S39

IOT OUTGOING DATA EN 1
IOT OUTGOING DATA EN 2

NOTE: SEE IOB1 PRINT FOR WIRELIST TRANSLATION TABLE AND GROUNDS.

IOB Ø9 T
IOB 1Ø T
IOB 11 T
IOB 12 T
IOB 13 T
IOB 14 T
IOB 15 T
IOB 16 T
IOB 17 T

M143 2N36
M145 2N34
M143 2N43
M145 2N34
M145 2N37
M143 2N38

NOTE: PIN B1 ON ALL M664'S ON THIS PAGE ARE MR CROWBAR

BIO MIX Ø9 A
BIO MIX Ø9 B
BIO MIX 1Ø A
BIO MIX 11 A
BIO MIX 11 B
BIO MIX 12 A
BIO MIX 12 B
BIO MIX 13 A
BIO MIX 13 B
BIO MIX 14 A
BIO MIX 14 B
BIO MIX 15 A
BIO MIX 15 B
BIO MIX 16 A
BIO MIX 16 B
BIO MIX 17 A
BIO MIX 17 B

IOB BUS READ A
IOB BUS READ B

M564 2736
M664 2738

IOB RECV Ø9
IOB RECV 1Ø
IOB RECV 11
IOB RECV 12
IOB RECV 13
IOB RECV 14
IOB RECV 15
IOB RECV 16
IOB RECV 17

LEFT IOB CABLE RIGHT

IOB Ø9
IOB 1Ø
IOB 11
IOB 12
IOB 13
IOB 14
IOB 15
IOB 16
IOB 17

M666 2737
M666 2739

IOB DISCHARGE (H)

~FM Ø9 IN
~FM 1Ø IN
~FM 11 IN
~FM 12 IN
~FM 13 IN
~FM 14 IN
~FM 15 IN
~FM 16 IN
~FM 17 IN

M661 2S39
M661 2S40

IOT OUTGOING DATA EN 2
IOT OUTGOING DATA EN 3

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H"

REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson DATE 8/9/70
CHKD. Ward Gross DATE 31 JAN 72
ENGR. Allan Kent DATE 31 JAN 72
PROJ. ENG. Allan Kent DATE 31 JAN 72
PROD. DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE I/O BUS DATA LEFT HALF

SIZE D | CODE BS | NUMBER KI1Ø-Ø-IOBL | REV
DIST.

DEC FORM NO DRD 102A

IOB 18T IOB 19T IOB 20T IOB 21T IOB 22T IOB 23T IOB 24T IOB 25T IOB 26T

M143 2N38 M145 2N37 M145 2N39 M145 2N41

BIO MIX 18A BIO MIX 18B BIO MIX 19A BIO MIX 19B BIO MIX 20A BIO MIX 20B BIO MIX 21A BIO MIX 21B BIO MIX 22A BIO MIX 22B BIO MIX 23A BIO MIX 23B BIO MIX 24A BIO MIX 24B BIO MIX 25A BIO MIX 25B BIO MIX 26A BIO MIX 26B

IOB BUS READ C

M564 2T38 M564 2T40

IOB RECV 18 IOB RECV 19 IOB RECV 20 IOB RECV 21 IOB RECV 22 IOB RECV 23 IOB RECV 24 IOB RECV 25 IOB RECV 26

IOB CABLE LEFT / RIGHT

IOB 18 IOB 19 IOB 20 IOB 21 IOB 22 IOB 23 IOB 24 IOB 25 IOB 26

M666 2T39 M666 2T41

IOB DISCHARGE (I)

~FM 18 IN ~FM 19 IN ~FM 20 IN ~FM 21 IN ~FM 22 IN ~FM 23 IN ~FM 24 IN ~FM 25 IN ~FM 26 IN

M664 2S40 M664 2S41

IOT OUTGOING DATA EN 3 IOT OUTGOING DATA EN 4

NOTE: SEE IOB1 PRINT FOR WIRELIST TRANSLATION TABLE AND GROUNDS.

NOTE: PIN B1 ON ALL M664'S ON THIS PAGE ARE MR CROWBAR

IOB 27T IOB 28T IOB 29T IOB 30T IOB 31T IOB 32T IOB 33T IOB 34T IOB 35T

M145 2N39 M145 2N42 M145 2N34

BIO MIX 27A BIO MIX 27B BIO MIX 28A BIO MIX 28B BIO MIX 29A BIO MIX 29B BIO MIX 30A BIO MIX 30B BIO MIX 31A BIO MIX 31B BIO MIX 32A BIO MIX 32B BIO MIX 33A BIO MIX 33B BIO MIX 34A BIO MIX 34B BIO MIX 35A BIO MIX 35B

IOB BUS READ C IOB BUS READ D

M564 2T40 M564 2T42

IOB RECV 27 IOB RECV 28 IOB RECV 29 IOB RECV 30 IOB RECV 31 IOB RECV 32 IOB RECV 33 IOB RECV 34 IOB RECV 35

IOB CABLE LEFT / RIGHT

IOB 27 IOB 28 IOB 29 IOB 30 IOB 31 IOB 32 IOB 33 IOB 34 IOB 35

M666 2T41

IOB DISCHARGE (I)

~FM 27 IN ~FM 28 IN ~FM 29 IN ~FM 30 IN ~FM 31 IN ~FM 32 IN ~FM 33 IN ~FM 34 IN ~FM 35 IN

M664 2S41 M664 2S42

IOT OUTGOING DATA EN 4 IOT OUTGOING DATA EN 5

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY; REMOVE BURRS AND BREAK SHARP CORNERS	DRN. W. Stephenson	DATE 8/9/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
	CHKD. David Gross	DATE 31 JAN 72	TITLE: I/O BUS DATA RIGHT HALF
	ENG. William Kotok	DATE 31 JAN 72	
MATERIAL	PROJ. ENG. Allen Kent	DATE 31 JAN 72	
FINISH	PROD.	DATE 31 JAN 72	
	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-IOBR REV
	SCALE NONE		
	SHEET 1 OF 1		DIST.

DEC FORM NO DRO 102A

M243 2E07

IOTTØ E1 D1 E1 D1 C1 — IOTT1 E2 D2 E2 D2 F2 — IOTT2 K1 J1 K1 J1 H1 — IOTT5 N1 M1 N1 M1 L1 — IOTT6 P1 P2 P1 P2 R2 — IOTT7 R1 S1 R1 S1 V1 — IOTT8 M2 N2 M2 N2 L2 — IOTT9 T2 S2 T2 S2 V2

MR STATE CLR (J2)
CLK DRIVE C1 (B1, H2)
CLK DRIVE C1 (U2)

IOTTØ COND → M2 → M143 2F23 (M1, N2) → ET1 J (1), IOB IOT (1)

IOTTØ → D1 → M126 2E14 (B1, C1, H1, A1) → IOTTØ (1), +3, ~IOT TIMER DONE; IOTT1 → IOTT1 (1)

IOTT2 → U1 → M126 2E14 (R2, S2, U2, T2) → IOTT1 (1), IOT TIMER DONE, ~IOT TIMER DONE; IOTT2 → IOTT2 (1)

IOTT5 → P1 → M363 2F14 (V2, U2, W1, U1, W, R1, S1, M2) → IOTT2 (1), IOT OUTGOING, IOT TIMER DONE, +3, ~IOT TIMER DONE, IOTT5 (1)

IOTT6 → F1 → M126 2E14 (D2, E1, F2, E2) → IOTT5 (1), IOT TIMER DONE, ~IOT TIMER DONE, IOTT6 (1)

IOTT7 → J2 → M126 2E14 (K1, H2, N1, J1) → IOTT6 (1), IOTT7 (1)

IOTT8 → H2 → M128 2H12 (J1, K1, L1, M1, F2, U2, K2) → +3, IOTT7 (1), IOT TIMER DONE, IOTT2 (1), ~IOT OUTGOING, +3

IOTT8 (1)

M243 2F24

IOT TIMER A (P1 P2 P1 P2, R2) — IOT TIMER B (R1 S1 R1 S1, V1) — IOT TIMER C (M2 N2 M2 N2, L2) — IOT TIMER D (T2 S2 T2 S2, V2)

MR RESET (J2)
CLK DRIVE C1 (U2, H2)

IOT TIMER A → S2 → M170 2H28 (P1, T2, R1, V1, U1, V2, R2, S1, U2) → IOT LOAD TIMER, +3, IOTT1 (Ø), IOT OUTGOING, IOT TIMER A CT, ~IOB SLOW

IOT TIMER B → S1 → M126 2E14 (P1, P1, V2, P2) → IOT TIMER B CT

IOT TIMER C → K2 → M171 2H09 (H1, N1, U1, J2, L1, M1, L2, N2) → IOTTØ (Ø), IOT TIMER C CT, IOTT5 (1)

IOT TIMER D → S2 → M170 2H29 (P1, T2, R2, V1, U1, V2, R1, S1, U2) → IOTTØ (Ø), IOT TIMER D CT, IOTT1 (1), IOTTØ (1), IOB SLOW, IOTT5 (1)

~IOB SLOW, IOTT5 (Ø) (M1, K2) → M126 2E14 → L2
IOTT1 (Ø) (N2, M2) → M126 2E14 → L2

~IOB SLOW (V2), ~IOT OUTGOING (U2) → M143 2F23 → U1

~IOB SLOW → A1 → M173 2E09 (B1, C1) → IOT LOAD TIMER, IOT OUTGOING

IOT TIMER DONE → D1 → M1GG 2F28 (+1 GATE)

IOT TIMER A (1)	B1	C1	IOT TIMER A CT
IOT TIMER B (1)	L2	K2	IOT TIMER B CT
IOT TIMER C (1)	H2	J2	IOT TIMER C CT
IOT TIMER D (1)	K1	E2	IOT TIMER D CT
+3	J1	M1	
	V2	U2	
	A1	T2	
	S2	P2	
	F2	P2	
	M2		

+1 IN → N2 → +3

IOT TIMER A (1), IOT TIMER B (1), IOT TIMER C (1), IOT TIMER D (1) → D1 → M147 2H30 (D2, E2, F2) → E1 → IOT TIMER DONE

IOT TIMER DONE (B1), IOTTØ (1) (C1) → M147 2H32 → A1 → IOT LOAD TIMER

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	D. Stephenson	DATE 2/14/70
CHKD	David Gross	DATE 31 Jan 72
ENG	Allan Kotok	DATE 31 Jan 72
PROJ. ENG	Allan Kotok	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY: E-DD-KI1Ø-Ø

SCALE NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

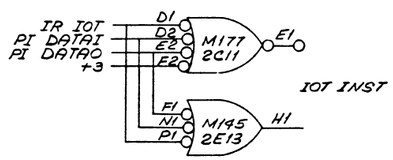
TITLE: IOT TIMING CONTROL

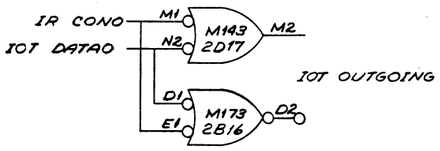
SIZE	CODE	NUMBER	REV
D	BS	KI1Ø - Ø - IOT1	

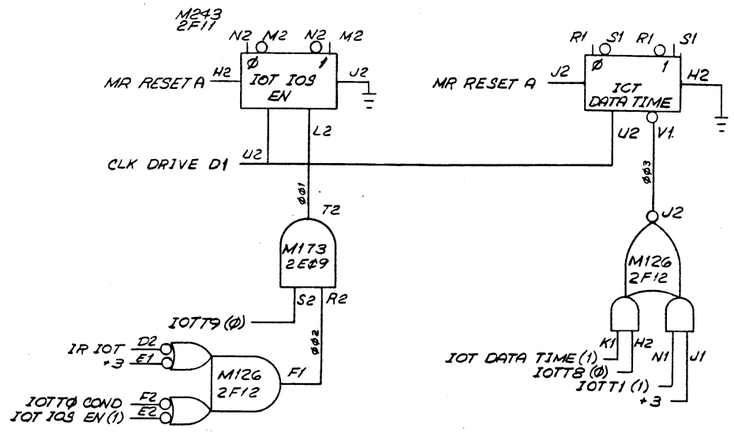
DIST.

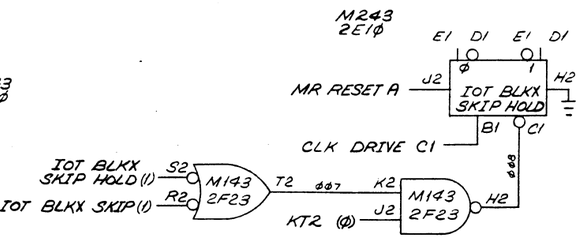
REVISIONS | REV. | CHANGE NO. | CHK

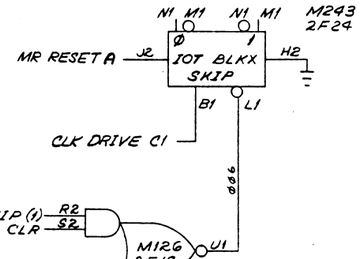
DEC FORM NO

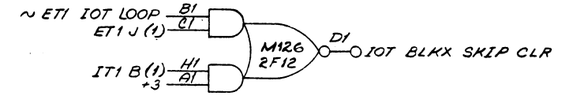


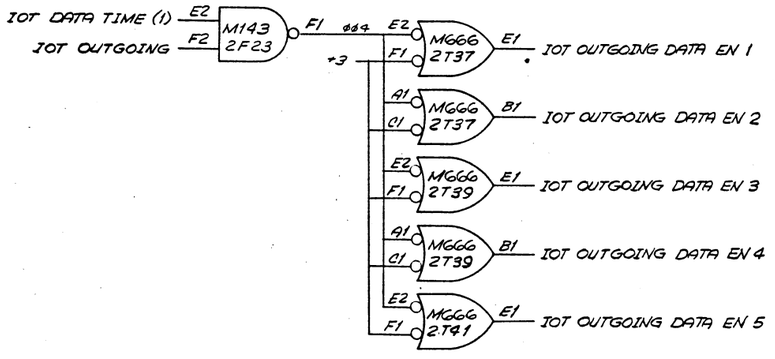












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	DG Swan	DATE 7/6/70
CH'K'D	David Gross	DATE 9 Jan 72
ENG	Allan Hoto k.	DATE 9 Jan 72
PROJ. ENG.	Allan Hoto k.	DATE 9 Jan 72
PROD.		DATE 9 Jan 72

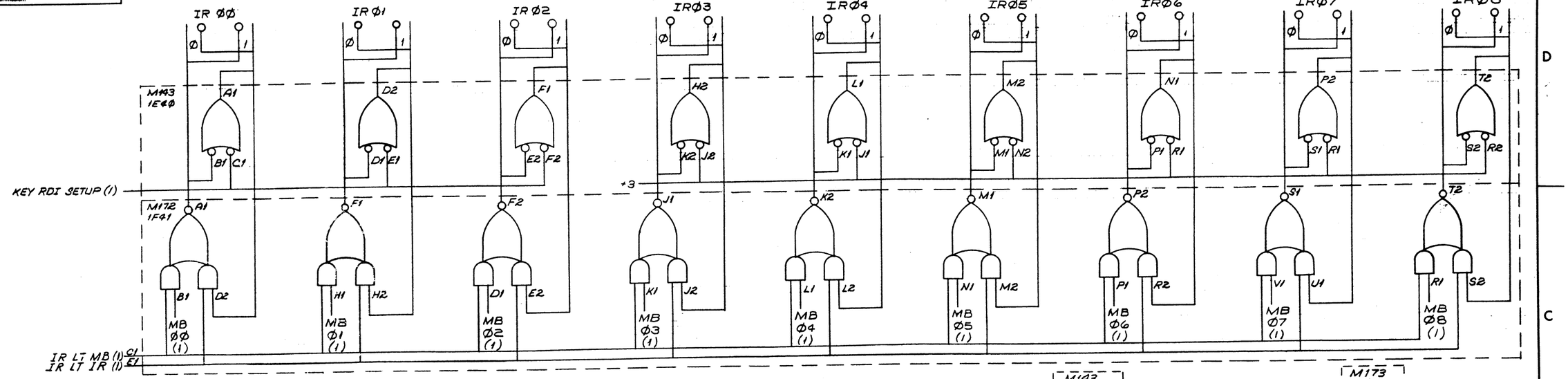
NEXT HIGHER ASSY 8-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
IOT TIMING CONTROL

SIZE D CODE BS NUMBER KI1Ø-Ø-IOT2 REV
DIST.

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. DATE 2-19-70
CHKD. DATE 31 Jan 72
ENG. DATE 31 Jan 72
PROJ. ENG. DATE 31 Jan 72
PROD. DATE 30 JAN 72
NEXT HIGHER ASSY. B-DD-KIØØ-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

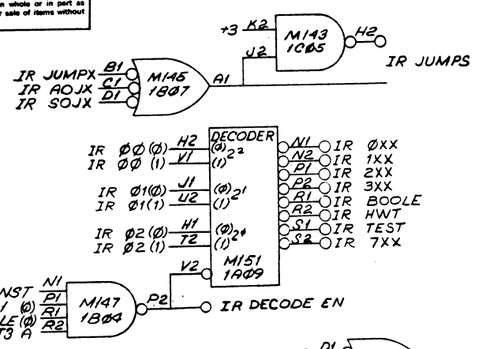
TITLE
INSTRUCTION REGISTER BITS ØØ-12

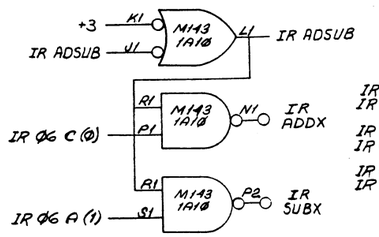
SIZE	CODE	NUMBER	REV
D	BS	KIØØ-Ø-IR	

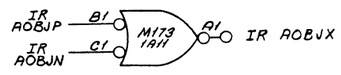
DIST.

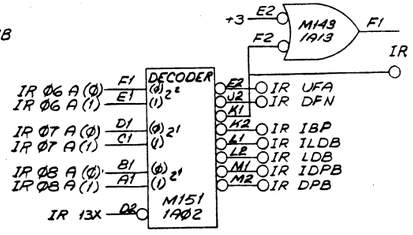
REVISIONS | REV | CHANGE NO. | CHK

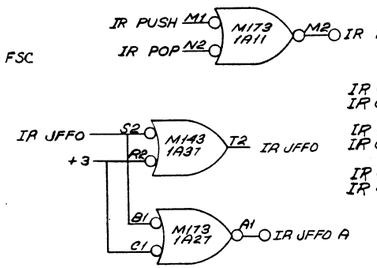
DEC FORM NO DRD 102A

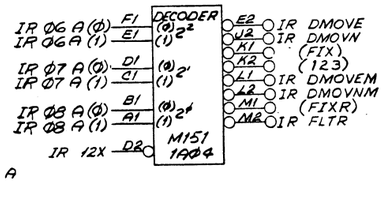


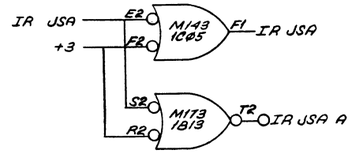


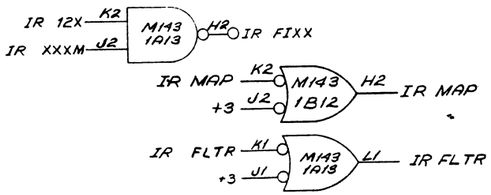


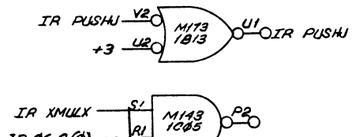


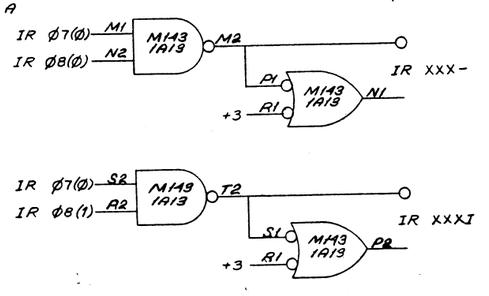


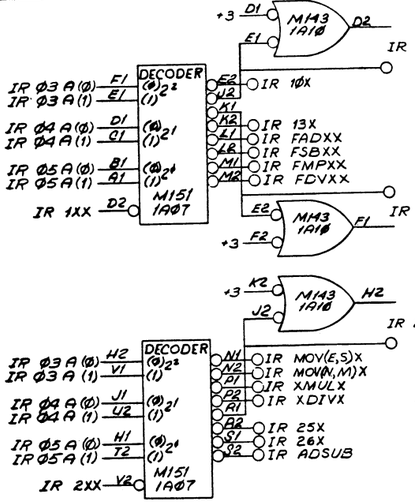


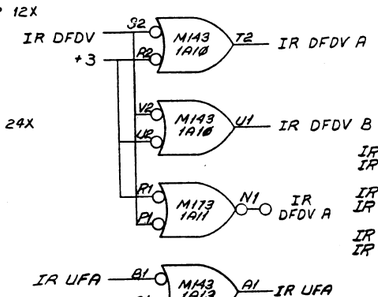


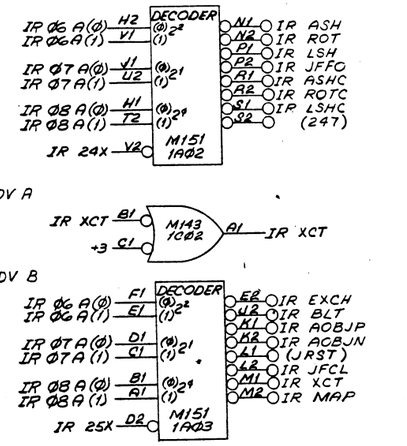


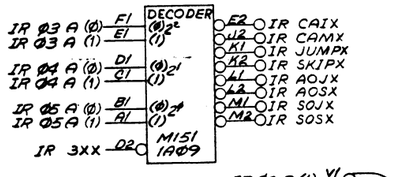


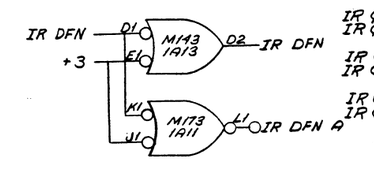


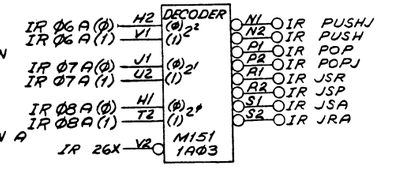


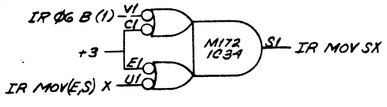












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS		
CHK	CHANGE NO.	REV.
PM	KL10-00024	A
	As Found 9-18-72	
	KENT	
	Wm Kent 20 OCT 72	

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN	D J Green	DATE 5/27/70
CHKD	David Gross	DATE 31 Jan 72
ENGR	Dan Katek	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

SCALE: NL

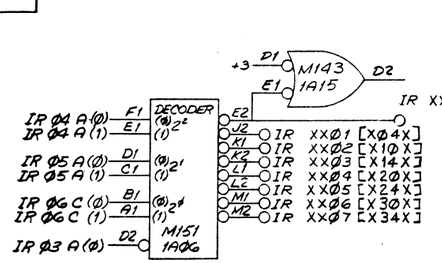
SHEET 1 OF 1

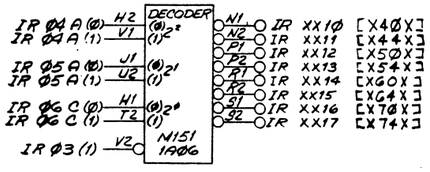
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

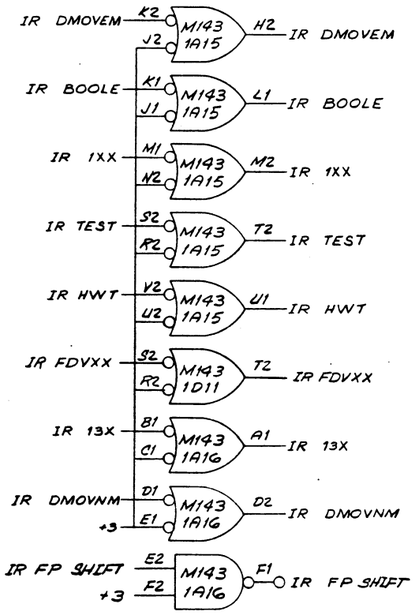
TITLE: IR DECODING

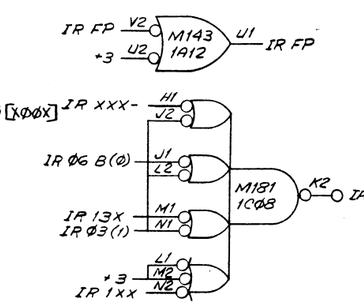
SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-IR 1	A

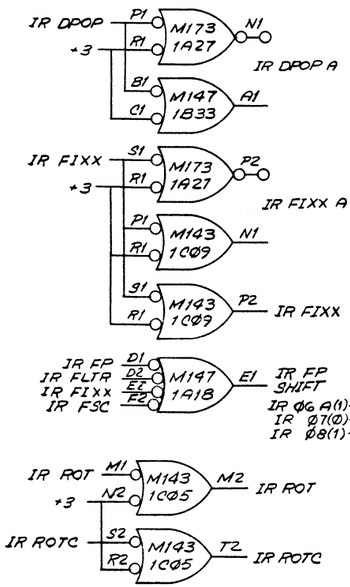
DIST.

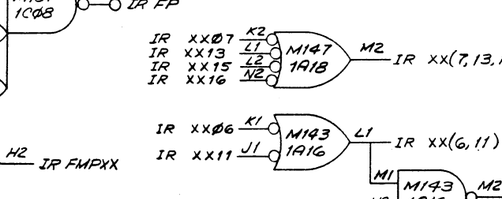


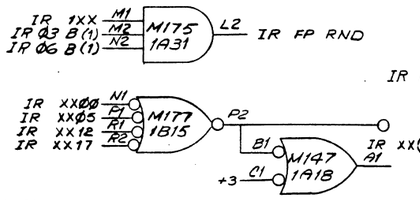


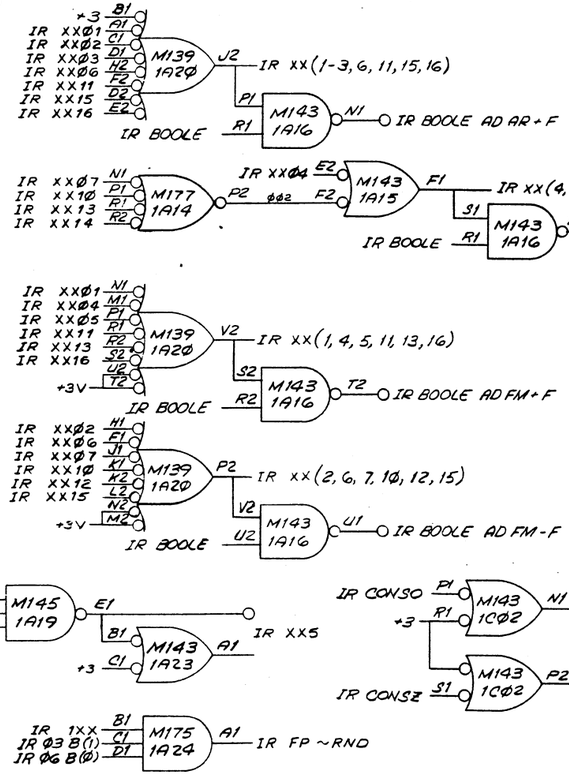


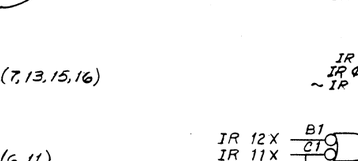


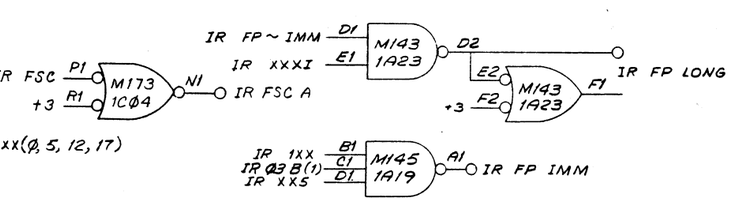


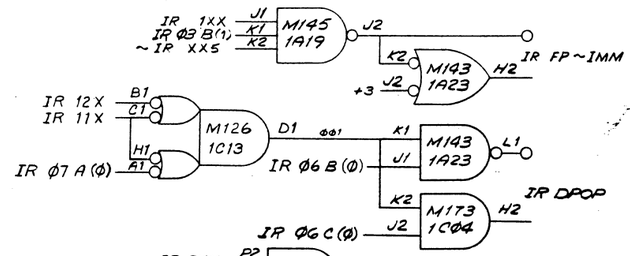


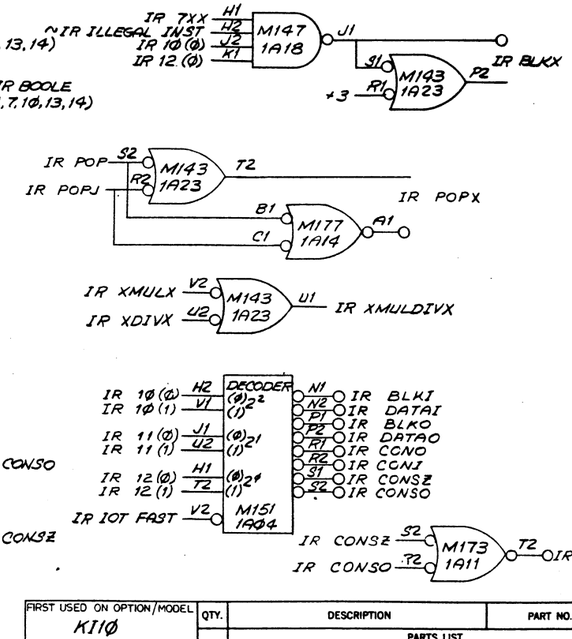












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	Doug Rowan	DATE 5/Jun/72
CHK	David Gross	DATE 31 Jan 72
ENG	Allan Katek	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROJ	Mac Hunter	DATE 31 Jan 72

NEXT HIGHER ASSY B-DD-KIIØ-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
IR DECODING

SIZE	CODE	NUMBER	REV
D	BS	KIIØ-Ø-IR 2	

DIST.

DEC FORM NO. DRD 102A

IR SKIPS = M175 1A24 (D2, E2, F2 → E1) + M145 1A19 (T2, U1, U2 → V2)
IR SKIPX
IR AOSX
IR SOSX

IR CAXX = M143 1A25 (B1, C1 → A1) + M143 1A25 (D1, E1, +3 → D2)
IR CAMX
IR CAIX

IR HWTFWT = M143 1A25 (E2, F2 → F1)
IR HWT
IR FWT

IR SP INSTA = M143 1C05 (+3, V2, U2 → U1)

IR SR INST = M143 1A25 (K2, J2 → H2) + M143 1A25 (P1, +3, R1 → N1)
IR 24X
~IR XXXS

IR DFAS = M143 1A25 (K1, J1 → L1) + M143 1A25 (S1, +3, R1 → P2)
IR DFAD
IR DFSB

IR DFAS A = M143 1A25 (M1, N2 → M2)
IR DFAD
IR DFSB

IR FDVL = M173 1A11 (V2, U2 → U1)
IR FDVXX
SAC2

IR HXXXM = M143 1A25 (S2, R2 → T2)
IR HWT
IR XXXM

IR MOV(N,M)X = M143 1A25 (V2, +3, U2 → U1) + M143 1C02 (S2, ~IR XXXM, R2 → T2)
IR MOV(N,M)X
IR MOV(N,M)(-,I,S)

IR DIVX = M143 1A28 (B1, +3, C1 → A1) + M173 1A27 (D1, IR ØG C(1), E1 → D2) + M143 1A28 (E2, F2 → F1)
IR XDIVX

IR MPY = M145 1A29 (B1, C1, D1 → A1)
IR XMULX
IR FMPXX
IR DFMP

IR ASHX = M143 1A28 (D1, E1 → D2)
IR ASH
IR ASHC

IR SR XXXC = M145 1A29 (D2, E2, F2 → E1)
1R 24X
~IR XXXS
IR ØG C(1)

IR HLLXX = M175 1A24 (F1, N1, P1 → H1)
IR HWT
IR Ø3 A(Ø)
IR Ø6 B(Ø)

IR HRLXX = M175 1A24 (J1, K1, K2 → J2)
IR Ø6 C(1)

IR HRRXX = M175 1A24 (M1, M2, N2 → L2)
IR Ø3 B(1)

IR HLRXX = M175 1A24 (P2, S1, S2 → R2)

IR DFAD = M145 1A29 (F1, N1, P1 → H1)
IR XXX-

IR DFSB = M143 1A28 (J1, K1, K2 → J2) + M143 1A28 (P1, +3, R1 → N1)
IR XXXI

IR DFMP = M145 1A29 (M1, M2, N2 → L2) + M143 1A28 (S1, +3, R1 → P2)
IR XXXM

IR DFDI' = M145 1A29 (P2, S1, S2 → R2) + M143 1A28 (S2, +3, R2 → T2)
IR 11X
IR Ø6 B(Ø)
IR XXXS

IR DFASDIV = M143 1A28 (K2, J2 → H2)
IR DFAS
IR DFDV

IR FDVL = M143 1A28 (K1, J1 → L1)
IR FDVXX
SAC2

IR HXR-S = M175 1A24 (T2, U1, U2 → V2)
IR Ø3 B(1)

IR HXL-S = M175 1A31 (B1, C1, D1 → A1)
IR HXX-X
IR XXXS
IR Ø3 A(Ø)

IR XXXEX = M173 1A27 (E2, F2 → F1)
IR Ø4(1)
IR Ø5(1)

IR HXX(-,0)X = M173 1A27 (K2, J2 → H2)
IR HWT
IR Ø5(Ø)

IR DECODE EN +3 = M181 1A22 (A1, B1, D1, E1, F2, H2, D2, E2, F1 → C1)
IR 1XX
IR XX11
[X44X]
IR XXXS
IR XXØ3
[X14X]
[X2ØX]
IR XXØ4
IR 2XX

IR UNUSED

IR 254 = M171 1A32 (A1, E1, B1, D1, F1, H2, D2, E2, F2 → C1)
IR 2XX
[X54X]
IR XX13
IR XXX-
+3

IR HXX-X = M175 1A31 (D2, E2, F2 → E1)
IR HWT
IR Ø4(Ø)
IR Ø5(Ø)

IR DMOVNM PART 2 = M143 1A33 (P1, R1 → N1)
IR DMOVNM
BYF6(1)

IR DMOVEM PART 2 = M143 1A33 (S1, E2, F2 → P2)
IR DMOVEM

IR DMOVEM PART 1 = M143 1A33 (E2, F2 → F1)
BYF6(Ø)

IR JRST = M143 1A33 (K2, J2 → H2) + M173 1A27 (K1, J1 → L1)
~IR ILLEGAL INST

IR XMULX A = M143 1C02 (D1, E1, +3 → D2) + M143 1C02 (E2, F2 → F1) + M173 1C04 (S1, R1 → P2)
IR XMULX

IR XDIVX A = M173 1C04 (B1, C1, +3 → A1)
IR XDIVX

IR DMOVNM PART 1 = M143 1A33 (M1, N2 → M2)
IR DMOVNM
BYF6(Ø)

IR DMOVXM PART 2 = M143 1A33 (S2, R2 → T2)
BYF6(1)

IR DMOVXM = M143 1A33 (K1, J1 → L1)
IR DMOVEM
IR DMOVNM

IR DMOVXM PART 1 = M147 1A18 (N1, P1, R1, R2 → P2)
BYF6(Ø)
IR 12X
IR Ø6 B(1)
IR Ø7 (Ø)

IR MUUO EN = M128 1C37 (V1, U1, +3, V2, U2, T2 → S1)
IR Ø3 B(1)
IR ØXX
[XØØX]
IR XXØØ
IR XXX-

IR MUUO = M147 1D34 (N1, P1, R1, R2 → P2)
IR ILLEGAL INST
IR 1ØX
IR UNUSED

IR ILLEGAL INST = M128 1A35 (B1, D1, E1, A1, E2, F1, D2 → C1)
USER OR SUPERVISOR (1)
IR 254
[X74X]
~IR XX17
USER IOTS ILLEGAL (1)
PI CYC B(Ø)

IR 7XX = M143 1A33 (+3, B1, C1 → A1)
IR 7XX

IR IOT = M143 1A33 (D1, E1 → D2)
~IR ILLEGAL INST

IR IOT FAST = M181 1C08 (P1, +3, U1, P2, R2, T2, U2, R1, S1, V2 → S2)
IR 7XX
USER IOTS ILLEGAL(Ø)
[X74X] IR XX17
PI CYC B (1)

IR LUUO = M143 1B3Ø (N1, K1, J1 → L1) + M173 1A27 (M1, N2 → M2)
IR ØXX
~IR MUUO EN

IR DMOVNM PART 2 = M173 1A11 (E2, F2 → F1)
IR DMOVNM
BYFG (1)

IR JSR = M143 1B3Ø (P1, +3, R1 → N1)
IR ØXX

IR 24X = M172 1C34 (R1, C1, +3, E1, S2 → T2)
IR Ø8(Ø)

IR A,L)SHX

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS		
CHK	CHANGE NO.	REV.
RM	KI10-00024	A

M. Towne Fridge
KENT

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.		DATE 5/29/72
CHK'D	Ward Gross	DATE 31 JAN 72
ENG.	Allan Kotik	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 Jan 72
NEXT HIGHER ASSY	B-CD-KI1Ø-Ø	
SCALE		
SHEET 1 OF 1		

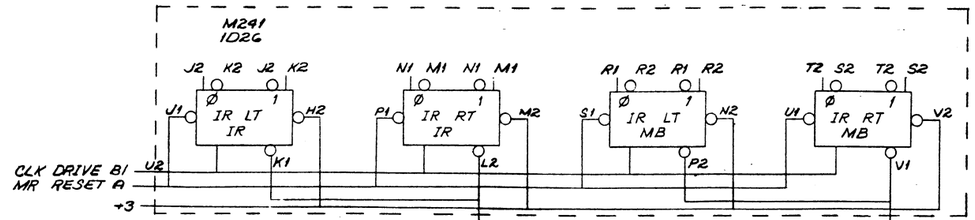
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

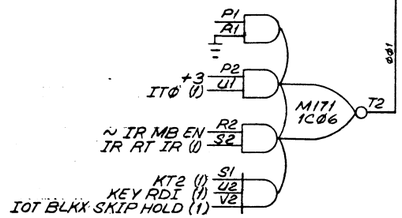
TITLE
INSTRUCTION REGISTER DECODING

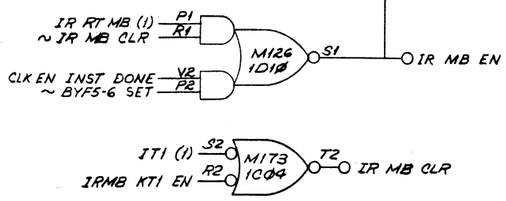
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-IR 3	A

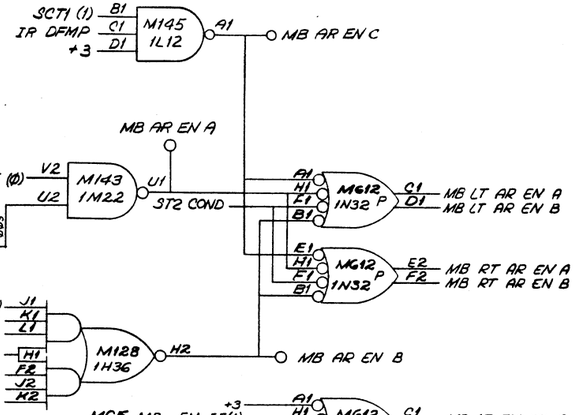
DIST.

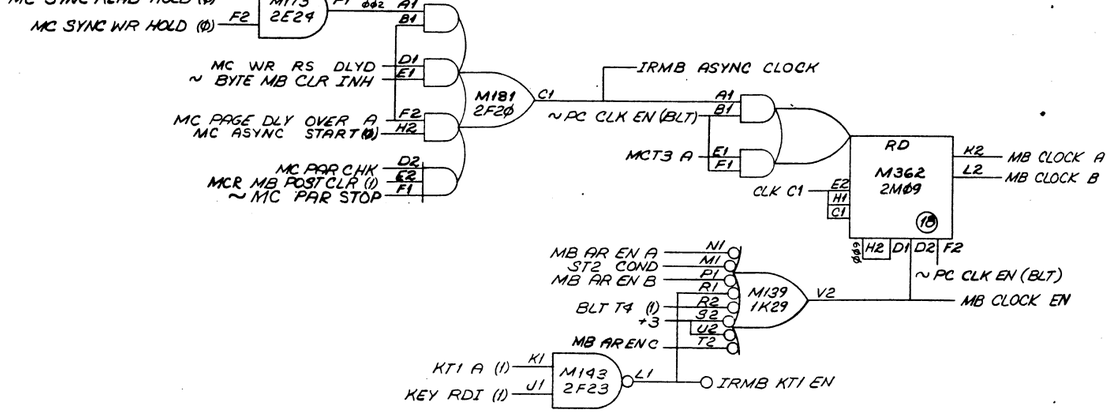
DEC FORM NO

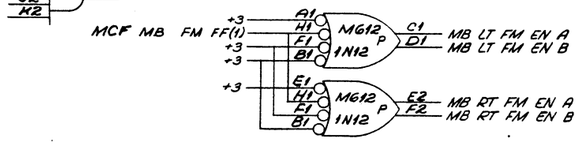


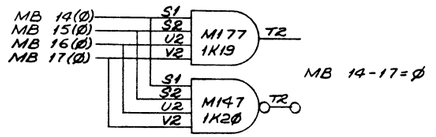












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	D. C. Lewis	DATE 6/2/70
CH'D.	David Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Bill Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KI10-0

SCALE N

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
IR CONTROL
AND
MB CONTROL

SIZE	CODE	NUMBER	REV.
D	BS	KI10-0-IRMB	

DIST.

DEC FORM NO
DRD 102A

KI10-0-IRMB

M243 2C25

KEY LATCH · KEY PROG STOP · KEY SYNC · KEY RUN · KEY AS+1

MR KEY CLR
CLK DRIVE D2

KEY SYNC (Ø) · KEY ANY NO BOUNCE → M143 2B26 → L1

KT1 (Ø) · KEY PROG STOP (1) · +3 · IR JRST · IR 1Ø (1) · IT1 B (1) → M128 2C21 → KEY PROG STOP IN

KEY ANY NO BOUNCE · KEY SYNC (1) · KEY LATCH (1) · ~KEY ANY ACT → M126 2A25 → D1

KT1 A (1) · KEY RUN SET · ~KEY RUN CLR · KEY RUN (1) → M126 2A25 → F1 → KEY RUN IN

KEY AS+1 (1) · KT1 (Ø) → M126 2A25 → J2

KEY EX NXT (1) · KEY DEP NXT (1) → M143 2B26 → D2 KT1 (1) · KEY NEXT

M243 2B09

KEY IDLE

CLK DRIVE D1
MR KEY CLR

KEY XCT (Ø) · ~KEY RUN IN · KT1 A (Ø) → M126 2A21 → J2

KEY STOP OR RESET · KT1 (1) · KEY RUN (Ø) · PI CYCLE DIVERTED → M126 2A21 → F1 Ø11

R2 S2 · M126 2A21 → U1 · U2 T2 → KEY IDLE (1)

E2 K1 E2 K1 · Ø 1MS 1 · KEY CLK RUNNING · SWITCH POSITION "3" 1MS · M1307Ø 2A28 (28) · L1 N2 · M6Ø3 2A24 · MR MEM STOP (1) · KEY SINGLE PULSE SYNC (1) · KEY IDLE (Ø) · J2 · L2 K2 · CLK DRIVE D2

~KEY CLK INH · KEY CLK RUNNING (Ø) · KEY SINGLE PULSE PA · KEY SINGLE PULSE SYNC (1) · KEY CLK STOP · KEY SINGLE PULSE SYNC (Ø) · KEY REPT DONE (1) · KEY SINGLE PULSE SYNC (1) · KEY CLK RDY SYNC (1) → M171 2B06 → C1 KEY CLK START

M177 2C11

M243 2C12

KT1 · KT2 · KT3 · KT1 A

MR STATE CLR
CLK DRIVE D1

KT1 COND

KEY DONE (KT2) · KT2 (1) · KEY DONE (KT3) · KT3 (1) → M171 2B06 → T2 KEY EN INST DONE

KT2 A · KEY MEM OP → M126 2B07 → U1 KEY CLK INH

KEY CLK STOP · KEY REPT DONE (Ø) → M126 2B07 → U2 T2

KEY RDI NOT WAIT V XCT · KT1 A (1) · KEY CONT (1) → M126 2B07 → S1 KEY AB PC EN

KEY RUN (1) · PI RDY SYNC (Ø) · PI CYCLE DIVERTED · KT1 (Ø) · KEY FCN RDY · +3 · KEY IDLE (1) → M128 2C21 → C1

KT1 (1) · ~KEY DONE → M143 2A17 → T2

KEY RDI DATA WAIT (Ø) · KEY XCT (1) · KEY RDI (1) → M126 2A25 → L2

KEY RDI DATA WAIT (1) · KT3 (1) → M126 2B07 → D1

KT2 (1) · +3 → M143 2A17 → N1 KT2 A

KEY DONE · KT3 (1) · +3 → M143 2A17 → P2

KEY DONE A · KT3 (1) · +3 → M173 2B16 → N1

KT3 (1) · +3 → M143 2D17 → A1 KT3 A

KEY LATCH (1) · KEY SYNC (1) → M173 2B16 → U1 KEY STROBE

KT2 (1) · KEY RUN (1) · KEY MEM OP → M145 2D27 → J2 KEY INST FET ST SET

KEY PROG STOP IN · KEY SING INST (1) → M6Ø3 2C24 → N2 KEY RUN CLR

KEY STOP OR RESET · KT1 (1) → M6Ø3 2C24 → C1

KEY MANUAL STOP → M243 2C12

KEY MANUAL STOP (1) · KT1 A (Ø) → M6Ø3 2C24 → E2 Ø14 → M173 2B16 → M2

KEY MEM OP · KEY START (1) → M147 2C1Ø → A1 KEY AB AS EN

KEY LATCH (1) · MC MEM STOP (1) → M143 2B26 → N1 KEY LATCH A

M143 2B26 → P2 KEY LATCH B

KEY DEP (1) · KEY DEP NXT (1) · KEY EXAM (1) · KEY EX NXT (1) → M177 2A26

KEY RESET (1) · KEY RDI (1) · KEY START (1) · KEY CONT (1) → M177 2A26 → J1

KEY XCT (1) · KEY STOP (1) → M177 2A26 → M2

+3 → M143 2B26 → A1 KEY MEM OP

M143 2B26 → T2 KEY ANY ACT

KEY CONT (Ø) · KEY START (1) → M173 2B16 → L1

KEY CYCLE (Ø) · KT1 A (Ø) → M177 2A26 → A1

KEY SYNC (Ø) · KEY IDLE (1) · ~KEY ANY NO BOUNCE → M177 2A26 → P2 KEY CLK STOP

KEY RDI FF1 (1) → M126 2A25 → S1

IOT BLKX SKIP HOLD (Ø)

KEY EXAM (1) · KEY EX NXT (1) → M143 2B26 → U1 KEY DONE (KT3)

KEY REPT SYNC (Ø) · KEY SINGLE PULSE SYNC (1) → M143 2B26 → F1

KEY DONE → M143 2B26 → H2 KEY CLR

KEY STOP (1) · KEY RESET (1) → M6Ø3 2C24 → E1 KEY STOP OR RESET

KT1 (1) · KT2 (1) · KEY DONE (KT2) · ST5 (1) · KEY DEP CYCLE (1) · KT3 (1) → M171 2B25 → T2

KT3 (1) · +3 → M143 1D11 → N2 KT3 A

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS		
REV	CHANGE NO	CHK

FIRST USED ON OPTION MODEL KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 · FRACTIONS ± 1/64 · ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson	DATE 2/5/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Allan Katek	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

TITLE: KEY LOGIC

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
SCALE ~
SHEET 1 OF 1

SIZE D | CODE BS | NUMBER KI1Ø-Ø-KEY1 | REV | DIST.

DEC FORM NO DRD 102A

KEY RDI PULSE 400nS — M3070 2A29 — SWITCH POSITION "5"

KEY RDI DLY 1MS — M3070 2A29 — KEY RDI SETUP (Ø)

M2243 2C25: KEY REPT SYNC; KEY SINGLE PULSE SYNC; KEY RDY SYNC
CLK DRIVE D2
MR KEY CLR
KEY REPT (1)
KEY RUN (Ø)
ITØ (1)
KEY SINGLE PULSE SYNC (1) — M145 2D27
KEY SINGLE PULSE (1) — M6Ø3 2C27

KEY ANY ACT
KEY REPT DLY (Ø)
KEY CYCLE (Ø) — M6Ø3 2A24 — KEY FCN RDY
KEY RUN (Ø)
~ IR XCT — M6Ø3 2C27
KT1 (Ø) — M126 2A25

KEY DS LOAD (Ø) — M612 2D23 — KEY DS TOGGLE EN A / KEY DS TOGGLE EN B
KEY DS LOAD (1) — M612 2D23 — KEY DS MI EN A / KEY DS MI EN B
KEY DS TOGGLE EN C / KEY DS TOGGLE EN D — M612 2D23 — KEY DS MI EN C / KEY DS MI EN D

KEY MEM CONTINUE (1) — M6Ø3 2C24 — KEY MEM CONT
MA RD RQ — M6Ø3 2C24 — KEY RD CONT
NOTE: ADJUST FOR 80 nS PULSE WIDTH

~KEY RD CONT — M6Ø3 2C24 — M6Ø3 2C29 — KEY MEM GO

KEY AS LOAD (1) — M612 2D23 — KEY AS MI EN A / KEY AS MI EN B
KT3 (1) — M612 2D23 — KEY AS AB EN A / KEY AS AB EN B

KEY CONT NO — M24G 2D31: KEY MEM CONTINUE
KEY CONT NO — M143 2D35 — MC MEM STOP (1)

KEY RDI SETUP (1)
KEY RDI FF 1 (Ø) — M143 2D17 — KEY RDI FIRST CYC

KEY AS TOGGLE EN — M321 2H16

KT3 (Ø)
KEY AS LOAD (Ø)
AS PROG LOAD (Ø) — M145 2D27
KEY SINGLE PULSER (1) — M6Ø3 2A24 — KEY SINGLE PULSE PA
KEY SINGLE PULSE SYNC (Ø) — M143 2D17 — KEY SNGL PLS SYNC A (Ø)

KT3 (1)
MC SYNC DLY OVER
KEY LOAD DLY (Ø)
KEY AS LOAD (1)
BIO PTR SEL
IOB DATAO SET
KEY MI PROG DIS (Ø) — M1171 2B25 — M6Ø3 2C27 — KEY AS LOAD PULSE

KEY LOAD DLY 1MS — M3070 2A28 — SWITCH POSITION "5"

KEY DS LOAD (Ø)
KEY AS LOAD (Ø) — M6Ø3 2A24 — KEY DS LOAD PULSE

KEY DS CLR (1)
MR PWR CLR EN B — M6Ø3 2A24 — KEY DS CLR PULSE

KEY AS CLR (1)
MR PWR CLR EN B — M6Ø3 2A24 — KEY AS CLR PULSE

KEY LOAD DLY (Ø)
KEY DS LOAD (1) — M6Ø3 2C27 — M6Ø3 2C27 — KEY DS LOAD PULSE

MR KEY CLR — M24G 2D31: KEY REPT — +3

KEY SINGLE PULSE SYNC (Ø) — M143 2D17 — KEY SNGL PLS SYNC A (Ø)

+3 — M143 2A15 — KEY CLK SYNC CLR
CLK DRIVE D1

+3 — M143 2A15 — Ø
KEY CLK RDY SYNC
~ KEY CLK SYNC CLR
CLK MIN LOOP
CLK INH (Ø)
CLK MISC INPUT
+3 — M171 2B06 — 1

KEY REPT NO BOUNCE — M143 2A15 — M95Ø 2CØ3
MR PWR CLR EN B — M24Ø 2D2Ø: KEY SINGLE PULSE — M95Ø 2DØ8
KEY SINGLE PULSER — M143 2A15 — M95Ø 2CØ3
KEY DS CLR — M95Ø 2AØ3
KEY DS LOAD — M95Ø 2AØ3
KEY AS CLR — M143 2A17 — M95Ø 2AØ2
KEY AS LOAD — M95Ø 2AØ2

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK
REV		

FIRST USED ON OPTION/MODEL: KI1Ø

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN: A. Wallace DATE 10/2/70
CHKD: David Gross DATE 31 Jan 72
ENG: Adam Kotok DATE 31 Jan 72
PROJ ENG: Mike Rent DATE 31 Jan 72
PROD: B. Wallace DATE 31 Jan 72

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: KEY CONTROL LOGIC #2

SIZE D | CODE BS | NUMBER KI1Ø-Ø-KEY 2 | REV.

SCALE ~ | SHEET 1 OF 1 | DIST.

DEC FORM NO DPD 102A

SIZE D | BS | KI1Ø-Ø-KEY 2 | REV

KEY IDLE (Ø) S2
KEY REPT DLY (1) T2
KEY SINGLE PULSE SYNC (Ø) P2
M6Ø3 2C24
R2 ØØ7 V2
KEY REPT SYNC (1) U2
M173 2E24 U1
KEY REPT HOLD

KEY START (1) T2
KEY CONT (Ø) U1
KEY RDI (Ø) U2
M145 2D27 V2
KEY RUN SET

M246 2D31
E1 D1 E1 D1
KEY CLK F1
SYNC CLR
KEY REPT DONE A1 +3
C1 B1
KEY REPT SYNC (1)

M3Ø8 2D24
S2 T2 S2 T2
(N/C) D2
KEY VAR SPEED E2
KEY SPEED 6 R2
KEY SPEED 5 V2
KEY SPEED 4 U2
KEY SPEED 3 K2
KEY SPEED 2 F2
KEY SPEED 1 M2
S1
KEY REPT DLY
H2 KEY RUN SET
J2 KEY REPT HOLD
P2 CLK DRIVE C2
N2 KEY REPT DLY START
MR PWR CLR EN (1)

	SPEED RANGE	
1	2ØØnS	TO 2MS
2	2MS	TO 4ØMS
3	4ØMS	TO 8ØØMS
4	8ØØMS	TO 16 MS
5	16MS	TO 32ØMS
6	32ØMS	TO 6.4 S

1Ø +5V
CW 1ØØ Ω "FINE"
M931 2D28
A2
A1 KEY VAR SPEED
C1 B1 KEY SPEED 6
D2 C1 KEY SPEED 5
E1 D1 KEY SPEED 4
E2 E2 KEY SPEED 3
F1 H1 KEY SPEED 2
F2 J1 KEY SPEED 1
H2
SPEED CONTROLS
MR PWR CLR EN (1)
AS PROG LOAD PULSE
1 2 3 4 5 6 "COARSE"
M9Ø1 3Y71 2DØ5

NOTE:
SWITCH OPENS ONE CONTACT BEFORE SHORTING NEXT CONTACT

M247 2C18
B1 C1 B1 C1 KEY NXM STOP F2 J2 A1 — KEY NXM STOP LMP NO NC K1 L1 J1 — M95Ø 2CØ3
D2 D1 D2 D1 KEY PAR STOP E2 L2 E1 — KEY PAR STOP LMP NO NC F1 H1 E1 — M95Ø 2CØ5
H1 J1 H1 J1 KEY SING INST K1 S2 F1 — KEY SING INST LMP NO NC S1 U1 R1 — M95Ø 28Ø4
M1 L1 M1 L1 KEY ADR STOP V2 T2 M2 — KEY ADR STOP LMP NO NC S1 U1 R1 — M95Ø 28Ø4
N1 P1 N1 P1 KEY MI PROG DIS V1 U2 R1 — KEY MI PROG DIS LMP NO NC A1 C1 B1 — M95Ø 2DØ8
N2 P2 N2 P2 KEY OVERLAP DIS U1 R2 S1 — KEY OVERLAP LMP NO NC F1 H1 E1 — M95Ø 2CØ3

M247 2B18
B1 C1 B1 C1 KEY WR COND F2 J2 A1 AS WR COND IN — KEY WR COND LMP NO NC N1 P1 M1 — M95Ø 2BØ4
D2 D1 D2 D1 KEY IN FET COND E2 L2 E1 AS IN FET COND IN — KEY IN FET COND LMP NO NC F1 H1 E1 — M95Ø 2BØ4
H1 J1 H1 J1 KEY RD COND K1 S2 F1 AS RD COND IN — KEY RD COND LMP NO NC K1 L1 J1 — M95Ø 2CØ4
M1 L1 M1 L1 KEY EXEC PAGING V2 T2 M2 AS EXEC PAGING IN — KEY EXEC PAGING LMP NO NC R2 S2 P2 — M95Ø 2CØ4
N1 P1 N1 P1 KEY USER PAGING V1 U2 R1 AS USER PAGING IN — KEY USER PAGING LMP NO NC T2 U2 V2 — M95Ø 2BØ2
N2 P2 N2 P2 KEY ADR BRK U1 R2 S1 AS ADR BRK IN — KEY ADR BRK LMP NO NC A1 C1 B1 — M95Ø 2BØ2
MR PWR CLR EN (1) K2 H2
AS PROG LOAD PULSE

M243 2BØ9
E1 D1 E1 D1 KEY CYCLE C1
E2 D2 E2 D2 KEY RDI FFØ F2
K1 J1 K1 J1 KEY RDI FF1 H1
N1 M1 N1 M1 KEY RDI SETUP L1
P1 P2 P1 P2 KEY RDI DATA WAIT R2
R1 S1 R1 S1 KEY DEP CYCLE V1
MR KEY CLR J2
CLK DRIVE D1 B1 H2
U2

ØØ1 *3 KT1 (1) S2 R2 R1 *3 ~KEY DONE M1 ~TRAP SATISFIED N1 ~IT2 COND M2 N2 — M128 2C21 — P2
ØØ2 KEY RDI (1) B1 KT3 (1) D1 — M126 2A21 — D1
ØØ3 KT2 (1) D2 KEY RDI FFØ (1) E1 — M126 2BØ7 — F1
KEY RDI FF1 (1) F2 KEY RDI FFØ (1) E2
ØØ4 KEY RDI (1) K1 KT1 (1) H2 — M126 2BØ7 — J2
KEY RDI SETUP (1) N1 ~KEY DONE A V1
ØØ5 KT2 (1) V1 ~KEY DONE U1 KEY RDI (1) V2 U2 ~IOB RDI LEVEL T T2 KEY RDI DATA WAIT (1) — M128 2C21 — S1
ØØ6 KEY DEP CYCLE (1) M1 ~KEY DONE A K2 KT1 (1) N2 KEY DEP, DEP NXT M2 — M126 2BØ7 — L2

ØØ1A KEY CYCLE (1) R1 C1 +3 E1 ~PI CYCLE DIVERTED S2 — M172 2E12 — T2
KEY CYCLE (1) K1 KT1 A (1) J1 — M143 2C39 — L1
ØØ8 KEY REPT SYNC (1) — M126 2E25 — L2 — KEY REPT DLY START
KEY SINGLE PULSE (1) M1 K2 N2 M2
KEY DEP (1) V2 KEY DEP NXT (1) U2 — M143 2A17 — U1 — KEY DEP, DEP NXT
KEY XCT (1) J1 K1 K2 — M145 2E13 — J2 — KEY AR GETS DS
KEY RDI SETUP (1) K1 *3 J1 — M143 2D17 — L1 — KEY RDI DEV EN

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	Al Stephenson	DATE 12/28/70
CHKD.	Daniel Grossi	DATE 31 Jan 72
ENG.	A. Pan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KEY 3

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-KEY3	

DIST.

DEC FORM NO DRD 102A

M243 2A22

KEY RESET (E1 D1 E1 D1) — KEY RDI (E2 D2 E2 D2) — KEY START (K1 J1 K1 J1) — KEY CONT (N1 M1 N1 M1) — KEY STOP (P1 R1 P1 P2) — KEY XCT (R1 S1 R1 S1) — KEY EXAM (M2 N2 M2 N2) — KEY EX NXT (T2 S2 T2 S2)

M243 2C2Ø

KEY DEP (E1 D1 E1 D1) — KEY DEP NXT (E2 D2 E2 D2)

MR KEYCLR
CLK DRIVE DI
KEY STROBE
~KEY CLR

M172 2B23 — M172 2B23

M171 2B25

KEY RESET (1) — KEY RDI (1) — KEY START (1) — KEY CONT (1) — KEY STOP (1) — KEY CYCLE (Ø) — KEY XCT (1) — ~TRAP SATISFIED — KEY REPT SYNC (1) — KEY EXAM (1) — KEY EX NXT (1) — KEY DEP (1) — KEY DEP NXT (1)

KEY RESET NO BOUNCE (1)

M177 2B21 — M177 2B22 — M173 2B16

KEY RDI NO BOUNCE (1)
KEY RESET NO BOUNCE (Ø)
KEY START OR RESTART
KEY RDI NO BOUNCE (Ø)
KEY CONT NO BOUNCE (1)
KEY STOP NO BOUNCE (1)
KEY XCT NO BOUNCE (1)
KEY STOP NO BOUNCE (Ø)
KEY SINGLE PULSE SYNC (Ø)
KEY EXAM NO BOUNCE (1)
KEY EX NXT NO BOUNCE (1)
KEY DEP NO BOUNCE (1)
KEY EX NXT NO BOUNCE (Ø)
KEP DEP NXT NO BOUNCE (1)
KEY DEP NO BOUNCE (Ø)

KEY START NO BOUNCE (1) — MR RESTART B (1) — M143 2A17 — M143 2A17 — KEY START OR RESTART

KEY NO BOUNCE A — KEY NO BOUNCE B

~KEY START OR RESTART
KEY CONT NO BOUNCE (Ø)

KEY XCT NO BOUNCE (Ø)
KEY EXAM NO BOUNCE (Ø)

KEY MEM CONTINUE (Ø) — M173 2B16 — KEY CONT NO BOUNCE (1)

~KEY ANY NO BOUNCE

KEY EX NXT NO BOUNCE (Ø)
KEY DEP NO BOUNCE (Ø)
KEY DEP NXT NO BOUNCE (Ø)

M147 2C1Ø

KEY RESET NO BOUNCE — KEY RDI NO BOUNCE — KEY START NO BOUNCE — KEY CONT NO BOUNCE (Ø) H (1) L — KEY STOP NO BOUNCE — KEY XCT NO BOUNCE — KEY EXAM NO BOUNCE — KEY EX NXT NO BOUNCE — KEY DEP NO BOUNCE — KEY DEP NXT NO BOUNCE

M126 2A18 — M126 2A19 — M126 2B19 — M126 2A21

~KEY LATCH A — ~KEY LATCH B

M95Ø 2A05 — M95Ø 2B02 — M95Ø 2A05 — M95Ø 2A03

KEY CONT NO BOUNCE (Ø)

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	D. J. Jensen	DATE 8/29/70
CHKD.	David Frost	DATE 31 Jan 72
ENG.	Mary Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

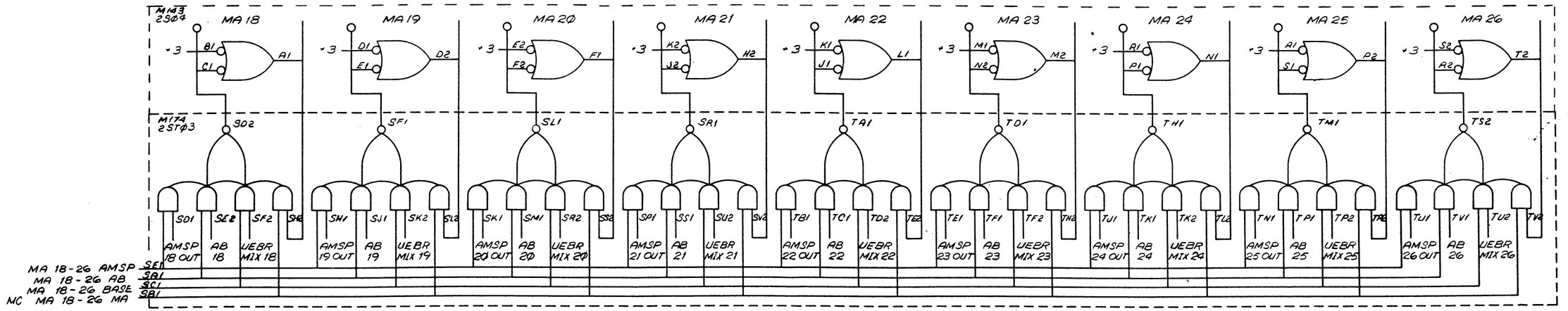
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
KEY
FLIP-FLOPS

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-KEYF	

DIST.

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

FIRST USED ON OPTION/MODEL: KI1Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 3/1/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. David Frost	DATE 31 Jan 72	
ENG. Mary Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	
NEXT HIGHER ASSY B-DD-KI1Ø-Ø		
SCALE		
SHEET 1 OF 1		

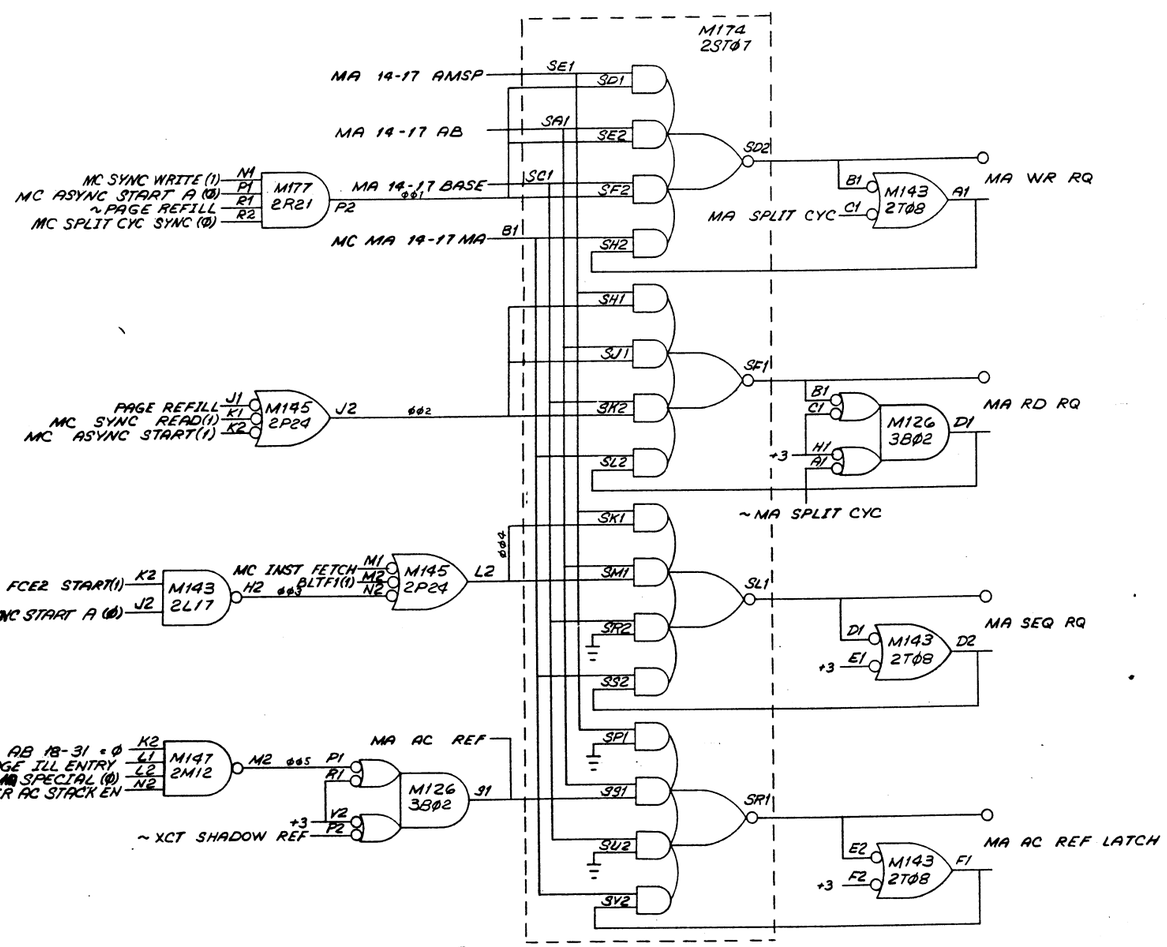
TITLE: MEMORY ADDRESS MIXER BITS 18 - 35

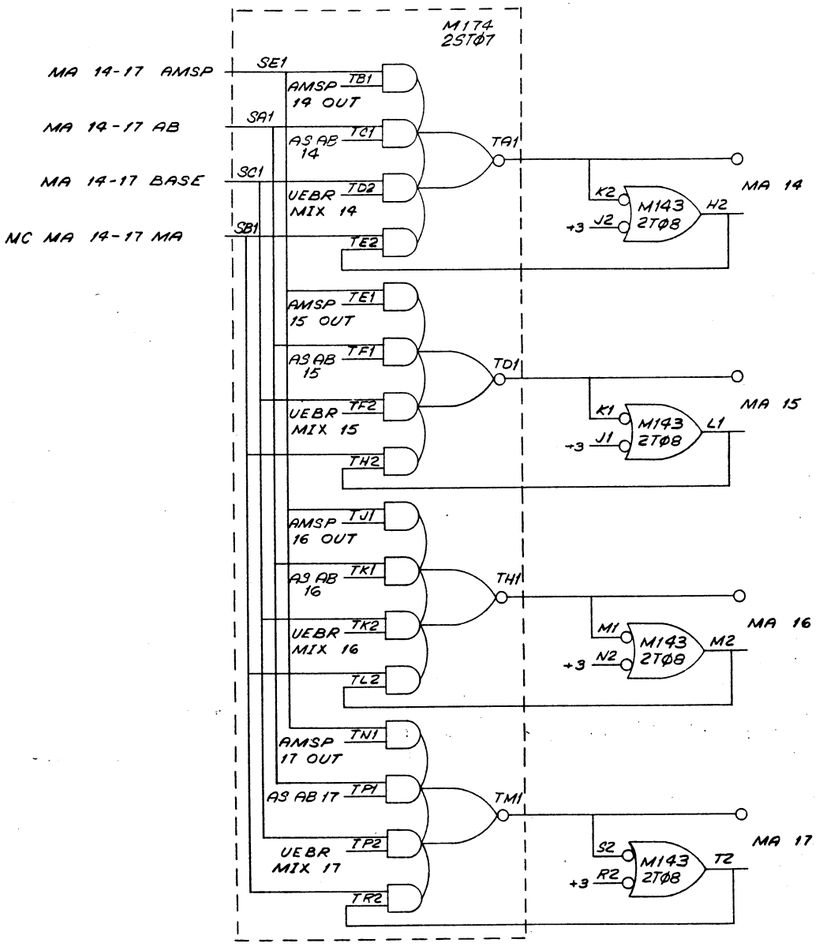
SIZE D | CODE BS | NUMBER KI1Ø - Ø - MA1 | REV.

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. D.J. Swan	DATE 7/1/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. David Stone	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE ~

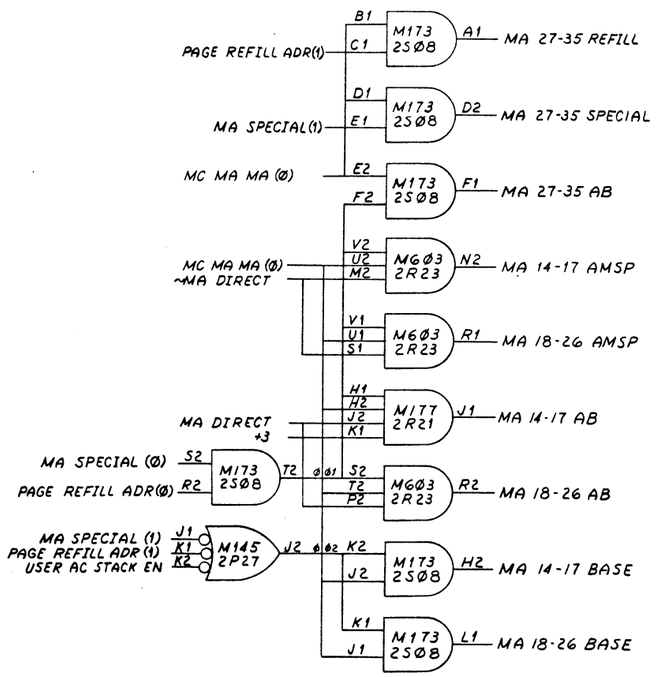
SHEET 1 OF 1

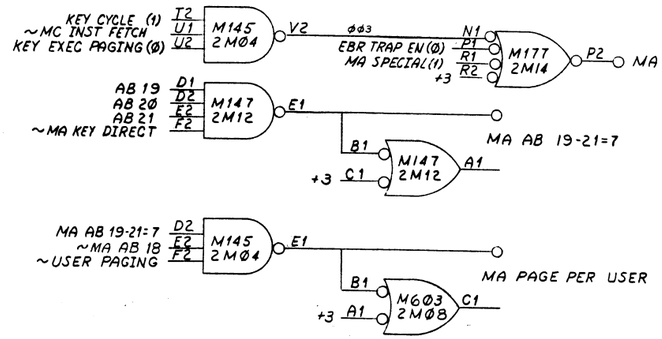
TITLE
MA RQ TYPE AND BITS 14-17

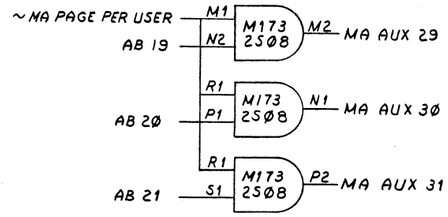
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MA2	

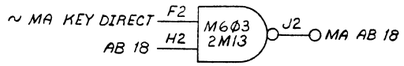
DIST.

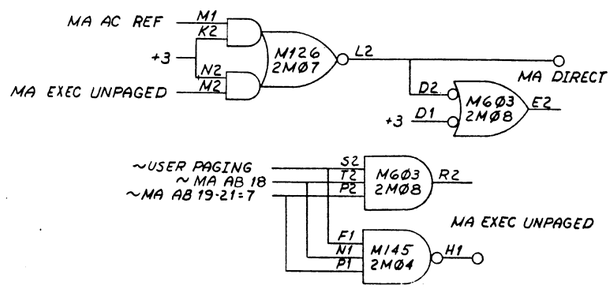
DEC FORM NO DRD 102A











REFERENCE	MA 14-17 & 18-26	MA 27-35
DIRECT	AB	AB
PAGED	AMSP	AB
STACK	BASE	AB
SPECIAL	BASE	SPECIAL
REFILL	BASE	REFILL

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REV.	CHANGE NO	CHK
	REVISIONS	

BRUNING 40-522 15840

DEC FORM NO
DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

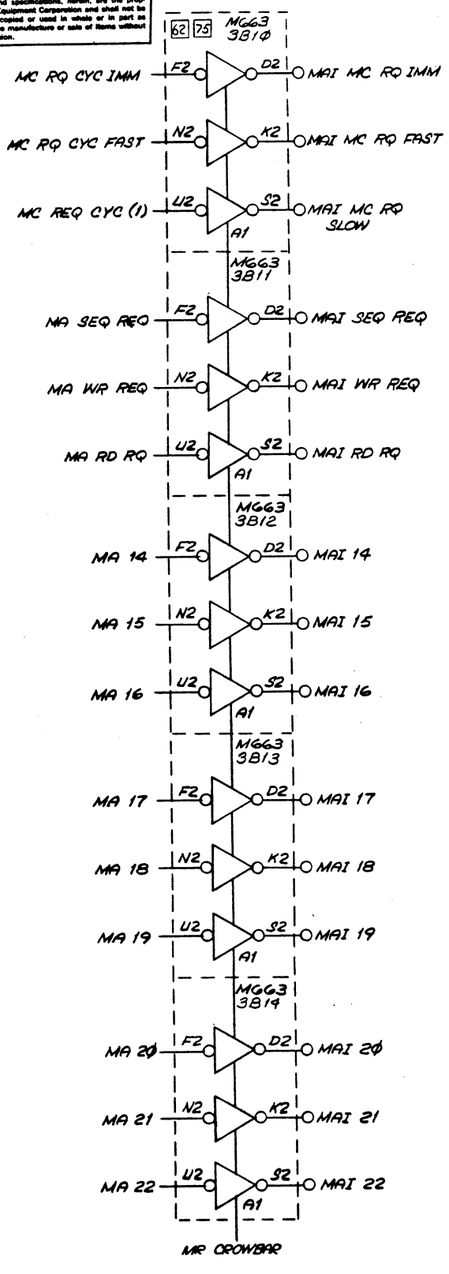
DRN. P.M. Calloway	DATE 4-6-72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Green	DATE 5 Jun 72	
ENG. Allen Kotok	DATE 31 May 72	TITLE: MEMORY ADDRESS CONTROL
PROJ. ENG. Allen Kent	DATE 31 May 72	
PROD. Robert Thurber	DATE 31 MAY 72	

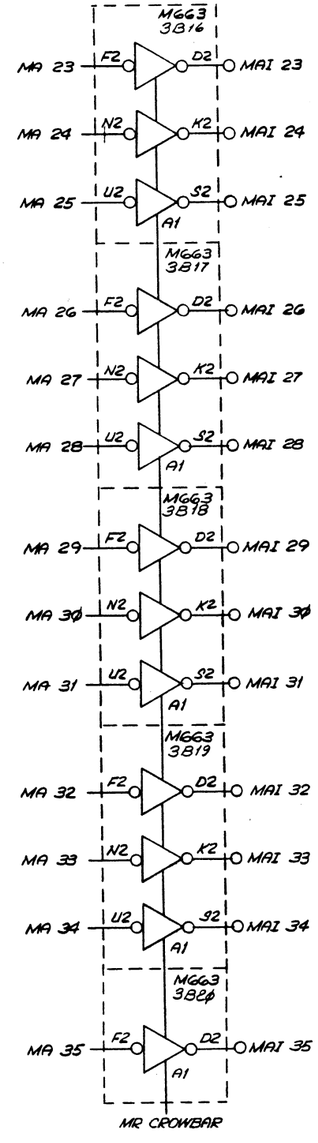
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE ~
SHEET 1 OF 1

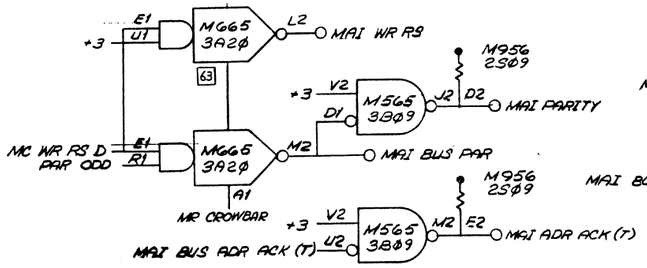
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MAC	

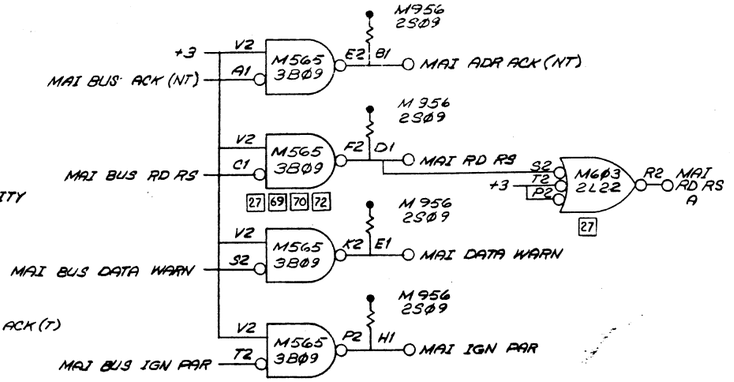
DIST.

SIZE D BS CODE NUMBER KI1Ø-Ø-MAC REV









I/O BUS CONNECTOR
EQUIVALENT PIN LOCATIONS (WIRELIST)

LEFT 3822A2	3822 2	1 3823 2	1 3824 2	1 3825 2			
RIGHT 3828A1	1 3828 2	1 3829 2	1 3830 2	1 3831 2			
	1	2	3	4	5	6	7
+A	+	+	+	+	+	+	+A
B+	+	+	+	+	+	+	B+
+C	+	+	+	+	+	+	+C
D+	+	+	+	+	+	+	D+
+E	+	+	+	+	+	+	+E
F+	+	+	+	+	+	+	F+
+H	+	+	+	+	+	+	+H
J+	+	+	+	+	+	+	J+
+K	+	+	+	+	+	+	+K
L+	+	+	+	+	+	+	L+
+M	+	+	+	+	+	+	+M
N+	+	+	+	+	+	+	N+
+P	+	+	+	+	+	+	+P
R+	+	+	+	+	+	+	R+
+S	+	+	+	+	+	+	+S
T+	+	+	+	+	+	+	T+

WIRING SIDE VIEW OF FIXED (BACKPLANE) CONNECTORS.

* MEM BUS SIGNAL	† CABLET PIN CABLE # SECT PIN	QUICKLATCH CONN PIN	* MEM BUS SIGNAL	† CABLET PIN CABLE # SECT PIN	QUICKLATCH CONN PIN
MAI BUS ACK(NT)L	1A-D (1A-C)	A1 (B1)	MB DATA 00 L	2A-D (2A-C)	K1 (L1)
MAI BUS RD RS L	1A-E (1A-F)	A2 (B1)	MB DATA 01 L	2A-E (2A-F)	K2 (L1)
MAI WR RS L	1A-H (1A-J)	B2 (A3)	MB DATA 02 L	2A-H (2A-J)	L2 (K3)
MAI BUS PAR L	1A-K (1A-L)	B3 (A3)	MB DATA 03 L	2A-K (2A-L)	L3 (K3)
MAI MC REQ IMM L	1A-M (1A-N)	A4 (B4)	MB DATA 04 L	2A-M (2A-N)	K4 (L4)
MAI MC REQ FAST L	1A-P (1A-R)	A5 (B4)	MB DATA 05 L	2A-P (2A-R)	K5 (L4)
MAI MC REQ SLOW L	1A-S (1A-R)	B5 (A6)	MB DATA 06 L	2A-S (2A-R)	L5 (K6)
MAI 18 L	1A-T (1A-U)	B6 (A6)	MB DATA 07 L	2A-T (2A-U)	L6 (K6)
MAI BUS DATA WARN L	1A-V (1A-U)	A7 (B7)	MB DATA 08 L	2A-V (2A-U)	K7 (L7)
MAI 19 L	1B-D (1B-C)	C1 (D1)	MB DATA 09 L	2B-D (2B-C)	M1 (N1)
MAI SPARE	1B-E (1B-F)	C2 (D1)	MB DATA 10 L	2B-E (2B-F)	M2 (N1)
MAI 20 L	1B-H (1B-J)	D2 (C3)	MB DATA 11 L	2B-H (2B-J)	N2 (M3)
MAI SEQ REQ L	1B-K (1B-L)	D3 (C3)	MB DATA 12 L	2B-K (2B-L)	N3 (M3)
MAI 14 L	1B-M (1B-N)	C4 (D4)	MB DATA 13 L	2B-M (2B-N)	M4 (N4)
MAI 15 L	1B-P (1B-R)	C5 (D4)	MB DATA 14 L	2B-P (2B-R)	M5 (N4)
MAI 16 L	1B-S (1B-R)	D5 (C6)	MB DATA 15 L	2B-S (2B-R)	N5 (M6)
MAI 17 L	1B-T (1B-U)	D6 (C6)	MB DATA 16 L	2B-T (2B-U)	N6 (M6)
MAI BUS ADR ACK(T)L	1B-V (1B-U)	C7 (B7)	MB DATA 17 L	2B-V (2B-U)	M7 (L7)
MAI 22 L	1C-D (1C-C)	E1 (F1)	MB DATA 18 L	2C-D (2C-C)	P1 (R1)
MAI 23 L	1C-E (1C-F)	E2 (F1)	MB DATA 19 L	2C-E (2C-F)	P2 (R1)
MAI 24 L	1C-H (1C-J)	F2 (E3)	MB DATA 20 L	2C-H (2C-J)	R2 (P3)
MAI 25 L	1C-K (1C-L)	F3 (E3)	MB DATA 21 L	2C-K (2C-L)	R3 (P3)
MAI 26 L	1C-M (1C-N)	E4 (F4)	MB DATA 22 L	2C-M (2C-N)	P4 (R4)
MAI 27 L	1C-P (1C-R)	E5 (F4)	MB DATA 23 L	2C-P (2C-R)	P5 (R4)
MAI 28 L	1C-S (1C-R)	F5 (E6)	MB DATA 24 L	2C-S (2C-R)	R5 (P6)
MAI 29 L	1C-T (1C-U)	F6 (E6)	MB DATA 25 L	2C-T (2C-U)	R6 (P6)
MAI 30 L	1C-V (1C-U)	E7 (F7)	MB DATA 26 L	2C-V (2C-U)	P7 (R7)
MAI 31 L	1D-D (1D-C)	H1 (J1)	MB DATA 27 L	2D-D (2D-C)	S1 (T1)
MAI 32 L	1D-E (1D-F)	H2 (J1)	MB DATA 28 L	2D-E (2D-F)	S2 (T1)
MAI 33 L	1D-H (1D-J)	J2 (H3)	MB DATA 29 L	2D-H (2D-J)	T2 (S3)
MAI 34 L	1D-K (1D-L)	J3 (H3)	MB DATA 30 L	2D-K (2D-L)	T3 (S3)
MAI 35 L	1D-M (1D-N)	H4 (J4)	MB DATA 31 L	2D-M (2D-N)	S4 (T4)
MAI RD RQ L	1D-P (1D-R)	H5 (J4)	MB DATA 32 L	2D-P (2D-R)	S5 (T4)
MAI WR RQ L	1D-S (1D-R)	J5 (H6)	MB DATA 33 L	2D-S (2D-R)	T5 (S6)
MAI BUS IGN PAR L	1D-T (1D-U)	J6 (H6)	MB DATA 34 L	2D-T (2D-U)	T6 (S6)
MAI 21 L	1D-V (1D-U)	H7 (F7)	MB DATA 35 L	2D-V (2D-U)	S7 (R7)

NOTE: † PINS IN PARENTHESES ARE THE ASSOCIATED GROUND PIN.
* THESE SIGNALS Ø AND -3 VOLTS

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	REV.
		CHK

DEC FORM NO. DRD 102A

FIRST USED ON OPTION MODEL: KI10

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

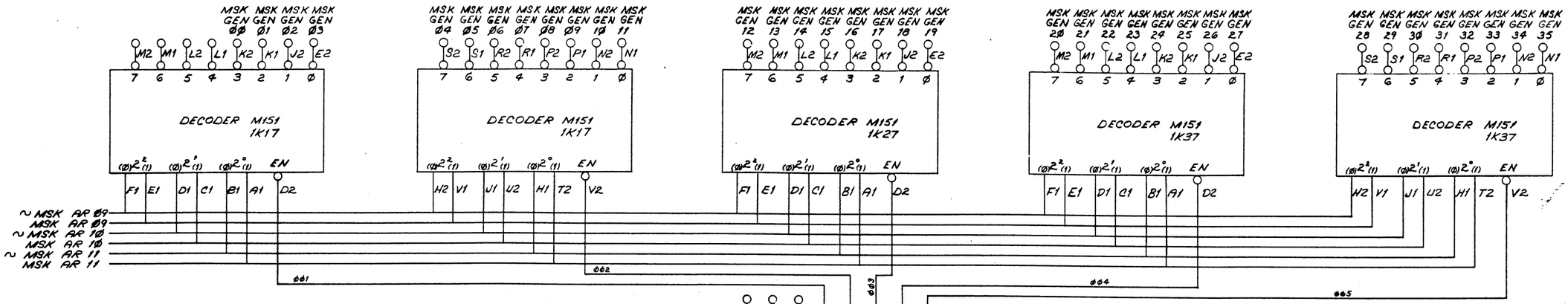
DRN. W. Stephenson	DATE 2/16/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 3 JUN 72	
ENG. Alan Kotok	DATE 3 JUN 72	
PROJ. ENG. Alan Kotok	DATE 3 JUN 72	
PROD. [illegible]	DATE 3 JUN 72	
NEXT HIGHER ASSY B-DD-KI10-Ø		
SCALE NONE		
SHEET 1 OF 1		

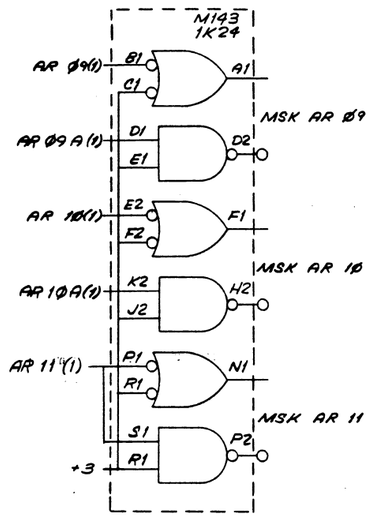
TITLE: MEMORY ADDRESS INTERFACE

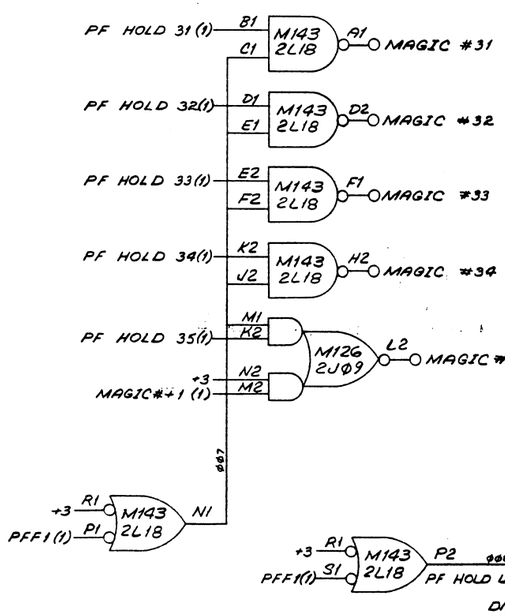
SIZE	CODE	NUMBER	REV
D	BS	KI10-Ø-MAI	

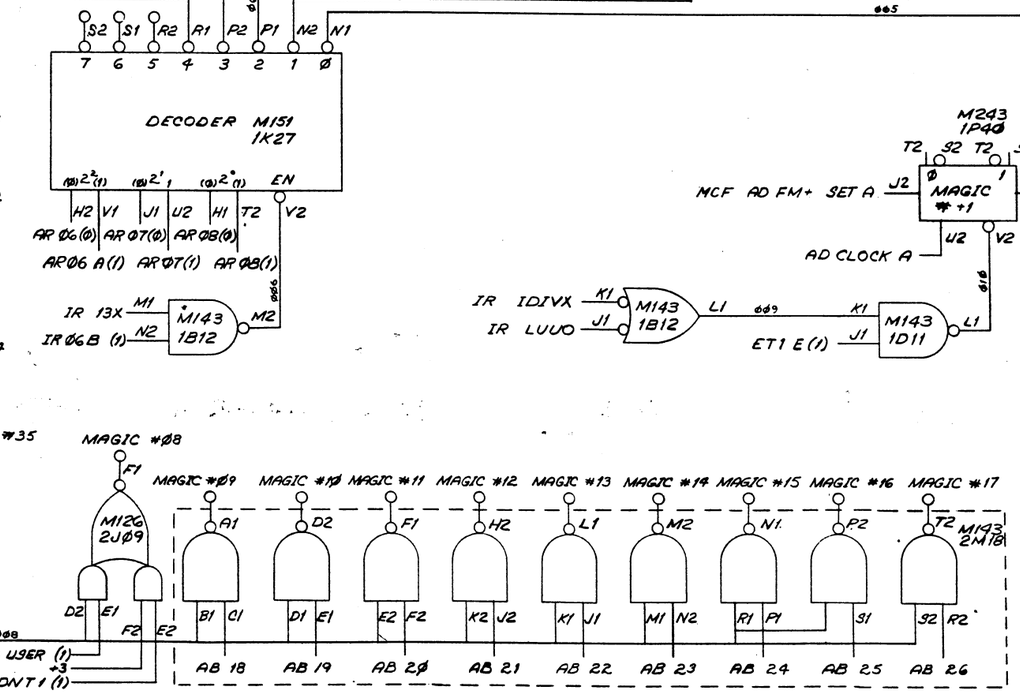
DIST.

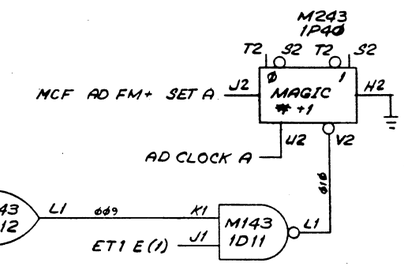
BS KI10-Ø-MAI











NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	CHK
REV.		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN	D. P. Swan	DATE 11/19/71
CHKD	David Gross	DATE 3 Jan 72
ENG	Wm. Kotok	DATE 3 Jan 72
PROJ ENG	Wm. Kent	DATE 31 Jan 72
PROD	Matthews	DATE 3 Jan 72

NEXT HIGHER ASSY B-DD-K11Ø-Ø
SCALE ~
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MAGIC NUMBER AND MASK GEN.

SIZE D CODE BS NUMBER K11Ø-Ø-MAMS REV
DIST.

DEC FORM NO DRO 102A

G831
2H43

JF2 JH2
JP2
~MARGIN EN

MONITOR VOLTAGE
JS2
JR2 MONITOR HIGH
+5.06V REF P.S.
HU1 Ø89 JT2
COMPARATOR

+15 ANALOG
MINUS_15 ANALOG

JM2
HA1

JL2 +15V
JU2 -15V
-10.10V REF P.S.
JU1 Ø88 HR1
D→A CONVERTER
OUTPUT Ø TO +10V JV1
SLOW DOWN HS2 MARGIN EN

CLK Ø 1 2 3 4 5
HD1 HB1 HH1 HJ1 HM1 HN1 HS1
APR2 DATAO SET A
IOB 30T
IOB 31T
IOB 32T
IOB 33T
IOB 34T
IOB 35T

M908
2S02

M1	ORN	H704C (115V) P.S. H704H (230V) +15V
S1	YEL	+15 SENSE
P1	BLK	+15V RET SENSE
V1	(ANALOG GROUND) BLK.	+15V RET, -15V RET
U1	GRN	-15V RET SENSE
N1	BLU	-15V SENSE
V2		MAR D TO A OUTPUT

MARGIN EN P1 +3 R1 — M143 2C32 — N1 MARGIN EN

MARGIN ENABLE (1) K1 +3 H2
MAR MANUAL EN N1
MAR PROG EN (1) V1
M126 2D32 — J2 T2 MARGIN EN

+3 M931 1F21

MR RESET B — MAR PROG EN — H1 +3 / H2 J2

MR PWR CLR EN (1)
APR2 DATAO SET

MAR PROG EN (Ø) IOB Ø8T B1 C1
~IOB Ø7T MAR PROG EN (1) H1 A1
M126 2D32 — D1 Ø87

MR RESET B — MAR ADR IOB — F1 APR2 DATAO CLR
~IOB DATAO SET T

M246 2C31 (MAR PROG EN; MAR ADR IOB)

M247 2C28

MARGIN ENABLE	MAR ADR Ø	MAR ADR 1	MAR ADR 2	MAR ADR 3	MAR ADR 4
B1 C1	D2 D1	H1 J1	M1 L1	N1 P1	N2 P2
F2 J2 A1	E2 L2 E1	K1 S2 F1	V2 T2 M2	V1 U2 R1	U1 R2 S1

M950 2D08 — LMP NO NC — M1 N1 P1 — Ø81 — R1 S1 U1 — Ø82
M950 2D07 — LMP NO NC — E1 F1 H1 — J1 K1 L1 — M1 N1 P1 — R1 S1 U1 — Ø83 Ø84 Ø85 Ø86

M126 2C29

D1	F1	J2	L2	S1	U1
C1 B1 H1 A1	D2 E1 F2 E2	K1 H2 N1 J1	M1 K2 N2 M2	P1 R1 V2 P2	R2 S2 U2 T2
MARGIN ENABLE (1) MARGIN ENABLE (Ø)	IOB 13T MAR ADR Ø (Ø)	IOB 14T MAR ADR 1 (Ø)	IOB 15T MAR ADR 2 (Ø)	IOB 16T MAR ADR 3 (Ø)	IOB 17T MAR ADR 4 (Ø)

MAR ADR IOB (1)
MAR ADR IOB (Ø)

NOTE
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REVISIONS		
CHK	CHANGE NO.	REV
[illegible]	KI10-00037	A

AKENT [illegible] 4/13/73

FIRST USED ON OPTION/MODEL

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stephenson	DATE 11/14/70
CHKD.	Marvel Grossi	DATE 31 Jan 72
ENG.	A. Van Hoek	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KI10-Ø

SCALE ∞
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
MARGIN CONTROL

SIZE D | CODE BS | NUMBER KI10-Ø-MAR1 | REV /
DIST.

DEC FORM NO DRD 102A

H732 POWER SUPPLY

VARIABLE TRANSFORMER ON MARGIN PANEL

LINE

ORN 12 — J2-15 — CW — J2-14 — BRN 11

J2-13 — WHT — 10 — WHT

1 — 3

+1Ø V — J1-1 — RED — +1Ø V (FIXED)

-15 V — J1-2 — BLU — -15 V (FIXED)

J2-11 — ORN — ORN

J2-12 — +Ø TO 2Ø V VARIABLE (FLOATING)

J1-4 — BLK

TO POWER SUPPLIES ON PLENUM DOOR

RED — BLU — ORN — GRN

1ST (FRONT) DECK LEFT

1ST (FRONT) DECK RIGHT

2ND DECK LEFT

BLK

OFF
+5 LEFT
+1Ø LEFT
-15 LEFT

PROCESSOR MANUAL
+5 RIGHT
+1Ø RIGHT
-15 RIGHT

MARGIN BUS SHORTING PLUG AT END OF BUS

J3

1 +1Ø MC (LT) 1
2 -15 MC (LT) 2
3 GROUND (LT) 3
4 +METER (LT) 4
5 -METER (LT) 5
6 -15V R.T.O. (LT) 6

J4

1 +1Ø MC (RT) 1
2 -15 MC (RT) 2
3 GROUND (RT) 3
4 +METER (RT) 4
5 -METER (RT) 5
6 -15V R.T.O. (RT) 6

MARGIN BUS SHORTING PLUG AT END OF BUS

RIGHT MARGIN BUS THRU "RIGHT" DEVICES

LEFT MARGIN BUS THRU "LEFT" DEVICES

J1-15 — BLK — "GND"

"+V"

Ø TO 2ØV VARIABLE (+)

75 — +Ø TO 8V — 5Ø — "CP MAN" — WHT

J6

GND (LT) 1 — BLK
+5 METER (LT) 2 — RED
MAR VOLTAGE (LT) 3 — ORN — PUR

LEFT +5V MARGIN BUS

J5

BLK — 1 GND (RT)
RED — 2 +5 METER (RT)
ORN — 3 MAR VOLTAGE (RT)

RIGHT +5V MARGIN BUS

"+1Ø FIX"

33Ø Ω ½W 5%

¼M-5.1 AZ1 5.1V

"TO MTR" 196Ω 8.25K 1% +4.5V — GRY

(-Ø.5 TO +Ø.5 RANGE MULTIPLIER) 1.47K

P/O 5409562 MARGIN SWITCH BOARD

M9Ø8 2902 — 3Y22

MONITOR VOLTAGE — U2 — J1-1Ø — "G831"

MAR D TO A OUTPUT — V2 — J1-11 — "D→A"

MAR VOLTAGE — T2 — J1-12 — "A133"

C2

T1

P/O 5409562 MARGIN SWITCH BOARD

M931

MAR MANUAL EN — R1 — S2 — J1-13 — "MAN EN"

WHT

YEL — ORN — WHT

2ND DECK RIGHT

4TH (REAR DECK LEFT

3RD DECK LEFT

3RD DECK RIGHT

4TH (REAR) DECK RIGHT

2ØØK 1% (2ØV RANGE MULTIPLIER)

1ØØ μA FULL SCALE 1525Ω

SINGLE HEYMAN TABS ON MARGIN CKECK ASSY (DOUBLE FOR GND)

DOUBLE HEYMAN TABS ON 5409562 MARGIN CKECK BOARD #1

NOTE
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REVISIONS

REV	CHANGE NO	CHK
A	KI1Ø-ØØØ28	

A. Tomasello 30-Jan-72
KENT 1-Dec-72
Allan Kent 1-Dec-72

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN D. Stephenson 11/3/70
CHKD David Gross 31-Jan-72
ENG. Peter Kotik 31-Jan-72
PROJ. ENG. Allan Kent 31-Jan-72
PROD. M. Mauthner 31 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE ½
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

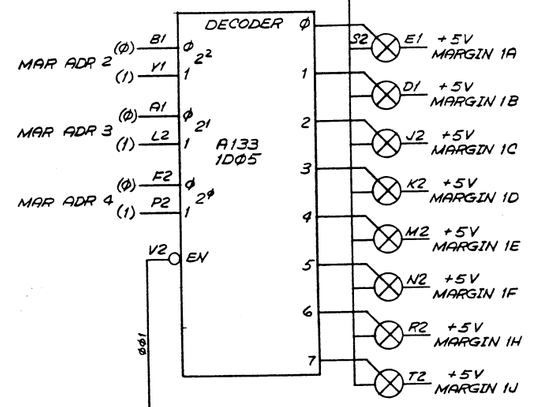
TITLE: MARGIN BUS

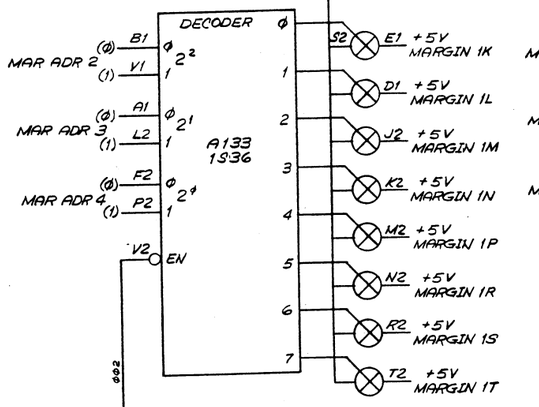
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø - Ø - MAR2	A

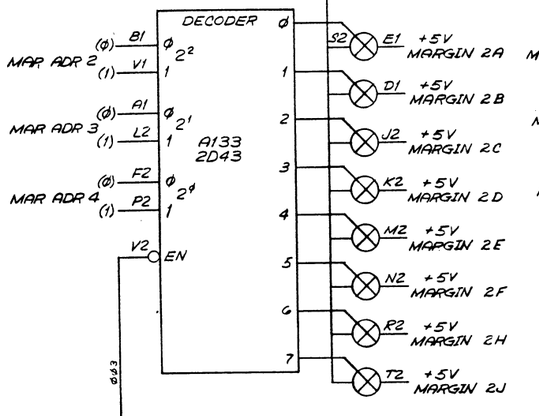
DIST.

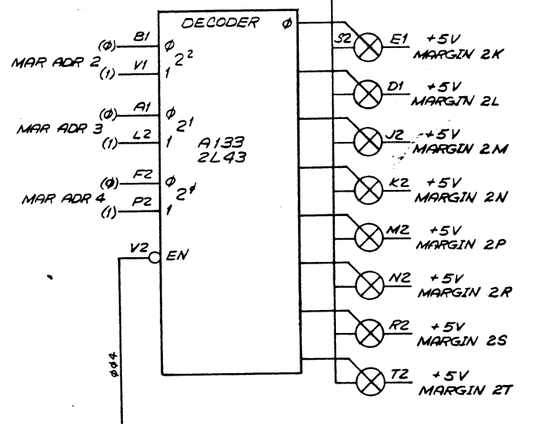
DEC FORM NO DRD 102A

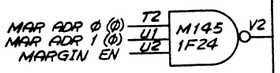
MAR VOLTAGE

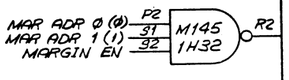


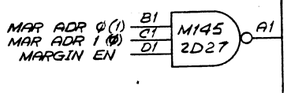


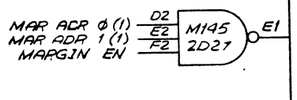


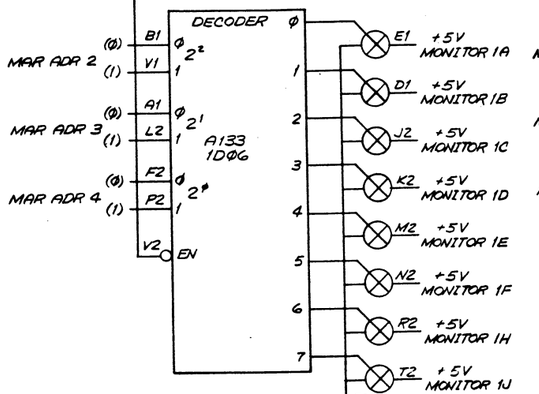


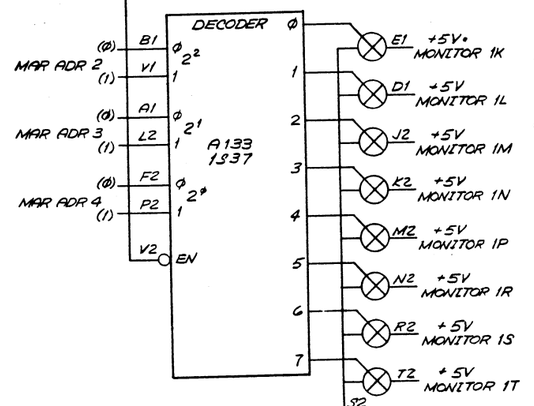


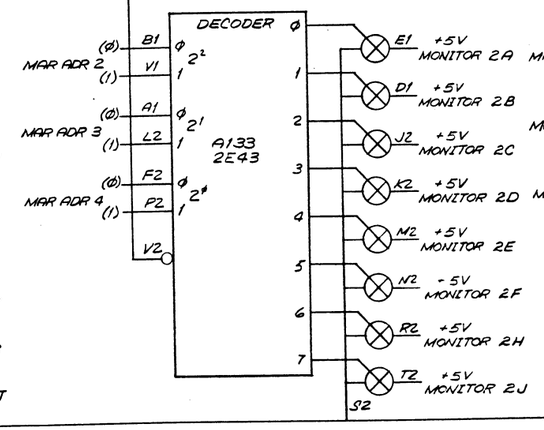


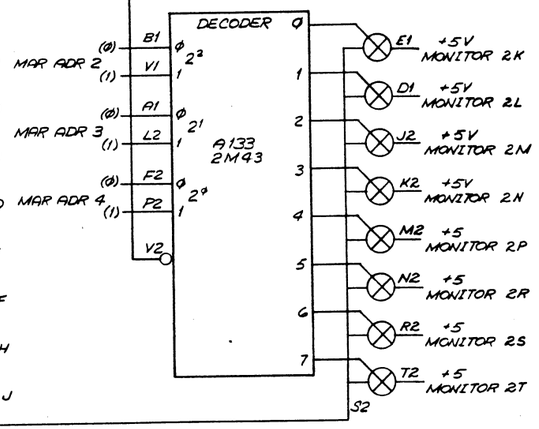












MONITOR VOLTAGE

NOTE: PIN H2 OF ALL A133'S IS TIED TO +15V

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. E. Stephenson DATE 11/11/70
CHK'D. David Gross DATE 5 Jan 72
ENG. Allan Kotok DATE 5 Jan 72
PROJ. ENG. Allan Kent DATE 5 Jan 72
PROD. [illegible] DATE 5 JAN 72
NEXT HIGHER ASSY E-DD-K11Ø-Ø

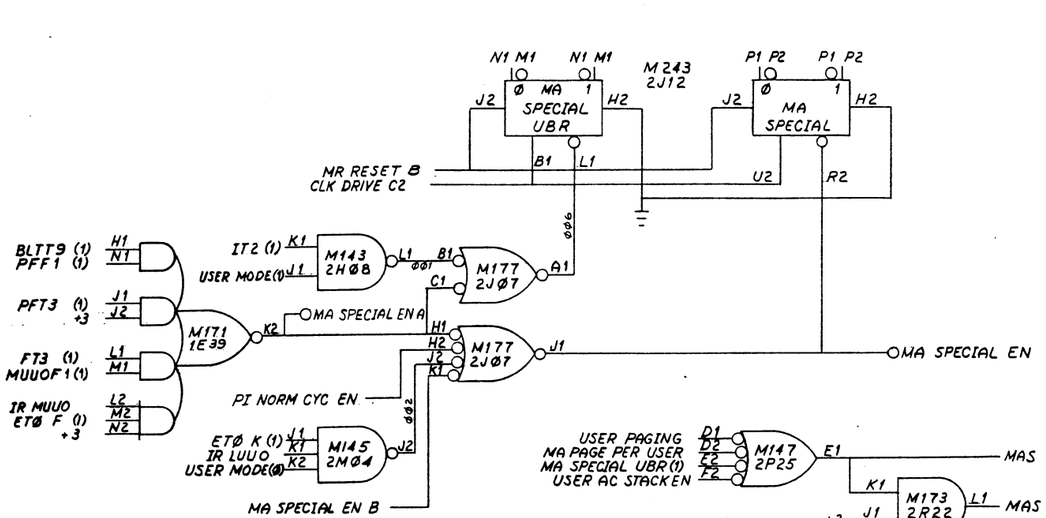
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

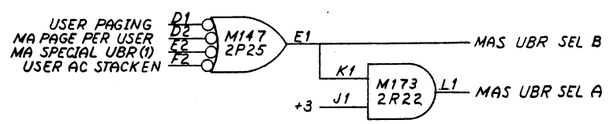
TITLE
MARGIN MULTIPLEXER

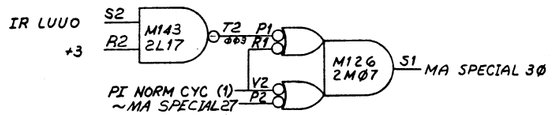
SIZE D | CODE BS | NUMBER K11Ø - Ø - MAR3 | REV.
SCALE ½
SHEET 1 OF 1
DIST.

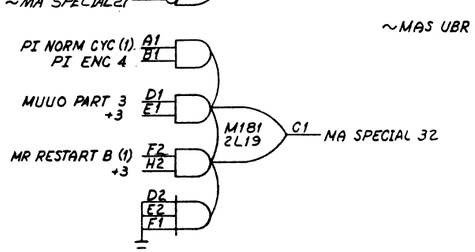
REVISIONS | REV. | CHANGE NO. | CHK

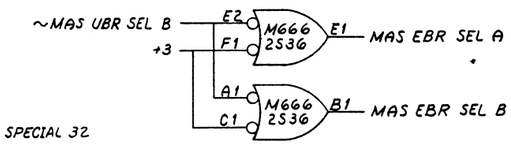
DEC FORM NO

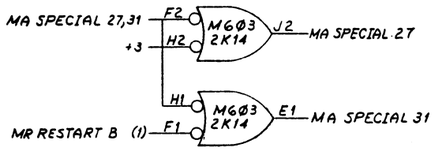


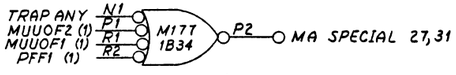


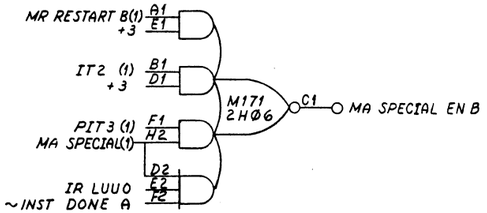


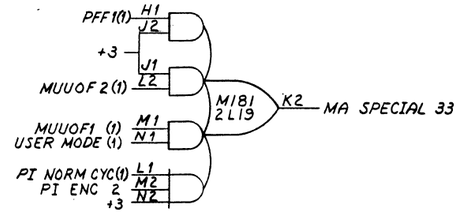


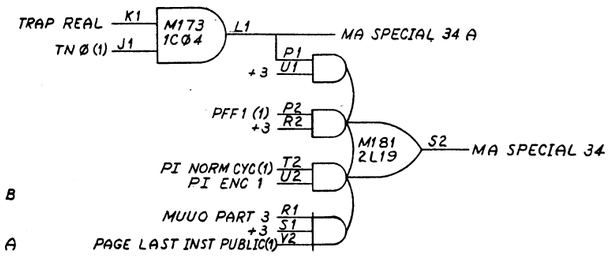


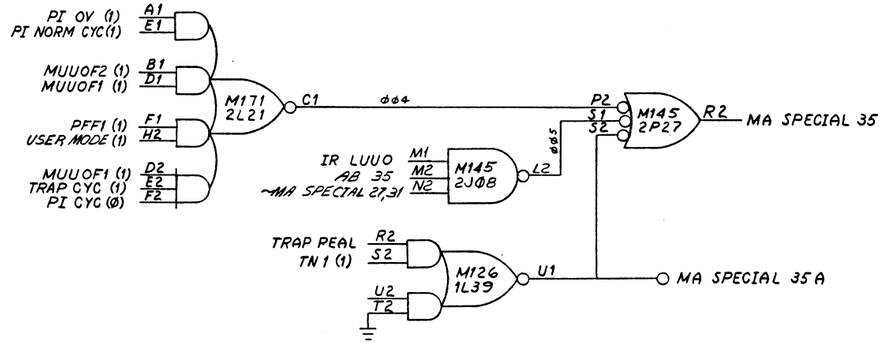












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
REV	CHANGE NO	CHK	
A	KI10-00030		A. KENT 2 Mar 73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1
ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. G McCullough	DATE 4/6/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE MEMORY ADDRESS SPECIAL
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	
NEXT HIGHER ASSY. B-DD-KIØ-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-MAS REV. A
SCALE ~		
SHEET 1 OF 1		DIST.

DEC FORM NO DRD 102-B

M241 2NØ5

MBØØ: C1 D2 C1 D2 / D1 A1 / B1 / MBD MB ØØ IN
MBØ1: F1 E1 F1 E1 / H1 F2 / E2 / MBD MB Ø1 IN
MBØ2: J2 K2 J2 K2 / J1 H2 / K1 / MBD MB Ø2 IN
MBØ3: N1 M1 N1 M1 / P1 M2 / L2 / MBD MB Ø3 IN
MBØ4: R1 R2 R1 R2 / S1 N2 / P2 / MBD MB Ø4 IN
MBØ5: T2 S2 T2 S2 / U1 V2 / V1 / MBD MB Ø5 IN

M241 2NØ7

MBØ6: C1 D2 C1 D2 / D1 A1 / B1 / MBD MB Ø6 IN
MBØ7: F1 E1 F1 E1 / H1 F2 / E2 / MBD MB Ø7 IN
MBØ8: J2 K2 J2 K2 / J1 H2 / K1 / MBD MB Ø8 IN

+3 MB CLOCK A U2 — MB ØØ IN | MB Ø1 IN | MB Ø2 IN | MB Ø3 IN | MB Ø4 IN | MB Ø5 IN | MB Ø6 IN | MB Ø7 IN | MB Ø8 IN

M172 1NØ8

	A1	F1	F2	J1	K2	M1	P2	S1	T2
	B1 D2	H1 H2	D1 E2	K1 J2	L1 L2	N1 M2	P1 P2	V1 U1	R1 S2
AR	ØØ(1)	Ø1(1)	Ø2(1)	Ø3(1)	Ø4(1)	Ø5(1)	Ø6(1)	Ø7A(1)	Ø8A(1)
FM	ØØ(1)	Ø1(1)	Ø2(1)	Ø3(1)	Ø4(1)	Ø5(1)	Ø6(1)	Ø7(1)	Ø8(1)

MB LT AR EN A C1
MB LT FM EN A E1

+3 N2 — M143 1M30 — M2 MB 13 A (Ø); M1

M241 2NØ7

MB09: N1 M1 N1 M1 / P1 M2 / L2 / MBD MB Ø9 IN
MB10: R1 R2 R1 R2 / S1 N2 / P2 / MBD MB 1Ø IN
MB11: T2 S2 T2 S2 / U1 V2 / V1 / MBD MB 11 IN

M241 2NØ9

MB12: C1 D2 C1 D2 / D1 A1 / B1 / MBD MB 12 IN
MB13: F1 E1 F1 E1 / H1 F2 / E2 / MBD MB 13 IN
MB14: J2 K2 J2 K2 / J1 H2 / K1 / MBD MB 14 IN
MB15: N1 M1 N1 M1 / P1 M2 / L2 / MBD MB 15 IN
MB16: R1 R2 R1 R2 / S1 N2 / P2 / MBD MB 16 IN
MB17: T2 S2 T2 S2 / U1 V2 / V1 / MBD MB 17 IN

+3 MB CLOCK A U2 — MB Ø9 IN | MB 1Ø IN | MB 11 IN | MB 12 IN | MB 13 IN | MB 14 IN | MB 15 IN | MB 16 IN | MB 17 IN

M172 1N16

	A1	F1	F2	J1	K2	M1	P2	S1	T2
	B1 D2	H1 H2	D1 E2	K1 J2	L1 L2	N1 M2	P1 R2	V1 U1	R1 S2
AR	Ø9(1)	1Ø(1)	11(1)	12(1)	13(1)	14(1)	15(1)	16(1)	17(1)
FM	Ø9(1)	1Ø(1)	11(1)	12(1)	13(1)	14(1)	15(1)	16(1)	17(1)

MB LT AR EN B C1
MB LT FM EN B E1

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO. DRD 101

FIRST USED ON OPTION/MODEL: KI1Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN. J. McCabe DATE 2-16-70
CHKD. David Gross DATE 5/Jun-72
ENG. Allan Kotok DATE 31 Jun 72
PROJ. ENG. Allan Kent DATE 31 Jun 72
PROD. [illegible] DATE 31 JUN 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE —

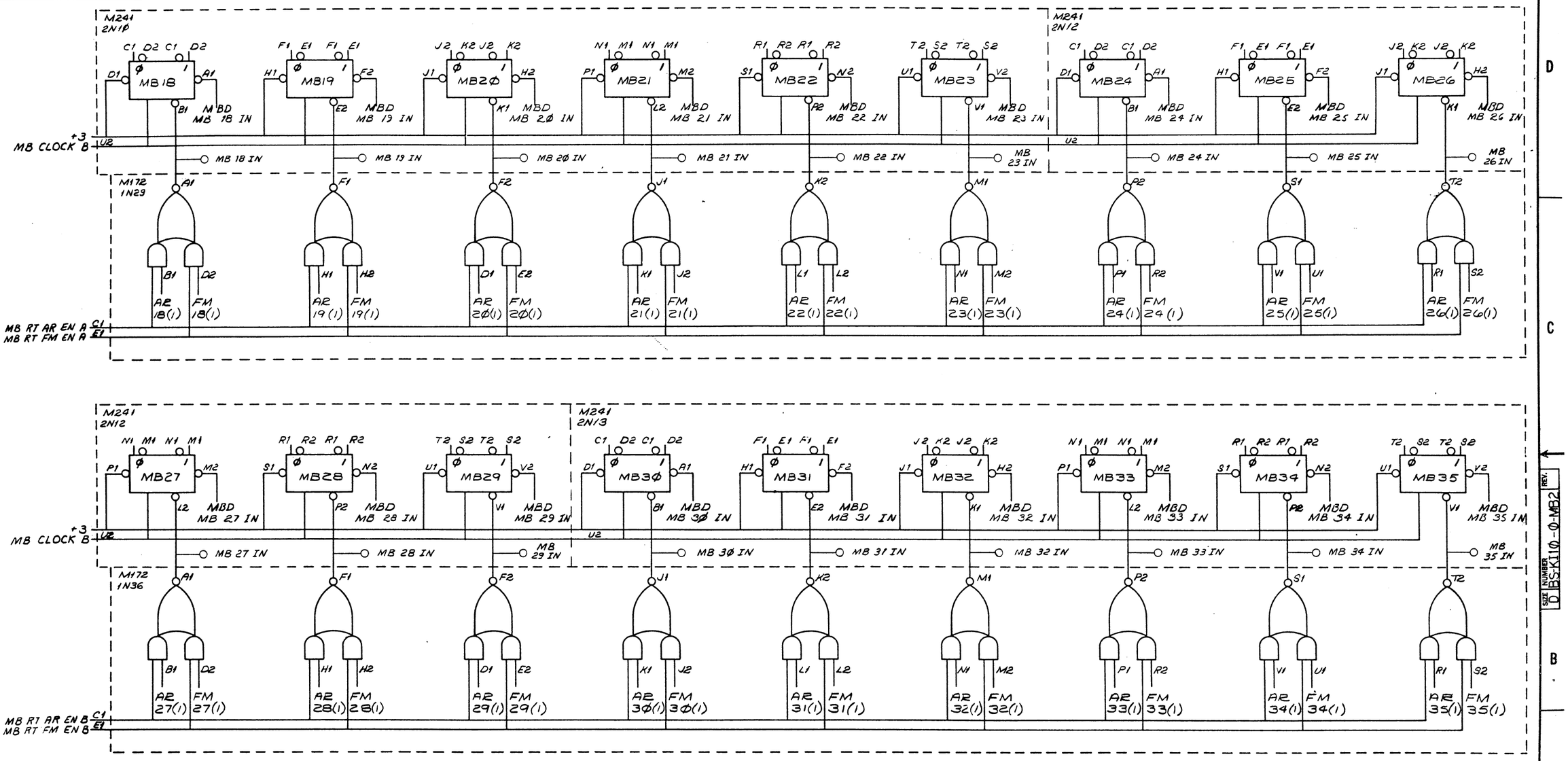
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MEMORY BUFFER REGISTER BITS ØØ-17

CODE	SIZE	NUMBER	REV.
BS	D	D-KI1Ø-Ø-MB1	

DIST.



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. SRD 101

FIRST USED ON OPTION/MODEL: K11Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —

FINISH —

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

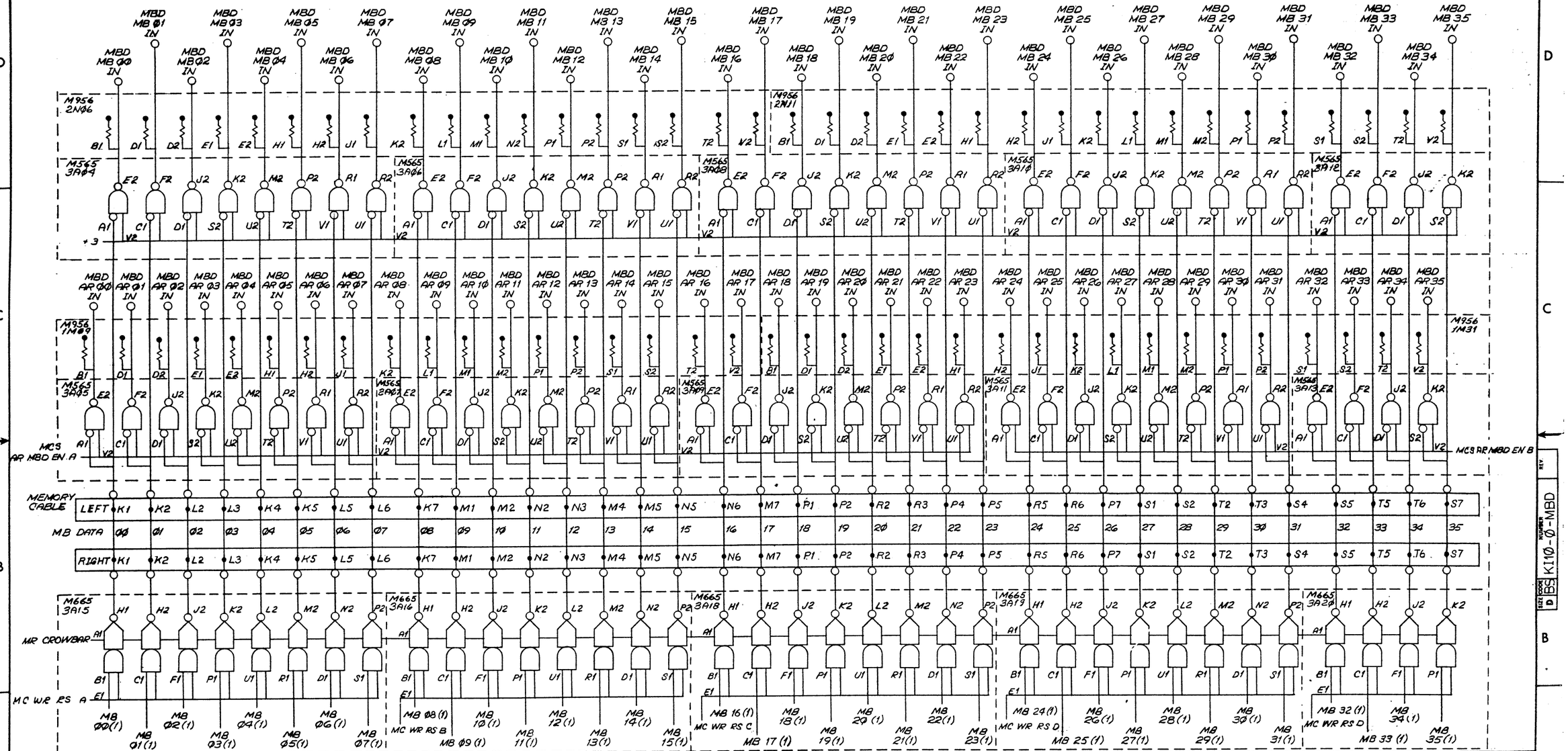
DRN M.C. Lee DATE 2-17-70
CHKD David Grout DATE 31 Jan 72
ENG M. Gary Kotik DATE 31 Jan 72
PROJ ENG Allen Kent DATE 31 Jan 72
PROD DATE 31 JAN 72
NEXT HIGHER ASSY. B-DD-K11Ø-Ø
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MEMORY BUFFER REGISTER BITS 18-35

CODE BS | SIZE D | NUMBER D-K11Ø-Ø-MB2 | REV.
DIST.

SIZE D NUMBER BS-K11Ø-Ø-MB2 REV.



NOTE: SEE MAI PRINT FOR WIRE TRANSLATION TABLE AND GROUNDS.

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson	DATE 4/9/76	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	
PROJ. ENG. Bill Hunt	DATE 31 Jan 72	
PROD.	DATE 3 JAN 72	

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

TITLE: MEMORY BUS DATA

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MBD	

DIST.

REVISIONS	CHANGE NO.	CHK
REV.		

DEC FORM NO DRD 102A

M241 2H10

~INST DONE A
FCE2 WAIT (Ø)
PFT1 (Ø)
M6Ø3 2MØ8
MC ASYNC HOLD

MR RESET C
MC ASYNC START
MCT AB AB SET

CLK DRIVE C2

M243 2J12
MC INST FETCH START
MCI PSEUDO INST FET

+3
MC ASYNC START(Ø)
M6Ø3 2MØ8
MC ASYNC START A(Ø)

~MCI SYNC POINT
+3
MC INST FETCH EN
M126 2HØ5

MC INST FETCH START(1)
MC ASYNC HOLD
MR RESET
M126 2HØ5

+3
MC INST FETCH EN

IT1 B (1)
MB 13 (1)
IT2 (1)
PI DIVERT INDIRECT(Ø)
PI PSEUDO INST FET
PIT2 (1)
PIT3 (1)
MCI PSEUDO INST FET (1)
M171 2JØ5
MCI PSEUDO INST FET EN

+3
M6Ø3 2K14
MCI SYNC POINT

~MC ASYNC HOLD
MC ASYNC START (Ø)
+3
M145 2JØ8

SCE
FCE
~IR POPX
M126 1DØ7
MC IN FET COND

KEY INST FET ST SET
+3
M177 2JØ7

PIT2 (1)
PI INC MEM
FT5 (1)
~PC CHANGE
IR PUSH
IR DMOVXM PART 2
M143 1B3Ø
ETØ K (1)
+3
M171 1C33
MC AUTO IN FET A

NC INST FETCH START(1)
MCI PSEUDO INST FET (Ø)
MC ASYNC START (1)
M6Ø3 2K14
MC INST FETCH
M145 2JØ8

IR JFCL
~PC COND Z
M143 1F18
MCI JFCL INST FET

MC INST FET ET2 EN
ET2 J (1)
MC INST FET ST1 EN
ST1 (1)
KT2 (1)
KEY DONE(KT2)
IOTT8 (1)
PI OV (Ø)
~IR CONSX
M171 1D24

MCI PSEUDO INST FET EN
M177 1E34
MC INST FETCH EN
M139 1C38

IR JRA
+3
TEST TXX(E,N,A)
IR JFFO A
IR LUUO
+3
IR JSA A
M139 1B39
MC INST FET ET2 EN

IR JSR
IR AOBJX
+3
IR MAP
BR AR(ET2) A
IR POPJ
IR DMOVE
M139 1B39

DMOVNT2 (1)
DFDT12 (1)
+3
M177 1E34

M243 1E26
MR RESET A
MC INST FETCH NEXT
CLK DRIVE B2

PC COND Z
IR JFCL
MB 13 A (Ø)
IT1 (1)
M128 1C37
MC INST FETCH(IT1)

IR XCT
M143 1A28
MCI JRST NO FLAGS

IR JRST
IR 10 (Ø)
IR 11 (Ø)
M145 1A29

IR 3XX
IR CONSX
M143 1B38
PI OV (Ø)
IR BLT
BLTF1 (Ø)
IR JRST
~MCI JRST NO FLAGS
MUUO PART 3
M171 1C33
MC INST FET ST1 EN A

F CYC START
~STORE
~PC CHANGE
M175 1B19
MC IN FET COND

~F MEM REF
DNT1 COND A
DNT3 (Ø)
M126 1C35

PFT4 (1)
DFDT9 (1)
M177 1H25

DFDT8 (1)
~AR MQ CLK INPUT
M143 1F19

NOTE
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REVISIONS			
CHK	CHANGE NO	REV	
JM	KI10-00043	A	
	KENT MFG		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1 ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. J McCullough DATE 4-10-72
CHK'D. David Gross DATE 31 Jan 72
ENG. Allan Kotok DATE 31 Jan 72
PROJ. ENG. Allan Kent DATE 31 Jan 72
PROD. DATE 31 JAN 72
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MEMORY CONTROL INSTR & ASYNC

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MCIA	A

DIST.

DEC FORM NO DRD 102-B

ADJUST M363 2RØ6 FOR INDICATED TIMING

NOTE: 33 n.s MUST BE INCREASED TO 51 n.s IF MB10'S 16Ø'S OR OTHER MEMORIES, WHICH REQUIRE ADDRESS STABLE ≥ 7Ø n.s AFTER ADR ACK, ARE USED.

FMC STORE IN AC (Ø)

M6Ø3 2M13

MC WRITE KILL

MR STATE CLR

MCRST 1

M6Ø3 2MØ8 → MCM AC STORE DONE

M171 2PØ6

MC SPLIT CYC SYNC (Ø)

MCM STOP SYNC (Ø)

MC SYNC WRITE (Ø)

M126 2MØ7

~NA WR RQ
MC SPLIT CYC SYNC (Ø)
MCM STOP SYNC (Ø)
MCT4
MC WR RS DLYD
MCM STOP SYNC(1)
MC STORE IN AC (Ø)

M363 2RØ6

MAI MC RQ IMM (L) 3B1ØD2
MAI MC RQ FAST (L) 3B1ØK2
MAI MC REQ SLOW (L) 3B1ØS2
LATEST OF THE THREE
33ns
MC MA MA (1).H 2TØ9K1
OR MIN DELAY WHICHEVER IS GREATER

KEY PAR STOP (1)
AB AB EN
KEY ADR STOP (1)

M126 2JØ9

MCM STOP SYNC(1)
~AB AB EN

M126 2F1Ø

M241 2H1Ø
MR RESET C
MCM STOP SYNC
MC NXM PULSE 1
CLK DRIVE C2

PAGE REFILL CYCLE(1)
MAI ADR ACK(T)
MAI ADR ACK(NT)

M126 3BØ2

M363 2RØ6

MC PAGE DLY OVER A PAGE OK

M126 2R26

MC MA MA B(Ø)
MC MA MA (Ø)

M612 2TØ9

MC MA MA (1)
MC MA 14-17 MA
MC MA 18-26 MA
MC MA 27-35 MA

M612 2TØ9

M246 2K16
KEY MEM GO
MC WR RS DLYD
MR RESET D

M6Ø3 2L22

MC MEM STOP

M6Ø3 2K21

MC PAR CHK
MC PAR STOP

KEY ADR STOP (1)
PAGE OK
COMP AB=A5
MCM NOT PSE
COMP CYC TYPE
MCM STOP SYNC(1)
MC PAGE DLY OVER

M139 2J13

MC MEM STOP(Ø)

MC PAGE DLY OVER A
PAGE REFILL

M6Ø3 2L22

M363 2N23

MC PAGE DLY OVER 2K17K2
80ns
MC MA MA (1).H 2TØ9K1
ADJUST M363 2N23 FOR INDICATED TIMING

MC PAGE DLY OVER 2K17K2
50ns
MAI MC RQ IMM (L) 3B1ØD2
MAI MC RQ FAST (L) 3B1ØK2
MAI MC RQ SLOW (L) 3B1ØS2
EARLIEST OF THE THREE
ADJUST M363 3AØ3 FOR INDICATED TIMING

MC NXM PULSE 1
KEY NXM STOP(1)

M6Ø3 2L22

MCT3
FMC STORE IN AC(1)

M173 2L06

MC REQ CYC (1)
MR STATE CLR A

M6Ø3 2MØ8 → MC MEM GO CLR

M143 2MØ8

M143 2HØ8

PIT2 (1)
ET2 K (1)

M143 2HØ8

ST2 COND

M126 2F1Ø → MC MEM GO INH CLR

M143 2TØ8

MC MEM GO

M171 2P06

~IR MAP
MC WR SUBR START
MC PAGE DLY OVER A PAGE OK
MC MEM GO INH(Ø)

M363 3AØ3 → MC MEM GO DLYD

MC SYNC READ (Ø)
MC SYNC WRITE (Ø)
MC SPLIT CYC SYNC (1)
MC ASYNC START(1)

M147 2J17 → MCM NOT PSE

M241 2K06
MR RESET C
MC MEM GO INH
CLK DRIVE C2

M246 2M16
INST DONE A
MC MEM GO ONCE
MC MEM GO(1)
MC SYNC AC READ H

ST2 A
IR BLK I

IR CONI
IR MAP
IR DATAI

M145 1BØ7

MC SYNC WRITE EN
F CYC START A
MC MEM GO F CYC INH
MC SYNC PI WR EN
~PI INC MEM
PFT1 (Ø)
~MC MEM GO INH CLR
MC MEM GO INH (1)

M171 2JØ5

M126 2JØ9

~FCE
~SCE

M143 2HØ8

~FCE PSE
KEY SINGLE PULSE SYNC(1)

M145 2JØ8

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO	REV	
PM	KI10-00030	A	A.KENT 2-25-73
AK	KI10-00044	B	Allen Kent 2 Mar 73
			7-24-74
			D. GROSS

BRUNING 40-522 15840
DEC FORM NO
ORD 107-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1
ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

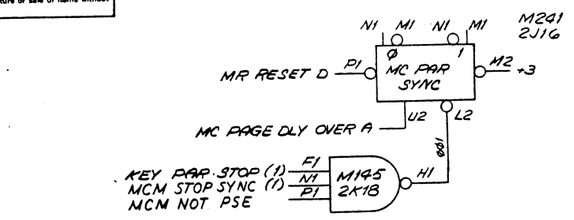
DRN.	P McCullough	DATE 1-7-72
CHK'D.	Daniel Gross	DATE 31 Jan 72
ENG.	H Van Kotch	DATE 31 Jan 72
PROJ. ENG.	Allen Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72
NEXT HIGHER ASSY.	B-DD-KI1Ø-Ø	
SCALE	½	
SHEET 1	OF 1	

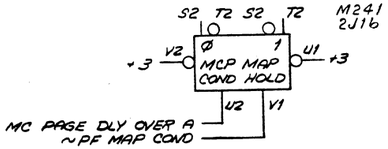
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

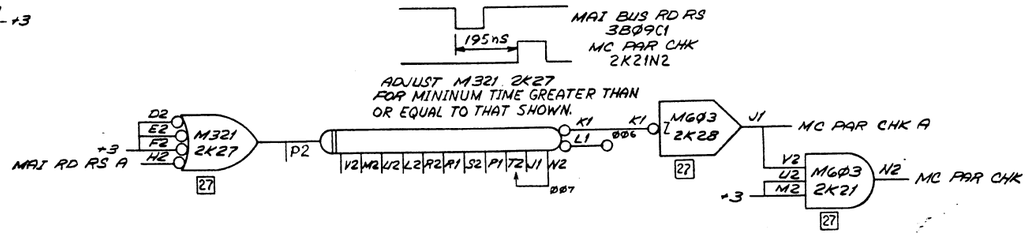
TITLE
MEMORY CONTROL
MEM ADDRESS,GO,STOP

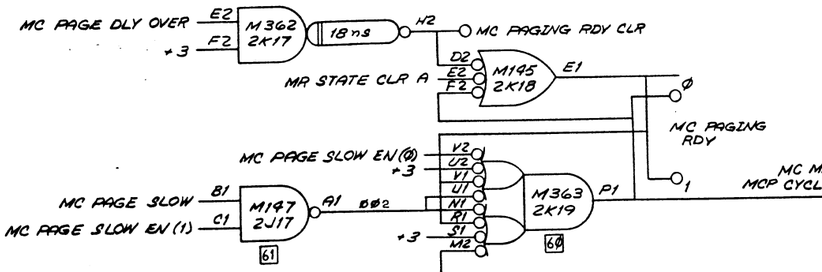
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MCM	B

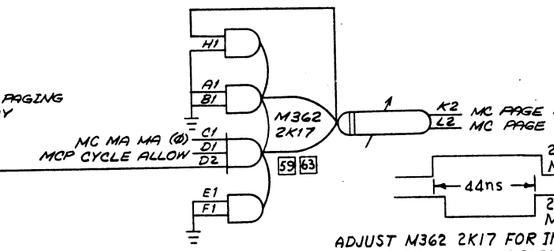
DIST.

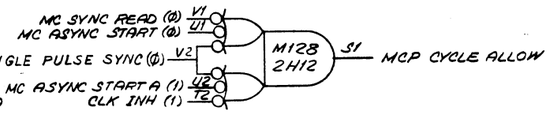


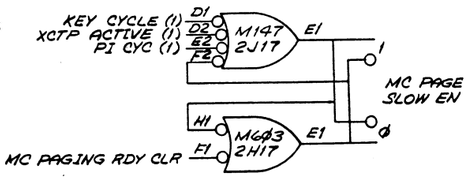


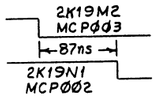


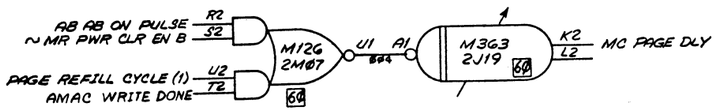


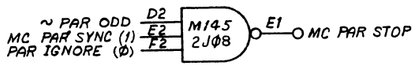


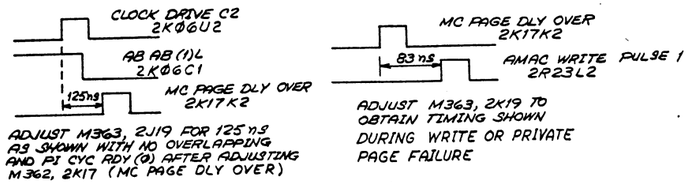


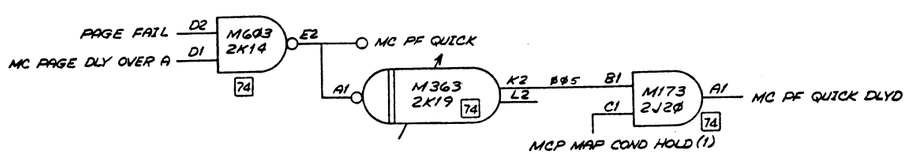












NOTE
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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

		DATE
DRN	M. Stephenson	4/17/72
CHK'D	David Gross	31 Jan 72
ENG	Alan Kotok	31 Jan 72
PROJ. ENG.	Allan Kent	31 Jan 72
PROD.	[illegible]	31 JAN 72

NEXT HIGHER ASSY.: B-DD-KIØ-Ø
SCALE: ½
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MEMORY CONTROL PAGING, PARITY

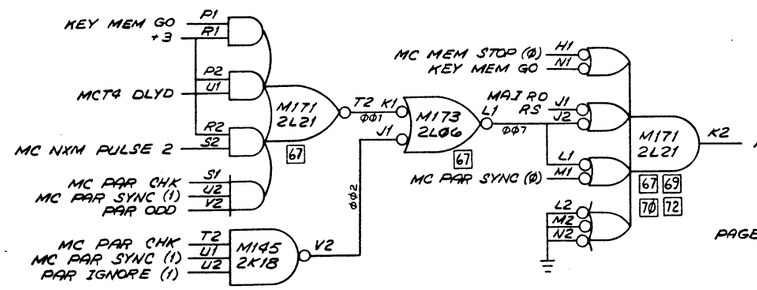
SIZE	CODE	NUMBER	REV.
D	BS	KIØ-Ø-MCP	

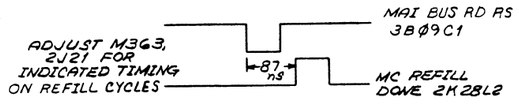
DIST.

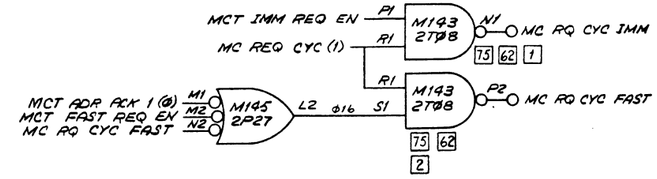
REVISIONS	REV
CHANGE NO	
CHK	

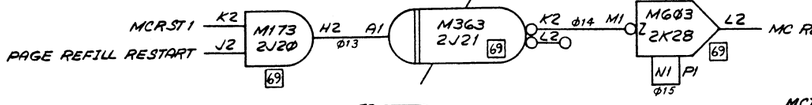
DRAWING 40-522 1968
DEC FORM NO DRD 102-B

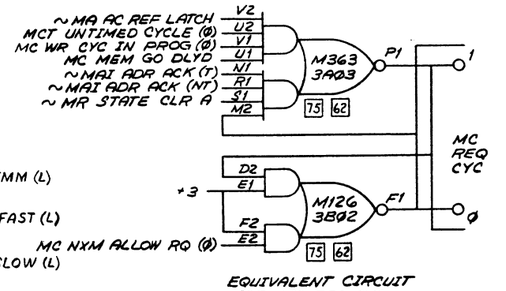
SIZE D | CODE BS | NUMBER KIØ-Ø-MCP | REV

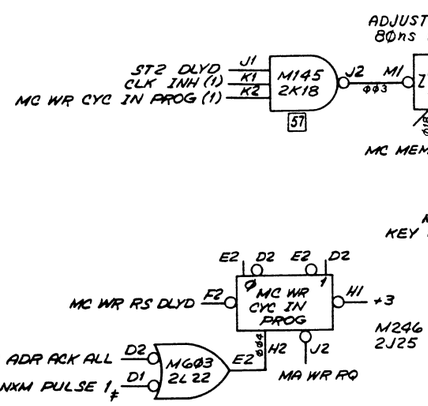


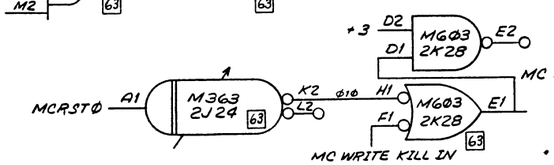


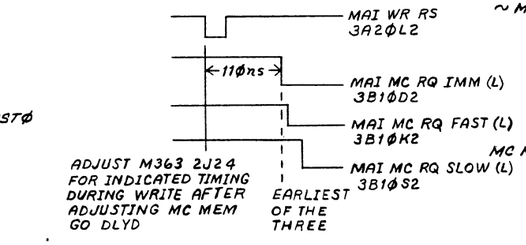


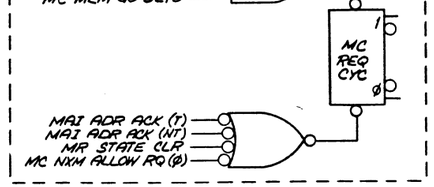


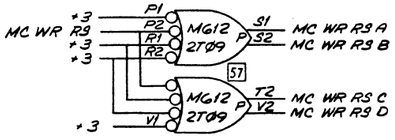


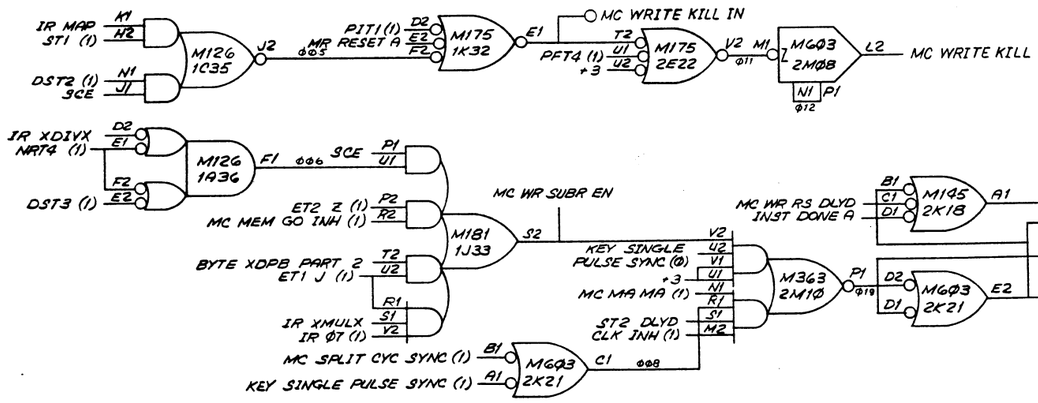


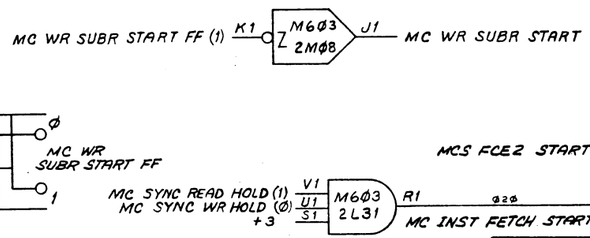


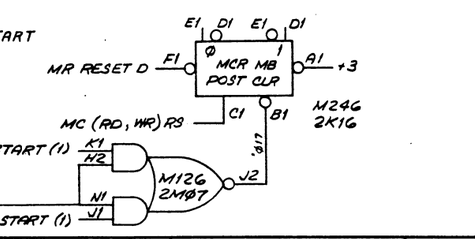












≠ THIS IS A REDUNDANT SIGNAL

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN	D.D. Stephenson	DATE 6/1/72
CHK'D	David Gross	DATE 31 Jan 72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD	M. Mullins	DATE 31 Jan 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MEMORY CONTROL REQ, RD & WR RSTRT

NEXT HIGHER ASSY: B-DD-KI1Ø-Ø
SCALE: ~
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MCRW	

DIST.

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40-522 15640
DEC FORM NO DRD 102-B

M241 2H1Ø
MR STATE CLR A
MC WR RS DLYD
MCM AC STORE DONE
M6Ø3 2K21
R1 ØØ1 F2
MC SPLIT CYC SYNC
H1
U2
E2
CLK DRIVE C2
MC SPLIT CYC SYNC (1)
M126 2HØ5
S1 ØØ2
~CLK EN INST DONE
MC SPLIT CYC COND
PIT3 (1)
MC SYNC READ EN A
M147 2C1Ø
J1 ØØ3
~PI DATAO
MC SYNC READ HOLD (1)
M143 3BØ5
M2
MCS AR MBD EN A
+3
S2
M143 3BØ5
T2
MCS AR MBD EN B
R2
KEY SINGLE PULSE SYNC (1)
KEY PAR STOP (1)
KEY ADR STOP (1)
M147 2J17
T2 ØØ5
~MC SCE NOT POPX
IOB DR SPLIT T
~IR SKIPS
M143 2HØ8
T2 ØØ4
FCE
SCE
FCYC START A
MC SCE OR PSE
M128 2H12
C1
MC SPLIT CYC COND
M243 2J12
MR RESET
MCS FCE2 START
H2
CLR DRIVE C2
L2 ØØ6
MCS FCE2 START (1)
MC ASYNC HOLD
M126 2JØ9
U1
F CYC START A
IR DPOP
KT2 A
KEY DONE (KT3)
M143 2B26
M2 ØØ7
PI INC MEM
PI DATAO
M128 2E18
H2
MC SYNC READ EN A
M243 2J11
E1 D1
MC SYNC READ
C1
E2 D2
MC SYNC WRITE
F2
MR RESET B
CLK DRIVE C2
H2
AB FETCH IT1 COND
F CYC START
M171 1C4Ø
T2
MC SYNC READ EN
BLTT2 (1)
FT3 (1)
FT7 (1)
M145 1C21
H1 ØØ11
BLTT1 (1)
~AD CRY ØB
PI RDY SYNC (Ø)
PFT 3 (1)
BLTT4 (1)
M173 1A11
H2 ØØ12
ET Ø C (1)
BLTT9 (1)
FT5 (1)
STORE
M128 1B1T
H2
MC STORE TIME
Ø13
M171 2JØ5
K2
MC SYNC WRITE EN
PI INC MEM
PI DATAI
PIT2 (1)
PIT3 (1)
M126 2E25
U1
MC SYNC PI WR EN
F CYC START A
FCE PSE
M143 2HØ8
D2
MC SCE OR PSE
~IR POPX
SCE
M143 1D11
U1
MC SCE NOT POPX
MA AC REF
MC SYNC READ (1)
MC ASYNC START (Ø)
M6Ø3 2H17
R2
MC SYNC AC REQ
M246 2J25
MR PWR CLR EN A
MC STORE IN AC
M2 +3
L1 K1
MA AC REF
MC PAGE DLY OVER
MC ASYNC START A (Ø)
M173 2J2Ø
L1
MC SYNC DLY OVER
M246 2J25
MC WR RS DLYD
MC SYNC WR HOLD
U2
V2 T2
MR RESET B
PAGE OK
~MA AC REF LATCH
MC SYNC DLY OVER
MC SYNC WRITE (1)
M147 2J17
M2 ØØ1Ø
M246 2J25
NR RESET
MC NXM PULSE 1
PAGE SYNC REFILL (1)
M6Ø3 2K28
R1 N1 ØØ8
MC SYNC READ HOLD
N2
MC PAR CHK
R1 P1
PAGE OK
~MA AC REF LATCH
MC SYNC DLY OVER
MC SYNC READ (1)
M147 2J17
J1 ØØ9
KEY DEP, DEP NXT
KT2 A
PF MAP COND A
+3
M181 2P28
S2
R1
S1
U1

NOTE
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REVISIONS			
CHK	CHANGE NO		REV
DM	KI1Ø-00032		A
		J. Sargeant 4-3-73	
		A. KENT	
		Allan Kent 11 APR 73	

DRAWING 40-522 1940
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1 ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DBN	P McCullough	DATE 1-12-72
CHK'D	David Grant	DATE 2-15-72
ENG	Allan Kotok	DATE 31 Mar 72
PROJ. ENG.	Allan Kent	DATE 31 Mar 72
PROD	[illegible]	DATE 3 JULY 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MEMORY CONTROL SYNCHRONOUS

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE ½
SHEET 1 OF 1
SIZE D CODE BS NUMBER KI1Ø-Ø-MCS REV A
DIST.

M13Ø
2M1115

~ PAR ODD
NN2
PARITY NET
NP1 NV2 NP2 NR2 NM2 NS1 NU1 NR1
PAR BIT (Ø)
~ PAR WRITE EVEN
~ PAR 34,35 ODD
~ PAR 32,33 ODD

ØØ1 ME2 ;EVEN
PARITY NET
MA1 ME1 MF2 MH2 MD2 MB1 MC1 MD1
MB ØØ(1) MB Ø2(1) MB Ø4(1) MB Ø6(1)
MB ØØ(Ø) MB Ø2(Ø) MB Ø4(Ø) MB Ø6(Ø)
MB Ø1(Ø) MB Ø3(1) MB Ø5(1) MB Ø7(Ø)

ØØ2 MN2 ;EVEN
PARITY NET
MH1 MH1 MP2 MR2 MM2 ML1 MK1 MJ1
MB Ø8(1) MB 1Ø(1) MB 12(1) MB 14(Ø)
MB Ø9(Ø) MB 11(Ø) MB 13(Ø) MB 15(1)

ØØ3 MU1 ;EVEN
PARITY NET
MN1 MA1 NB1 NF1 MS1 MV1 MR1 MP1
MB 16(1) MB 18(1) MB 2Ø(1) MB 22(1)
MB 17(Ø) MB 19(Ø) MB 21(Ø) MB 23(1)

ØØ4 NE2 ;EVEN
PARITY NET
NL1 NM1 NF2 NH2 ND2 NH1 NJ1 NK1
MB 24(1) MB 26(1) MB 28(1) MB 3Ø(1)
MB 25(Ø) MB 27(Ø) MB 29(Ø) MB 31(Ø)

PAR 32,33 ODD
MK2
MU2 ML2
MB 32 (Ø) MB 33 (1)

PAR 34,35 ODD
MI2
MS2 MU2
MB 34 (Ø) MB 35 (1)

M24G
2L3Ø
D2 E2 D2 E2
Ø 1
+3 H1
PAR BIT
FR MAI PARITY
H2 J2
MB CLOCK B
ST2 COND

MR RESET
IOB CONO CLR T
PAR IGNORE (1)
S2
T2
P2
M6Ø3
2K28
R2

M24G
2L3Ø
L2 K2 L2 K2
Ø 1
M2 PAR ERR J1 +3
L1 K1
MC PAR CHK
~PAR ODD

M24G
2L3Ø
P2 R2 P2 R2
Ø 1
IOB RESET A (1) N2 PAR ERR FLAG N1
R1 P1
PI CONO CLR
~ IOB 19T F2
PAR ERR FLAG (1) H2
M6Ø3
2K28
J2

ST2 A V2
APR2 WRITE EVEN PAR (1) U2
M143
2H9Ø8
U1
PAR WRITE EVEN

D1 E1 D1 E1
Ø 1
MR RESET A1
PAR IGNORE
F1 MAI IGN PAR
~ MC PAR CHK R2
+3 S2
M126
2R26
U1
C1 B1
U2 T2

M24G
2M16

PAR ODD P1
+3 R1
M143
2H9Ø8
N1 PAR ODD

NOTE
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REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL —
FINISH

DRN	D.J. Swan	DATE 7/16/70
CHK	Ward Gross	DATE 31Jan72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ ENG	Bill Kent	DATE 31 Jan 72
PROJ		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

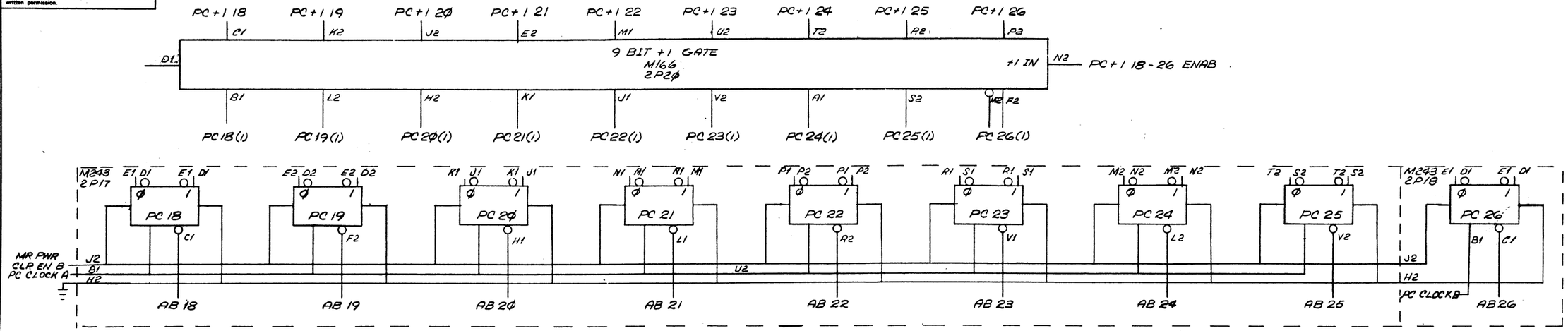
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

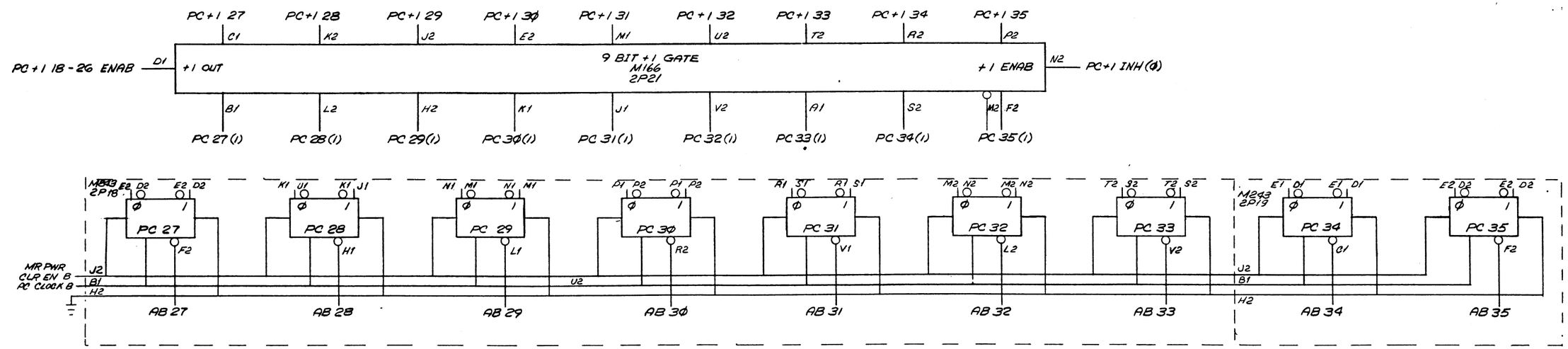
TITLE
PARITY LOGIC

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-PAR	
DIST.			

DEC FORM NO DRO 102 A

SIZE D BS CODE NUMBER KI1Ø-Ø-PAR REV.





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.		DATE 17-10
CHKD.	Ward Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE ~

SHEET 1 OF 1

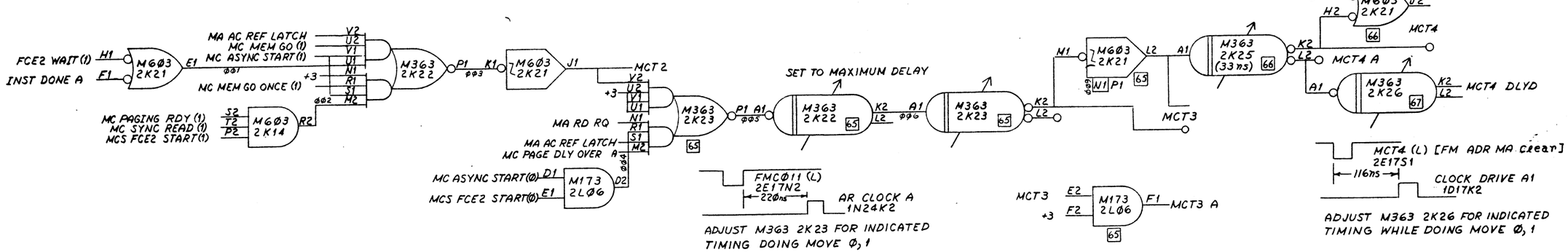
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

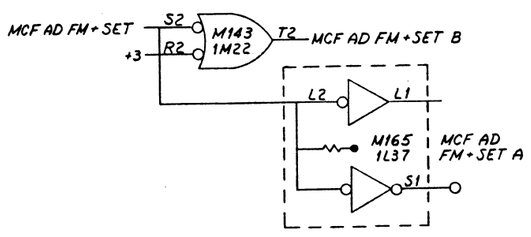
TITLE
PC
REGISTER
BITS 18-35

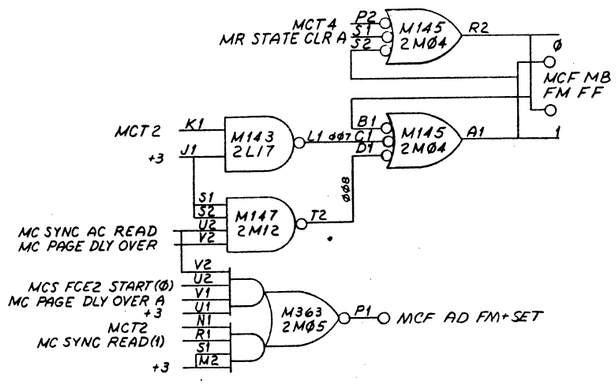
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-PC	

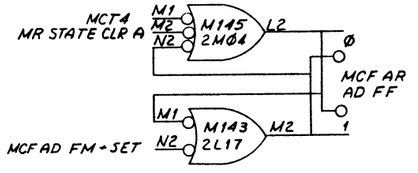
DIST.

DEC FORM NO
DRD 102A









NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO	REV	
JW	K11Ø-00043	A	4-1-72

KENT

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX ± .005 .XX ± .02 .X ± .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN.	J McC Mundt	DATE 1-19-72
CHK'D.	David Gross	DATE 31 Jan 72
ENG.	Alan Kotok	DATE 31 Jan 72
PROJ. ENG.	Alan Kent	DATE 31 Jan 72
PROD.	Mike Thurber	DATE 31 JAN 72

NEXT HIGHER ASSY. B-DD-K11Ø-Ø

SCALE NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MEMORY CONTROL
FAST MEMORY TIMING

SIZE	CODE	NUMBER	REV.
D	BS	K11Ø-Ø-MCTF	A

DIST.

BRUNING 40-522 15940 DEC FORM NO

MC MA MA (1)H
2TØ9K1
← 20ns →
MCTØ
2K14J1

ADJUST M363 2J27 FOR TIMING INDICATED OR FOR MINIMUM DELAY WHICHEVER IS LONGER

MC MA MA(1) A1 — M363 2J27 [23] — K2 K1 ØØ1 L2 — M6Ø3 2K14 [23] J1 — M143 2H08 R1 S1 +3 P2 — MCTØ

JUMPER 3BØ6D2 TO 3BØ6K1 AND OMIT M321 DELAY IF FASTEST "IMMEDIATE" MEMORY HAS ADR ACK TIME ≥ 15Ønsec

MCT ADR ACK 1(Ø) — M321 3BØ6 [1] D2 E2 F2 H2 +3 — P2 — V2 M2 U2 L2 R2 R1 S2 P1 T2 J1 N2 — K1 L1 — MCT IMM REQ EN

MC REQ CYC (1)H
3BØ2F1
← 15Ønsec MIN →
MAI BUS ACK (NT)
3BØ9A1

ADJUST M321 3BØ6 TO PROVIDE INDICATED MINIMUM TIME WHEN REFERENCING FASTEST ACCESS (NORMALLY NEAREST) IMMEDIATE MEMORY.

JUMPER 3BØ7D2 TO 3BØ7K1 AND OMIT M321 DELAY IF FASTEST "FAST" MEMORY HAS ADR ACK TIME ≥ 15Ønsec

MCT DATA WARN1(1) — M321 3BØ7 [2] D2 E2 F2 H2 +3 — P2 — V2 M2 U2 L2 R2 R1 S2 P1 T2 J1 N2 — K1 L1 — MCT FAST REQ EN

MC REQ CYC (1)H
3BØ2F1
← 15Ønsec MIN →
MAI BUS ACK (T)
3BØ9U2

ADJUST M321 3BØ7 TO PROVIDE INDICATED MINIMUM TIME WHEN REFERENCING FASTEST ACCESS (NORMALLY NEAREST) FAST MEMORY.

MAI ADR ACK (T) V2
MAI ADR ACK(NT) U2
M173 2S08 — U1 — MCT ADR ACK BOTH

MAI ADR ACK(NT) K1 +3 H2
KEY OVERLAP DIS(1) N1 J1
M126 3B02 — J2 — ØØ5

MR RESET +3 — R1 C1
MCRST1 — E1 S2
M172 2R27 — T2 F1 Øl3

M216 3BØ4
E1 D1 E1 D1
Ø MCT 1 UNTIMED CYCLE — A1 +3
C1 B1
MA RD RQ

F2 H2 F2 H2
U2 V1 P1 Ø 100US 1 MC NXM ALLOW RQ — N1 — MCN CYC REQUESTED (Ø)
ØØ9

SWITCH POSITION 3
M3Ø7Ø 2L23 [26] — N1 U1 S1

MC NXM ABORT(Ø) K1 — M6Ø3 2L22 — J1
+3 F2 H2 — M6Ø3 2L22 — J2 — MC NXM PULSE 1

~MC NXM PULSE 1 V2 U2 M2
~MA RD RQ +3
M6Ø3 2L22 — N2 M1 Ø15 — M6Ø3 2L22 — L2 — MC NXM PULSE 2
N1 P1 Ø12

L2 K2 L2 K2
N2 Ø 1 MCT ADR ACK 2 J1 +3
L1 K1
M246 3BØ4
MC (RD,WR)RS K2 — M143 3BØ5 [J2 +3 H2] — ØØ2 — MCT ADR ACK 1(1)

U1 S1 U1 S1
U2 Ø 1 MCT DATA WARN 2 S2 +3
V2 T2
MCT DATA WARN 1(1)

MAI ADR ACK(T) P1 +3 R1 — M143 3BØ5 — N1
MAI DATA WARN B1 +3 C1 — M143 3BØ5 — A1

ØØ3 — S1 +3 R1 M143 3BØ5 P2 — D1 +3 E1 M143 3BØ5 D2 — ØØ6

E2 D2 E2 D2
F2 Ø 1 MCT ADR ACK 1 H1
H2 J2 — ØØ4
M246 3BØ4
P2 R2 P2 R2
N2 Ø 1 MCT DATA WARN 1 N1
R1 P1 — ØØ7

MR RESET C
MC (RD,WR)RS
MCT ADR ACK 2(1)
MCT DATA WARN 2(1)

E2 K1 E2 K1
B1 A1 C1 Ø 2us 1 MC NXM ABORT — L1 — MC NXM ALLOW RQ(1)
ØØ8

SWITCH POSITION 4
M3Ø7Ø 2L23 [25] — K2
L2 J2

MCT AB AB CLR — M1 — M6Ø3 2K14 [58] — L2 A1 Ø14 — M363 2M05 [58] — K2 L2 — MCT AB AB SET
N1 P1 Ø10

ADJUST M363, 2M05 FOR TIMING SHOWN
MCT RECYCLE (L) 2JØ6K2
← 73ns →
AB AB (1) H 2KØ6D2

M246 2K16
L2 K2 L2 K2
M2 Ø 1 MCN CYC REQUESTED J1 +3
L1 K1
MC REQ CYC (1)

MR RESET C S2
MC NXM PULSE 1 T2
MCT ADR ACK BOTH P2
M6Ø3 2M13 — R2 — MCN ADR ACK ALL

MCT RECYCLE

PFTØ V2
KT3 A U2
V1
U1
+3 N1
MC ASYNC START(Ø) T1
PAGE SYNC REFILL(Ø) S1
MCTØ M2
M363 2K25 — P1 K2

+3 J2 — M143 2J06 [58 77] — H2

MCT INST FETCH START(1) D2 E1
MCS FCE2 START (1) F2 E2
M126 2M07 [58] — F1 — MCT AB AB CLR
Ø11

A1 — M363 2K15 [77] — K2 L2

ADJUST M363, 2K15 FOR TIMING SHOWN
← 55ns →
MCT RECYCLE 2MØ7E1
MCTNØ11 2MØ7F2

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHK	CHANGE NO	REV
		KI10-00024	A
		KI10-00037	B

M. Tocci 5-18-72 KENT
Allan Kent 2 Oct 72
Ed Clark 7-11-73 A.KENT
Allan Kent 13 July 73

DRAWING 40-522 19640
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1
ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. J McCullough DATE 4-14-72
CHK'D. David Gross DATE 31 Jan 72
ENG. Allan Kotok DATE 31 Jan 72
PROJ. ENG. Allan Kent DATE 31 Jan 72
PROD. J Mauthner DATE 3 Jan 72
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE ½
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MEMORY CONTROL TIMING, NXM

SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-MCTN	B

DIST.

M243 2L25

D1 E1 D1 E1 — MI ØØ — C1
D2 E2 D2 E2 — MI Ø1 — F2
J1 K1 J1 K1 — MI Ø2 — H1
M1 N1 M1 N1 — MI Ø3 — L1
P2 P1 P2 P1 — MI Ø4 — R2
S1 R1 S1 R1 — MI Ø5 — V1
N2 M2 N2 M2 — MI Ø6 — L2
S2 T2 S2 T2 — MI Ø7 — V2

M243 2L26

D1 E1 D1 E1 — MI Ø8 — C1

MR PWR CLR EN C
COMP MI CLOCK A
B1
H2
J2
U2
COMP MI CLOCK A

MI MIX ØØ
MI MIX Ø1
MI MIX Ø2
MI MIX Ø3
MI MIX Ø4
MI MIX Ø5
MI MIX Ø6
MI MIX Ø7
MI MIX Ø8

M243 2L26

D2 E2 D2 E2 — MI Ø9 — F2
J1 K1 J1 K1 — MI 1Ø — H1
M1 N1 M1 N1 — MI 11 — L1
P2 P1 P2 P1 — MI 12 — R2
S1 R1 S1 R1 — MI 13 — V1
N2 M2 N2 M2 — MI 14 — L2
S2 T2 S2 T2 — MI 15 — V2

M243 2L27

D1 E1 D1 E1 — MI 16 — C1
D2 E2 D2 E2 — MI 17 — F2

MR PWR CLR EN C
COMP MI CLOCK A
B1
H2
J2
U2
COMP MI CLOCK A

COMP MI CLOCK B

MI MIX Ø9
MI MIX 1Ø
MI MIX 11
MI MIX 12
MI MIX 13
MI MIX 14
MI MIX 15
MI MIX 16
MI MIX 17

M243 2L27

J1 K1 J1 K1 — MI 18 — H1
M1 N1 M1 N1 — MI 19 — L1
P2 P1 P2 P1 — MI 2Ø — R2
S1 R1 S1 R1 — MI 21 — V1
N2 M2 N2 M2 — MI 22 — L2
S2 T2 S2 T2 — MI 23 — V2

M243 2L28

D1 E1 D1 E1 — MI 24 — C1
D2 E2 D2 E2 — MI 25 — F2
J1 K1 J1 K1 — MI 26 — H1

MR PWR CLR EN C
COMP MI CLOCK B
B1
H2
J2
U2
COMP MI CLOCK B

COMP MI CLOCK B

MI MIX 18
MI MIX 19
MI MIX 2Ø
MI MIX 21
MI MIX 22
MI MIX 23
MI MIX 24
MI MIX 25
MI MIX 26

M243 2L28

M1 N1 M1 N1 — MI 27 — L1
P2 P1 P2 P1 — MI 28 — R2
S1 R1 S1 R1 — MI 29 — V1
N2 M2 N2 M2 — MI 3Ø — L2
S2 T2 S2 T2 — MI 31 — V2

M243 2P19

P2 P1 P2 P1 — MI 32 — R2
S1 R1 S1 R1 — MI 33 — V1
N2 M2 N2 M2 — MI 34 — L2
S2 T2 S2 T2 — MI 35 — V2

MR PWR CLR EN C
COMP MI CLOCK B
B1
H2
J2
U2
COMP MI CLOCK B

MR PWR CLR EN B

MI MIX 27
MI MIX 28
MI MIX 29
MI MIX 3Ø
MI MIX 31
MI MIX 32
MI MIX 33
MI MIX 34
MI MIX 35

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. Al Stephenson — DATE 7/15/71
CHKD. David Grose — DATE 3 Jan 72
ENG. Dan Kotik — DATE 30 Jan 72
PROJ. ENG. Allen Kent — DATE 31 Jan 72
PROD. — DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KIØ-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MI REGISTER

SIZE D | CODE BS | NUMBER KIØ-Ø-MI | REV. | DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

~MI MIX Ø0 … ~MI MIX Ø8 (M172 2M24)

COMP MI FM EN A
COMP MI MB EN A

~MI MIX 09 … ~MI MIX 17 (M172 2M25)

COMP MI FM EN B
COMP MI MB EN B

~MI MIX 18 … ~MI MIX 26 (M172 2N24)

COMP MI FM EN C
COMP MI MB EN C

~MI MIX 27 … ~MI MIX 35 (M172 2N25)

COMP MI FM EN D
COMP MI MB EN D

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	KI1Ø
UNLESS OTHERWISE SPECIFIED	DIMENSION IN INCHES; TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'; FINAL SURFACE QUALITY √; REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL	
FINISH	
DRN.	W. Stephenson 7/8/70
CHKD.	Richard Gross 31 Jan 72
ENG.	Allan Kotik 31 Jan 72
PROJ. ENG.	Allan Kent 31 Jan 72
PROD.	[illegible] 31 JAN 72
NEXT HIGHER ASSY	B-DD-KI1Ø-Ø
SCALE	NONE
SHEET	1 OF 1
DIGITAL EQUIPMENT CORPORATION	MAYNARD MASSACHUSETTS
TITLE	MI MIXER
SIZE / CODE / NUMBER / REV	D / BS / KI1Ø - Ø - MIMX /
DIST.	

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

IR TEST, IR Ø3A (1), IR Ø4 (1) → M145 1BØ7 → TEST TXOX

MPYT TEST, IR Ø6B (Ø), IR Ø7A (1) → M175 1B19 → TEST TXXE
IR Ø6C (1), IR Ø7A (1) → M175 1B19 → TEST TXXN
IR Ø6C (1), IR Ø7A (Ø) → M175 1B19 → TEST TXXA

MPYT TEST, IR Ø7 (1) → M143 1BØ2 → TEST TXX(E,N)

MPYT TEST, IR Ø7A (1), IR Ø8(Ø) → M145 1B21 → TEST T(D,R)X(E,N)

MR STATE CLR A → MUUOF1 → CLK DRIVE B1
ST1 (Ø), ST1 (1), MUUOF2 (1) → M126 1D39 → CLK DRIVE B1 Ø05
M243 1D38

IR Ø6B (1), IR Ø7A (1) → M143 1B12 → M143 1B2Ø → TEST TXX(E,N,A)

IR TEST, +3 → M172 1C34 → MPYT TEST

TEST TXOX, TEST TXX(E,N,A) → M173 1B13 → TEST TXOX V TXX(E,N,A)

IR Ø3A (1), IR Ø4 (1) → M143 1B2Ø; MPYT TEST → M143 1B2Ø → TEST TX(C,Z,O)X

IR TEST, IR Ø6B (Ø), IR Ø7A (Ø) → M147 1BØ4 → TEST TX(C,Z)-
IR Ø3B (Ø), IR Ø4 (Ø) → M126 1A36 → J2
IR Ø3A (1), IR Ø4 (1) → M126 1A36 → J2
J2 Ø04 → M143 1B2Ø; MPYT TEST → M143 1B2Ø → TEST TX(C,Z)X

MPYT TEST, IR Ø5 (1) → M143 1B2Ø → TEST T(D,S)XX

MPYT TEST, IR ØT(Ø) → M145 1B21 → A1
[X4ØX], IR XX1Ø → M143 1B2Ø; IR XX12, [X5ØX] → M143 1B2Ø; Ø01 → K1, J1 → M143 1B2Ø → L1 → TEST TXC-

IR XMULX, ET Ø C(1) → M181 1C2Ø
FMT1 (1), +3V → M181 1C2Ø
DFMT2 (1), +3V → M181 1C2Ø
IR MPY, SCTC → M181 1C2Ø
M181 1C2Ø → C1 → +3, MPY FCN → M173 1CØ4 → MPY FCN A
SC4(Ø), SC5(Ø), SC6(Ø), SC7(Ø), SC8(Ø) → M139 1DØ3 → J2 Ø09 → M181 1C2Ø
+3V → M139 1DØ3

MR STATE CLR A → MUUOF2 → CLK DRIVE B1
~MUUOF2 CLR, ET Ø F(1), IR MUUO → M126 1D39 → CLK DRIVE B1 F1 Ø06
M243 1D38

FLAG1(1), MQ 35 IN → M126 1J25
FLAG1(Ø), ~MQ 35 IN → M126 1J25 → D1 → ~MPY FLAG1 = MQ 35 IN

ST1 (1), MUUOF1 (1) → M143 1B36 → MUUOF2 CLR
IR MUUO, MUUOF1 (Ø) → M143 1B36 → MUUO PART 1
MUUOF1 (1), MUUOF2 (Ø) → M143 1B36 → P2 → M143 1B36 → MUUO PART 3

AD ØØ-Ø5, BR ÷ 2 (1), FLAG2A (Ø) → M175 1J19
MQ 34 (1) → M145 1J17 → MPY CORRECTION

MQ 34 IN, MQ 35 IN, FLAG1(1), +3V, ~MQ 34 IN, ~MQ 35 IN, FLAG1(Ø) → M128 1H36 → P2 → MPY SHIFT STEP

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN S. & Lucien	DATE 6/6/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D Richard Gross	DATE 3 Jan 72	TITLE: MPY, MUUO & TEST
	ENG Allan Kotok	DATE Jan 72	
	PROJ. ENG. Allan Kent	DATE 31 Jan 72	
	PROD Mac Wilcox	DATE 31 JAN 72	
MATERIAL	NEXT HIGHER ASSY B-DO-KI1Ø-Ø		SIZE D | CODE BS | NUMBER K1Ø-Ø-MPYT | REV
FINISH	SCALE ½		
	SHEET 1 OF 1		DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

M243 1TØ7

E1 D1 E1 D1 — J2 Ø 1 H2 — MQ ØØ — C1 — B1 — MQ CLK A — MQ ØØ IN — S2 — M17Ø 1TØ5

P1 T2 R2 V1 U1 V2 R1 S1 U2 B1

MQ Ø1 ∧ SH LT | AD ØØ(1) | AR 35 A(1) | AD 34(1)

E2 D2 E2 D2 — J2 Ø 1 H2 — MQ Ø1 — F2 — MQ Ø1 IN — K2 — M17Ø 1TØ5

C1 F2 D2 E2 H1 J1 H2 J2 K1 L1 D1 E1 F1 L2 M1 M2 N2 P2

AD 34(1) | MQ Ø2(1) | AD Ø1(1) | MQ ØØ(1) | AD 35(1) | ARX 35(1)

K1 J1 K1 J1 — J2 Ø 1 H2 — MQ Ø2 — H1 — MQ Ø2 IN — K2 — M17Ø 1SØ8

D2 E2 H1 J2 B1 C1 F2 D1 E1 F1 M2 N2 P2 K1 L1 L2 M1

MQ Ø3(1) | AD Ø2(1) | MQ Ø1(1) | MQ ØØ(1) | AD 35(1)

N1 M1 N1 M1 — J2 Ø 1 H2 — MQ Ø3 — L1 — MQ Ø3 IN — S2 — M17Ø 1SØ8

P1 T2 R2 V1 U1 V2 R1 S1 U2

MQ Ø4(1) | AD Ø3(1) | MQ Ø2(1) | +3 MQ Ø1(1)

P1 P2 P1 P2 — J2 Ø 1 H2 — MQ Ø4 — R2 — MQ Ø4 IN — S2 — M17Ø 1912

U2

P1 T2 R2 V1 U1 V2 R1 S1 U2

MQ Ø5(1) | AD Ø4(1) | MQ Ø3(1) | +3 MQ Ø2(1)

R1 S1 R1 S1 — J2 Ø 1 H2 — MQ Ø5 — V1 — MQ Ø5 IN — S2 — M17Ø 1TT2

P1 T2 R2 V1 U1 V2 R1 S1 U2

MQ Ø6(1) | AD Ø5(1) | MQ Ø4(1) | +3 MQ Ø3(1)

MQ LT SH LT EN B
MQ LT AD EN B
MQ LT SH RT EN B
MQ LT SH RT2 EN B

MQ SH ORDINARY | MQ RT ROTC V LSHC | ~MQ SH ORDINARY | MQ RT ROTC V LSHC | IR DFDV B | MQ SH ORDINARY

MQ ØØ GETS AD ØØ

MQ Ø1 GETS AD 35

~MQ SH ORDINARY

M243 1TØ7

M2 N2 M2 N2 — J2 Ø 1 H2 — MQ Ø6 — L2 — MQ CLK A — MQ Ø6 IN — SD2 — M174 1ST13

SD1 SE2 SF2 SH2

MQ Ø7(1) | AD Ø6(1) | MQ Ø5(1) | MQ Ø4(1)

T2 S2 T2 S2 — J2 Ø 1 H2 — MQ Ø7 — V2 — MQ Ø7 IN — SF1

SH1 SJ1 SK2 SL2

AD Ø7(1) | MQ Ø6(1) | MQ Ø5(1)

M243 1T17

E1 D1 E1 D1 — J2 Ø 1 H2 — MQ Ø8 — C1 — B1 — MQ Ø8 IN — K2 — M17Ø 1S12

D2 E2 H1 J1 B1 C1 F2 D1 E1 F1 M2 N2 P2 K1 L1 L2 M1

MQ Ø9(1) | AD Ø8(1) | AD 34(1) | MQ Ø7(1) | AD 35(1) | MQ Ø6(1)

E2 D2 E2 D2 — J2 Ø 1 H2 — MQ Ø9 — F2 — MQ Ø9 IN — K2 — M17Ø 1T12

D2 E2 H1 J1 H2 J2 B1 K1 L1 C1 F2 D1 E1 F1 M2 N2 P2 L2 M1

MQ 1Ø(1) | AD Ø9(1) | MQ Ø8(1) | AD 35(1) | MQ Ø7(1)

K1 J1 K1 J1 — J2 Ø 1 H2 — MQ 1Ø — H1 — MQ 1Ø IN — SL1 — M174 1ST13

SK1 SM1 SR2 SS2

MQ 11(1) | AD 1Ø(1) | MQ Ø9(1) | MQ Ø8(1)

N1 M1 N1 M1 — J2 Ø 1 H2 — MQ 11 — L1 — MQ 11 IN — SR1

SP1 SS1 SU2 SV2

MQ 12(1) | AD 11(1) | MQ 1Ø(1) | MQ Ø9(1)

MQ LT SH LT EN A
MQ LT AD EN A
MQ LT SH RT EN A
MQ LT SH RT2 EN A

SE1 SA1 SC1 SB1

MQ ØB (I) — B1 C1 — M172 1SØ6 — T2 — ØB1

+3 — E1

~IR FP SHIFT — S2

MQ FP SHIFT

MQ FP SHIFT

MQ LT SH LT EN B
MQ LT AD EN B
MQ LT SH RT EN B
MQ LT SH RT2 EN B

~IR FP SHIFT

IR FP SHIFT

~IR FP SHIFT

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES, "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL KI1Ø	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN	C.J. Stephenson	DATE 1/30/70
CHK	David Gross	DATE 3/Jun/72
ENG	Helen Kotik	DATE 3/Jun/72
PROJ. ENG	Alan Kent	DATE 3/Jun/72
PROG		DATE 3/Jun/72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

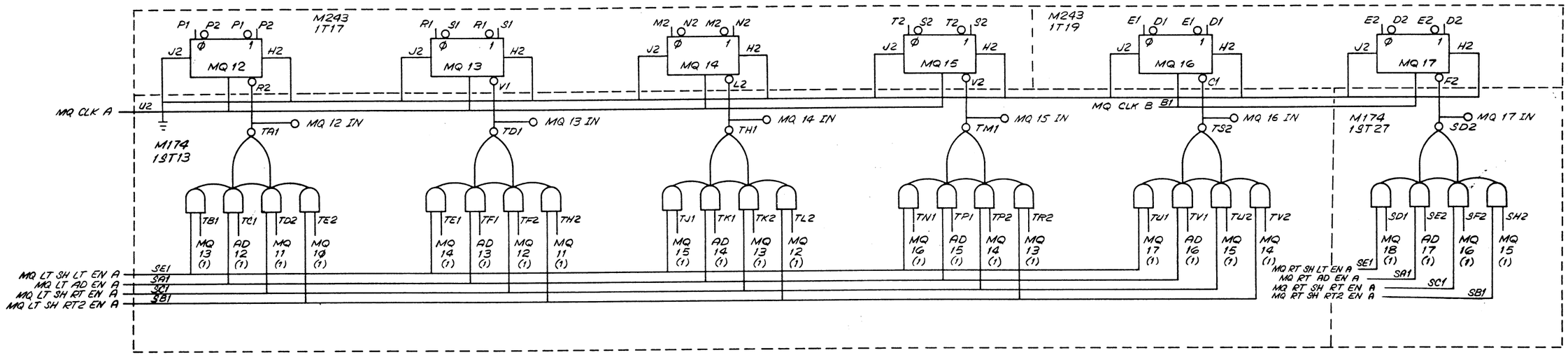
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

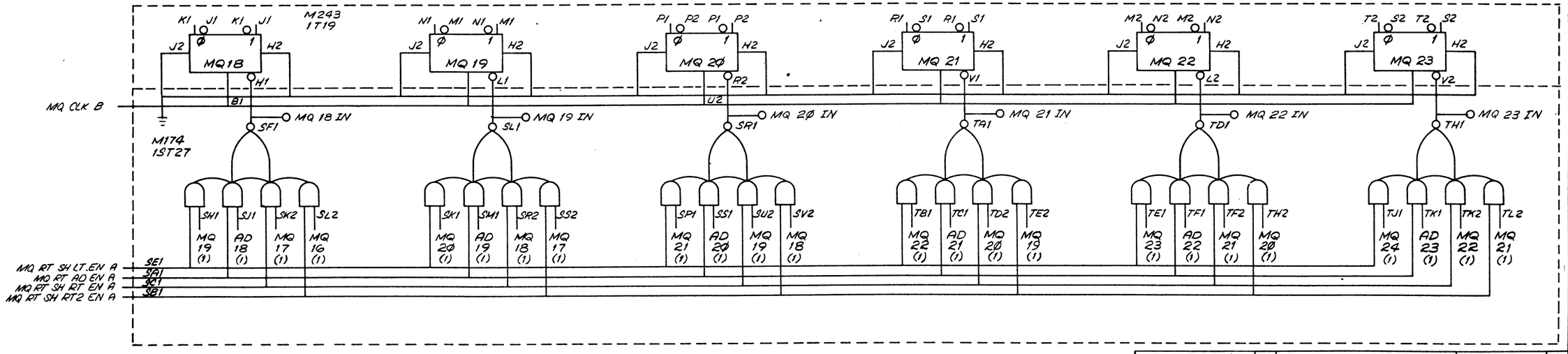
TITLE
MQ REGISTER BITS ØØ - 11

SIZE D | CODE BS | NUMBER KI1Ø-Ø-MQ1 | REV.
DIST.

REVISIONS | REV. | CHANGE NO. | CHK.

SIZE D | CODE BS | NUMBER KI1Ø-Ø-MQ1 | REV





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W. Stephenson	DATE 1/27/70
CH'D.	David Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 JAN 72
PROD.		DATE 31 JAN 72
NEXT HIGHER ASSY	B-DD-KI10-0	
SCALE	~	
SHEET	1 OF 1	

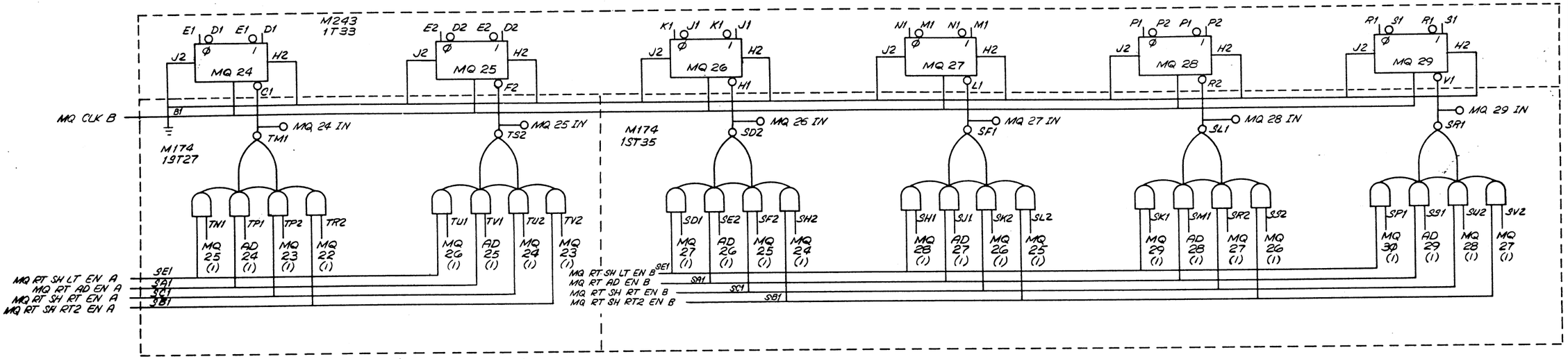
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

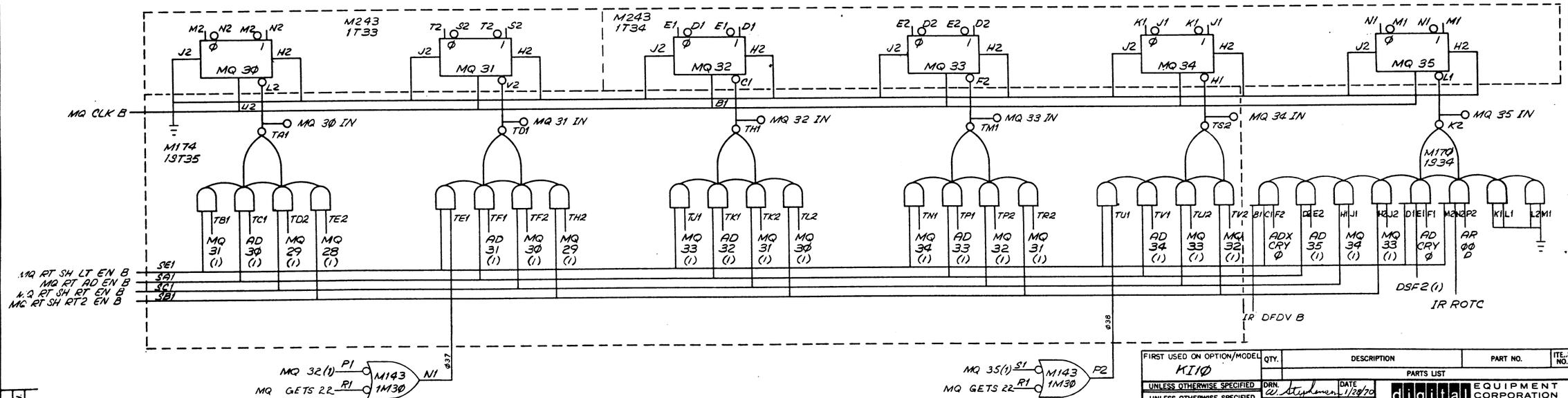
TITLE
MQ REGISTER
BITS 12-23

SIZE	CODE	NUMBER	REV.
D	BS	KI10-0-MQ2	

DIST.

DEC FORM NO. DRD 102A





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W. Stylemen	DATE 1/28/70
CHK'D	David Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 Jan 72

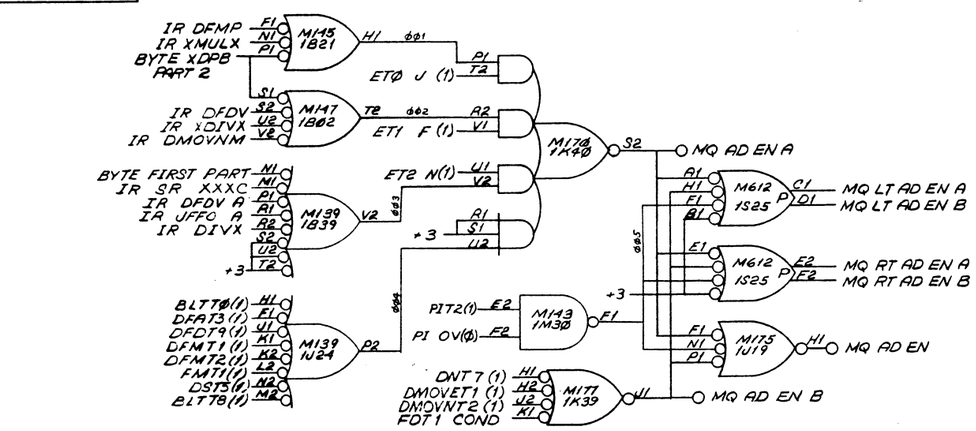
NEXT HIGHER ASSY
5-DD-K1Ø-Ø
SCALE
SHEET 1 OF 1

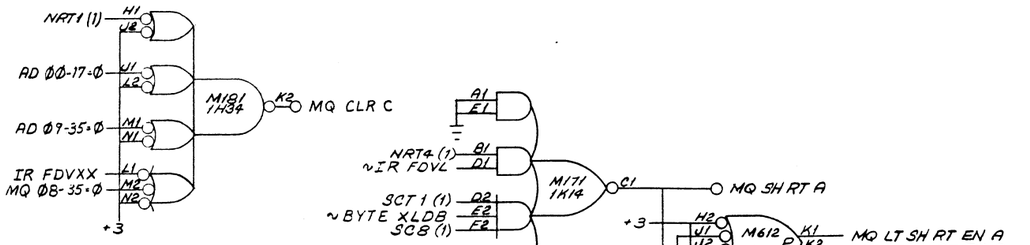
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

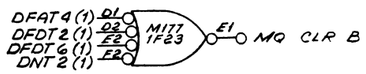
TITLE
MQ REGISTER
BITS 24 - 35

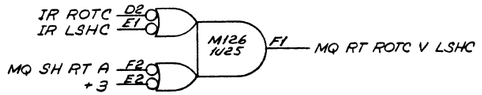
SIZE	CODE	NUMBER	REV.
D	BS	K1Ø-Ø-MQ3	
DIST.			

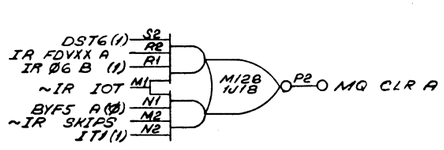
DEC FORM NO. DRD 102A

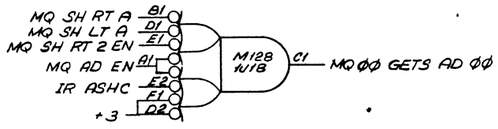


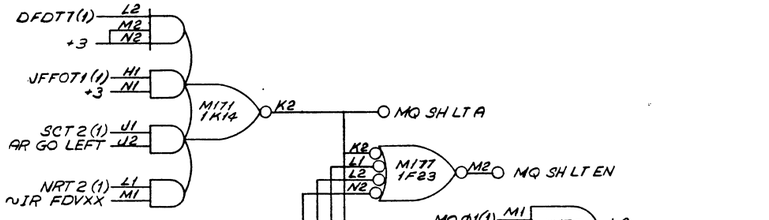


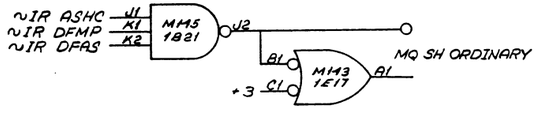


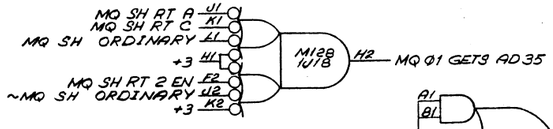


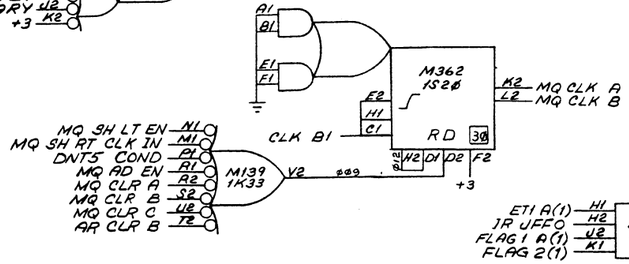












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

‡ APPARENTLY REDUNDANT SIGNAL

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

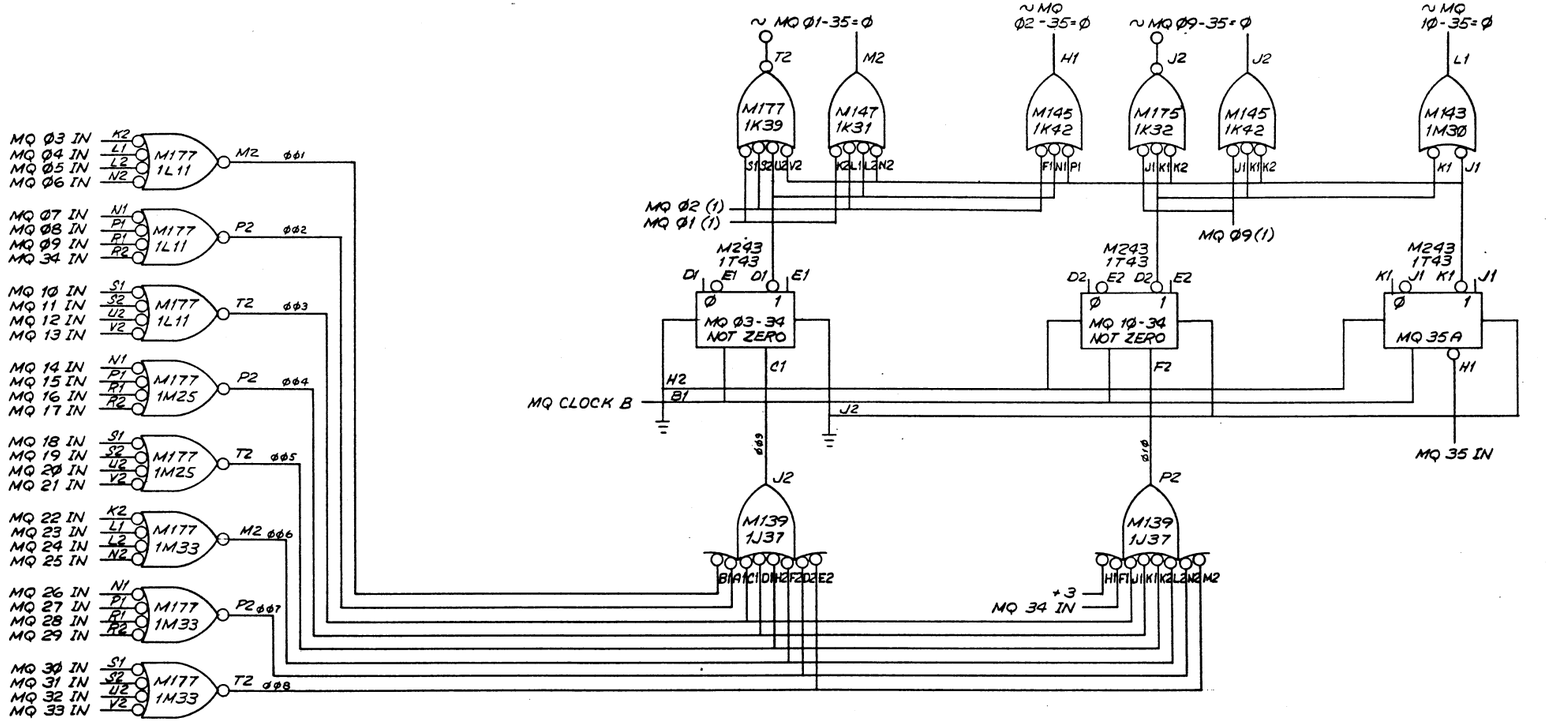
DRN. W Stephenson	DATE 5/4/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE MQ CONTROL
PROJ. ENG. Allan Kotok	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

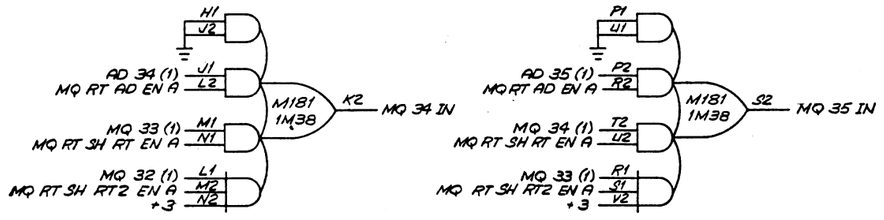
NEXT HIGHER ASSY B-DD-K11Ø-Ø
SCALE ~
SHEET 1 OF 1

SIZE D | CODE BS | NUMBER K11Ø - Ø - MQC | REV
DIST

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A





NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION / MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30'; FINAL SURFACE QUALITY √; REMOVE BURRS AND BREAK SHARP CORNERS	DRN: W. Stephenson 4/23/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
	CHKD: David Grosz 31 Jan 72	TITLE: MQ ZERO DETECTION LOGIC	
	ENG: Allan Kotok 31 Jan 72		
MATERIAL	PROJ ENG: Allan Kent 31 Jan 72		
FINISH	PROD: W. Stephenson 31 Jan 72	NEXT HIGHER ASSY: B-DD-KI1Ø-Ø	SIZE D CODE BS NUMBER KI1Ø-Ø-MQZ REV.
		SCALE: NONE SHEET 1 OF 1	DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO FMO 102 A

MR RESET K1 — M173 2C35 — L1
PF CLK START J1

MR RESET PANIC DLY (Ø) D1
MR PWR CLR EN(1) E1
M143 2C32 D2
D2 — M6Ø3 2C27 E2 — MR KEY CLR
+3 D1

0/2 — S1 U1 S1 U1 — M246 2C31
S2 — Ø MR STATE CLR FF — U2 +3
PFTØ — V2 T2
~PF MAP COND

INST RDY (1) D1
MR RESET E1
M173 2C35 D2 — ØØ9

F2 H2 F2 H2
U2 V1 P1 — Ø 10 ms 1 MR RESET PANIC DLY — M1
Ø11 — M3Ø7Ø 2C34 K1 — N1 — U1 S1
SWITCH SETTING "1"
ØØ3 — T2
M173 2C35 S2 R2

M246 2C31
L2 K2 L2 K2
Ø 1 MR RESTART B — M2 J1 +3
L1 K1
ØØ5
E2 K1 E2 K1
B1 — Ø 10 ms 1 MR RESTART DLY — L1 — MR PWR CLR EN (1)
A1 C1 ØØ6
M173 2C35 B1 C1
M3Ø7Ø 2C34 J2 (13)
L2 K2
APR 1 TIMER FF(1)

MR RESTART (1)
M9Ø8 2SØ2 B1
FROM 857

MR RESET V2
+3 U2 M173 2C35 U1 — MR RESET B
P1 P2 R1 R2 — M612 2D29 P — S1 S2 — MR RESET C, MR RESET D
M612 2D29 P — T2 V2 — MR RESET A, MR RESET B
V1

KT1 A(1) M1
KEY RESET (1) K2
M126 2D32 L2 — MR KEY RESET
KEY RDI (1) M1
KEY RDI FFØ(Ø) N2
M173 2C35 M2 N2 M2 — ØØ4

MR KEY RESET H2
MR PWR CLR EN B J1
MR RESET PANIC DLY (Ø) V2
+3 V2
M612 P 2D29 K1 K2 — MR RESET A
M1 M143 2C39 M2 — MR RESET
M1 M2 — MR STATE CLR
M612 P 2D29 N2
MR STATE CLR FF(1)

~KEY RESET NC S1
+3 R1
M143 2C32 P2 — ØIØ
P2 R2 P2 R2
Ø — MR RESET SUCCESSFUL — N2 N1
KEY RESET NC
R1 P1
CLK DRIVE D2
M246 2C31
MR KEY RESET

M9Ø8 2SØ2
J1 — MR CROWBAR (THIS IS A ØV (H) AND -6V (OPEN CIRCUIT) (L) SIGNAL)
CROWBAR CONTACT IN 857 P.C.
K1 — (CROWBAR GND)
L1 — (857 SIGNAL GND)

M4Ø1 2C43
(14) CLK D2
MR RESET PANIC DLY (Ø) K2
MR PWR CLR EN A J2
SET CLR E2 — MR PWR CLR
N2 R2
ØØ1

SWITCH SETTING "1"
F2 H2 F2 H2
U2 V1 P1 — Ø 10 ms 1 MR PWR CLR EN — M1 — ~MR CROWBAR OFF
ØØ7
M3Ø7Ø 2E28 (12) N1
APR1 TIMER FF (1)
U1 S1

PAGE LAST INST PUBLIC (Ø) E2
USER MODE (Ø) F2
M173 2C35 F1 — MR KERNEL MODE
PAGE LAST INST PUBLIC (1) K2
J2
M173 2C35 H2 — MR SUPERVISOR MODE
P1
USER MODE (1) R1
M173 2C35 N1 — MR CONCEALED MODE
S1
R1
M173 2C35 P2 — MR PUBLIC MODE

+3 E2
F2
M143 2C32 F1 — MR CROWBAR OFF
F2 D1
M663 2T28 D2 — +3 F2 E2 P1 M564 2P41 E1
A1
MR CROWBAR
MR CROWBAR OFF B

MR STATE CLR K2
+3 J2
M143 2C32 H2 — MR STATE CLR
K1
J1
M143 2C32 L1 — MR STATE CLR A

MR STATE CLR M1
+3 N2
M143 1F38 M2 — MR STATE CLR A
M1
N2
M143 1D15 M2 — MR STATE CLR B
K1
J1
M143 1D15 L1 — MR STATE CLR C
P2
S1
S2
M145 1F24 R2 — MR STATE CLR D

W021 2DØ6
D2
CONSOLE LAMP TEST E2
H2 — MR CONSOLE LAMP TEST
K2
M2 — ~MR CONSOLE LOCK
CONSOLE LOCK (ALTERNATE ACTION) P2
-15 Ø
S2
T2 — ~MR CONSOLE DATA LOCK
CONSOLE DATA LOCK (ALTERNATE ACTION) V2
-15 Ø

+5 M95Ø 2E02
MR CONSOLE LOCK — K2 — MR CON LOCK BIT
L2 — MR CON DATA LOCK BIT
MR CONSOLE DATA LOCK
+5

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHK	CHANGE NO.	REV.
		K11Ø-00041	A
	E. ALLAIRE	12-19-73	
	KENT		
	Allan Kent	17 DEC 73	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KJ1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	W. Stephenson	DATE 2/17/71
CHKD.	David Grose	DATE 31 Jan 72
ENG.	Allan Kent	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE ~
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
MASTER CLEAR

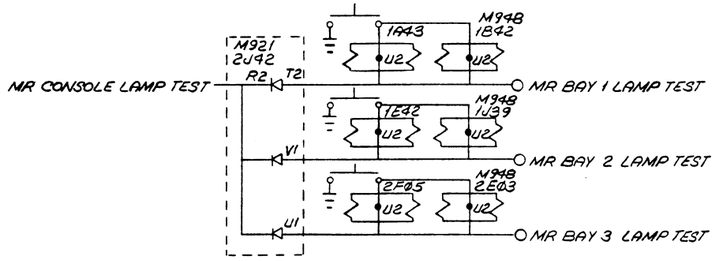
SIZE	CODE	NUMBER	REV
D	BS	KI1Ø - Ø - MR1	A

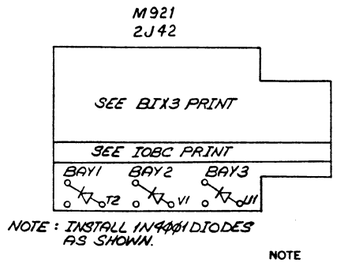
DIST.

DEC FORM NO DRD 102A

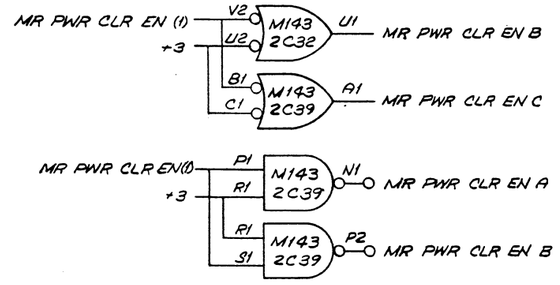
M95Ø	(L = TEST)	(L = ENABLE)	(L = ENABLE)	(L = ENABLE)
LOCATION	LAMP TEST PIN M2	ENABLE #1 PIN H2	ENABLE #2 PIN N2	ENABLE #3 PIN V1
2CØ6	MR CONSOLE LAMP TEST	~ MR CONSOLE DATA LOCK L (DS ØØ - Ø8 EN)	~ MR CONSOLE DATA LOCK L (DS ØØ - Ø8 EN)	~ MR CONSOLE DATA LOCK L (DS ØØ - Ø8 EN)
2CØ4	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (AS 14 - 17, EXEC, USER PAGING EN)	——	~ MR CONSOLE DATA LOCK L (DS Ø9 - 17 EN)
2CØ5	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (KEY REPT, PAR STOP, NXM STOP EN)	——	~ MR CONSOLE LOCK L (KEY SING INST, SING PULSE EN)
2BØ5	MR CONSOLE LAMP TEST	~ MR CONSOLE DATA LOCK L (DS Ø9 - 17 EN)	——	~ MR CONSOLE LOCK L (AS 14 - 17, EXEC, USER PAGING EN)
2CØ3	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (KEY SING INST, SING PULSE EN)	——	~ MR CONSOLE LOCK L (KEY REPT, PAR STOP, NXM STOP EN)
2BØ3	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (AS 18 - 26 EN)	——	~ MR CONSOLE DATA LOCK L (DS 18 - 26 EN)
2DØ8	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (FM MAN, BLOCK; MARGIN EN, ADR; PROG DIS EN)	MR CONSOLE LOCK H (APR CONSOLE LOCK BIT)	~ MR CONSOLE LOCK L (FM MAN, BLOCK; MARGIN EN, ADR; PROG DIS EN)
2DØ7	MR CONSOLE LAMP TEST	~ MR CONSOLE DATA LOCK L (APR2 SENSE 1-6 EN)	——	~ MR CONSOLE LOCK L (FM MAN, BLOCK; MARGIN EN, ADR; PROG DIS EN)
2BØ2	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (KEY BRK RD, WR, IN FET COND, RDI, START EN)	——	~ MR CONSOLE LOCK L (KEY ADR STOP, BRK EN)
2AØ6	MR CONSOLE LAMP TEST	~ MR CONSOLE DATA LOCK L (DS 18 - 26 EN)	——	~ MR CONSOLE LOCK L (AS 18 - 26 EN)
2BØ4	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (KEY ADR STOP, BRK EN)	——	~ MR CONSOLE LOCK L (KEY BRK RD, WR, IN FET COND, RDI, START EN)
2AØ4	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (AS 27 - 35, CLR, LOAD EN)	——	~ MR CONSOLE DATA LOCK L (DS 27 - 35, CLR, LOAD EN)
2AØ3	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (KEY CONT, STOP, RESET, XCT, DEP THIS, NXT EN)	——	~ MR CONSOLE LOCK L (KEY EXAM THIS, NXT EN)
2AØ2	MR CONSOLE LAMP TEST	~ MR CONSOLE DATA LOCK L (DS 27-35, CLR, LOAD EN)	——	~ MR CONSOLE LOCK L (AS 27 - 35, CLR, LOAD EN)
2AØ5	MR CONSOLE LAMP TEST	~ MR CONSOLE LOCK L (KEY EXAM THIS, NXT EN)	——	~ MR CONSOLE LOCK L (KEY CONT, STOP, RESET, XCT, DEP THIS, NXT EN)
2EØ2	MR CONSOLE LAMP TEST	GND (APR2 RDI Ø3 - Ø9 EN)	MR CONSOLE DATA LOCK H (APR CONSOLE DATA LOCK BIT)	GND (APR2 RDI Ø3 - Ø9 EN)

857/858 THERMISTOR #	MR THERM #	M969 THERMISTOR LOCATION U1 = + V1 = −	M8Ø8 CONNECTOR PIN +	M8Ø8 CONNECTOR PIN −
1	1A	1A26	1343 D2	1343 E2
2	1B	1CØ3	1343 F2	1343 H2
3	1C	1H31	1343 J2	1343 K2
4	1D	1L28	1343 L2	1343 M2
5	1E	1M36	1343 N2	1343 P2
6	1F	13Ø7	1343 R2	1343 S2
7	2A	2A13	23Ø2 D2	23Ø2 E2
8	2B	2D3Ø	23Ø2 F2	23Ø2 H2
9	2C	2J41	23Ø2 J2	23Ø2 K2
1Ø	2D	2K11	23Ø2 L2	23Ø2 M2
11	2E	2NØ8	23Ø2 N2	23Ø2 P2
12	2F	2P35	23Ø2 R2	23Ø2 S2





NOTE : INSTALL 1N4Ø61 DIODES AS SHOWN.



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO	CHK	REV

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL KI1Ø

PARTS LIST — QTY. | DESCRIPTION | PART NO. | ITEM NO.

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN	W. Hutchinson	DATE 4/1/71
CHK'D	Dave Gross	DATE 5 Jun 72
ENG	Stan Kotok	DATE 5 Jun 72
PROJ. ENG	Alan Kent	DATE 5 Jun 72
PROD		DATE 5 Jun 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE MASTER CLEAR

SIZE D | CODE BS | NUMBER KI1Ø - Ø - MR2 | REV
DIST.

SIZE D | CODE BS | NUMBER KI1Ø-Ø-MR2 | REV

M243 1C18

NRT1 (E1 D1, E1 D1, C1)
NRT2 (E2 D2, E2 D2, F2)
NRT3 (K1 J1, K1 J1, H1)
NRT4 (N1 M1, N1 M1, L1)
NRT5 (P1 P2, P1 P2, A2)
NRT6 (R1 S1, R1 S1, V1)

MR STATE CLR B — U2, B1, H2
CLK DRIVE A1

CLK DRIVE A1 — U2

ET2 D (1) — H1, N1
IR FSC
SCTC DONE A — J1, J2
IR FLTR
+3V — L2, M2, N2
DST6 (1) — L1, M1
IR 1XX
M111 1D12 — K2
ØØ2

FMT2 (1) — P2, S1
FAT4 (1) — S2
DS FP EXIT
N145 1C21 — R2
ØØ1

AR ØØ A (Ø) — K1
AR 1Ø A (1) — H2
AR ØØ A (1) — N1
AR 1Ø A (Ø) — J1
M126 1K08 — J2
ØØ3

NRT2 (1) — S2, R2, R1
+3
~IR UFA — M1
NRT1 (1) — N1, M2, N2
M128 1D02 — P2
ØØ5

~NR ALL ZEROS — N2

AR ØØ A(Ø) — K1
AR Ø9(1) — H2
AR ØØ A (1) — N1
AR Ø9 B (Ø) — J1
M126 1L39 — J2
ØØ4

+3 — S2
AD ØØ-17=Ø — R2
IR FDVXX A — R1
AD Ø9-35=Ø — M1
MQ Ø8(Ø) — N1
MQ Ø9-35=Ø — M2
AD ØØ-17=Ø — N2
M128 1M40 — P2
NR ALL ZEROS

IR UFA — S2
AR Ø9A (Ø) — A2
M149 1K11 — T2
ØØ6

NRT1 (1) — M1, K2
AR 1Ø (Ø) — N2
NRT2 (1) — N2
M126 1D39 — L2
+3 — J2, K2
M143 1C22 — H2
NR NEG

NRT1 (1) — B1, C1
AR ØØ A (Ø)
M177 1K19 — A1
ØØ7

AR ØØ (Ø) — K1, J1, K2
IR UFA
M175 1K06 — J2
ØØ8

AR Ø9B(1) — H1, J2
~AD = Ø — J1, L2
~MQ Ø8-35=Ø — M1, N1
M181 1C20 — K2
NR POS

NRT2 (1) — L1, N2, N2
~AR ØØ D — N2
AR 1ØA(1)

NR NEG — R2, S2
AR Ø8(1)
NR POS — U2, T2
NRT3 COND
M126 1D10 — U1

NRT3 (1) — K1, H2
+3
NR POS — N1, J1
~NR RND
M126 1D39 — U2
NRT4 COND

NRT4 (1) — T2, U1, U2
IR FP LONG
~IR FDV XX
M145 1C21 — V2
Ø10

~AR ØØ D — B1, D1, E1
AR Ø9 A(1)
+3V — A1
NRT1 (1) — M1, M2, N2
MQ Ø8(1)
IR Ø6(1)
M175 1K06 — L2
Ø11
AR ØØ D — E2, F1
AR Ø9(Ø) — D2
~MQ Ø9-35=Ø — J1
M128 1L25 — G1
NRT1 NORMAL RND

~AR ØØ D — K1, L1
AR 1ØA (1)
+3V — H1
NRT2 (1) — P2, S1, S2
MQ Ø9(1)
IR Ø6(1)
M175 1K06 — A2
Ø12
AR ØØ D — F2, J2
AR 1Ø (Ø) — K2
~MQ 1Ø - 35 = Ø
M128 1L25 — H2
NRT2 NORMAL RND

MQ Ø8(1) — V1, U1
NRT1 (1)
IR Ø6(1) — V2, U2
MQ Ø9(1) — T2
NRT2 (1)
M128 1L25 — S1
+3 — J1, K1
M143 1C22 — L1
NR RND

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO	REV	
JF	K11Ø-00042	A	M. Beaudry 3-5-71
			D GROSS

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN E. J. Brown DATE 5/11/c
CHKD Richard Gross DATE 31 Jan 72
ENG Allan Kotok DATE 31 Jan 72
PROJ ENG Allan Kent DATE 31 Jan 72
PROD Manufacturing DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-K11Ø-Ø
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
FLOATING NORMALIZE TIME STATES

SIZE D | CODE BS | NUMBER K11Ø-Ø-NR | REV A
DIST.

~ PAGE WRITING B1 C1 +3
PAGE TEST PRIVATE D2 E1
M172 2R27 A1

AM ANY MATCH V2 U2
~ XCT SHADOW REF V1 U1
MA SPECIAL(1) W1 R1
AB 18 - 31 = Ø S1 +3 M2
+3
M363 2N23 P1

ØØ3
ØØ1

PAGE EXEC UNPAGED REF H1 J2
~PAGE TEST PRIVATE
AMSP WRITABLE OUT S2
~ PAGE WRITING R2
M143 2R19 I2
PAGE TEST WRITE ØØ2 J1 L2
PAGE EXEC PAGE FOUND L1 M2 N2
~ AMSP PUBLIC
M181 2P23 K2 — PAGE OK
~PAGE ILL ENTRY N1 N1

~ USER PAGING V2
MA SPECIAL (Ø) U2
~ AB 18 - 31 = Ø M2
M6Ø3 2R24 N2 — PAGE EXEC REF

AM ANY MATCH H1 C1
V1 M6Ø3 2R24 R1 PAGE EXEC
MA EXEC UNPAGED U1 S1 UNPAGED REF +3 E1 H2
M172 2R27 F1 — PAGE EXEC PAGE FOUND
~ PAGE ILL ENTRY P2 S1
~MA EXEC UNPAGED S2
M145 2P24 R2 — PAGE EXEC PAGED REF

M1 M2 N2
M175 2R28 L2 — PAGE SMALL VIOL

PAGE SMALL USER(1) T2
USER PAGING U1
~ AB 19 - 21 = Ø U2
M145 2P27 V2

PAGE ILL ENTRY A1 B1 +3
PAGE USER REF D1
PAGE SMALL VIOL E1
PAGE EXEC UNPAGED REF F2
PAGE TEST PRIVATE H2
PAGE REFILL ERROR(1) D2 E2 F1 +3
M181 2P28 C1 — ØØ4

~ AMSP PUBLIC OUT D2
PAGE TEST PRIVATE E2
PAGE WRITING F2
M175 2R28 E1 — ØØ5

P1 U1 +3
PAGE EXEC PAGE FOUND P2 R2
M181 2P23 S2 — PAGE FAIL

~ AMSP PUBLIC OUT F1
PAGE TEST PRIVATE N1
~ XCT PROT BYPASS P1
M175 2R28 H1 — PAGE USER PAGE FOUND T2 U2
PAGE CONCEALED VIOL

PAGE TEST WRITE R1
~ AMSP WRITABLE OUT S1 V2
MC SYNC WRITE(1) V2
MC SPLIT CYC SYNC(1) U2
M143 2R19 U1 — ØØ9
MC ASYNC START A(Ø) F2
M173 2R22 E2 F1 — PAGE WRITING

MR RESET H D1 C1
+3 E1 E2
M172 2R27 F2 — Ø
PAGE REFILL ERROR

PFF 1 (Ø) H M1 K2
AMAC WRITE DONE N2 M2
M126 2R26 L2 — 1

AMAC WRITE DONE H1 J2
~ AM ANY MATCH J1 L2
AMAC WRITE PULSE 1 M1 N1 +3
M181 2P28 K2 — PAGE MATCH LATCH
L1 M2 N2

P1 R1
~ PAGE TEST PRIVATE P2
PAGE USER PAGED REF U1
XCT PROT BYPASS R2 S2
PAGE EXEC REF S1
~ MA EXEC UNPAGED U2
~ PAGE TEST PRIVATE V2
M171 2S25 T2 — ØØ7

PAGE USER PAGED REF L2 M2
PAGE EXEC PAGED REF N2
AMSP PUBLIC OUT H1 N1
AM ANY MATCH +3 J1 J2
~ PAGE ILL ENTRY +3 N1 C1
M171 2S25 K2 — PAGE TEST WRITE

~ AM ANY MATCH S2
PAGE REFILL ERROR(Ø) T2
P2
M6Ø3 2R24 R2 — PAGE REFILL

T2 U1 U2
M145 2P24 V2

~ PAGE ILL ENTRY N1
MA SPECIAL(Ø) P1
AB 18 - 31 = Ø R1
XCT SHADOW REF R2
M147 2P25 P2 — ØØ6
PAGE USER PAGED REF B1 C1
PAGE EXEC PAGED REF D1
M145 2P27 A1 — PAGED REF

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "D" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHK	CHANGE NO.	REV
		K110-00038	A
		D. GHOSS	8-17-73
		K110-00043	B
		KENT	

DEC FORM NO DRD 109 A

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. D. G. Green	DATE 6/3/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Grose	DATE 31 Jan 72	
ENG. Helen Kotik	DATE 31 Jan 72	
PROJ. ENG. Allen Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE Ø

SHEET 1 OF 1

TITLE
PAGE DECISION LOGIC

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-PAG1	B

DIST.

M243 2J12 — PAGE LAST INST PUBLIC
MR RESET B
CLK DRIVE C2
PAGE LAST INST PUBLIC (1)
~ PAGE LIP CLR A
~ PAGE LEAVE USER
ARF LOAD C AR Ø7A (1)
IT1 B (1) PAGE PRIVATE INST (Ø)
M171 2H09
Ø01

M246 2K16 — PAGE PRIVATE INST
PAGE CLR PRIVATE (1)
PAGE SET PRIVATE (1)
MCTØ
PAGE PRIVATE INST (1)
~ PAGE CHK PRIVATE
PAGE CHK PRIVATE
~ AMSP PUBLIC
PAGE EXEC UNPAGED REF
M171 2L04
Ø02

M243 2J12 — PAGE LAST MUUO PUBLIC
MR RESET B
CLK DRIVE C2
PAGE LAST MUUO PUBLIC (1)
~ ARF LOAD
ARF LOAD C AR ØØ C
M126 2F10
Ø07

M243 2J11 — PAGE CLR PRIVATE
MR RESET B
CLK DRIVE C2
ARF LOAD C AR Ø7A (1)
PFFI SET
PAGE LAST INST PUBLIC (1)
M126 2F10
PAGE ENTER PUBLIC

M243 2F11 — PAGE SET PRIVATE
MR RESET A
CLK DRIVE C1
+3
ARF LOAD C
MUUO PART 3
~ PAGE ENTER PUBLIC
USER MODE (Ø)
AR Ø5 (1)
M128 2F08
Ø03

M243 2P33 — PAGE SMALL USER
UEBR CLR
UBR LOAD
IOB Ø3 T

M246 2J25 — PAGE ADR COMP
IOB RESET A (1)
+3
IOB Ø4 T

IT1 B (1)
IR 12 A (1)
PAGE PRIVATE INST (1)
IR JRST
ARF LOAD C
~ USER PAGING
AR Ø5 (1)
M128 2F08
PAGE LIP CLR A

+3
ARF LOAD C
MUUO PART 3
+3
PI CYC A (1)
ET2 K (1)
AR FLAGS SAVE
M128 2F08
Ø04

M177 2J07
PAGE LEAVE USER

KEY START (1)
KT1 A Ø
M143 2J06
Ø06

PI CYC (Ø)
KEY CYCLE (Ø)
+3
MC Ø3 2K14
Ø09

PAGE LAST INST PUBLIC (1)
~ MC INST FETCH
M145 2P27
PAGE TEST PRIVATE
M175 2R28

PAGE REFILL
MC ASYNC START (Ø)
MC Ø3 2H17
Ø16

R1 R2 R1 R2
PAGE SYNC REFILL
MR STATE CLR
MC PAGE DLY OVER A
+3

PI
RI
M173 2E24
PAGE CONI C

IOB CONI T
BIO PAGE SEL
M241 2J16
M173 2E24
PAGE CONI A

M173 2E24
PAGE CONI B

IOB CONO SET T
M173 2E24
PAGE CONO SET

+3
COMP ADR BRK
KEY WR COND (1)
KEY IN FET COND (1)
KEY RD COND (1)
M172 2R27
M171 2L04
MC SYNC WRITE (1)
PAGE LAST INST PUBLIC (1)
PAGE PRIVATE INST (1)
MC INST FETCH
MC SYNC WRITE (Ø)
~ MC INST FETCH
Ø20
Ø21
Ø22
PAGE ILL ENTRY
M143 2M18

MCTØ
MR RESET C
M173 2L06
Ø08

~ MA AC REF LATCH
MA SPECIAL (Ø)
MC INST FETCH
~ PAGE REFILL
M177 2R21
M147 2P25
PAGE CHK PRIVATE

R2 P2 R2 P2
PAGE REFILL ADR
M246 2M16
MC PAGE DLY OVER A
PAGE REFILL

MC PAGE DLY
+3
M172 2R27
Ø
PAGE REFILL CYCLE
1
~ MR RESET D
MC PAGE DLY OVER A
PAGE REFILL
M126 2R26

PAGE REFILL CYCLE (1)
PAGE SYNC REFILL (1)
MC SYNC READ (Ø)
M126 2R26
PAGE REFILL RESTART

~ AB 18-31 = Ø
MA SPECIAL (Ø)
USER PAGING
M175 2R28
PAGE USER REF
M173 2R22
~ PAGE SMALL VIOL
PAGE USER PAGED REF
~ PAGE ILL ENTRY
M145 2P27
M172 2R27
PAGE USER PAGE FOUND
+3
AM ANY MATCH

IOB DATAI T
BIO PAGE SEL
M143 2K41
Ø05
+3
M612 2L33
PAGE DATAI A
PAGE DATAI B
PAGE DATAI C
PAGE DATAI D

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. A. Wallace — DATE 8-4-71
CHK'D. David Green — DATE 21 JUN 72
ENG. H. Van Kotte — DATE 21 JUN 72
PROJ. ENG. Allan Kent — DATE 21 JUN 72
PROD. [illegible] — DATE 21 JUN 72
NEXT HIGHER ASSY. B-DD-KI10-Ø
SCALE ∾
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: PAGING CONTROL

SIZE D | CODE BS | NUMBER KI10-Ø-PAG 2 | REV.
DIST.

REVISIONS | REV | CHANGE NO. | CHK

DEC FORM NO DRD 102-B

TEST TXXA P1 U1 +3
TEST TXXN P2 R2 ~AD=Ø
IR JFFO T2 FLAG 1(1) U2
TEST TXXE A1 AD ØØ-17=Ø S1 AD Ø9-35=Ø V2
M181 1M21 S2 — PC CLK (ET1) EN

IR 3XX V2
IR Ø6 B(1) U2
M143 1B38 U1 — PC CHANGE A

IR 25X M1
IR 26X M2
IR 3XX N2
M145 1B21 L2 ØØ3
PC CHANGE A A1 E1
+3 B1 D1
TEST TXX(EN,A) B1
IR ACBJX A1
IR POPJ C1
IR BLT D1
IR DPOP H2
IOT INST F2
IR JFFO D2
MUUO PART 3 E2
M139 1B23 J2 ØØ4
M171 1C29 C1 — PC CHANGE
BYTE FIRST PART F1 ~IR IBP H2
IR DMOVXM D2 BYF6(Ø) E2 +3 F2

IR JSR P2
IR PUSHJ A S1
IR BLT A S2
M145 1B21 A2 — PC CLK (ET2) EN A

ET2 J (1) D1 C1 +3 E1 IR PUSHJ A E2
M172 1C34 F2
Ø15
IT1 A (1) H1 IR BLT N1
+3 U1 U2
PC+1 INH (1) L1 ~PC+1 INH CLR M1
ET1 E (1) L2 IR JFFO M2 FLAG 1 (1) N2
M171 1C29 K2

IR Ø9(1) P1 AR OV(1) A1
IR 10(1) P2 AR CRY Ø(1) U1
IR 11(1) R2 AR CRY 1(1) S2
IR 12(1) S1 AR FOV(1) U2 +3 V2
M171 1D12 T2
V2 +3 U2 M143 1D15 U1 — PC COND E

IR CON9Ø R2 ~AD=Ø V1
U1 V2
IR CON3Ø R1 AD ØØ-17=Ø S1 AD Ø9-35=Ø U2
M170 1L15 S2 ØØ2

ADE COND Q S2
IR SKIP3 R2 R1
ADE COND P M1
ADE COND R N1
IR CAXX M2 N2
M128 1C30 P2 — PC CLK (ET2) EN C
IR SKIP3 B1 D1 E1
+3 C1 E2 F1 D2
ET2 J (1) +3
M128 1C30 C1 — PC CLK (ET2) EN B

ETØ F (1) P1 IR JSA A1
PC CLK (ET2) EN A P2 ET2 J (1) U1
DFDT5 (1) A2 +3 S2 S1 U2 V2
M171 1C29 T2 — PC+1 INH CLR

MR STATE CLR R2 +3 S2
PC MEM COND U2 MCTØ T2
M126 2F10 U1 ØØ5
PC+1 INH T2 Ø S2 T2 1 S2 V2 U2 V1
PFT1(1)
CLK DRIVE C2
M241 2K06

BLTT7(1) S1
DFDT4(1) S2
PIT2(1) U2
IT2(1) V2
M177 1B34 T2
Ø10
KTF(1) T2 U1 U2
M175 1A31 V2 — PC+1 INH IN
Ø11

MC INST FETCH M1
XCTF(Ø) N2
M173 2E09 M2 — PC MEM COND
MC PAGE DLY OVER A1 B1 E1 F1 E2 H1 C1
RD M362 2E06 37 Ø13 H2 D1 D2 F2 +3 — PC CLK EN
K2 — PC CLOCK A
L2 — PC CLOCK B
CLK C

ADJUST DELAY TO PROVIDE 2BTNS FROM CLK A, 1H16K2 TO PC CLOCK A, 2P17B1

IOT BLKX SKIP (1) P1
IOB IOT (1) R1
V2 P2
M126 1D39 S1 ØØ7
ETØ F (1) V1 U1 V2 M128 1C30 S1 ØØ9 — PC CLK EN (BLT)
IR JSA A U2
ET1 J (1) T2
BLTT9 (1) A2 +3 S2
BLTF1 (1) U2 T2
M126 1D39 U1

PC CLK (ET2) EN C P1 U1
PC CLK (ET2) EN B
PC CLK (ET1) EN P2 ET1 E (1) R2
+3 T2 U2
PI CYC RDY (1) A1
INST DONE (1) S1
XCTF(Ø) V2
M181 1C20 S2 — PC CLK EN
;PITØ

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "D" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO. BRD 102A

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.		DATE 7/3/70
CHK'D.	Ward Gross	DATE 31 JAN 72
ENG.	Allan Kotik	DATE 31 JAN 72
PROJ. ENG.	Allan Kent	DATE 31 JAN 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY. B-DD-KI10-Ø

SCALE 2/1

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: PC CONTROL

SIZE D | CODE BS | NUMBER KI10-Ø-PCC | REV

DIST.

MC PAGE DLY OVER 2H25C1
28 TNS
PF REG CLK 2H25L2

M362 2H25 RD 53 28 TNS DELAY
MC REFILL DONE +3
MC PAGE DLY OVER
PAGE FAIL
PF REG CLK
MR RESET
USER PAGING

M243 2H24 PF HOLD USER
M243 2H24 PF HOLD 31
M243 2H24 PF HOLD 32
M243 2H24 PF HOLD 33
M243 2H24 PF HOLD 34
M243 2H24 PF HOLD 35

MR RESET
AMAC WRITE DONE SET
AMAC DATAO SET
M6Ø3 2K28

M246 2L3Ø PF WORD EMPTY
AMAC WRITE PULSE .1
PAGE REFILL CYCLE(Ø)
AMAC DATAO CLR

PAGE ILL ENTRY +3
PAGE USER PAGE FOUND
PAGE CONCEALED VIOL
PAGE EXEC UNPAGED REF
PAGE TEST PRIVATE
M171 2H24
PF CODE 2X
PAGE REFILL CYCLE (Ø)

M6Ø3 2H22
~ PF CODE 2X

M6Ø3 2H22
PAGE ILL ENTRY
PAGE LAST INST PUBLIC (Ø)
PAGE PRIVATE INST (Ø)
M171 2H24
PAGE REFILL ERROR (1)

M126 2R26
M124 2S29
PAGE REFILL CYCLE (1)
PAGE REFILL CYCLE (Ø)
AMSP WRITABLE OUT
AM WRITABLE IN
AMSP SOFTWARE OUT
AM SOFTWARE IN

PAGE ILL ENTRY +3
PAGE USER PAGE FOUND
PAGE CONCEALED VIOL
PAGE EXEC UNPAGED REF
PAGE TEST PRIVATE
~ PAGE SMALL VIOL
PAGE REFILL ERROR (Ø)
PAGE WRITING
M171 2H24

PAGE SMALL VIOL
PAGE REFILL ERROR (1)
M6Ø3 2H22

MR RESET
KT1 A (1)
M143 2C39
M143 2C39

M246 2M16 PF KEY
PFTØ
KT3 A
ADJUST M363 2F14 TO MAXIMUM DELAY

PF SYNC (1)
MCI SYNC POINT
M6Ø3 2H22
M6Ø3 2H22
PFTØ
M173 2J2Ø
M363 2F19 52
PF CLK START

M241 2H1Ø PFT4
MR RESET C
CLK DRIVE C2
PFTØ
BLTF1 (Ø)
~ PF MAP COND
PI CYC A (1)
M147 2H19

MR RESET D
PF CLK START
M1145 2K18
PF SYNC
MC PF QUICK
M1145 2K18
MC REFILL DONE
~ AM ACCESS IN
M143 2L18

M241 2H1Ø PFT1
MR RESET C
CLK DRIVE C2
PFTØ
BLTF1 (Ø)
~ PF MAP COND
PI CYC. (Ø)
M147 2H19

M243 2F11 PFT2
MR RESET A
CLK DRIVE C1
PFT1 (1)

M243 1G32 PFT3
MR STATE CLR A
CLK DRIVE A1
PFT2 (1)

M243 2J12 PFF1
MR RESET B

FTG (1)
FT8 (1)
IR MAP +3
M126 1F4Ø
PF MAP COND A
M363 2J27
KT3 A +3
KEY MEM OP
MC ASYNC START A (Ø)
PF MAP COND

PFF1 (1)
IT2 (Ø)
M126 2H13
PFT1 (1)
BLTT5 (1)
M143 1F38
PFF1 SET

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO.	REV.	
PM	K11Ø-ØØØ3Ø	A	A. KENT 2-MAR-73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

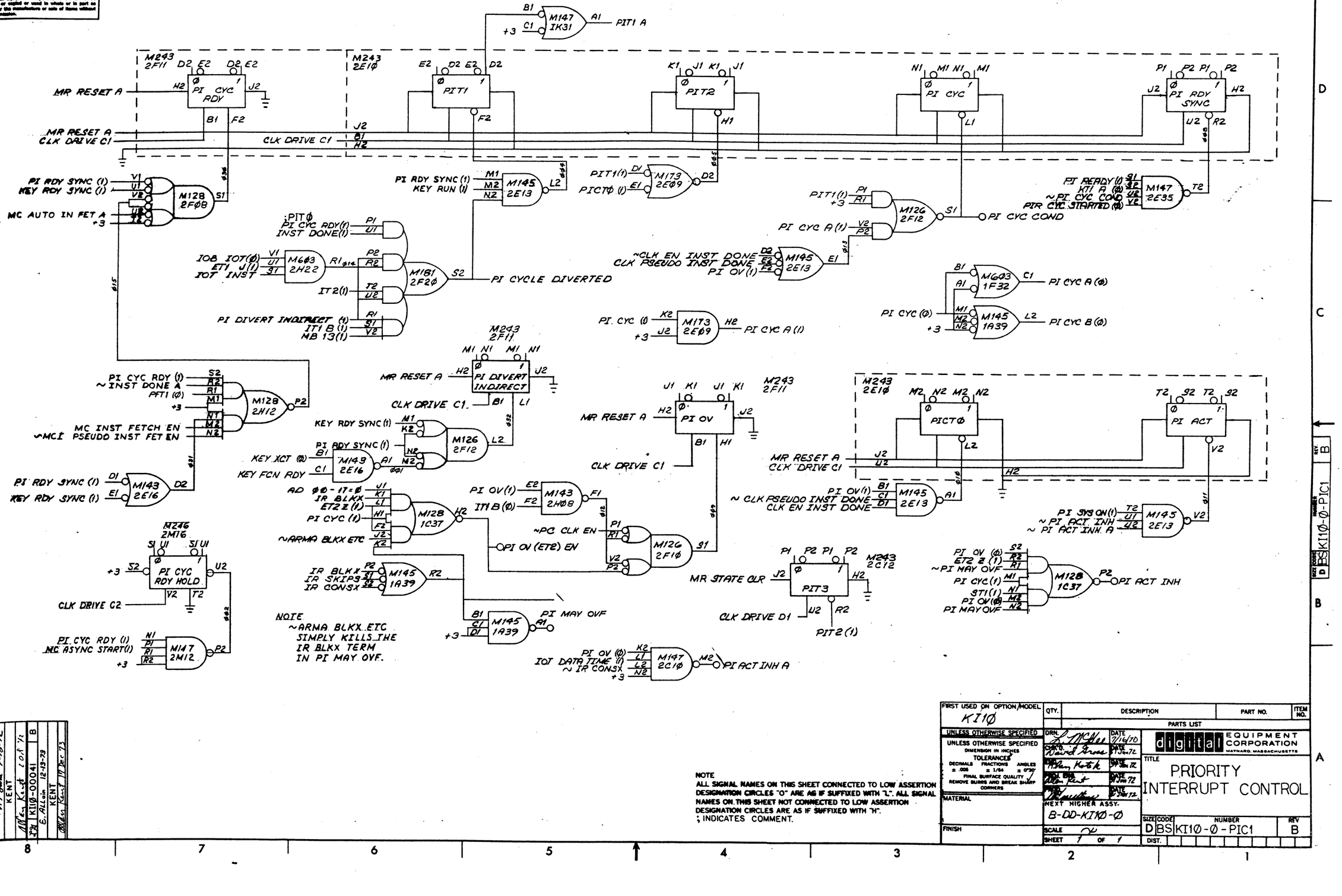
DRN S J Sweeney DATE 7/1/70
CHKD David Gross DATE 31 JAN 72
ENG H Van Kotch DATE 31 JAN 72
PROJ. ENG. Dick Kent DATE 31 JAN 72
MGR Mauritson DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-K11Ø-Ø
SCALE 2U
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
PAGE FAIL LOGIC

SIZE D CODE BS NUMBER K11Ø-Ø-PF REV A
DIST.

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".
; INDICATES COMMENT.

REV.	CHK.	CHANGE NO.	
A		KI10-00024	M. Toomey 9-Oct-72 KENT
B		KI10-00041	E. Allain 12-13-72 KENT

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	L. McHale	DATE 7/14/70
CHK'D	David Grose	DATE 1 Jun 72
ENGR	Mary Kotok	DATE 1 Jun 72
PROJ. ENG	Allen Kent	DATE 1 Jun 72
MGR	Jim Guthrie	DATE 1 Jun 72

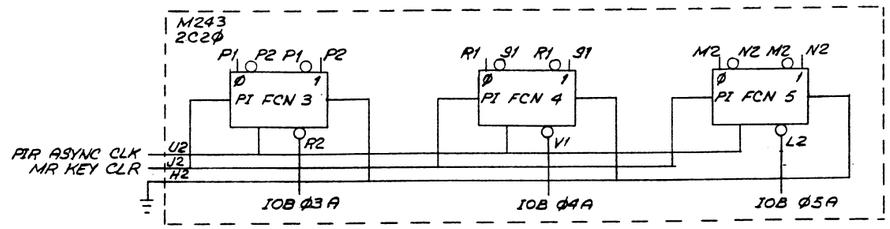
NEXT HIGHER ASSY.
B-DD-KI10-Ø
SCALE
SHEET 1 OF 1

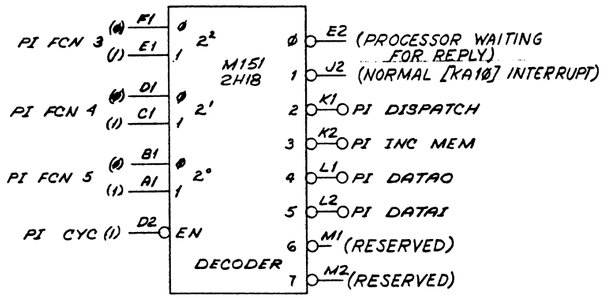
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

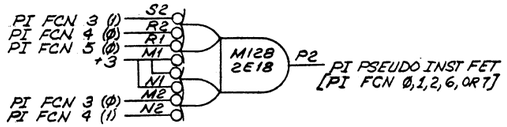
TITLE
PRIORITY INTERRUPT CONTROL

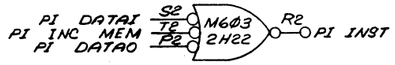
SIZE	CODE	NUMBER	REV
D	BS	KI10-Ø-PIC1	B
DIST.			

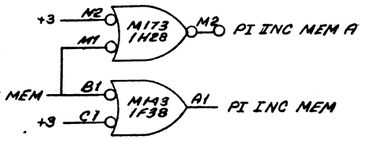
BSC FORM NO DRD 102A

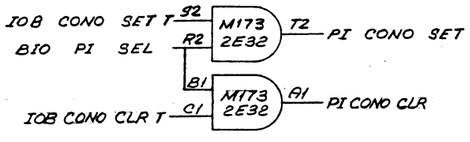


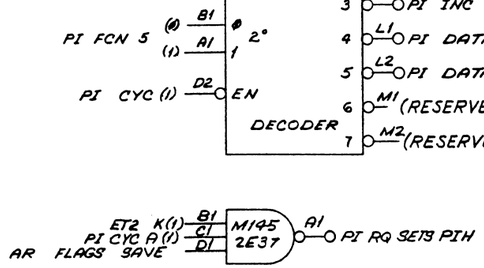


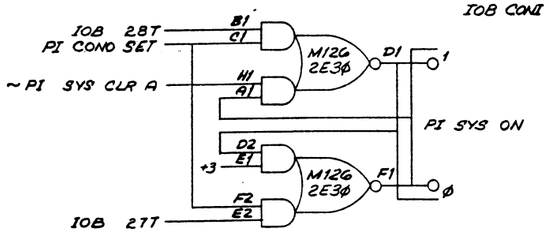


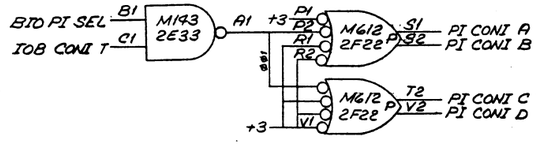


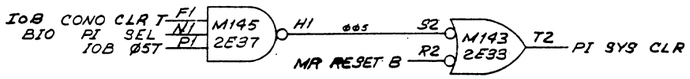


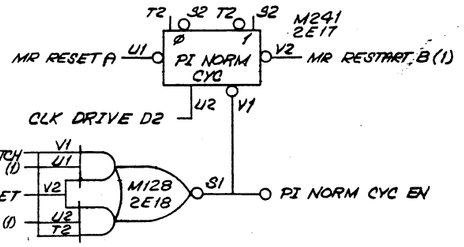


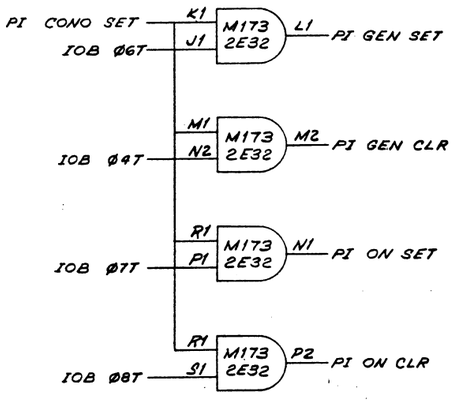












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H"

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN	D. G. Swan	DATE 7/15/70
CHKD	David Gross	DATE 31 Jan 72
ENGR	Mary Kotok	DATE 31 Jan 72
PROJ. ENGR	Allen Kent	DATE 31 Jan 72
PROJ.		DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
PRIORITY INTERRUPT CONTROL

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-PIC2	

DIST.

DEC FORM NO. DIRD 102 A

*NOTE:
PIH FF'S ARE EQUAL TO 'PI IN PROGRESS" INDICATORS

M243 2F36

PIH 1 * (D1 E1 D1 E1 / C1)
PIH 2 (D2 E2 D2 E2 / F2)
PIH 3 (J1 K1 J1 K1 / H1)
PIH 4 (M1 N1 M1 N1 / L1)
PIH 5 (P2 P1 P2 P1 / R2)
PIH 6 (S1 R1 S1 R1 / V1)
PIH 7 (N2 M2 N2 M2 / L2)

PI SYS CLR — H2
CLK DRIVE D2 — B1
U2
CLK DRIVE D2 U2

M126 2F37

@01 D1 (B1 C1 H1 A1) — PI REQ 1 / PI RQ SETS PIH
@02 F1 (D2 E1 F2 E2) — PI REQ 2
@03 J2 (K1 H2 N1 J1) — PI REQ 3
@04 L2 (M1 K2 N2 M2) — PI REQ 4
@05 S1 (P1 R1 V2 P2) — PI REQ 5
@06 U1 (R2 S2 U2 T2) — PI REQ 6
M126 2H36
@07 U1 (R2 S2 U2 T2) — PI REQ 7

M126 2F39

@01 D1 (B1 C1 H1 A1) — PI ACT(Ø) / ~PI DISMISS
@02 F1 (D2 E1 F2 E2) — ~PI 2 CLR
@03 J2 (K1 H2 N1 J1) — ~PI 3 CLR
@04 L2 (M1 K2 N2 M2) — ~PI 4 CLR
@05 S1 (P1 R1 V2 P2) — ~PI 5 CLR
@06 U1 (R2 S2 U2 T2) — ~PI 6 CLR
M126 2H36
@07 S1 (P1 R1 V2 P2) — ~PI 7 CLR

M243 2F40

PIR 1 (E1 D1 E1 D1 / C1)
PIR 2 (E2 D2 E2 D2 / F2)
PIR 3 (K1 J1 K1 J1 / H1)
PIR 4 (N1 M1 N1 M1 / L1)
PIR 5 (P2 P1 P2 P2 / R2)
PIR 6 (R1 S1 R1 S1 / V1)
PIR 7 (M2 N2 M2 N2 / L2)

CLK DRIVE D2 — J2 B1 H2
CLK DRIVE D2 U2

M172 2F41

THIS GATE IS PERMANENTLY DISABLED
~PI RQ (C1 B1) A1 = PI RQ
PI RQ +3 (E1 D2) A1 = PI RQ
H1 H2 F1

M126 2F43

~PI RQ — C1
PI RQ — E1

@01 D1 (B1 C1 H1 A1) — PI ON 1 (1) / PI GEN 1 (1) / BIO PI 1T
@02 F1 (D2 E1 F2 E2) — PI ON 2 (1) / PI GEN 2 (1) / BIO PI 2T
@03 J2 (K1 H2 N1 J1) — PI ON 3 (1) / PI GEN 3 (1) / BIO PI 3T
@04 L2 (M1 K2 N2 M2) — PI ON 4 (1) / PI GEN 4 (1) / BIO PI 4T
@05 S1 (P1 R1 V2 P2) — PI ON 5 (1) / PI GEN 5 (1) / BIO PI 5T
@06 U1 (R2 S2 U2 T2) — PI ON 6 (1) / PI GEN 6 (1) / BIO PI 6T
M126 2H36
@07 L2 (M1 K2 N2 M2) — PI ON 7 (1) / PI GEN 7 (1) / BIO PI 7T

NOTE
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FIRST USED ON OPTION/MODEL: KI1Ø

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. W. Stephenson 7/1/72
CHKD. David Grose 31 Jan 72
ENG. Mary Hatch 31 Jan 72
PROJ. ENG. John Kent 31 Jan 72
PROD. [illegible] 29 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE Ø
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

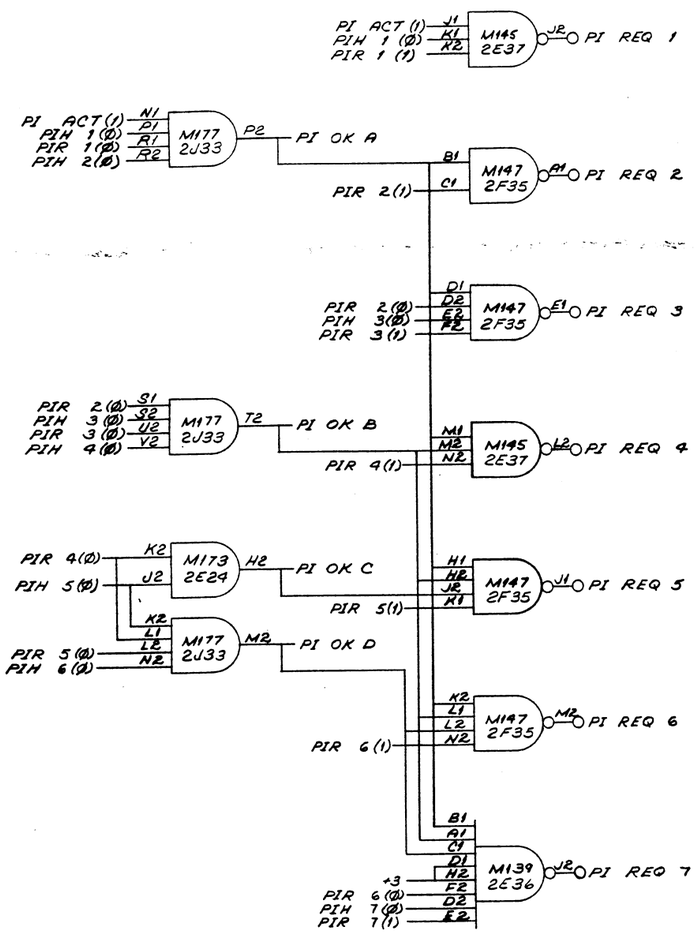
TITLE
PIH & PIR REGISTERS

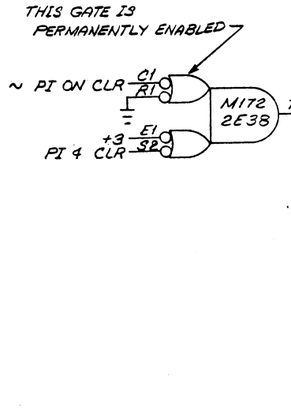
SIZE D CODE BS NUMBER KI1Ø-Ø-PIHR REV.
DIST.

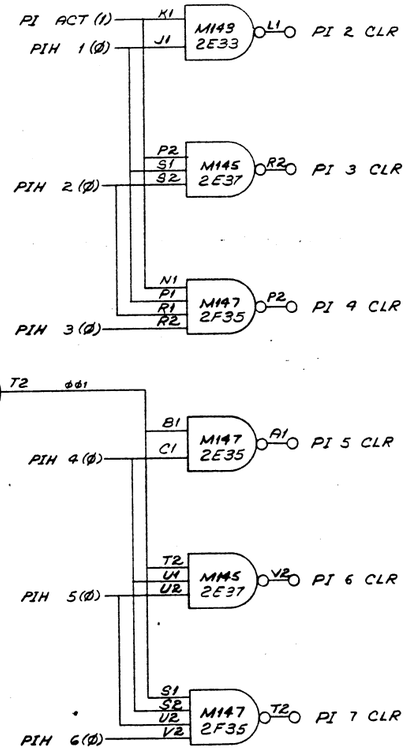
REVISIONS — REV. / CHANGE NO. / CHK

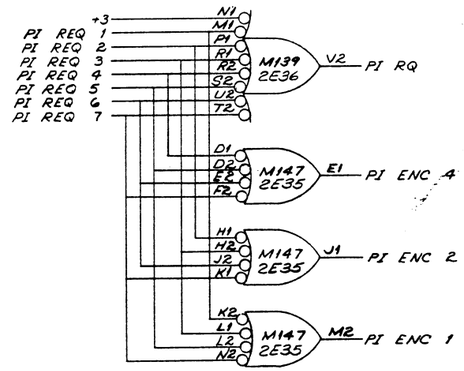
DEC FORM NO DRD 102A

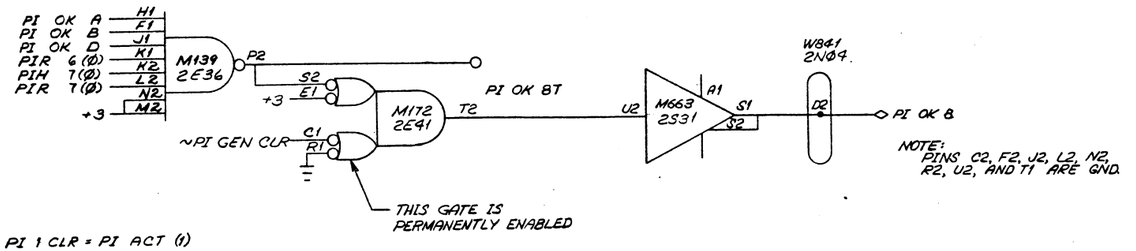
SIZE D CODE BS NUMBER KI1Ø-Ø-PIHR REV











NOTE: PI 1 CLR = PI ACT (1)

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	DG Green	DATE 7/13/70
CHKD	David Gross	DATE 3 JUN 72
ENG	Allan Kotok	DATE 3 JUN 72
PROJ. ENG.	Allan Kent	DATE 3 JUN 72
PROJ.	M Smith	DATE 3 JUN 72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE ½
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

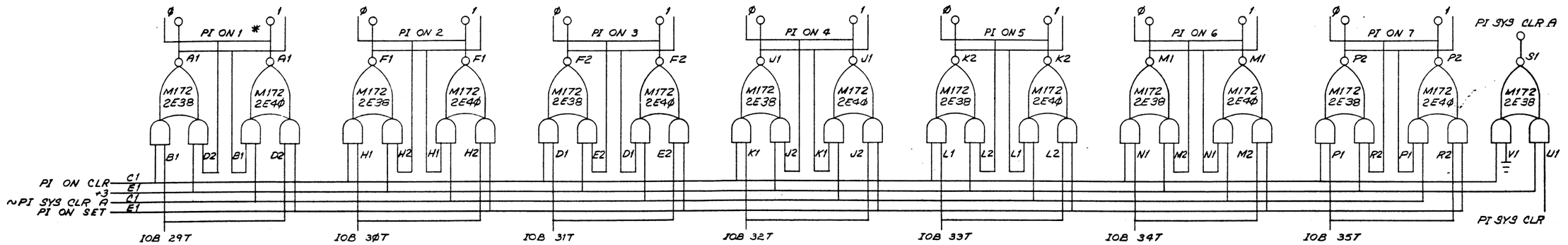
TITLE
PRIORITY INTERRUPT NETWORK

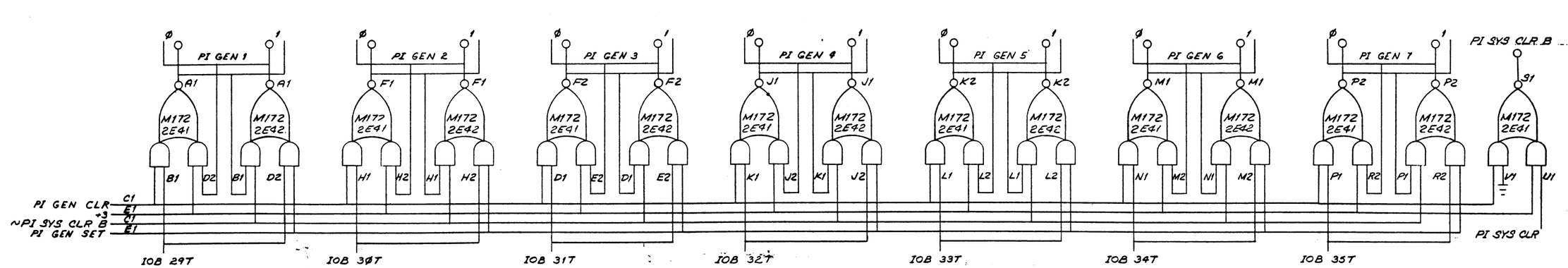
SIZE	CODE	NUMBER	REV.
D	BS	KI1Ø-Ø-PIN	

DIST.

DEC FORM NO DRD 102A

*NOTE:
PI ON FF'S ARE EQUAL TO "PI ACTIVE" INDICATORS.





NOTE
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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	D. Sievers	DATE 11/1/70
CHKD.	David Gross	DATE 31 Jan 72
ENG.	William Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KIØ-Ø
SCALE ~
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
PI ON AND PI GEN

SIZE D | CODE BS | NUMBER KIIØ-Ø-PIOG | REV.
DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

M243
2E29

PIR DONE (1)
PIR ASYNC CLK

PI REQ SYNC PULSE
PI REQ GRANT
PIR RETURN SYNC
PIR COUNT Ø
PIR COUNT 1
PIR COUNT 2
PI READY

PIR COUNT 2(Ø)

PIR RETURN SYNC (1)

PIR RETURN SYNC (Ø)
M172 2E12
PI REQ SYNC PULSE (1)

PI REQ GRANT (1)
PIR COUNT Ø (1)
PIR COUNT 1 (Ø)
M147 2H3Ø
PIR RETURN SYNC (1)
IOB PI GRANT RETURN
M147 2H3Ø

IOB Ø3 A
IOB Ø4 A
IOB Ø5 A
M6Ø3 2J36

IOB PI IN
M143 2E33
PIR CHAN BDCST

SWITCH POSITION "5"
PIR CLK DLY 3ØØ ns
M3Ø7Ø 2E28
PIR ASYNC CLK

M271
2B31

PIR CYC STARTED
PIR DONE
MR RESET B
CLK DRIVE D2

PIR CYC STARTED (1)
PI READY (1)
M143 2C32
PI CYC (1)
M6Ø3 2C27

PIR CYC STARTED (1)
M143 2C39

SWITCH POSITION "5"
PIR UNGRANT TIMER 1µs
PI READY (Ø)
M3Ø7Ø 2B3Ø

IOB PI (Ø)
PIR DONE (1)
PI READY (1)
M115 2E22

PIR ASYNC CLK

PIR COUNT			
	Ø	1	2
	Ø	Ø	Ø
	1	Ø	Ø
	1	1	Ø
	1	1	1
	Ø	1	1
	Ø	Ø	1
	Ø	Ø	Ø
	1	Ø	Ø
	1	1	Ø
	1	1	1
PI READY (1) STOPS CLOCK PI DONE (Ø) CLEARS COUNT	Ø	Ø	Ø

; AT REST
; PI REQ. SYNC PULSE
; PI REQ. GRANT
; PIR RETURN SYNC (FROM DEVICE OR END OF BUS)
; PIR READY ON NEXT CLOCK
; PIR RETURN SYNC (BY TIMEOUT)
; PI READY (BY TIMEOUT)

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO.	REV.	
JH	KI1Ø-00041	A	
[illegible]	23-19-72		A. KENT
Allen Kent	17 Dec 73		

DEC FORM NO

FIRST USED ON OPTION/MODE: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED	DRN. W. Stephenson	DATE 7/6/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHKD. David Stone	DATE 31 Jan 72	TITLE: PI REQUEST LOGIC
	ENG. Dan Katek	DATE 31 Jan 72	
	PROJ. ENG. Allen Kent	DATE 31 Jan 72	
MATERIAL	PROD. [illegible]	DATE 31 JAN 72	
	NEXT HIGHER ASSY B-DD-KI1Ø-Ø		SIZE D | CODE BS | NUMBER KI1Ø-Ø-PIR | REV. A
FINISH	SCALE ~		
	SHEET 1 OF 1		DIST.

SIZE D | CODE BS | NUMBER KI1Ø-Ø-PIR | REV A

M243 2P36

E1 D1 E1 D1 | E2 D2 E2 D2 | K1 J1 K1 J1 | N1 M1 N1 M1 | P1 P2 P1 P2 | R1 S1 R1 S1 | M2 N2 M2 N2 | T2 S2 T2 S2

PTP HOLE 8 | PTP HOLE 7 | PTP HOLE 6 | PTP HOLE 5 | PTP HOLE 4 | PTP HOLE 3 | PTP HOLE 2 | PTP HOLE 1

PTP DATAO SET
PTP BUF CLR
B1 V2 H2
C1 | F2 | H1 | L1 | U2 R2 | V1 | L2 | V2

IOB 28T | IOB 29T | IOB 30T | IOB 31T | IOB 32T | IOB 33T | IOB 34T | IOB 35T

PTP DATAO SET

M241 2M33

PTP RESET → C1 D2 C1 D2 D1 PTP BIN A1 +3 → IOB 12T
PTP CONO SET → U2 B1

F1 E1 F1 E1 H1 PTP BUSY F2 → IOB 13T

PTP RESET → D1 M173 2K32 D2 → ØØ3
J2 K2 J2 K2 J1 PTP DONE H2 → PTP DONE PULSE → IOB 14T

N1 M1 N1 M1 P1 PTP PIA 33 M2 +3 → PTP RESET → IOB 15T

R1 R2 R1 R2 S1 PTP PIA 34 N2 +3 → IOB 16T

T2 S2 T2 S2 U1 PTP PIA 35 V2 +3 → IOB 17T

PTP DONE PULSE → B1 M173 2K32 A1 → ØØ1
PTP RESET → C1

IOB DATAO CLR T → D2 M6Ø3 2L31 E2
BIO PTP SEL → D1

PTP SYNC V2
PTP SCR DLY (1) U2
PTP SPEED DLY (Ø) M2
M6Ø3 2M32 N2 → ØØ2

E2 K1 E2 K1 M3Ø7 2R43 PTP SOL DRIVE 10 mS L1 +3 → ØØ10
SWITCH POSITION "2" B1 A1 C1 ØØ13 (42) U2
L2 PTP BUSY (1) K2 PTP TAPE FEED

PTP SOL DRIVE (Ø) K1 M6Ø3 2M32 J1 → PTP SYNC DLY PULSE

PTP BUSY (1) J2 T2
PTP SPEED DLY (Ø) P2
M6Ø3 2M32 R2

P1 M143 2N43 +3 R1 N1 → PTP DONE PULSE

IOB RESET A(1) S1 M143 2N43 P2 → PTP RESET
+3 R1

M926 3A01 C2T1
U1 PTP SYNC BIAS -15V
M1 PTP SOL DRIVE(1)
D1 PTP RAW SYNC
TIE POINT 2P4ØJ1
H1 PTP HOLE 8A
J1 PTP HOLE 7A
K1 PTP HOLE 6 (1)
L1 PTP HOLE 5 (1)
N1 PTP HOLE 4 (1)
P1 PTP HOLE 3 (1)
R1 PTP HOLE 2 (1)
S1 PTP HOLE 1 (1)
V1 PTP MOTOR
E1
F1

PTP HOLE 8 (1) P1 R1
PTP BIN (1)
M126 2L42 S1 PTP HOLE 8A
PTP BUSY (1) V2 P2 +3
PTP HOLE 7A
PTP BIN (Ø) M1 M173 2R22 N2 PTP HOLE 6 (1)
PTP HOLE 7 (1) N2 PTP HOLE 5 (1)

330pF
10KΩ
-15V 1K
1K
10KΩ D2
W52Ø 2P4Ø H2 ØØ11 SEE WAVE-FORM BELOW
+3 D2 A1 R1 M564 2P41 B1 PTP SYNC

M931
M931

PTP SCR DLY (1) V2 M143 2R3Ø U1
PTP MOTOR ALLOW (1) U2
PTP TAPE FEED
S2 M143 2R3Ø T2 PTP NO TAPE
+3 R2

K2 W52Ø 2P4Ø N2
L2
R2 W52Ø 2P4Ø U2
S2

M3Ø8 2P29
S2 T2 S2 T2
D2 E2 A2 V2 U2 K2 F2 M2
PTP SPEED DLY (41) 1 SEC P2 H2 J2 N2
+3

M3Ø8 2M38
S2 T2 S2 T2
D2 E2 A2 V2 U2 K2 F2 M2
PTP SCR DLY (40) 5 SEC P2 H2 J2 N2
+3

PTP BUSY (1) B1 M6Ø3 2M4Ø C1 ØØ7
PTP TAPE FEED A1

-4V
-7.5V
2P4ØD2 PTP SYNC +AMP
2P4ØH2 PTPØ11

BIO PTP SEL K1 M173 2K32 L1 → PTP CONO SET
IOB CONO SET T J1

M1 M173 2K32 M2 → PTP DATAO SET
IOB DATAO SET T N2

E2 M173 2K32 F1 → PTP CONI
IOB CONI T F2

PTP TAPE FEED K1
IOB RESET A(1) H2
M126 2L42 J2 → PTP BUF CLR
PTP BUSY (Ø) N1 J1

DECODER
PTP PIA 33 (Ø) H2
PTP PIA 33 (1) V1
M151 2M41
PTP PIA 34 (Ø) J1
PTP PIA 34 (1) U2
PTP PIA 35 (Ø) H1
PTP PIA 35 (1) T2
PTP DONE (1) V2 EN

Ø N1 PTP PI 1
1 M2 PTP PI 2
2 P1 PTP PI 3
3 P2 PTP PI 4
4 A1 PTP PI 5
5 R2 PTP PI 6
6 S1 PTP PI 7
7 S2

MR PWR CLR EN B S2 M143 2M43 R2 T2 → Ø
PTP MOTOR ALLOW 1
F2 M6Ø3 2M39 J2
PTR SCR DLY (Ø) H2

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	CHANGE NO.	REV.
CHK	KI1Ø-00036	A
Pm	A. KENT 6-19-73	
Allen Kent 26 Jun 73		

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DRN D. Sweeney 8 Aug 72
CHKD David Gross 31 Jan 72
ENGR Allen Kent 31 Jan 72
PROJ ENG Allen Kent 31 Jan 72
MGR 31 Jan 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE
SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
PAPER TAPE PUNCH CONTROL

SIZE D | CODE BS | NUMBER KI1Ø-Ø-PTP | REV A
DIST.

DEC FORM NO. ORD 102A

PTR RESET — D1 — PTR BIN — A1 — PTR BIN SET; B1; C1 D2 C1 D2; U2; PTR CONO SET; IOB 12 T

M241 2M36

F1 E1 F1 E1 — H1 — PTR BUSY — E2; E2; IOB 13 T

J2 K2 J2 K2 — J1 — PTR DONE — H2; K1; IOB 14 T

IOB RESET A(1) — M1 — *3 — K2 — N2 — M2 — PTR END COND — M126 2L42 — L2

KEY RDI PULSE (1) — D2 — E1 — BIO PTR SEL — F2 — E2 — *3 — M126 2L42 — F1 — Ø06

~ PTR DATAI — K1 — M6Ø3 2M34 — J1 — Ø05

PTR RESET — V2 — PTR CONO CLR — U2 — PTR DATAI — M2 — M6Ø3 2M34 — N2 — Ø09

BIO PTR SEL — H1 — F1 — M6Ø3 2L31 — E1 — PTR RDI LEVEL

BIO PTR SEL — P1 — IOB CONI T — P1 — M1173 2K32 — N1 — PTR CONI

PTR END COND — *3 — R2 — 32 — M126 2L32 — U1

PTR TAPE (1) — M1 — M6Ø3 2M34 — L2 PTR BUSY(Ø) Ø07 — U2 — T2 — N1 — P1 — Ø10

*3 — D2 — IOB RESET A(1) — D1 — M6Ø3 2M9Ø — E2 — PTR RESET

M1 — M6Ø3 2M32 — L2 — PTR END COND — N1 — P1

M2 N2 M2 N2 — M243 2R38 — J2 — PTR CLR B — Ø — 1 — H2 — PTR END — U2 — L2 — PTR STROBE 2

PTR CNT 1(Ø) — B1 — PTR CNT 2 (1) — C1 — M126 2L42 — D1 — PTR LAST

+3 — H1 — PTR BIN (Ø) — A1

M241 2M36

N1 M1 N1 M1 — P1 — PTR PIA 33 — M2 — +3 — U2 — L2 — IOB 15 T

R1 R2 R1 R2 — S1 — PTR PIA 34 — N2 — +3 — P2 — IOB 16 T

T2 S2 T2 S2 — U1 — PTR PIA 35 — V2 — +3 — V1 — IOB 17 T

PTR CONO SET — PTR RESET

M143 2R30

M926 3A01

+3 — B1 — C1 — PTR A (Ø) — A1 — P2 — PTR A (Ø) A

+3 — D1 — E1 — PTR A (1) — D2 — R2 — PTR A (1) A

+3 — E2 — F2 — PTR B (Ø) — F1 — S2 — PTR B (Ø) A

+3 — R1 — P1 — PTR B (1) — N1 — T2 — PTR B (1) A

S1 — R1 — PTR POWER (1) — P2 — U2 — PTR POWER A

IOB CONO SET T — S1 — BIO PTR SEL — R1 — M173 2K32 — P2 — PTR CONO SET

IOB CONO CLR T — H1 — BIO PTR SEL — F1 — M6Ø3 2M34 — E1 — PTR CONO CLR

D2 — KEY RDI PULSE (1) — D1 — M6Ø3 2M34 — E2 — PTR BIN SET

+3 — A1 — H1 — F1 — B1 — MG12 2L33 P — C1 — D1 — PTR DATAI A — PTR DATAI B

E2 — E1 — MG12 2L33 P — F2 — PTR DATAI C — PTR DATAI D

M151 2M31

PTR PIA 33 (Ø) — F1 — (Ø) — 2^2 — E2

PTR PIA 33 (1) — E1 — (1) — 0 — J2 — PTR PI 1

PTR PIA 34 (Ø) — D1 — (Ø) — 1 — K1 — PTR PI 2

PTR PIA 34 (1) — C1 — (1) — 2^1 — 2 — K2 — PTR PI 3

PTR PIA 35 (Ø) — B1 — (Ø) — $2^Ø$ — 3 — L1 — PTR PI 4

PTR PIA 35 (1) — A1 — (1) — 4 — L2 — PTR PI 5

PTR DONE (1) — D2 — EN — 5 — M1 — PTR PI 6

PI DECODER — 6 — M2 — PTR PI 7

PTR BUSY (1) — F2 — PTR FEED SWITCH — H2 — M6Ø3 2M32 — J2 — H1 — M6Ø3 2M32 — E1 — PTR RUN — +3 — F1

BIO PTR SEL — B1 — IOB DATAI T — A1 — M6ØØ 2M39 — C1 — PTR DATAI — H1 — M6Ø3 2M4Ø — E1 — +3 — F1

NOTE
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REVISIONS	REV	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	Swan	DATE 27 Jan 72
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kotok	DATE 31 Jan 72
PROD.		DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
PAPER TAPE READER

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-PTR 1	

DIST.

DEC FORM NO DRD 102A

M243 2R38 — PTR CNT Ø; M243 2R39 — PTR CNT 1, PTR CNT 2

PTR CLR B
PTR STROBE 2
PTR CNT 2(Ø)

M241 2R42 — PTR A, PTR B

PTR MOTOR SHIFT

M926 3A01 — PTR FEED HOLE IN; M143 2R3Ø; M931 3B08; PTR FEED SWITCH

PTR HOLE 1
PTR HOLE 2
PTR HOLE 3
PTR HOLE 4
PTR HOLE 5
PTR HOLE 6
PTR HOLE 7
PTR HOLE 8

M241 2R42 — PTR POWER

PTR CONO SET
~PTR RUN
PTR SHUTDOWN PULSE
M126 2L32
PTR MOTOR SHIFT

M246 2L3Ø — PTR ENABLE

IOB RESET A(1)
PTR CLK

M241 2R42 — PTR TAPE SYNC

PTR EVERY OTHER
PTR TAPE SYNC (1)
M173 2K32
~PTR FEED HOLE
PTR RUN
M6Ø3 2M32
PTR MOTOR SHIFT
IOB RESET A(1)

M241 2R42 — PTR TAPE

PTR MOTOR SHIFT

M241 2R42 — PTR DATA PHASE

M363 2K26

PTR TAPE SYNC (Ø)
~PTR EVERY OTHER
PTR TAPE (1)

M362, 2R4Ø DOES NOT REQUIRE ADJUSTMENT

PTR HOLE B
PTR FEED HOLE PULSE
PTR BIN (Ø)
REC DR M362 2R4Ø
PTR STROBE 1
PTR STROBE 2

PTR RUN
PTR SHUTDOWN (Ø)
M6Ø3 2M37

~PTR FEED HOLE PULSE
M6Ø3 2M37
M6Ø3 2M37

PTR MOTOR SHIFT
PTR EVERY OTHER
PTR A (Ø)
PTR B (Ø)
PTR A (1)
PTR B (1)
M126 2L32
M6Ø3 2M4Ø
SEE NOTE #1
PTR DATA PHASE (1)

R4Ø1 2P12 CLK
G913 CLK ACC 2P13
M564 2P41
M6Ø3 2M37
PTR CLK

LOGIC LEVELS ØV & -3V

PTR ENABLE (1)
M663 2331
M3Ø7 2R43 PTR SHUT DOWN
SWITCH POSITION "2"
PTR ENABLE (Ø)

~PTR CLK
M6Ø3 2M4Ø
PTR CLK DLY PULSE

PTR FEED HOLE
M5Ø1 2P38

PTR DATA PHASE (1)
PTR BUSY (1)
M6Ø3 2M32
M6Ø3 2M37
PTR FEED HOLE PULSE

PTR BUSY (1)
M6Ø3 2M4Ø
M173 2K32
PTR CLR A
PTR CLR B

PTR CLK DLY PULSE
PTR ENABLE (1)
M6Ø3 2L31
M6Ø3 2L31
PTR MOTOR SHIFT

PTR SHUTDOWN (Ø)
M6Ø3 2L31
PTR SHUTDOWN PULSE

NOTE
1. FOR READERS WITH STANDARD ADJUSTMENT (SEE PCØ4 MANUAL) PTR EVERY OTHER ≡ (PTR A = PTR B); AS SHOWN. FOR EARLY KIØ READERS WITH OFFSET ADJUSTMENT PTR EVERY OTHER ≡ (PTR A ≠ PTR B); THAT IS, 2L32 B1 IS PTRA(1) AND 2L32 H1 IS PTR A (Ø). (PRIOR TO ECO K1Ø-ØØØ33).

NOTE
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REVISIONS			
CHK	CHANGE NO		REV
DW	K1Ø-ØØØ33		A
	Initial rel 5-30-73		
	A. KENT		
	Allan Kent 31 May 73		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	D Q Green	DATE 5/24/72
CHKD	David Gross	DATE 31 Jan 72
ENG	Alan Kotok	DATE 31 Jan 72
PROJ ENG	Allan Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY: B-DD-KIØ-Ø

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PAPER TAPE READER

SIZE D | CODE BS | NUMBER KIØ-Ø-PTR 2 | REV A

DIST.

DEC FORM NO DRO 102A

PTR 28 IN
S1
M126
2R32
P1 R1 V2 P2
PTR HOLE 8
PTR BIN (Ø)
PTR 34(1)
PTR BIN(1)

PTR 29 IN
L2
M126
3BØ2
M1 K2 N2 M2
PTR HOLE 7
PTR BIN (Ø)
PTR 35(1)
PTR BIN (1)

M243 2R34: PTR ØØ, PTR Ø1, PTR Ø2, PTR Ø3, PTR Ø4, PTR Ø5
PTR CLR A, PTR STROBE 1

M243 2R35: PTR Ø6, PTR Ø7, PTR Ø8, PTR Ø9, PTR 1Ø, PTR 11
PTR CLR A, PTR STROBE 1

M243 2R35: PTR 12, PTR 13, PTR 14, PTR 15
M243 2R36: PTR 16, PTR 17
PTR CLR A, PTR STROBE 1
PTR STROBE 2

M243 2R36: PTR 18, PTR 19, PTR 2Ø, PTR 21, PTR 22, PTR 23
PTR CLR A, PTR STROBE 2

M243 2R38: PTR 24, PTR 25, PTR 26, PTR 27, PTR 28, PTR 29
PTR CLR B, PTR STROBE 2
PTR 28 IN
PTR 29 IN

M243 2R39: PTR 3Ø, PTR 31, PTR 32, PTR 33, PTR 34, PTR 35
PTR CLR B, PTR STROBE 2
PTR HOLE 6
PTR HOLE 5
PTR HOLE 4
PTR HOLE 3
PTR HOLE 2
PTR HOLE 1

NOTE
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FIRST USED ON OPTION/MODEL: KIØ	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL
FINISH

DRN: D. J. Lucier — DATE 5/21/70
CHKD: Mark Gross — DATE 31 Jan 72
ENG: Allan Kotik — DATE 31 Jan 72
PROJ. ENG: Allan Kent — DATE 31 Jan 72
PROD: [illegible] — DATE 31 JAN 72
NEXT HIGHER ASSY: B-DD-K11Ø-Ø

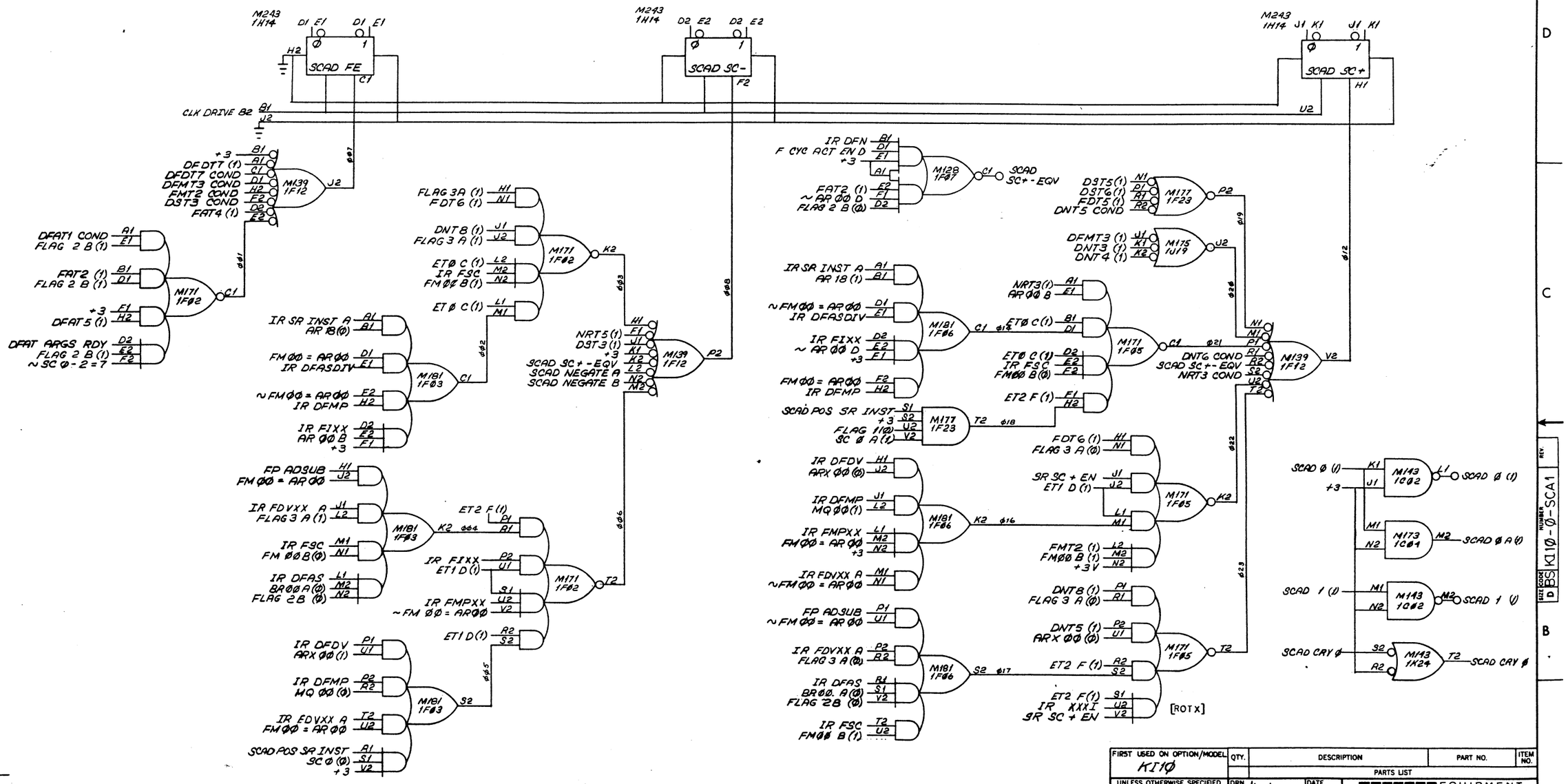
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PAPER TAPE READER

SIZE D | CODE BS | NUMBER K11Ø-Ø-PTR 3 | REV
SCALE
SHEET 1 OF 1
DIST.

REVISIONS: REV | CHANGE NO. | CHK

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 5/19/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Frost	DATE 31-Jan-72	
ENG. Alan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. J. Mullaney	DATE 31 JAN 72	

TITLE
SCAD SC+, −, FE CONTROL

NEXT HIGHER ASSY
B-DD-K1Ø-Ø

SCALE

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV
D	BS	K1Ø − Ø − SCA1	

DIST.

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO DRD 102A

M243 1H14 — SCAD AR POS — N1 M1 N1 M1 — L1
M243 1H14 — SCAD -SIZE — P1 P2 P1 P2 — R2
M243 1H14 — SCAD DATA — S1 R1 S1 R1 — V1
M243 1H14 — SCAD EQV — N2 M2 N2 M2 — L2

CLK DRIVE B2 — J2 U2 H2

M128 1F07 — +3V V1 U1; F CYC ACT EN D; BYTE FIRST PART V2; SCAD CRY Ø U2; ETØ K(1) T2 — S1 — Ø61
M126 1F09 — F CYC ACT EN D K1 H2; BYTE PTR INC; BYTE FIRST PART N1 U1; ETØ E(1) — J2 — SCAD -SIZE EN
M177 1E07 — SCAD -43 EN D1; DFMT3 COND D2; SCAD EQV EN A E2; SCAD +44 EN F2 — E1 — Ø69
M139 1F11 — SCAD NEGATE A B1; SCAD NEGATE B C1; SCAD -42 EN A D1; SCAD -4 EN H2; EAT4 ~ 3H RT F2; Ø63 K2; D2 E2 — J2 — Ø69
M171 1F10 — MQ Ø6(Ø) L2; ETØ E(1) M2; PI INC MEM N2; IR XMULX H1; F CYC ACT EN D N1; +3V J1; SCAD MI3C DATA EN V2; +3 M1 — K2 — Ø11
M126 1035 — IR FSC A M1; DFDT7(1) K2; ET2 J(1) N2; M2 — L2 — Ø11
M145 1E86 — DFAT ARGS RDY F1; FLAG 2 B(1) N1; ~3C Ø-2=7 P1 — H1 — Ø66
M177 1E07 — DFMT3 (1) H1; FMT2 (1) H2; J2; K1 — J1 — SCAD DATA EN A — Ø67
M171 1H21 — SCTC DONE K2; IR DFDV B L1; FLAG 2 A (Ø) L2; FLAG 1 A (Ø) N2 — M2
M145 1L12 — ARX ØØ(Ø) N1; IR DF5B P1; +3 F1 — H1
M143 1C02 — ARX ØØ(1) V2; IR DFAD U2 — U1
M147 1H21 — IR DFAS A N1; ET2 A (1) P1; FLAG 2 A (Ø) R1; BR ØØ A (Ø) R2 — P2
M175 1K15 — DFDT 7 (1) D2; E2; F2 — E1 — Ø64
M128 1F07 — ET2 F(1) J1 K1 L1; FLAG 2 B(1) H1; FAT 2 (1) F2; +3 J2; BR ØØ A (Ø) K2 — H2 — SCAD EQV EN A
M139 1F11 — SCAD NEGATE A H1; SCAD ADD EN B F1; SCAD ADD EN C J1; NRT3 COND K1; SCAD -SIZE EN K2; SCAD DATA EN A L2; SCAD SC+-EQV N2; Ø65 M2 — P2 — Ø10
M113 1J15 — ETØ D(1) M1; IR 3R IN3T N2 — M2 — SCAD +22Ø EN
M113 1J15 — S2; ET1 A(1) R2 — T2 — SCAD +11Ø EN
M143 1J15 — IR FIXX V2; ET1 A(1) U2 — U1 — SCAD +1Ø EN
M145 1E86 — BYTE FIRST PART P2; ETØ C(1) S1; ~ SCAD CRY Ø S2 — R2 — SCAD +44 EN
M145 1E86 — BYF5(1) J1; FTG(1) K1; SC Ø(1) K2 — U2 — SCAD -1ØØ EN

M126 1F09 — IR XDIVX B1; F CYC ACT EN D C1; DFDT5(1) H1; +3 A1 — D1 — SCAD -42 EN A
M126 1E28 — ET2 Y(1) P1; IR DEMP R1; IR FLTR V2; SCTC DONE B P2 — S1 — SCAD -43 EN
M126 1F09 — FDT2(1) D2; IR Ø6(Ø) E1; DFDT2(1) F2; +3 E2 — F1 — SCAD -32 EN
M171 1F10 — FDT2(1) A1; IR Ø6 B(1) E1; NRT5(1) B1; +3 D1; NRT4(1) F1; H2; IR FIXX D2; ETØ E(1) E2; F2 — C1 — SCAD -33 EN
M173 1J16 — IR XDIVX A B1; DFDT5(1) C1 — A1 — SCAD -42 EN
M193 1J15 — SCAD Ø(1) K2; FLAG 1 A(1) J2 — H2 — Ø62
M145 1E86 — M1; ET2 E(1) M2; IR (A,L)SHX N2 — L2 — SCAD -11Ø EN
M173 1J16 — FMT1 COND D1; DFMT2 COND E1 — D2 — SCAD -16 EN
M193 1J15 — IR FLTR K1; FTG(1) J1 — L1 — SCAD -4 EN

NOTE:
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS

REV	CHANGE NO.	CHK
A	KIØ-00042	D. GROSS

DEC FORM NO DRD 102A

FIRST USED ON OPTION/MODEL: KIØ

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 5/26/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Allan Kotok	DATE 31 Jan 72	TITLE: SCAD CONTROL
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KIØ-Ø

SCALE ~

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BS	KIØ-Ø-SCA2	A

DIST.

FT6 (1) BYFS (1) — FAT1 (1) SCADØ (Ø) — FMT2 (1) FMØØ B(Ø) — DST3 (1) FLAG1A (Ø) — NR POS ~ NR RND — NRT3 (1) ~ ARØØD +3 — IR DFAS SCADØ (Ø) ET1D (1) — SC Ø (Ø) ET2E (1)
→ M170 1E08 → SCAD NEGATE A

DNT7 COND, DN RND NEG, FIXT1 COND → M175 1K15 → SCAD NEGATE B

IR SR INST A, SCADØ (Ø) → M173 1F20 → SCAD POS SR INST

IR DPOP A, IR FSC A → M143 1B38 → ETØC(1) Ø05

ET2E(1), FP ADSUB → M170 1E08 → SCAD EXP ADD

IR FMPXX, IR FDVXX → M147 1B21 → ET1D(1) Ø06

FDT5 (1) +3V

IR DPOP A, IR FP, +3, IR FIXX A → M147 1B24 → F CYC ACT EN D Ø07

ETØE(1) IR FP — ET1D(1) FP ADSUB — ET2F(1) IR DFAS FLAG2B(Ø) → M171 1F10 → T2 Ø11

F CYC ACT EN D, IR DFN — FAT2 (1) FLAG2B(Ø) → M126 1F09 → S1 Ø09

FMØØB (1) IR FSC — IR DPOP FMØØB(Ø) — IR DFAS +3 — IR SR INST A, AR18 (Ø) +3
→ M181 1E03 → C1 Ø01

FP ADSUB, IR FSC A → M143 1B38 → H2 Ø02

ETØC(1), ET2E(1), FDT5 (1) FLAG1A(1), ET1D (1) +3V
→ M171 1E04 → C1

IR FDVXX FMØØB(Ø) — IR FIXX +3V — IR FMPXX FMØØB(1) — SCAD POS SR INST, SCØ (Ø) +3
→ M181 1E03 → H2 Ø03

M243 1J11 (D2 E2, D2 E2) SCAD AR EXP → MR STATE CLR D; F2

CLK DRIVE B2 → B1

SCADØ (Ø) SCAD 1 (Ø), SCADØ (A) SCAD 1 (1) → M126 1F09 → U1 → SCADØ = SCAD1

~ARØØD SCADØ (Ø), ARØØB SCADØ A(1) → M126 1E02 → F1 → SCADØ = ARØØ

+3, M173 1J16 (R1 S1 P2) → SCAD +1A

M243 1H14 SCAD +1 (S2 T2, S2 T2) — M243 1J11 SCAD ADD (D1 E1, D1 E1)
CLK DRIVE B2; MR STATE CLR D

SCAD NEGATE A, SCAD NEGATE B, SCAD -SIZE EN, DFMT3 COND, SCAD DATA EN A, NRT3 (1), FAT4 ~SH RT → M139 1F11 → V2 Ø17

SCAD NEGATE A, SCAD DATA EN A, NRT3 COND, DFDT1 (1), SCAD -SIZE EN → M139 1E10 → J2 Ø18

DNT6 COND, DN RND NEG, DFMT3 COND → M175 1K15 → J2 → PIT1 (1)

ET2E(1) IR FSC, SCAD ADD EN A, +3 → M171 1E04 → K2

ETØC (1) ET1D (1) → M126 1E02 → J2 Ø10; IR SR INST, IR FIXX

AD FLT VRT COND, MB13A(Ø), ~MB14-17=Ø

DNT7 COND, FIXT1 COND, NRT3 (1), NRT5 (1), SCAD EXP ADD, FAT4 ~SH RT, DNT5 COND, DNT3 (1) → M139 1E10 → P2

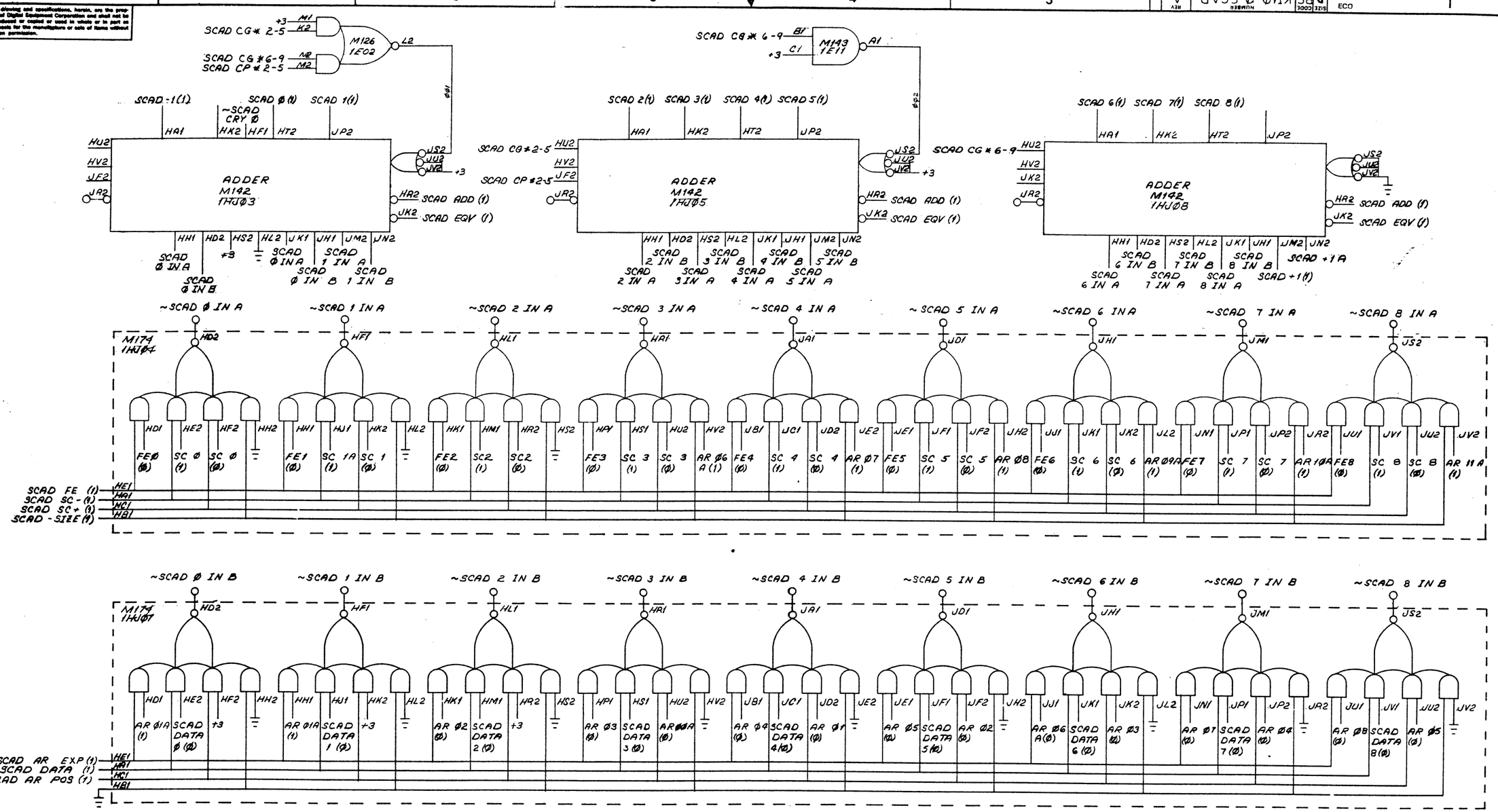
SCAD ADD EN C
SCAD ADD EN B
SCAD ADD EN A
MR STATE CLR D

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS | REV | CHANGE NO. | CHK

FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED	PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	DRN. S. LYONNAIS DATE 9-28-70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
	CHK'D. David Grant DATE 31 Jan 72		
	ENGR. Dan Kotok DATE 31 Jan 72	TITLE: SCAD ADD,+1,AR EXP LOGIC	
MATERIAL	PROJ. ENG. Dan Kent DATE 31 Jan 72		
FINISH	PROD. DATE 31 JAN 72		
	NEXT HIGHER ASSY B-DD-KI1Ø-Ø	SIZE D CODE BS NUMBER KI1Ø-Ø-SCA3 REV	
	SCALE	DIST.	
	SHEET 1 OF 1		

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS			
CHK	CHANGE NO.	REV.	
	KI10-00041	A	
E. Allain	12-13-73		
KENT			
Allan Kent	11 Dec 73		

FIRST USED ON OPTION/MODEL: KI10	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± 0°30"; FINAL SURFACE QUALITY √; REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL			
FINISH			

DRN. D.B. Swan	DATE 10/29/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Grose	DATE 31-Jan-72	
ENG. Allan Kent	DATE 31-Jan-72	TITLE: SHIFT COUNT ADDER.
PROJ. ENG. Allan Kent	DATE 31-Jan-72	
PROD.	DATE 31-Jan-72	
NEXT HIGHER ASSY: B-DD-KI10-Ø		SIZE D | CODE BS | NUMBER KI10-Ø-SCAD | REV A
SCALE: NONE		DIST.
SHEET 1 OF 1		

DEC FORM NO DRO 102A

M243 1J11
K1 J1 K1 J1
Ø 1
MP STATE CLR D — U2 — SC+1 INH — H2
B1 H1
CLK DRIVE B2
DFDT4(1) V2
ADX ØØ(1) U2
M143 1K24 U1 Ø41

FDT4(1) B1
AD ØØ(Ø) C1
M147 1K20 A1 Ø02 K2
DNT4(1) L1
NRT2(1) L2
SCT2(1) N2
M177 1EØ7 M2
SY
+3 A1
M143 1E11 P2
SC SC+1 EN

NRT3(1) P1
AD Ø9-35=Ø A1
DNT5(1) P2
ARX ØØ(Ø) U1
FAT2(1) R2
SCØ(Ø) S2
IR XDIVX S1
+3 U2
ETØC(1) V2
M171 1EØ1 T2
SC SCAD EN A

IR SA INST A P1
SCAD Ø(1) A1
M126 1EØ2 S1
IR FDVXX V2
+3 P2
AD Ø9-35=Ø A K2
AD ØØ-17=Ø L1
ARX Ø9-35=Ø L2
DNT6(1) N2
M147 1K2Ø M2
SC SCAD EN B

IR DPOP A H1
BYPS(1) H2
IR XMULX A J2
IR FIXX A K1
M147 1B24 U1 Ø07
ETØ E(1) A1 E1
IR DPOP A D1
IR FMPXX A D2
IR FIXX A E2
M147 1E13 F2 E1 Ø08 B1
ETI E(1) D1
M171 1E12 C1
SC SCAD EN C
IR DFAS D2
SC ØA(Ø) E2
ET2 E(1) F1
F2 H2
FP ADSUB H1
IR FLTR J1
IR FSC K1
BYTE FIRST PART K2
L2
+3 N2 M2
M139 1B23 P2 Ø15

SRT1(1) B1
DF DT3(1) A1
DFDT6(1) C1
DFDT7(1) D1
DFMT1(1) H2
DFMT2(1) F2
DFMT3(1) D2
FAT1(1) E2
M139 1F14 J2 Ø03
DNT1(1) H1
DNT7(1) F1
FDT3(1) J1
FDT5(1) K1
FDT6(1) H2
F1AT1(1) L2
FMT1(1) N2
FMT2(1) M2
M139 1F14 P2 Ø04
DST3(1) E2
DST4(1) F2
M143 1E11 F1 Ø05
H1 N1
+3
NRT1(1) J1 J2
+3
L1 M1
+3
L2 M2 N2
M171 1E12 K2
SC SCAD EN D
SC SCAD EN A S1
SC SCAD EN B U2 V2
M147 1H21 T2
SC SCAD EN

SCT1(1) P1
+3 R1
M143 1E11 N1
SC SH RT EN

A1 B1
E1 F1
RD
M362 1J12
CLK A1 E2 H1 C1 (46)
K2 SC FE CLOCK
L2
Ø12 H2 D1 D2 F2
+3

IR DFDV A N1
IR DFMP A P1
FP ADSUB R1
IR FMPXX R2
M147 1B24 P2 Ø09
ET2 E(1) P1 U1
ETØ C(1) D2 R2
IR DFAS
ET1 D(1) T2 U2
IR FIXX
+3 A1 S1 V2
M181 1EØ3 S2 Ø11
DFAT1(1) F1
FAT3(1) N1
FDTØ(1) P1
M145 1J17 H1 Ø16

SC ØA (1) B1
+3 C1
SC 1(Ø) H1
SC 2(Ø) A1
M126 1E15 D1
SC Ø-2 = 4-6

SC 1(Ø) R2
FLAG 3 A(1) S2
SC 1 (1) U2
FLAG 3A(Ø) T2
M126 1EØ2 U1
SC 1 =FLAG 3

SC ØA (1) J1
SC 1A (1) K1
SC 2A (1) K2
M145 1J17 J2
SC Ø-2 = 7

SC ØA (1) M1
SC 1A (1) M2
SC 2A (1) N2
M175 1J19 L2
SC Ø-2 = 7

IR SR INST K1
ETØ E(1) H2
M126 1E15 J2
IR FSC N1 J1
SC AR EN
D1
+3 E1
M143 1E11 D2

SC ØA (Ø) D2
SC 1A (Ø) E1
M126 1E13 F1
SC ØA (1) F2
SC 1 (1) E2
+3 M1
N2
M143 1K24 M2
SC Ø = SC1

A1 B1
E1 F1
RD
M362 1H15
CLK A E2 H1 C1 (43)
K2 SC CLOCK
L2
H2 D1 D2 F2
Ø14 +3

SC SCAD EN A N1
SC SCAD EN B M1
SC SCAD EN C P1
SC SCAD EN D A1
SC AR EN A2
SC SC+1 EN S2
SCT1 (1) U2
+3 T2
M139 1E1Ø V2 Ø13

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K11Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN. DG Irwin DATE 5/19/72
CHKD. David Gross DATE 31 JAN 72
ENG. Wm Kortick DATE 31 Jan 72
ENG. DATE
PROD. DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-K11Ø-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE SHIFT COUNTER CONTROL

SIZE D | CODE BS | NUMBER K11Ø-Ø-SCC | REV.
SCALE
SHEET 1 OF 1
DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRO 102A

M243 1H18 — SCAD DATA Ø, SCAD DATA 1, SCAD DATA 2, SCAD DATA 3, SCAD DATA 4, SCAD DATA 5, SCAD DATA 6, SCAD DATA 7, SCAD DATA 8 (M243 1J11)

CLK DRIVE B2

M172 1H19 — A1, F1, F2, J1, K2, M1, P2, S1, T2

MR STATE CLR D

SCAD 7XX EN

M139 1F14 — M143 1E11 — M143 1E11 — M143 1E11 — M147 1E13 — M145 1F15 — M145 1F15 — M147 1E13 — M145 1F15 — M143 1E11 — M145 1F15

+3V

SCAD-100 EN
SCAD-42 EN
SCAD-43 EN
SCAD-32 EN
SCAD-33 EN
IR XMULX A (-22)
SCAD-110 EN
SCAD-16 EN
SCAD-4 EN
SCAD+220 EN
DNT3 (1) (+43)
SCAD +10 EN
SCAD +42 EN
SCAD +110 EN

M139 1F16 — SCAD MISC DATA EN

M243 1H13 — SCØA, SC 1A, SC 2A

SC CLOCK

SCØ IN — SC 1 IN — SC 2 IN

SC 8(1) + M143 1C05 → SC 8A

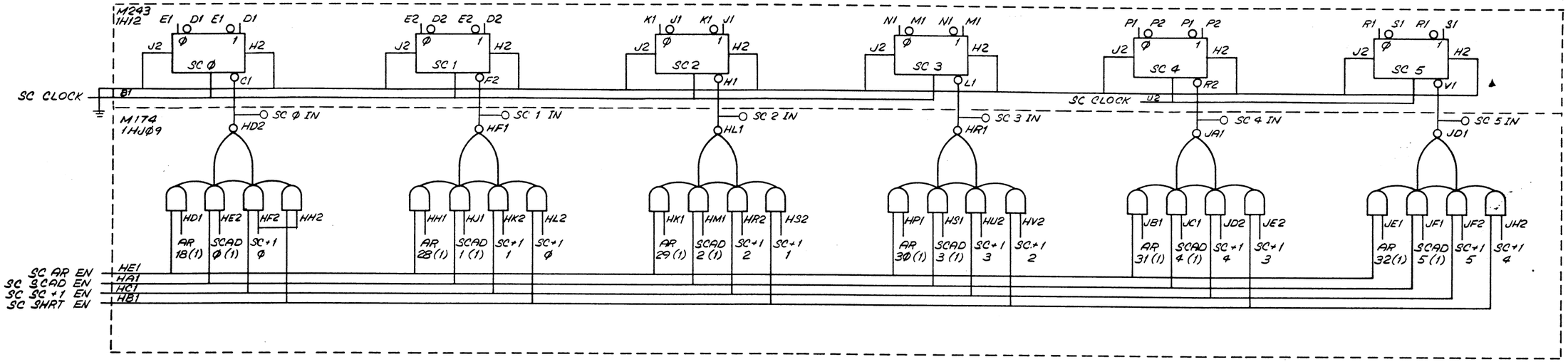
NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

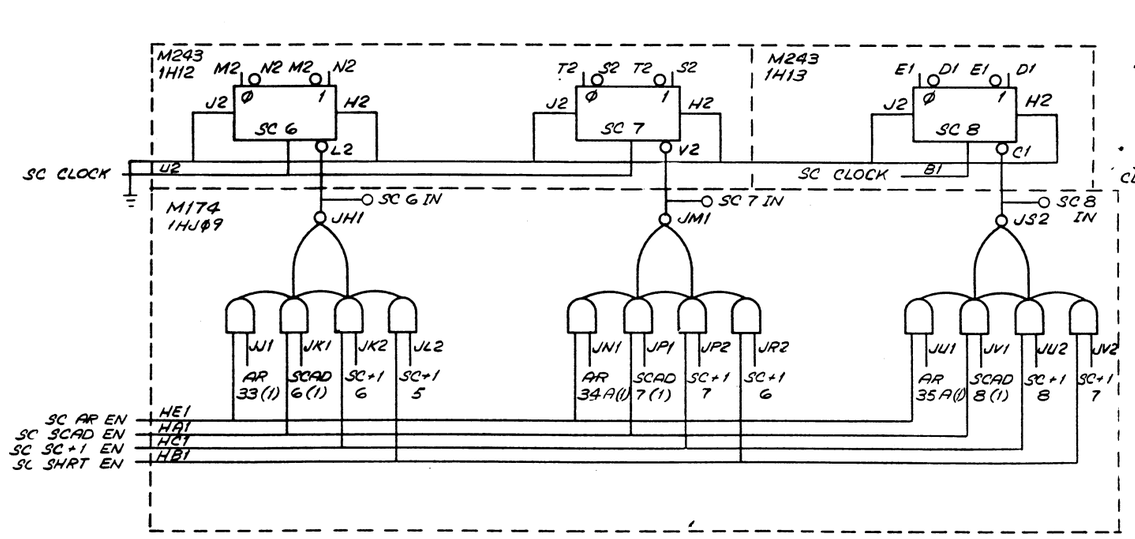
FIRST USED ON OPTION / MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED	PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS	DRN. S. LYONNAIS	DATE 5/13/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
	CHKD. David Gross	DATE 31 JAN 72	TITLE: SCAD DATA REGISTER
	ENG. Alan Kotok	DATE 31 JAN 72	
	PROJ. ENG. Allan Kent	DATE 31 JAN 72	
MATERIAL	PROD.	DATE 31 JAN 72	
FINISH	NEXT HIGHER ASSY B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-SCDR REV.
	SCALE ~		DIST.
	SHEET 1 OF 1		

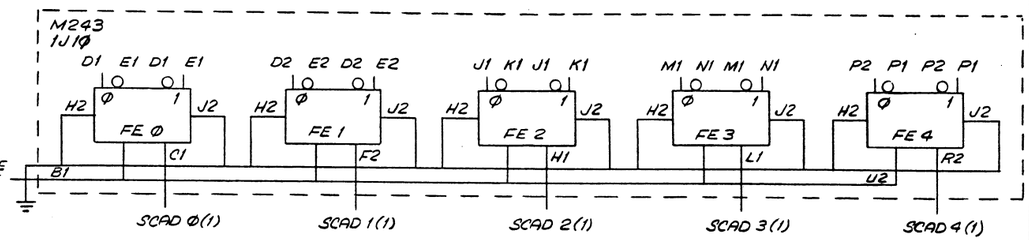
REVISIONS: REV. / CHANGE NO. / CHK

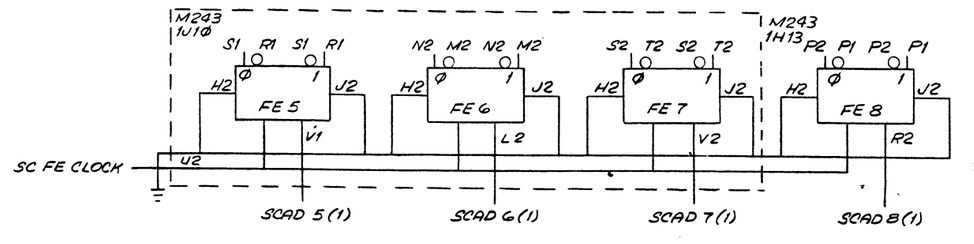
DEC FORM NO

SIZE D CODE BS NUMBER KI1Ø-Ø-SCDR REV.









NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stephenson	DATE 1/24/72
CHK'D	Richard Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allen Kent	DATE 31 Jan 72
PROD.	Bob Sullivan	DATE 31 JAN 72

NEXT HIGHER ASSY
B-DD-KIØ-Ø

SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

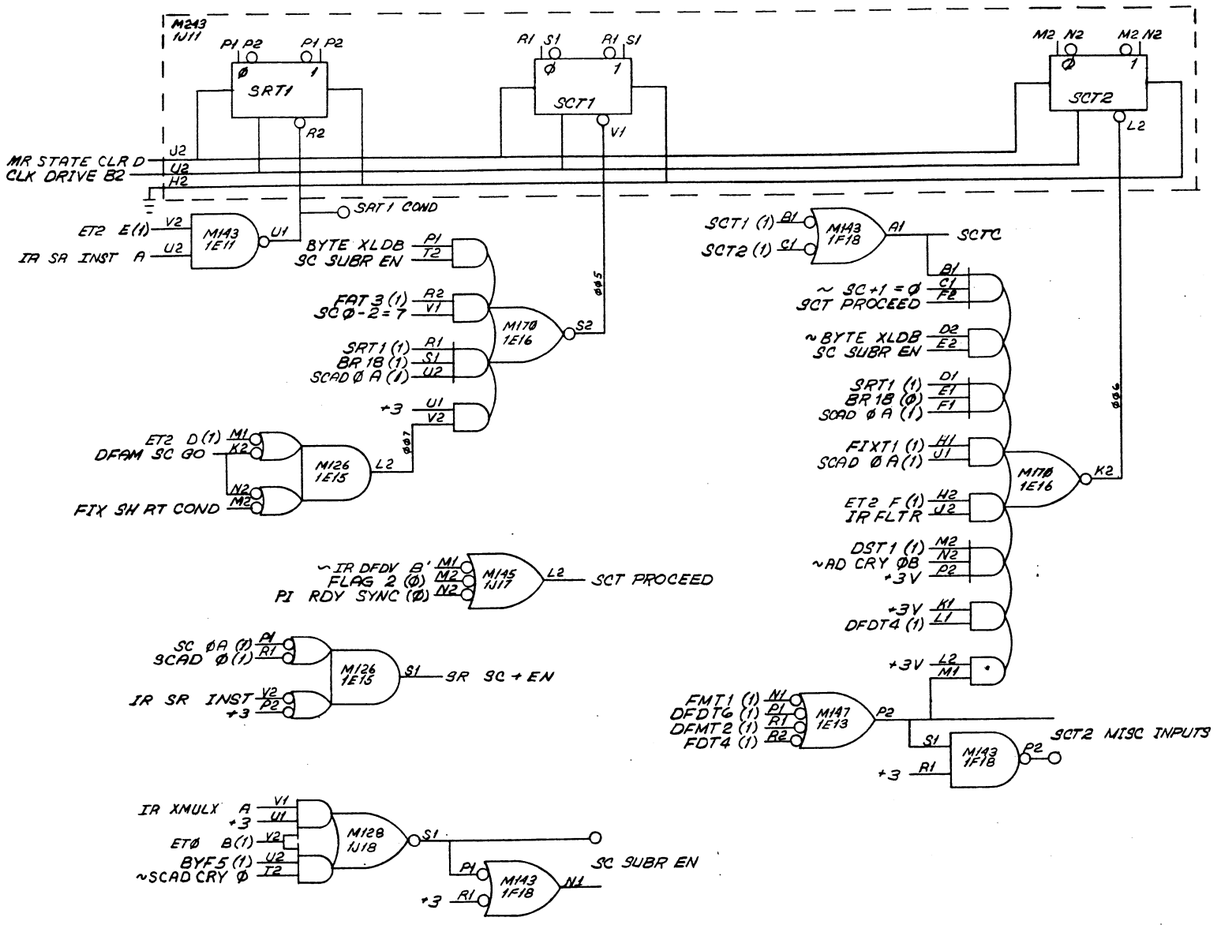
TITLE
SC & FE REGISTER
BITS Ø - 8

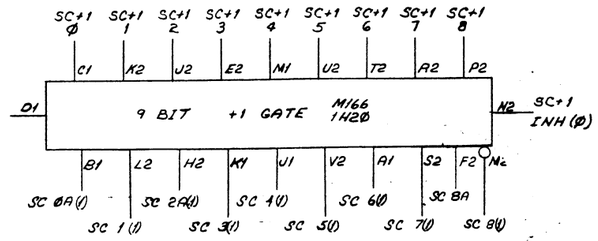
SIZE	CODE	NUMBER	REV.
D	BS	KIØ-Ø-SCFE	

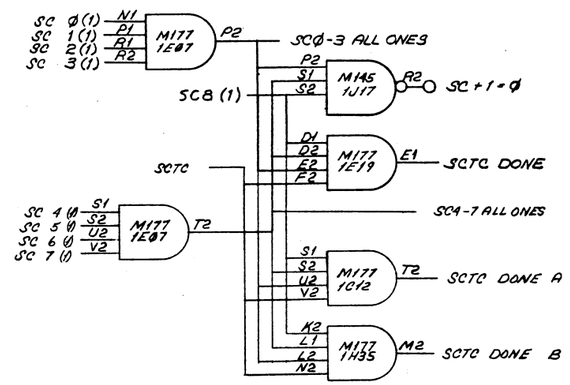
DIST.

REVISIONS	CHANGE NO.	CHK	REV.

DEC FORM NO. DIRD 102A







FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephenson	DATE 5/15/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD. David Gross	DATE 31 Jan 72	
ENG. Alan Kotok	DATE 31 Jan 72	
PROJ. ENG. Allan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE 2/1
SHEET 1 OF 1

TITLE
SHIFT COUNT SUBROUTINE & INSTRUCTIONS

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø - Ø - SCSR	

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A

ST2 (1) S2, +3 R2 → M143 1F38 → T2 ST2 A

CLK DRIVE B1 1D38U2
ST1 (1) H 1D38P2 → MC WR RS D 3A2ØE1 (1267.5 NS MIN)

JUMPER M321, 2H16 FROM N2 TO LEFT MOST PIN WHICH PROVIDES AT LEAST 1267.5 DELAY AS MEASURED ABOVE (USE PINS N2, U2, OR L2) (PREWIRED FROM N2 TO J1)

BLTFK(1) M1, ST2(1) N2 → M143 1C22 → M2 ST2 BR + 1

ST2 A D2, +3 H2 → M321 2H16 (57) → P2 → K1 ST2 DLYD
V2 W2 U2 L2 R2 R1 S2 P1 T2 J1 W2 (ØØ7)

M243 1D38: P1 P2 P2 → ST1 → R2
M243: R1 S1 R1 S1 → ST2 (57) → V1
M243: M2 N2 M2 N2 → ST3 → L2
M243: T2 S2 T2 S2 → ST4 → V2
M243 1D27: S1 R1 S1 R1, H2 → ST5 → U2 V1, J2

MR STATE CLR A → V2
CLK DRIVE B1 → U2
H2

BLTT4 (1) M1, BLTT9 (1) N2 → M143 1CØ9 → M2 ØØ5 → A1, +3 E1
ST1 COND B1, +3 D1
NRT4 (1) F1, ~IR FP LONG H2
KT3 (1) D2, KEY DEP CYCLE (1) E2, ~ST5 COND B F2
→ M171 1C14 → C1 (ØØ1)

~IR MAP J1, K1 K2 → M145 1C21 → J2 ST2 COND
SCE D1, STORE D2, FCE PSE E2, BLTFK(1) F2 → M147 1C16 → E1 STORE MEM

ST2 A D2, MC STORE IN AC(1) E2, SAC2 F2 → M145 1A39 → E1 ST3 COND
+3 V2, ST2 A U2, ~ST3 COND V1, SAC2 U1, ST1 (1) N1, +3 R1, M2 S1 → M363 1C17 → P1
B1, C1 → M177 1C12 → A1 (ØØ3)

~STORE MEM V2, +3V U2 → M143 1C22 → U1 ~STORE MEM

DFDT12 (1) D1, FDT7 (1) D2, NRTG (1) E2, ST4 (1) F2 → M177 1C12 → E1 ST5 COND A
ST2 (1) S2, R2, R1
PFT4 (1) M1, N1
ST5 INH M2, N2
→ M128 1B17 → P2 (ØØ4)
PF KEY (1) M1, KEY DEP CYCLE (1) M2, KT3 (1) N2 → M145 1C21 → L2 ST5 COND B

ST2 COND K1, +3 J1 → M143 1F38 → L1 ST2 COND

SAC2 H1, BLTF1(1) F1, IR BLKX J1, MUUOF1(1) K1, +3 K2, L2, N2, PFF1(1) N2, +3 M2 → M139 1DØ3 → P2 ST5 INH

M243 1E23: R1 S1 R1 S1 → SAC BR FF → U2 V1, H2
MR RESET A → J2
CLK DRIVE B2 → Ø10

DFAT4 (1) S1, DFDT2 (1) S2, FDT6 (1) U2, ST1 (1) V2 → M177 1F33 → T2 SAC BR FF CLR A

FDT5 COND S2, DFAT3 COND R2 → M143 1C22 → T2 Ø09 → U1, +3 J2
SAC BR IT1 A (1) L1, M1
IT1 (Ø) L2, ~SAC BR FF CLR A M2, SAC BR FF (1) N2
H1 N1
→ M171 1C14 → K2

A1 H1 F1 B1 → MG12 1K21 → P C1 D1 → SAC LT AR A, SAC LT AR B
+3 E1 → MG12 1K21 → P E2 F2 → SAC RT AR A, SAC RT AR B
H2 J1 J2 L2 → MG12 1K21 → P K1 K2 → SAC LT BR A, SAC LT BR B
+3 N2 → MG12 1K21 → P M1 M2 → SAC RT BR A, SAC RT BR B

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. W. Stephens DATE 5/24/72
CHKD David Frost DATE 31-Jan-72
ENG Hilary Kotok DATE 31 Jan 72
PROJ ENG Allan Kent DATE 31/Jan 72
PROD DATE 31 JAN 72
NEXT HIGHER ASSY B-DD-KI1Ø-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

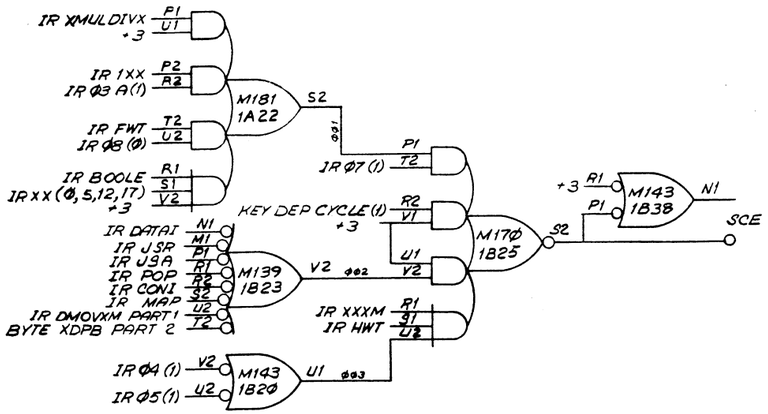
TITLE
STORE CYCLE

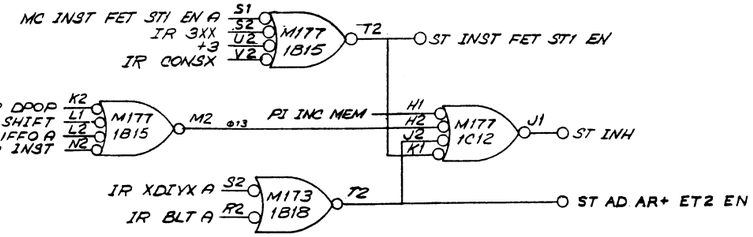
SCALE ½
SHEET 1 OF 1

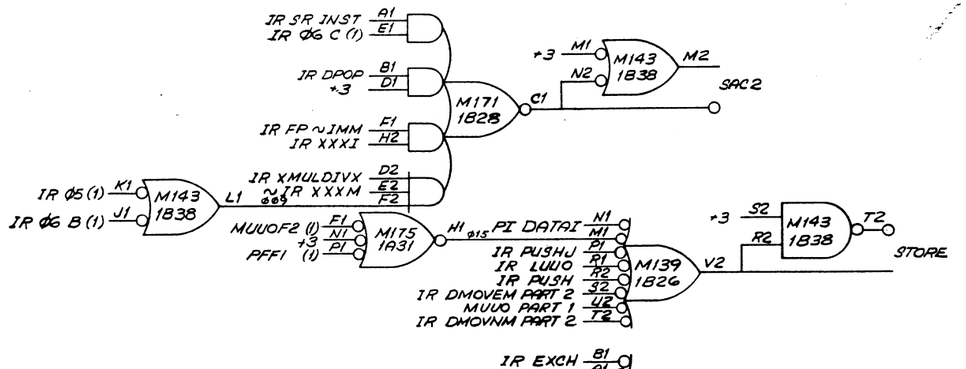
SIZE	CODE	NUMBER	REV
D	BS	KI1Ø - Ø - ST1	

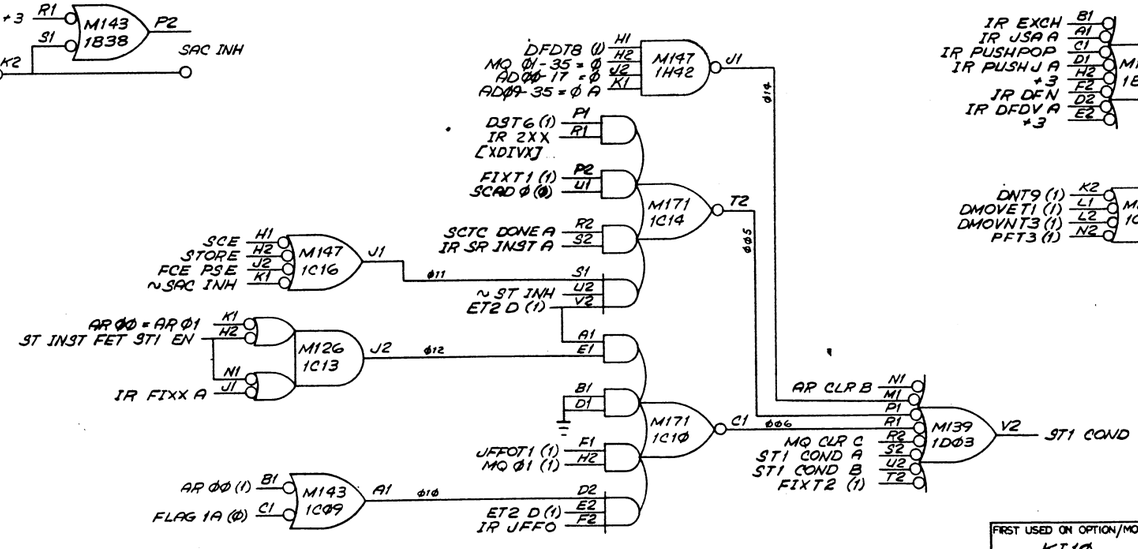
DIST.

DEC FORM NO DRD 102A









NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DRN W. Stephenson DATE 5 Jan 72
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
CHKD. David Gross DATE 3 Jan 72
ENG. W. Ben Hotek DATE 3 Jan 72
PROJ. ENG. Alan Kent DATE 3 Jan 72
PROD. M. Matthews DATE 3 JAN 72
MATERIAL
FINISH
NEXT HIGHER ASSY B-DD-KIØ-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
STORE CYCLE

SIZE	CODE	NUMBER	REV
D	BS	KIØ - Ø - ST2	

DIST.

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO. DRD 102A

M243 1E23

M243 1D27 — TRAP CYC

MR STATE CLR A
CLK DRIVE B1
MR RESET A
CLK DRIVE B2

TN Ø
TN 1
TRAP PAGE FAULT

~TRAP SATISFIED
ARF LOAD B
AR Ø9 B (1)
ET Ø C (1)
IR POPJ
IR POP
ET2 D (1)
FLAG 2 B (1)
ET2 D (1)
IR PUSHX
IT2 (1)
~CLK EN INST DONE
~AD CRY Ø
ARF LOAD
ARF OV ET2 EN
AR 1Ø (1)
ET2 D (1)
ARF FP TEST
+3
ARF OV SET
PI CYC B (Ø)
AR ASH LEFT
~AR ØØ = AR Ø1
~AD CRY 18
ARF STRB
~TRAP SATISFIED
AD CRY Ø
ARF STRB
~AD CRY Ø
AD CRY 1
~TRAP SATISFIED
PFF1 SET
+3
EBR TRAP EN (Ø)
+3
TN Ø (Ø)
TN 1 (Ø)
TN=Ø
PI CYC B (Ø)
+3
TRAP ANY
M243 1DØ9
TRAP PAGE FAULT (Ø)
TRAP REAL
MR STATE CLR C
CLK DRIVE A2
IT2 (1)
DFDT1Ø (1)
DFDT5 (1)
ET1 E (1)
STORE
AR FLAGS EN
~TN CLR INH
BLT1 (1)
PI CYC B (Ø)
PI CYC B (Ø)
+3
AD CRY Ø
~STORE
~TN CLR INH
F CYC ACT EN C
TRAP SATISFIED

IR LUUO
IR XCT
IR BLT
BYE S-G SET
TRAP PAGE FAULT (1)
IR DMOVXM PART 1
IR DFDV A
PI CYC B (1)
P2
+3
TN CLR INH

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

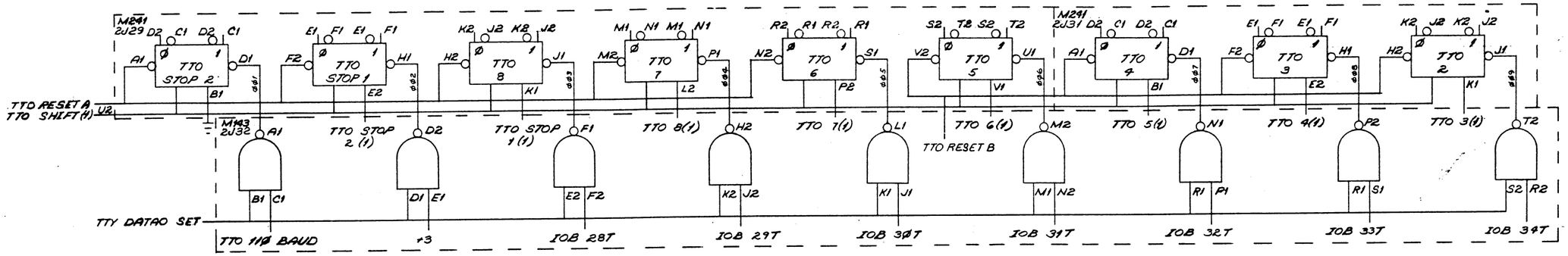
FIRST USED ON OPTION/MODEL: KI1Ø	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

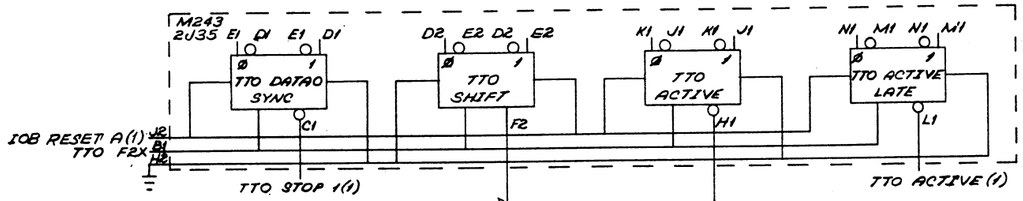
UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

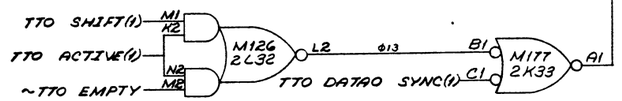
DRN. DJ Lucas	DATE 7/9/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Frost	DATE 31-Jan-72	
ENG. Alan Kotok	DATE 31-Jan-72	TITLE: TRAP LOGIC
PROJ. ENG. Dan Kent	DATE 31-Jan-72	
PROD. Matthews	DATE 31-JAN-72	
NEXT HIGHER ASSY: B-DD-KI1Ø-Ø		SIZE D CODE BS NUMBER KI1Ø-Ø-TRAP REV.
SCALE ~		DIST.
SHEET 1 OF 1		

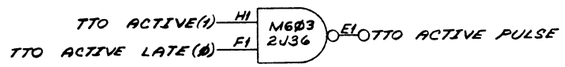
REVISIONS | REV. | CHANGE NO. | CHK.

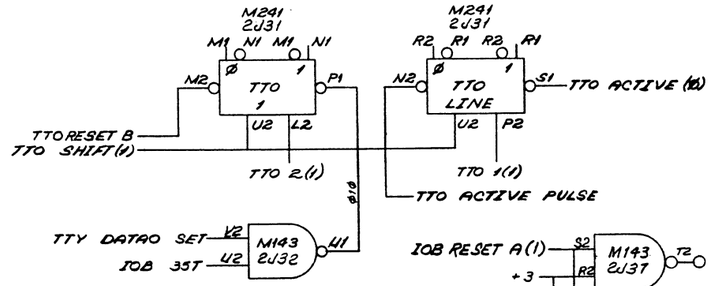
DEC FORM NO DRG 102A

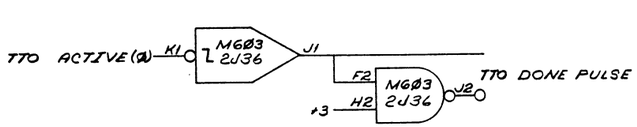


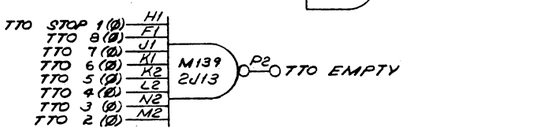












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRN.	Ey Lucas	DATE 5/13/70
CHKD.	David Gross	DATE 31 Jan 72
ENG.	Milan Kotik	DATE 31 Jan 72
MGR. ENG.	Alan Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø
SCALE ∿
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
TELETYPE OUTPUT

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø-Ø-TTO	

DIST.

DEC FORM NO DRD 102A

M246 2H33 — M241 2JØØ — M246 2H33 — M246 2H33 — M243 2J35

P2 R2 P2 R2 — TTI STOP — N2 N1 +3 — R1 P1

M1 N1 M1 N1 — TTI LAST UNIT — M2 P1 +3 — U2 L2

E2 D2 E2 D2 — TTO BUSY — F2 H1 — H2 J2

M246 2H33 L2 K2 L2 K2 — TTO FLAG — M2 J1 TTO DONE PULSE — L1 K1

P1 P2 P1 P2 — TTY TEST — R1 S1 R1 S1 — TTY PIA 33 — M2 N2 M2 N2 — TTY PIA 34 — T2 S2 T2 S2 — TTY PIA 35 — U2 J2 H2

TTI ACTIVE PULSE

TTI FD C (1)

TTI LAST UNIT (1)

TTI FD D (1)

TTI 1 (Ø)

TTY CONO SET

IOB RESET A(1)

IOB ØGT — IOB 15T — IOB 16T — IOB 17T

TTO DONE PULSE — VI U1 S1 — M6Ø3 2J36 — A1 — +3

IOB RESET A(1)

Ø01

TTY DATAO CLR — S2 T2 P2 — MGØ3 2J36 — R2 — +3

IOB RESET A(1)

Ø02

IOB 13T — B1 — TTO BUSY(Ø) — C1

~IOB ØØT — H1 — ~TTO BUSY(1) — A1

M126 2H41 — D1

Ø07

IOB 14T — D2 — TTO FLAG(Ø) — E1

~IOB 10T — F2 — ~TTO FLAG(1) — E2

M126 2H41 — F1

Ø08

TTY CONO SET — R1 — IOB ØBT — P1

M143 2J37 — N1 Ø15

TTY DATAI — S2 T2 P2 — IOB RESET T — M6Ø3 2L31 — R2 Ø17 J1

M241 2JØØ

J2 K2 J2 K2 — TTI FLAG — H2

TTI FD D(1) — U2 K1

IOB 12T — S1 — M143 2J37 — P2 Ø16

+3 — K1 — TTI MARK — J1 — M143 2J37 — L1 — TTI MARK

TTY TEST(1) — R2 — TTO LINE(Ø) — S2

~TTI SQ MARK — U2 — T2 — +3 — M126 2H41 — U1 — ~TTI MARK

TTI FLAG 1 — K1 H2 — +3

TTI LAST UNIT (Ø) — N1 J1 — M126 2H41 — J2

Ø05

TTI ACTIVE(1) — M1 — M6Ø3 2J36 — L2 — TTI ACTIVE PULSE

N1 P1 Ø18 — D2 — +3 — D1 — M6Ø3 2J36 — E2

TTI FD D (1) — S2 — TTI STOP (Ø) — R2 — M173 2K32 — T2

Ø06

IOB RESET A(1) — +3 — K1 K2 — TTY CONO SET — N1 J1 IOB ØTT — M126 2L32 — J2

Ø09

M243 2J39

D1 E1 D1 E1 — TTI 8 — C1 — B1 H2

D2 E2 D2 E2 — TTI 7 — F2

J1 K1 J1 K1 — TTI 6 — H1

M1 N1 M1 N1 — TTI 5 — L1

P1 P2 P1 P2 — TTI 4 — A2 — U2

S1 R1 S1 R1 — TTI 3 — V1

N2 M2 N2 M2 — TTI 2 — L2

S2 T2 S2 T2 — TTI 1 — V2

TTI ACTIVE PULSE — V2

TTI MARK

TTI 8(1) — TTI 7(1) — TTI 6(1) — TTI 5(1) — TTI 4(1) — TTI 3(1) — TTI 2(1)

D2 C1 D2 C1 — M241 2JØØ — E1 F1 E1 F1

TTI ACTIVE — A1 — D1 — B1

TTI SPIKE DETECTOR — F2 — H1 — E2

TTI ACTIVE PULSE

TTI FD D(1) — U2

IOB RESET A(1)

E1 D1 E1 D1 — TTI FD D — C1

E2 D2 E2 D2 — TTI FD C — E2

K1 J1 K1 J1 — TTI FD B — H1

M243 2H39 — N1 M1 N1 M1 — TTI FD A — L1

TTI FBX — V2 B1 — H2

Ø11 — T2 — M143 2K31 — S2 R2

Ø12 — D2 — M143 2J37 — D1 E1

Ø13 — F1 — M143 2J37 — E2 F2

Ø14 — M2 — M143 2J37 — M1 N2

TTI ACTIVE(1)

TTI FD C(1) — TTI FD B(1) — TTI FD A(1) — TTI FD D(Ø)

~TTI MARK — M1 K2 — TTI SPIKE DETECTOR(Ø) — M126 2H41 — L2 — Ø10

TTI STOP — +3 N2 M2 (Ø) — ~TTI MARK — P1 R1 +3 — M126 2L32 — S1

IOB 11T — V2 — TTY CONO SET — P2

Ø03

TTO FLAG(1) — B1 — TTI FLAG (1) — C1 — M177 2J33 — A1 Ø04 D2

DECODER — M151 2H4Ø — 2³ 2² 2¹ 2⁰ — EN

TTY PIA 33 (Ø) E1 (1) — F1

TTY PIA 34 (Ø) C1 (1) — D1

TTY PIA 35 (Ø) A1 (1) — B1

E2 — Ø

J2 — 1 — TTY PI 1

K1 — 2 — TTY PI 2

K2 — 3 — TTY PI 3

L1 — 4 — TTY PI 4

L2 — 5 — TTY PI 5

M1 — 6 — TTY PI 6

N2 — 7 — TTY PI 7

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓ REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. D.A. Swan DATE 8/5/70
CHKD. David Gross DATE 31 Jan 72
ENGR. William Kotok DATE 31 Jan 72
PROJ. ENGR. Dan Kent DATE 31 Jan 72
MGR. [illegible] DATE 31 JAN 72

NEXT HIGHER ASSY B-DD-KI1Ø-Ø

SCALE ~

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

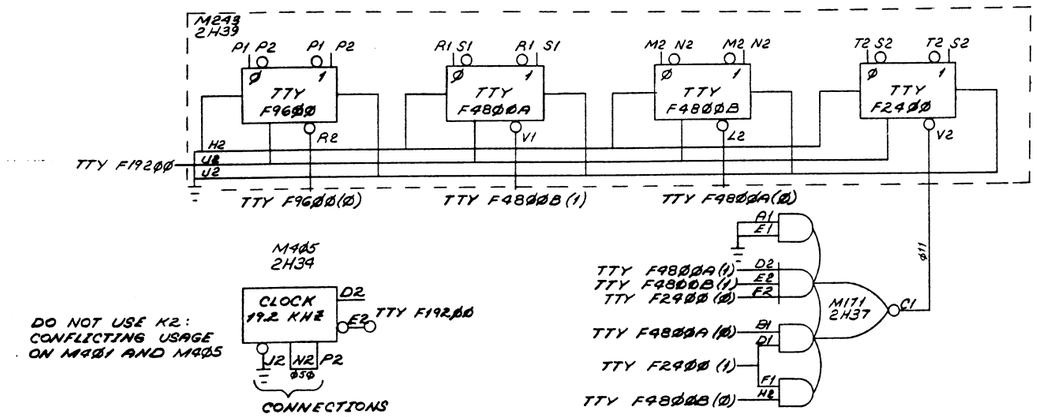
TITLE TELETYPE INPUT

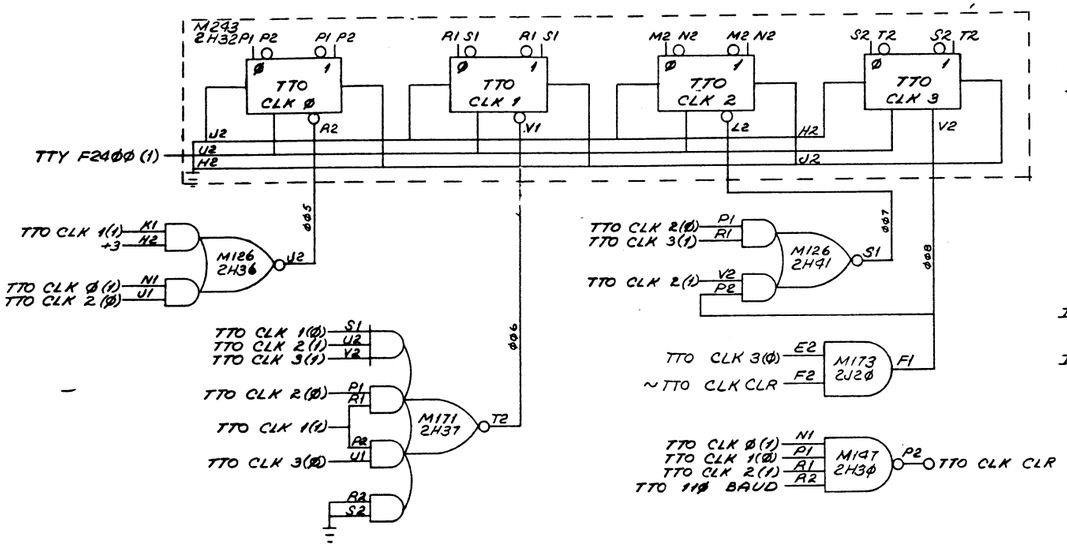
SIZE D CODE BS NUMBER KI1Ø-Ø-TTY1 REV.

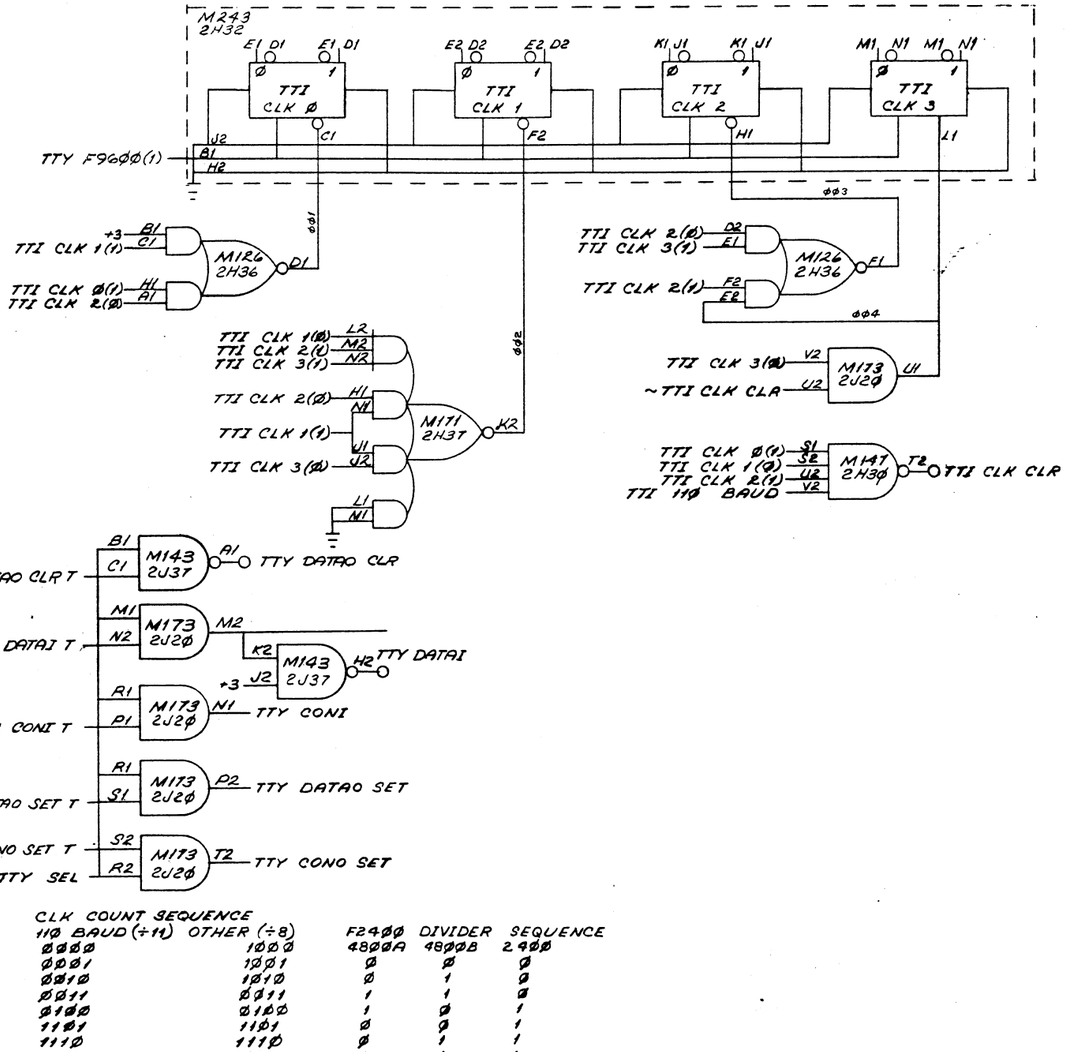
DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO DRD 102A







CLK COUNT SEQUENCE

11Ø BAUD (÷11)	OTHER (÷8)	F24ØØ	DIVIDER SEQUENCE 48ØØA	48ØØB	24ØØ
ØØØØ	1ØØØ	Ø	Ø	Ø	Ø
ØØØ1	1ØØ1	Ø	Ø	1	Ø
ØØ1Ø	1Ø1Ø	Ø	1	Ø	Ø
ØØ11	Ø111	1	1	Ø	Ø
Ø1ØØ	Ø1ØØ	1	Ø	Ø	1
1ØØ1	11Ø1	Ø	Ø	1	1
111Ø	111Ø	Ø	1	1	1
1111	1111	1	1	1	1
1ØØØ	1ØØØ	1	Ø	Ø	Ø
1ØØ1		Ø	Ø	Ø	Ø
1Ø1Ø; TTI CLK CLR					
ØØØØ					

NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

DEC FORM NO
DRD 102A

FIRST USED ON OPTION/MODEL: KIØ

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

		DATE
DRN	D.G. Simm	4/6/70
CHKD	David Gross	31 Jan 72
ENG	Stan Kotik	31 Jan 72
PROJ ENG	Alan Kent	31 Jan 72
PROG	M Williams	31 JAN 72

NEXT HIGHER ASSY: B-DD-KIØ-Ø

SCALE: NONE

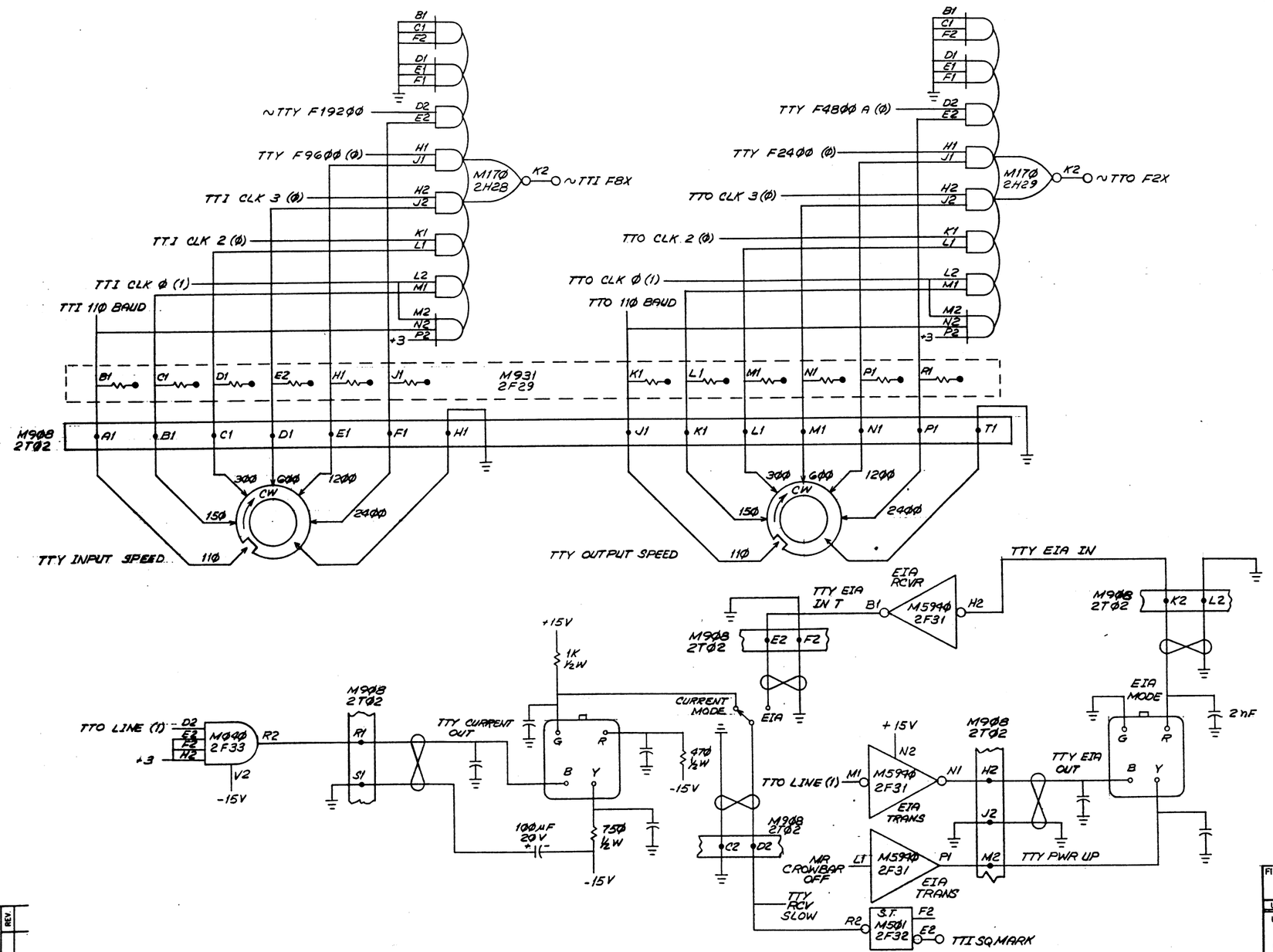
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: TELETYPE CLOCKS

SIZE	CODE	NUMBER	REV.
D	BS	KIØ-Ø-TTY2	

DIST.



NOTE:
UNLESS OTHERWISE NOTED
ALL CAPACITORS ARE 10 nF ±20% 100V
ALL RESISTORS ARE ±5%
ALL R'S & C'S ARE MOUNTED AT THE TELETYPE INTERFACE PANEL.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	W. Stephenson, DATE 2/14/71
CHK'D	David Gross, DATE 31 Jan 72
ENG	Allan Kotik, DATE 31 Jan 72
PROJ. ENG.	Allan Kotik, DATE 31 Jan 72
PROD	T. Smith, DATE 31 JAN 72

NEXT HIGHER ASSY: B-DD-K1Ø-Ø

SCALE ~

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

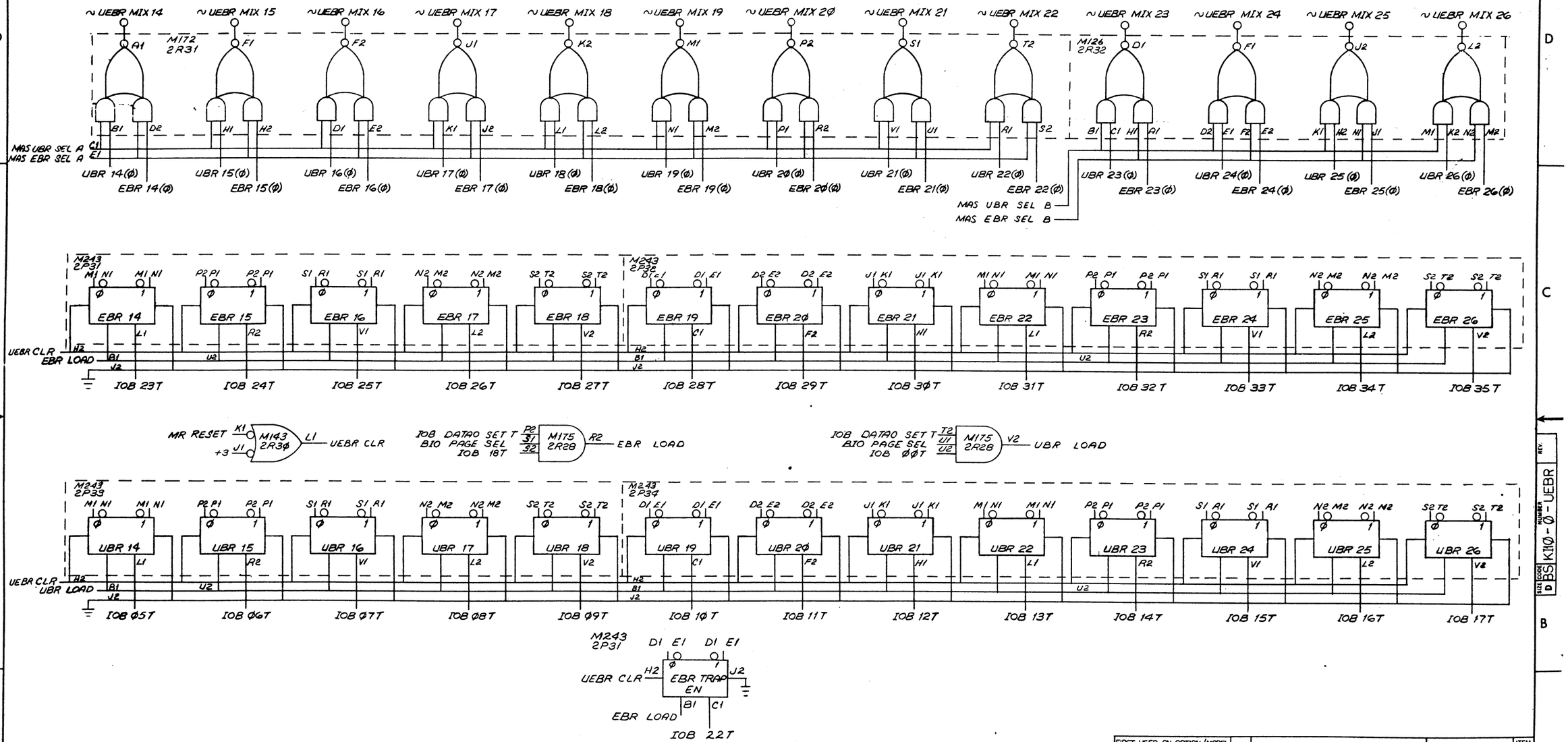
TITLE: TELETYPE INTERFACE

SIZE	CODE	NUMBER	REV
D	BS	K1Ø - Ø - TTY3	

DIST.

REVISIONS	REV.
CHANGE NO.	
CHK	

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

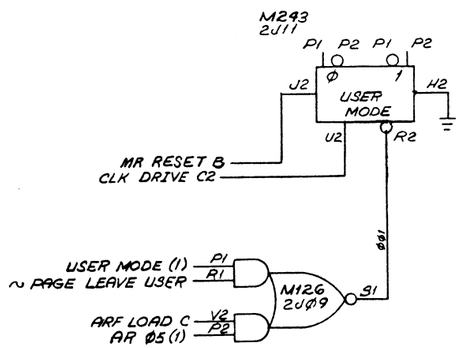
UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

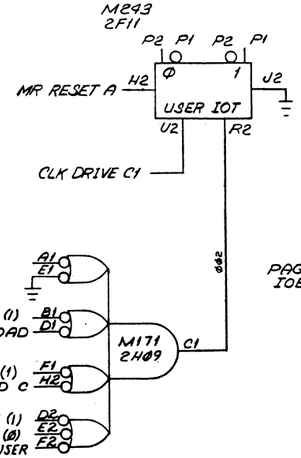
MATERIAL

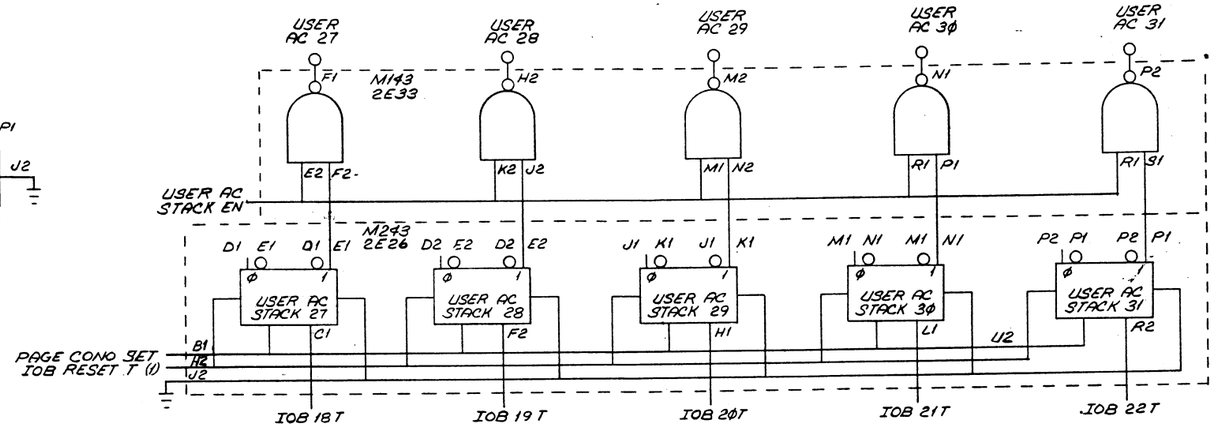
FINISH

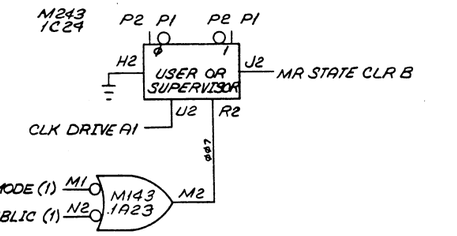
DRN. W. Stephenson	DATE 4/13/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. David Frost	DATE 31 Jan 72	
ENG. Dan Hotek	DATE 31 Jan 72	TITLE: USER & EXEC BASE REGISTER
PROJ. ENG. Alan Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	
NEXT HIGHER ASSY B-DD-KI1Ø-Ø		SIZE D | CODE BS | NUMBER KI1Ø-Ø-UEBR | REV
SCALE ~		DIST.
SHEET 1 OF 1		

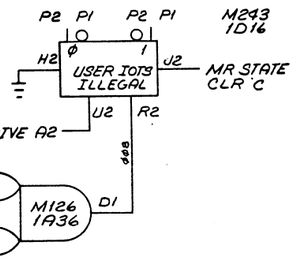
DEC FORM NO DRD 102A

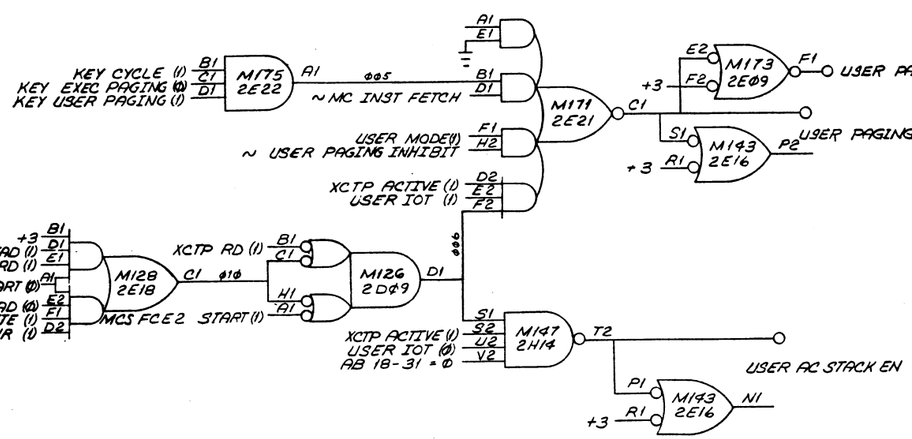


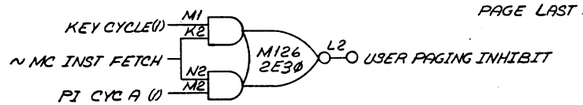












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "O" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION / MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY 63
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN	W. Stephenson	DATE 10/23/70
CHKD	Richard Gross	DATE 31 Jan 72
ENG	William Kotok	DATE 31 Jan 72
PROJ. ENG	Allan Kent	DATE 31 Jan 72
PROG	[illegible]	DATE 31 JAN 72

NEXT HIGHER ASSY
8-DD-KI1Ø-Ø

SCALE ½
SHEET 1 OF 1

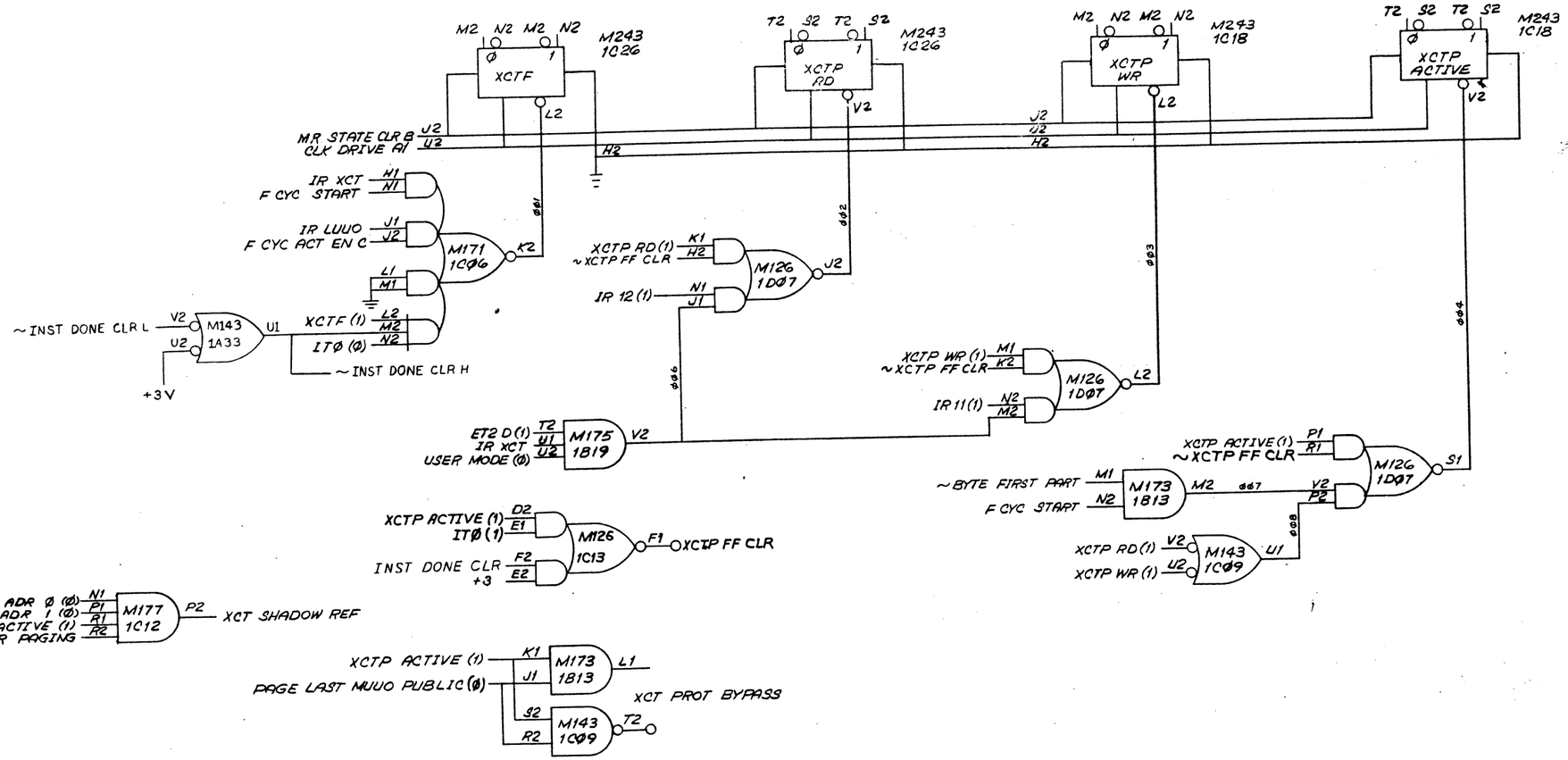
digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
USER MODE CONTROL

SIZE	CODE	NUMBER	REV
D	BS	KI1Ø - Ø - USER	

DIST.

DEC FORM NO DRD 102A



NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "0" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REVISIONS	REV	CHK
CHANGE NO.		
KI10-00032	A	DW
J. Gaughan 8-2-73		
A. KENT		
Allan Kent 11 Apr 73		
KI10-00044	B	DW
R. Wood 7-24-74		
D. GROSS		
Paul Miller 8-10-74		

DEC FORM NO DRO 102A

FIRST USED ON OPTION/MODEL: KI10

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN W. Stephenson	DATE 4/3/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD Richard Gross	DATE 31 Jan 72	
ENGR Allan Kent	DATE 31 Jan 72	TITLE: EXECUTE INSTRUCTION
PROJ. ENGR Allan Kent	DATE 31 Jan 72	
PROD Paul Miller	DATE 31 JAN 72	

NEXT HIGHER ASSY: B-DD-KI10-0

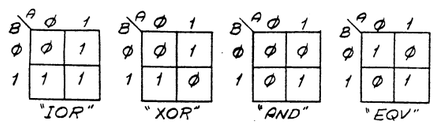
SCALE: NONE

SHEET 1 OF 1

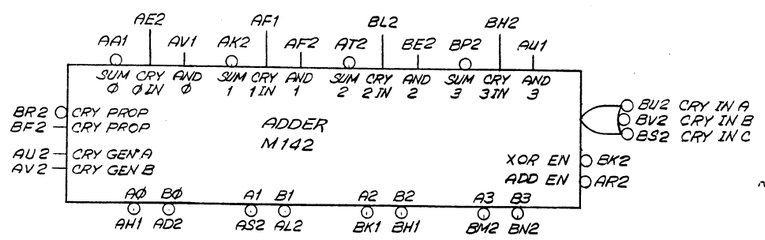
SIZE	CODE	NUMBER	REV.
D	DBS	KI10 - 0 - XCT	B

DIST.

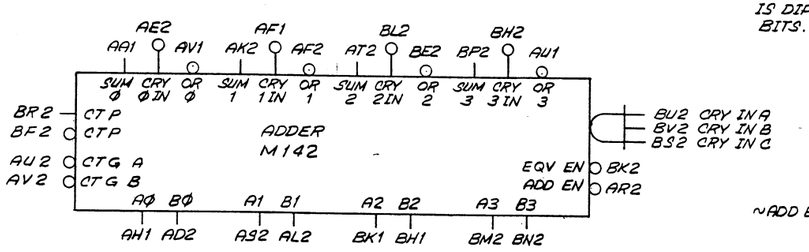
GENERAL INFORMATION



$$A_n \text{ "+" } B_n = A_n \forall B_n \forall CRY_n IN$$
$$= (A_n \wedge \sim B_n \wedge \sim CRY_n IN) \vee (\sim A_n \wedge B_n \wedge \sim CRY_n IN) \vee (\sim A_n \wedge \sim B_n \wedge CRY_n IN) \vee (A_n \wedge B_n \wedge CRY_n IN)$$



M142 USED FOR LOW INPUTS



M142 USED FOR HIGH INPUTS

THE SUM OUTPUTS REPRESENT VARIOUS FUNCTIONS DEPENDING ON THE ENABLES

	~XOR EN	XOR EN
~ADD EN	SUM = A "IOR" B	SUM = A "XOR" B
ADD EN	SUM = NON-STANDARD FUNCTION	SUM = A "+" B

THE NON-STANDARD FUNCTION DEPENDS UPON CARRIES AND IS DIFFERENT FOR DIFFERENT BITS.

THE SUM OUTPUTS REPRESENT VARIOUS FUNCTIONS DEPENDING ON THE ENABLES

	~EQV EN	EQV EN
~ADD EN	SUM = A "AND" B	SUM = A "EQV" B
ADD EN	SUM = NON-STANDARD FUNCTION	SUM = A "+" B

THE NON-STANDARD FUNCTION DEPENDS UPON CARRIES AND IS DIFFERENT FOR DIFFERENT BITS.

THE AND OUTPUTS REPRESENT THE "AND" OF THE INPUTS

THE CRY n IN OUTPUTS REPRESENT THE PROPER CARRY IN TO THE PARTICULAR BIT FOR ADDITION. CRY 1 IN IS THE PROPER CARRY TERM ONLY WHEN ADD EN AND XOR EN ARE ASSERTED. CRY 1 IN IS ASSERTED IF XOR EN IS NOT ASSERTED. CRY 1 IN IS NOT ASSERTED IF XOR EN IS ASSERTED BUT ADD EN IS NOT ASSERTED. THE OTHER CRY n IN OUTPUTS ARE ALWAYS THE PROPER CARRY INTO THE PARTICULAR BITS.

THE OR OUTPUTS REPRESENT THE "OR" OF THE INPUTS

THE CRY n IN OUTPUTS REPRESENT THE PROPER CARRY IN TO THE PARTICULAR BIT FOR ADDITION. CRY 2 IN IS THE PROPER CARRY TERM ONLY WHEN ADD EN AND EQV EN ARE ASSERTED. CRY 1 IN IS NOT ASSERTED IF EQV EN IS NOT ASSERTED. CRY 1 IN IS ASSERTED IF EQV EN IS ASSERTED BUT ADD EN IS NOT ASSERTED. THE OTHER CRY n IN OUTPUTS ARE ALWAYS THE PROPER CARRY INTO THE PARTICULAR BITS.

FOR LOW INPUTS

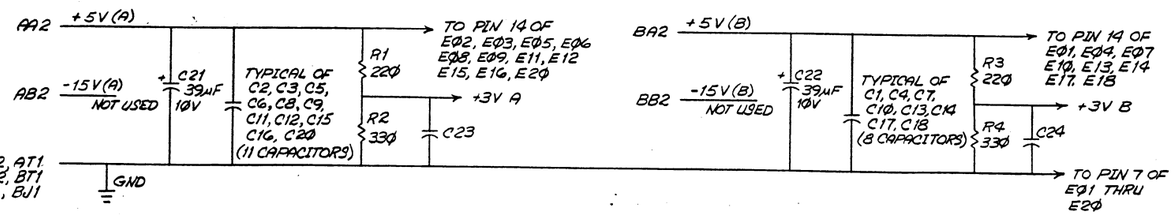
$$CRY\ 3\ IN = CRY\ IN\ A \vee CRY\ IN\ B \vee CRY\ IN\ C$$
$$CRY\ 2\ IN = (CRY\ 3\ IN \wedge A3) \vee (CRY\ 3\ IN \wedge B3) \vee (A3 \wedge B3)$$
$$CRY\ 1\ IN^* = (CRY\ 2\ IN \wedge A2) \vee (CRY\ 2\ IN \wedge B2) \vee (A2 \wedge B2)$$
$$CRY\ 1\ IN = (CRY\ 1\ IN^* \wedge ADD\ EN) \vee \sim XOR\ EN$$
$$CRY\ Ø\ IN = (CRY\ 1\ IN^* \wedge A1) \vee (CRY\ 1\ IN^* \wedge B1) \vee (A1 \wedge B1)$$
$$CRY\ PROP = (A3 \vee B3) \wedge (A2 \vee B2) \wedge (A1 \vee B1) \wedge (AØ \vee BØ)$$
$$CRY\ GEN = [AØ \wedge BØ] \vee [A1 \wedge B1 \wedge (AØ \vee BØ)] \vee [A2 \wedge B2 \wedge (A1 \vee B1) \wedge (AØ \vee BØ)] \vee [A3 \wedge B3 \wedge (A2 \vee B2) \wedge (A1 \vee B1) \wedge (AØ \vee BØ)]$$

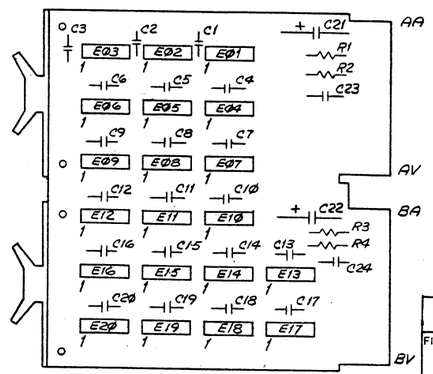
FOR HIGH INPUTS

$$CRY\ 3\ IN = CRY\ IN\ A \wedge CRY\ IN\ B \wedge CRY\ IN\ C$$
$$CRY\ 2\ IN = (CRY\ 3\ IN \wedge A3) \vee (CRY\ 3\ IN \wedge B3) \vee (A3 \wedge B3)$$
$$CRY\ 1\ IN^* = (CRY\ 2\ IN \wedge A2) \vee (CRY\ 2\ IN \wedge B2) \vee (A2 \wedge B2)$$
$$CRY\ 1\ IN = (CRY\ 1\ IN^* \wedge EQV\ EN) \vee (\sim ADD\ EN \wedge EQV\ EN)$$
$$CRY\ Ø\ IN = (CRY\ 1\ IN^* \wedge A1) \vee (CRY\ 1\ IN^* \wedge B1) \vee (A1 \wedge B1)$$
$$CT\ P = (A3 \wedge B3) \vee (A2 \wedge B2) \vee (A1 \wedge B1) \vee (AØ \wedge BØ)$$
$$CT\ G = [AØ \wedge BØ] \vee [A1 \wedge B1 \wedge (AØ \vee BØ)] \vee [A2 \wedge B2 \wedge (A1 \vee B1) \wedge (AØ \vee BØ)] \vee [(A3 \vee B3) \wedge (A2 \vee B2) \wedge (A1 \vee B1) \wedge (AØ \vee BØ)]$$

NOTE SUBTLE DIFFERENCE FROM CRY GEN ABOVE

UNLESS OTHERWISE INDICATED:
IC'S ARE DEC 1074H - - N A9 NOTED
CAPACITORS ARE .Ø1μF 1ØØV
RESISTORS ARE 1/4 W





NOTE
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REVISIONS				
CHK	CHANGE NO	REV		
	M142-00001	A	WALTON	6-13-71
	M142-00002	B	W.D. WALTON	7-12-72
	M142-00003	C	B. WALTON	13 JULY 72

ETCH REV A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

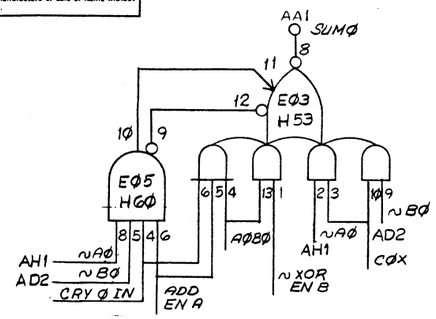
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS

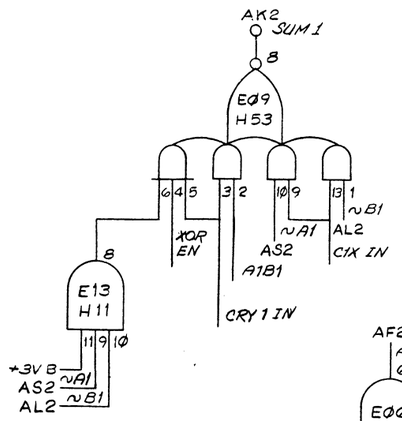
MATERIAL

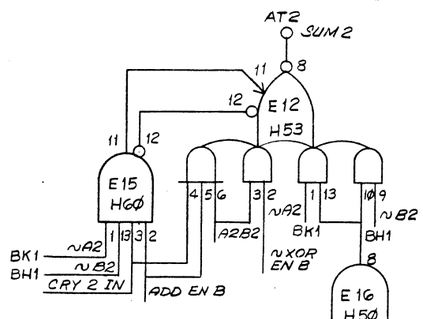
FINISH

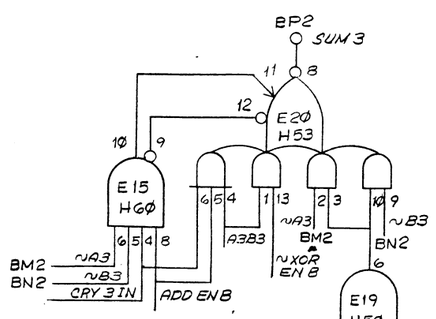
DRN. W. Stephenson	DATE 9/11/70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D.	DATE 3-3-71	
ENG.	DATE 3-2-71	TITLE M142 4 BIT ADDER
PROJ. ENG.	DATE 3-4-71	
PROD.	DATE	
NEXT HIGHER ASSY		SIZE D CODE CS NUMBER M142-Ø-1 REV -
SCALE		DIST.
SHEET 1 OF 2		

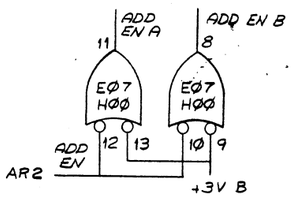
DEC FORM NO DPD 102A

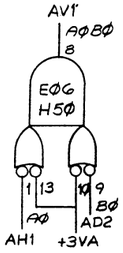


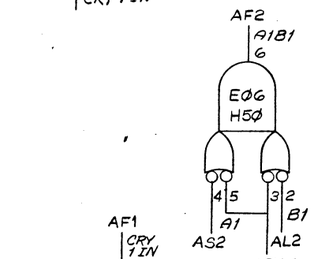


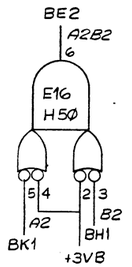


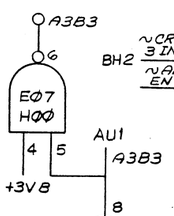


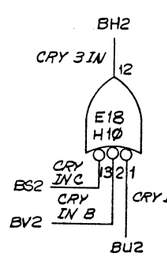


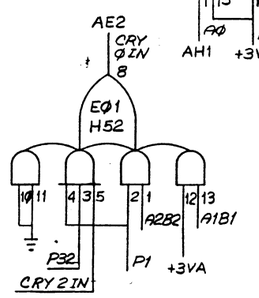


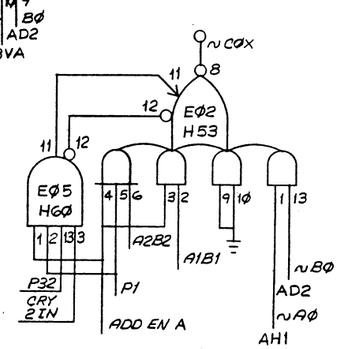


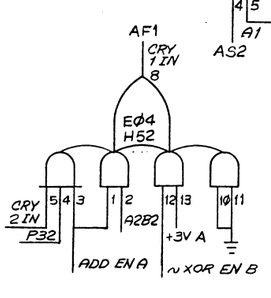


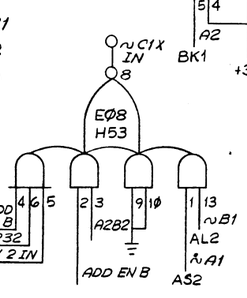


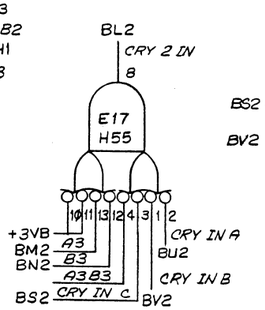


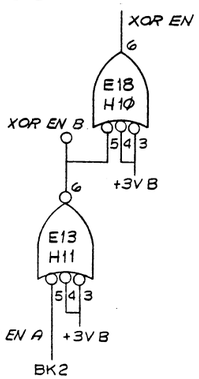


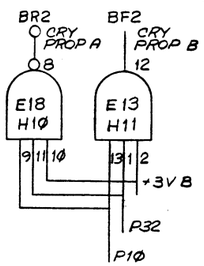


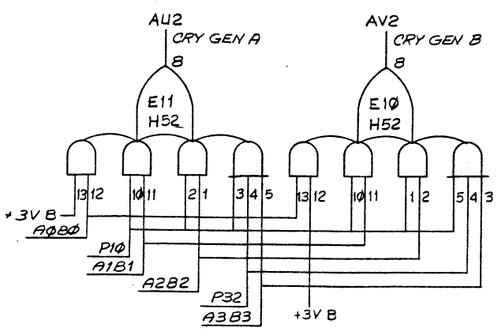


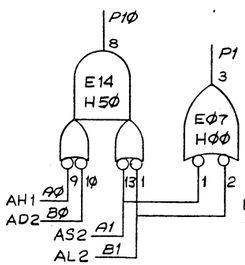


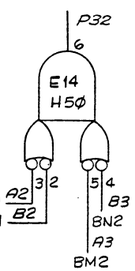












NOTE
ALL SIGNAL NAMES ON THIS SHEET CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES "Ø" ARE AS IF SUFFIXED WITH "L". ALL SIGNAL NAMES ON THIS SHEET NOT CONNECTED TO LOW ASSERTION DESIGNATION CIRCLES ARE AS IF SUFFIXED WITH "H".

REV	NUMBER	SIZE	CODE
C	M142 - Ø - 1	D	DCS

DIFF TECH

REVISIONS	REV	CHK
CHANGE NO.		

PARTS LIST			
QTY.	DESCRIPTION	PART NO.	REV
18	9008337-Ø6	HANDLE, MAGENTA	2
17	9006732	EYELETS	4
16	1910465	I.C.#074H31	1
15	1910516	I.C.#074H6Ø	2
14	1910515	I.C.#074H55	1
13	1910514	I.C.#074H53	6
12	1910513	I.C.#074H52	4
11	1910512	I.C.#074H5Ø	4
10	1910464	I.C.#074H1Ø	1
9	1910462	I.C.#074HØØ	1
8	1300295	RES 33Ø, 1/4W, 5%	-
7	1300271	RES 22Ø, 1/4W, 5%	-
6	1001610	CAP, .01UF, 100V, 20% DISC	-
5	1000276	CAP, 39UF, 10V, 10% S, TANT	-
4	50009485	ETCHED CIRCUIT BOARD	1
3	D-MH-M142-Ø-6	MODULE ECO HISTORY	
2	D-AH-M142-Ø-5	ASSY/DRILLING HOLE LAYOUT	
1	K-CO-M142-Ø-4	X-Y COORDINATE HOLE LOCATION	

FIRST USED ON OPTION/MODEL:

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	W. Stephenson	DATE 3/25/70
CHK'D.		DATE 3-3-71
ENG.		DATE 3-3-71
PROJ. ENG.		DATE 3-3-71
PROD.		DATE

FIRST USED ON

SCALE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION

TITLE
M142
4 BIT
ADDER

SIZE D | CODE DCS | NUMBER M142 - Ø - 1 | REV C

DIST.

FORM 102A

SIZE D | CODE MU | NUMBER KI10-Ø-1A1D | REV D

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
G83	M151	M151	M151	M952	M151	M151		M151	M143	M173	M143	M143	M177	M143	M143	M177	M952	M147	M145	M139	M931	M181	M143	M175	M143	M969	M173	M143	M145		M175	M171	M143		M128	M126	M143	M952	M145		M948	M948	M948	M984
PWR	IR UFA ETC. (IR 13X DECODE)	IR EXCH ETC. (IR 25X DECODE)	IR DMOVE ETC. (IR 12X DECODE)	TERM	IR XXØØ — XXØ7	IR 11X ETC		IR CAIX ETC.	(IR1) IR 11X IR 12X IR 24x IR ADSUB	IR AOBJX IR BLT A IR DFN A IR PUSH POP	IR Ø3 A IR Ø3 B IR FSC IR FIXX IR FLT R	IR UFA IR DFN IR FIXX IR XXR- IR XXXI IR XXXM	POPX B-12=Ø AR AD BR(ET2)A ARMA BLKX ETC	IR XXXS IR XXØØ IR DMOVEM IR BOOLE IR 1XX IR XXXM IR XXXS IR TEST IR HWT	IR 13X IR DMOVNM IR FP SHIFT IR 2XX IR BOOLE AD AR+F IR BOOLE AD FM-F IR BOOLE AD FM+F	TERM	XX(Ø, 5,12,17) IR FP SHIFT IR BLKX IR XX(7,13 15,16) IR DMOVXM PART 1 AD AR— EN	FP IMM XX5 AR AD EN FP ~IMM IR FWT IR SKIPS	XX (1-3,6 11,15, 16) XX (2,6,7, 10,12, 15) XX (1,4,5, 11,13, 16)	LMP TERM	IR UNUSED FCE SCE	IR FP NRND IR SKIPS IR HLLXX IR HRLXX IR HRRXX IR HLRXX IR HXR-S	IR CAXX IR CAXX IR HWT FWT IR SR INST IR DFAS IR DFAS A IR SR INST IR DFAS IR HXXM (N,M) X	TERM & THERM	IR JFFO A IR DIVX IR XXXEX IR JRST IR LUUO IR DPOP A IR FXX A AR AD BR(ET) BYTE XLDB	IR XDIVX IR ASHX IR DIVX IR DFASDIV IR FDVL MC INST FETCH (T1) IR DFSB IR DFMP IR DFDV MC JRST NO FLAGS	IR MPY IR SR XXXC IR VDFAD IR DFSB IR DFMP IR DFDV MC JRST NO FLAGS		IR HXL-S IR HXX-X STORE TRAP REAL IR FP RND ARF STROBE (ET2) PC+1 INH IN	IR 254 ETØ EN FMC AC2 EN A	IR 7XX IR IOT IR DMOVEM PART 1 IR JRST IR DMOVXM IR DMOVNM PART 1 IR DMOVNM PART 2 IR DMOVXM PART 2 IR DMOVXM IR INST DONE CLRL	BYTE PTR INC FMC AC2 EN B	IR ILLEGAL INST	USER IOTS ILLEGAL MC WR SUBR EN TEST TX (C,Z)X AD+1 BOTH BLKX AD FM+ EN B ARI SH LT COND	AD BR+ EN B AD BRF+ AD FM- AD EQV ARI SR2 COND AR SWAP AD—1 LT AD CRY 36 IR JFFO BYTE XLDB	TERM	PI MAY OVF ST3 TRAP ANY IR JFCL PT CYC B (Ø) MAY OVF		1X14	1X24	1X23	IBC (MISC)
G83	M147	M139	M147	M139		M145	M139	M139		M177	M143	M173	M952	M177	M139	M128	M173	M175	M143	M145	M952	M139	M147	M178	M139		M171	M139	M143		M139	M147	M177	M952	M143	M931	M143	M139		M948	M948	M948	M984
PWR	IR FAVXX A AD AR— EN AD FM— EN AD FM+ EN B FETCH HXX-M MQ AD EN A	AD AR+ EN B AD AR+ EN C AD BR+ EN A	AD BR+ EN B AD BR+ EN B AD ADD EN D CLK LONG CYCLE IR XXX EN TEST TX (C,Z)—	AD ADD FETCH EN B CLK LONG CYCLE CLK LONG CYCLE		IR JUMPS BR AR EN BYTE PTR INC CLK LONG CYCLE FP AD SUB MC MREM GO FCYC INH TEST TXOX	AD FM+ EN A AD FM+ EN A AD FM+ EN A	AR AD EN A AR AD EN A AD AR—		ET1 EN ETØ EN ETØ EN ETØ EN ETØ EN	BYTE XDPB BYTE PTR INC IR MAP MAGIC# +1 MASK GEN EN BYTE XDPB PART 2 BYTE DPB SH EXIT BYTE MB CLR INH TEST (E,M,A)	BYTE XDPB BYTE XDPB PART 2 TXC TXOX TXN TXXA TRAP SATISFIED XCT PROT BYPASS XCTP ACT IR DIVX — IR MULX — IR JSP A — IR PUSH A	TERM	ETØ EN ET1 EN ET1 EN ST INH IR XX Ø,5,12, 17 ST INST FET ST 1 EN	FCE FCE FCE PSE	BYTE FIRST PART MC STORE TIME ST5 FT6	IRØ3A IRØ4A IRØ5A IRØ6A IRØ6B IRØ6C IRØ7A IRØ8A ST INH	FCE2 LT OR RT TEST TXXE TEST TXXN TEST TXXA FMC AC EN A MC IN FET COND XCTP RD,WR	BLKI (C,Z)X TEST TX (C,Z)X TEST TXC— TEST TXC— TEST TXX (EN TEST T (D,S)XX TEST TX (C,Z) X TEST TXC (E,N,A) SCE	TEST TXC— TEST T (D,R)X (E,N) MQ AD EN A MQ SH ORDINARY PC CHANGE PC CLK ET2 EN A AD AR+ EN C	TERM	PC CHANGE SC SCAD EN C SCE	SCAD EXP ADD SCAD AR EXP SC SCAD EN C SAC INH SC FE CLK AD AR+ EN C	SAC INH SAC INH SCE	SAC INH STORE	SAC2 FCE FCE PSE	SAC BR TN CLR INH AD AR+ EN B	AB FET IN CONC AB AD EN AB AD EN MC AUTO INH FET A IR LUUO FMC AC EN A IR BXX AD BR+ EN A AD MSK EN B		AD MAGIC EN A AB PC FETCH EN AD CRY 36	IR DPOP A AB AD EN MASK EN B AR FLAGS SAVE ARMQ EN A FMC AC2 EN	BR AR(ET2) A AD+1 BOTH F BYF5— 6 SET FMC AC2 EN MA SPECIAL 27,31 PC+1 INH IN	TERM	AR MQ EN A AR FLAGS SAVE BYF5-6 SET FCE FMC AC EN A MUUO PART 3 MUUO F2 CLR MUUO PART 3 AR SIGN SMEAR A MUUO PART 1	LMP TERM	MC INST FET ST1 EN A SCAD EXP ADD INST DONECLR SCAD +1 SAC 2 SAC 2 SCE SAC INH STORE PC CLKEN A		MC INST FET ET2 EN MC INST FET ST1 EN MQ AD EN A	1X12	1X22	1X13	IBC (MSC)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
G83	M143	M969	M173	M143	M171			M181	M143	M171	M931	M177	M126	M171	M952	M147	M363	M243		M181	M145	M143		M243	M243	M243	M952	M363	M171	M128		M243	M171	M172	M126	M952	M128	M139		M171	M948	M948	M984	M984
PWR	IR XCT IR XMULX IR XBULXA IR FMPXX SCAD Ø SCAD 1 IR CONSO IR CONSZ IR MOV (M,M)Ø SCAD EQV EN A	TERM THERM	IR XCTVX A AD ADD EN A MPY FCM A IR DPOP MB SPECIAL 34A SCAD ØA TR FSC A TR XMULX A TR MB CLR	SC ØA IR JRA IR JSA IR JUMPS IR PUSHX IR ROT IR DIVX IR MULX IR ROTC IN SR INST A	TRAP SATISFIED XCTF IR RT IR IN			TN1 IR— FP IR IOT FAST	ST1 COND AR EXP SCAD EN TRAP SATISFIED TRAP SATISFIED TN CLR INH ST1 IR FIXX A IR FIXX XCT PROT BYPASS XCTP ACT	ST1 COND TNØ TN1	LMP TERM	ST4 ST5 ST1 ST2 ST3 ST6 ST7 ST10	ST1 ST1 COND TRAP CYC TNØ TRAP PAGE FAULT	ST1 SAC BR FF ST1 COND	TERM	IR 3XX STORE MEM ST1 COND AD AR+ EN B FT6	ST2 DLYD ST4	NRT 1 2 3 4 5 6 XCTP WR XCTP ACT	MPY FCN NR POS PC CLK EN	IT1 INST RDY SET MC SYNC RD EN ST2 COND ST5 COND B NRT1 NRT5	FDTØ IT 1 INST DONE DLYD NR NEG NR RNO ST2 BR+1 FDT1 COND FDT5 COND SAC BR FF ST4		FLAG 1 FLAG 2 FLAG 2A FLAG 3 USER OR SUPERVISOR IT1 IT1A IT2	FDTØ 1 2 3 4 5 6 7	FAT1 2 3 4 FMT1 FMT2 XCTF XCTP RD	TERM	INST DONE DLYD (71) IT2 COND	PC CHANGE PC+1 INH IN PC+1 INH CLR	PC CLK (ET2) EN B ST 1 COND A PC CLK (ET2) EN B PC CLK EN		ETØ F ETØ J ET1 F ET1 J ET2 J PFT 3 ET2 M ET2 N	FMC AC EN A MC INST FET ST1 EN A MC AUTO IN FET A	AR AT MA EN A AR AT MA EN B PC+1 INH IN MPYT TEST F CYC START F CYC START A AR LT IR MQVSX IR(A,L) SHX	MC INST FETCH NEXT MC WRITE KILL IN SCAD DATA IN AD AR+ EN K AD MSK EN B	TERM	MC INST FETCH (IT1) PI OV IN PI ACT INH IR MUUO EN	FW WR EN A FMC AC AC2 EN MC INST FETCH EN		FM WRITE EN FMC SEL Ø IN MC SYNC RD EN		1X11	1X21	IBC (PC+1 18-35)	IBC (MISC)
G83	M128	M139		A133	A133	M126	M931	M243	M126	M243	M171		M243	M143	M243	M362	M139	M128	M243		M181	M243		M171	M147	M241	M243	M931	M126	M243	M171	M952	M171	M147	M243		M243	M126		M948	M948	M948	M984
PWR	FAT3 AR INPUT FAT4 COND NRT2 BR SIGN SMEAR IN	MPY FCN ST5 INH ST1 COND		+5V MARGIN 1A-1J	+5V MONITOR 1A-1J	TN 1 TRAP SATISFIED XCTP RD XCTP WR XCTP ACT MC AUTO IN FET A	LMP TERM	FLAG 1A FLAG 2B FLAG 3A TRAP BEGIN AD ADD DFDTØ	FLAG 2 FAT4 COND FDT2 IN TN = Ø IRMB EN NRT3 COND	FLAG 3 CCR FDV NEG DVD FDVL F FLAG 3(1) MAGIC# +1 KT3 A FAT1 FP AD SUB IR FDVXX AR SYNC WR EN	FT6 NRT1 PC COND Z	ETØ C ETØ D ETØ E ET1 D ET1 E ET2 D ET2 E ET2 F	FT1 FT3 FT7 FT4 COND MR STATE CLR C MR STATE CLR B FMT1 COND FMT2 COND FT6 PC COND Z	FT1 2 3 4 USER IOTS ILLEGAL FT6 5 6 7 8	CLK DRIVE A1 AND A2 (8)	AD FM+ EN B AR AD ET2 EN FT8	DFAT ARGS RDY CLK MAX EN DMOVET1 DMOVNT1 DMOVNT3 BLTT1	DFDT 1 2 3 4 5 6 7 8	DFDT9 10 11 12 DMOVNT2 DMOVNT3 BLTTØ BLTT1		INST DONE MC INST FETCH EN	FLAG 2 AD LT FM+ AD RT FM+ AD ADD EN E DFDT5 COND DFDT8 TWOS COMP	BLTT5 BLTF1 IR LT IR IR RT IR IR LT MB IR RT MB	BLTT3 BLTT4 DT9 FT5 INST 71 DONE ST5 TRAP CYC DFAT4	LMP TERM	BLTT8 BLTF1 DS FIRST STEP ET1 FT3 FT5	DNT1 2 3 4 5 6 7 8	DNT1 DNT1 COND A DNT7 COND		DNT4 DNT8 DSF2	ETØ DNT6 COND FIXT1 COND IR MUUO AR AD CLK IN A	DST1 2 3 4 5 6 FIXT1 FIXT2		DST1 DST3 COND DS NEG REM FIXT2 JFFO T1 ET1 EN ETØ EN ET1 EN FREE WAIT COND F CYC ACT EN C	JFFO T1 DSF2 MUUO F1 MUUO F2 ST4 57 ST2 ST3 ST4	MUUO F1 MUUO F2 NRT 4 COND NR NEG PC CLK EN PC CLK EN		2X22	2X15	2X25	IBC (MISC)

(n) DELAY IN LOCATION NOTED BELOW MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE #n WHEN THIS MODULE IS REPLACED.
57 ST2 DLYD M321, 2H16
71 INST DONE DLYD M363, 1C28

(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE #n WHEN THIS MODULE IS REPLACED.

REVISIONS	CHK	CHANGE NO.	REV.
Allen Kent 11 Apr 73	PM	KI10-00032	A
Ed Bellucci 8-17-73	PM	KI10-00038	B
D. GROSS 20 Aug 73	PM	KI10-00042	C
D. GROSS 3-4-74	PM	KI10-00044	D
D. GROSS 7-24-74	PM		

DEC FORM NO. 2260 105

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH
FIRST USED ON OPTION / MODEL KI10

DRN	D. Stephenson	DATE 5/19/72
CHKD	David Gross	DATE 31 Jan 72
ENG	Allen Kent	DATE 31 Jan 72
PROJ ENG	Allen Kent	DATE 31 Jan 72
PROD		DATE 31 JAN 72

NEXT HIGHER ASSY. B-DD-KI10-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MODULE UTILIZATION

SIZE	CODE	NUMBER	REV.
D	MU	KI10-Ø-1A1D	D

SCALE
SHEET 1 OF 1
DIST.

1E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
G83Ø	M126	M181	M171	M952	M145	M177	M17Ø	M952	M139	M143	M171	M177	M147	M126	M17Ø	M143	M952	M177	M243	M243		M243	M17Ø	M952	M243	M171	M126	M126	M931	M363	M363	M363	M177	M363	M363		M139	M171	M143		M948	M948	M9Ø4
PWR	AR EXP SCAD EN SCADØ = AR8Ø SCAD ADD EN B SCAD CRY 1 IN SC SCAD EN C SC1 = FLAG 3	SCAD +1 SCAD +1 SC FE CLK	SCAD +1 SCAD ADD EN B SC SCAD EN A	TERM	BYTE PTR INC SCAD AR EXP SCAD DATA EN A SCAD -1Ø8 EN SCAD -11Ø EN SCAD+ 44 EN ARMC AR 35 AUX MIX	DFAT1 COND SCAD DATA SCAD DATA EN A SC SC+1 EN SC Ø-3 ALL ONES SC 4-7 ALL ONES	SCAD NEGATE A SCAD EXP ADD	TERM	SCAD ADD SCAD ADD EN A SC CLK	SCADCRY 5 IN SC AR EN SC SCAD EN D SCAD DATA Ø SCAD DATA 1 SCAD DATA 2 SC SH RT EN SC SCH EN SCAD DATA 7 SRT1	SC SCAD EN C SC SCAD EN D AR FOV	UNT6 COND SC SCAD EN C SCAD DATA 3 SCAD DATA 5 SCT2 MISC INPUTS AD ADD ETØ EN A	SCØ-2 =4-6 SCØ = SC1 SC AR EN SCT1 SR SC + EN AD F LT V RT COND	SCT2 SCT1	MQ SH ORDINARY AD MPY FINAL AD MSK EN B AD+1 LT AD AR- AD BR- AD DFN & FLAG3 AD DFN & COND AR MQ EN A AR MQ EN A	TERM	CLK MISC INPUT SCT C DONE AD MAGIC EN C AD MAGIC EN B AR ASH LT ARF STRB	DFAT1 DMOVENT4 DMOVNT9 BLTT2 T7 T8 T9 BLTT6	DFAT2 DFAT3 ETØ K DFAT5 DFMT1 DFMT2 DFMT3 DFDF1		BYF5 BYF6 CLK LONG CYCLE CLK INH TN Ø SAC BR FF TN 1 TRAP PAGE FAULT	CLK MISC INPUT [A] BYF6 IN	TERM	AR CRY Ø AR CRY 1 AR FOV AR FXU AR DCK AR OV AR FXU HOLD MC INST FETCH NEXT	AD FM +EN A AR FXU AR DCK	AR MC AR 35 AUX MIX FMØØ = AR8Ø FMØØ = AR88Ø AR AD EN C SCAD -43 EN AD FM-	ARF CRYØ CLR ARF OV CLR ARF CRY1 CLR ARF FOV CLR AR AD ET2 EN AR FXU HOLD	LMP TERM	CLK 1ØØ NS (76) CLK EN INST DONE	CLK 11Ø NS (10) DFAT2 COND A	CLK 17Ø NS (54) CLK 17ØNS IN (54)	AB AD CLK INH MC INST FETCH EN MC INST FETCH EN AD BR+ EN B AR CLK	CLK 191 NS (55) DFDT11 COND	CLK 23Ø NS (56) DFDF1		IRØØ IR1Ø IR11 IR12 IR12 IN PF MAP COND		2X12	2X23	IBC (MISC)
G83Ø	M171	M181	M171	M181	M128	M931	M126	M171	M139	M145	M139	M362	M143	M143	M173	M931	M171	M177	M145	M128	M952	M139	M145	M147	M6Ø3	M952	M6Ø3	M177	M17Ø	M362	M17Ø	M139	M143	M952	M126	M172	M948	M9Ø4	M9Ø4
PWR	SCAD FE SCAD SC- SCAD SC-	SCAD SC- SCAD SC-		SCAD SC+ SCAD SC+ SCAD SC+	SCAD SC+ SCAD SC+ SCAD SC+	SCAD SC+ - EQV SCAD EQV EN A ARF OV SET SCAD AR POS	LMP TERM	SCAD-42 EN SCAD-32 EN SCAD -SIZE EN AR EXP SCAD (ETØ) SCAD AR EXP SCAD Ø = SCAD 1	SCAD -33 EN SCAD DATA SCAD AR EXP	SCAD DATA SCAD EQV SCAD +1	SCAD FE SCAD SC-	SC SCAD EN D SC SCAD EN D SCAD 7XX EN	SCAD DATA 3 SCAD DATA 4 SCAD DATA 4 SCAD DATA 7 SCAD DATA 8 DFAT2 COND B DFMT2 COND	SCAD MISC DATA EN CLK LONG CYCLE CLK EN INST DONE	CLK DRIVE BI & B2 (9)	SCTC AD ADD SC TERM AD ADD EN D AD FM- ARI-8=Ø SC SUBR EN SCT2 MISC INPUTS ARF LOAD ARF OV SET	DFMT1 IN DFDV CONT SUB BLTTØ BLTT7 BLTT5 ARF LOAD B ARF OV ET2 EN DNT5 COND DNT6 COND	DFAT2 COND DNT8 DST6 FT3 FLAG 2 FDVL & FLAG3(1) DFDV POS DIVISOR DFDV NEG DIVISOR F CYC ACT EN	LMP TERM	DFAT5 COND DFAM SC GO ET2 IN	CLK MAX (56) DLY DFMT3 COND DFDT7 COND DFDT9 COND MQ SH RT CLK IN MQ SH LT EN SCAD SC+ SCAD SC+ MARGIN 1A-1J EN	BYF6 CLR ET1 FLAG 3 ARF LOAD	TERM	BR AR EN BR AR EN BR AR EN	AR SIGN SMEAR A AD ADD EN C ADX EQV IN ARF FOV TEST ARF OV ET2 EN CLK MISC INPUT (56) CLK 17Ø NS IN	ARF FOV TEST ARF OV SET AR FXU HOLD CLK (55) 191 NS MB AR EN A CLK EN INST DONE	CLK MIN DLY (10) (26) CLK KEY INPUT CLK MAX EN CLK EN INST DONE DFDF1 DFDT1 CLK 17Ø NS IN (54) CLK PSEUDO INST DONE DFAT5 COND	A TERM	CLK MISC INPUT INST DONE DLYD PULSE CLK LONG CYCLE DNT1 COND A F CYC ACT EN B PI CYC A(Ø) DSF2 ET1 F MEM REF	CLK MIN DLY CLK MIN LOOP AD AR+ EN F FLAG 2 CLR ITØ SAC BR FF CLR A	CLK LONG CYCLE BYF6 CLR	CLK C AND C1 (5)	CLK INH CLK LONG CYCLE	CLK LONG CYCLE ETØ EN ET1 EN	PI INC MEM F CYC ACT EN E PFF1 SET CLK LONG CYCLE ST2 COND MR STATE CLR A IR 1Ø IR 11 ST2 A (57) AR RT MA	TERM	IR ØØ - 8	2X13	IBC (MISC)	IBC (MC MISC)

1H	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
G83Ø		M142	M174	M142	M952	M174	M142	M174	M931	M952	M243	M243	M243	M243	M362	M362	M952	M243	M172	M166	M147		M931	M243	M177	M171	M171	M173	M171	M181	M969	M145	M171	M181	M177	M128	M139	M931	M177	M143	M952	M147	M9Ø4	M9Ø6
PWR		SCAD Ø,1	SCAD MIX Ø-8 * A	SCAD 2-5	TERM	SCAD MIX Ø-8 A	SCAD 6-8	SCAD MIX Ø-8	LMP TERM	TERM	SC Ø-7		SC 8 SC ØA SC 1A SC 2A FE 8	SCAD FE SCAD SC- SCAD SC+ SCAD AR POS SCAD-SIZE SCAD DATA SCAD EQV SCAD +1	CLK (43)	CLOCK A AND A1 (3)	TERM	SCAD DATA Ø SCAD DATA 1 SCAD DATA 2 SCAD DATA 3 SCAD DATA 4 SCAD DATA 5 SCAD DATA 6 SCAD DATA 7	SCAD DATA MIX Ø-8	SC +1 GATE	AR ØØC AR SIGN SMEAR B MQ GETS 22 SCAD DATA EN A SCAD EQV SC SCAD EN	LMP TERM	ETØ A ETØ B ET1 A ET1 B ET1 C ET2 A ET2 B ET2 C	MQ FP SHIFT ARX Ø-19=Ø ARX 9-35=Ø ARX 29-35=Ø ARX ADX EN MC INST FETCH NEXT	AD BR+EN B AR RT AR LT AR SIGN SMEAR A	AR AD EN B AR LT AD EN AR AD CLK INPUT	ADZ COND R ADZ COND P ARI AR8Ø SH RT A ART AR81 SHIFT AD DF COND PI INC MEM A ADZ COND P ADZ COND Q CLK 11Ø ns [10] CLK 1ØØ ns [76]	LMP TERM	ADX EQV ADZ COND Q AR AD EN A	DO NOT USE (ALL GROUNDS) AB AD CLK INH AB PC EN A	TERM & THERM	ART AR88 DATA AD CRY 36 ADX FM + - B ADX EQV ARI AR8Ø SELF MARGIN 1K-1T EN AR LT AD EN	AD MSK EN B AD ADD EN C	AD CRY 36 MQ CLR C DFAT3 COND	BYF5 A(1) AR MQ EN AR AD CLK IN SCTC DONE B IOT BLKX SKIP SET AD MAGIC AR RT AD EN	ARI MQØØ INH MB AR EN B MPY SHIFT STEP AR CLK	AR AD EN E AR CLK LMP TERM	AR AD CLK INPUT AR MISC CLK INPUT A AR MQ CLK INPUT AR CLK ADX ADD EN B	AR FLAG EN AR SH RT EN AB AD CLK INH ARMC AR 35 AUX MIX ET2 Y(1) ADZ SIGN AR SIGN SMEAR 1 AR SIGN SMEAR 2 F CYC ACT EN A ET2 Z(1)	TERM	AR GO LEFT ST1 COND AB AB EN ITØ AD AR+EN D	IBC (MB ØØ-17 (Ø)) IBC (MB 18-35 (Ø))	IBC (MISC, IOB 6-17†) IBC (MISC)
G83Ø					M931				M243	M362				M952	M143	M173	M145	M128	M175	M171		M171	M931	M139			M952	M171	M17Ø	M177	M139		M948	M948	M948	M948	M9Ø4	M9Ø4
PWR					LMP TERM				SCAD ADD SCAD AR EXP SC+1 INH SCAD DATA 8 SRT1 SCT1 SCT2 BR SIGN SMEAR	FE Ø-7	SC FE CLK (46)			TERM	ARX ADX EN A ARXØ = ARX1Ø AD AR + EN D SCAD -11Ø EN SCAD -4 EN SCAD +220 EN ARØØB ARØØD SCAD+1Ø EN SCAD+12 EN	SCAD-42 EN SCAD-16 EN ARF TEST ARØØ D SCAD +1A AR JFCL FLAG CLR TN 1	BR CLK MPY CORRECTION SC FE CLK SC Ø-2=7 SCT PROCEED SC+1 = Ø F CYC ACT EN D	MQØØ GETS ADØØ MQØ1 GETS AD 35 MQ CLR A SC SUBR EN	ARX SH RT EN MPY CORRECTION MQ AD EN SCAD SC+ SC Ø-2 = 7 ARF FP TEST FLAG 3 CLR	AR CLR A AR EX SCAD EN AG AR+EN D		AD AR- AD MB AD LT AR+EN A	LMP TERM	AR CLR B MQ AD EN A CLK MISC INH	~MPY FLAG 1= MQ 35 IN MQ RT ROTC OR LSJC BYF5 IN BYF6 IN CLK MISC INH CLK EN INST DONE	ADX FM + ADX FM - ADX BR- ARI SR2 DATA ARI AR88 SELF ARI AR81 SHIFT DATA 2 AD-1 LT AD+1 LT ARI AR40 GETS Ø AR AD EN D	TERM	AD EQV AD MAGIC EN D AD MAGIC EN A	AD ADD EN D	ADX ADD EN AR MISC CLK INPUT B AR CLR A AD EN G	BR EN B AD CRY 36 AR AD EN G	AD BR+EN B AD MSK EN A ARIAR88 SH RT B ARI AR88 DATA AR RT AD EN AR GO LEFT	MC WR SUBR EN	AD BR+EN A AD BR-	TERM	AD RT AR+EN A AD AR+EN B AD AR+EN C	AD AR+EN J AD AR+EN D AD AR+EN D AD AR+EN A AD MSK EN A AD ADD EN G	MQ 3-34 ~Ø MQ 1Ø-34 ~Ø AD AR+EN D		2X21	2X22	2X14	2X24	IBC (MB 18-35 (Ø))	IBC (MISC)

(A) = [54], [55], [56], [67], [70], [71], [72], [73]

(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE #n WHEN THIS MODULE IS REPLACED.

[n] DELAY IN LOCATION NOTED BELOW MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMEMT PROCEDURE #n WHEN THIS MODULE IS REPLACED

[10] CLK 11Ø ns M363, 1E32
[54] CLK 17Ø ns M363, 1E33
[55] CLK 191 ns M363, 1E35
[56] CLK 23Ø ns M363, 1E36
[57] ST2 DLYD M321, 2H16
[67] MCT4 DLYD M363, 2K26
[70] INST RDY DLYD M363, 2J15
[71] INST DONE DLYD M363, 1C28
[72] FCE2 SYNC DLYD M363, 2H21
[73] FCE2 WAIT DLYD M363, 2K19
[76] CLK 1ØØ ns M363, 1E31

REVISIONS	REV.
CHANGE NO. K11Ø 00031 3-Dec-71 A KENT	A
Mike Kent 1-Mar-72	

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH
FIRST USED ON OPTION / MODEL KI1Ø

		DATE
DRN.	Stephenson	
CHK'D.	David Gross	31-Jan-72
ENG.	Mary Kotok	31-Jan-72
PROJ. ENG.	Mike Kent	31-Jan-72
PROD.		31-Jan-72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE 2/
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MODULE UTILIZATION

SIZE	CODE	NUMBER	REV.
D	MU	KI1Ø-Ø-1E1J	A

DIST.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
G83Ø	M128			M952	M241	M175	M128	M126	M931	M17Ø	M143	M952	M17Ø	M171	M175		M151		M177	M147	M612		M143	M139	M17Ø	M151	M145	M139	M952	M147	M175	M139	M177	M172	M952	M151	M171	M177	M17Ø		M145	M9Ø4	M9Ø4
	DNT2				AR ØØ A	BLTT2	DS FP EXIT	DST2		FLAG 2	AD AR+ENB		FLAG 3	MQ SH RT A	AB PC ET2 EN		MSK GEN Ø-3		NR POS	SC SC+1 EN	SAC AR A,B		MASK AR Ø9	AD LT-		MASK GEN 12-19	AD LT MB	AD ADD		PIT1 A	AD Ø-17=Ø		AR SH RT B	AD=Ø		MASK GEN 28-27	AR PC EN	IR 12		BR AR EN		MQ SH RT2 EN	IBC (MISC)	IBC (FM ØØ-17 IN)
	DNT5 COND				AR Ø1 A	DNT7 COND	FIXT2 AR INPUT B	FLAG 2 CLR		FLAG 2	AD AR+EN E			MQ SH LT A	SCAD EQV IN				AD Ø9-35 =ØA	JFFO T1			MASK AR 1Ø	AD AR+EN			AD RT MB	AD EQV		AD RT FM+	AD Ø9-35 =Ø		WC WRITE KILL IN				AR SH LT B		ARX SH LT B			MQ SH RT B	
	DS RND QUOTIENT			TERM	AR Ø9A	FLAG 3	FIX SH RT COND	AR SWAP	LMP TERM	NRT2		TERM			SCAD NEGATE B				AD Ø9-35 =Ø	SC SCAD EN B	BR A,B		MASK AR 1Ø	AD LT AR+EN			AD MB		TERM	AD Ø1-35=Ø	MQ Ø1-35=Ø		IR 12 MQ Ø9-35 =Ø				AR SH LT B		MQ AD EN B MQ SH LT EN			MQ Ø2-35=Ø	
	DS NEG QUOTIENT				AR1ØA	NR POS NRT1 NORM RND									SCAD AD EN C				ARMQ EN				AD IT Ø INDEX				AD MSK GEN				AD MB		AD MAGIC EN E				MQ SH RT C			MQ Ø9-35=Ø	
					AR11 A	NRT2 NORM RND									MQ Ø1+ SH LT				ARX ADX EN				SCAD CRY Ø				AD Ø-17=Ø				AD MAGIC EN E						MQ Ø1-35=Ø			AD AR-	
					AR Ø6A	AD+1 LT	FAT4 SH RT	AR POS SCAD EN		ARX ADX EN A	MAGIC ET1 EN		AR LT AR RT EN		AD CRY 36				MB 14-17=Ø	AD LT FM+			SC+1 INH				ARX SH RT 2 EN				AR MISC CLK INPUT B									AD BR+EN B	
																																									AB AB EN	
G83Ø		M17Ø	M17Ø		M173	M17Ø	M126	M931	M172	M17Ø	M177	M145	M17Ø	M17Ø	M17Ø	M172	M17Ø		M128	M952	M17Ø	M139		M952	M128	M612	M969	M165	M172	M165	M931	M171	M165		M165	M165	M952	M126	M172	M931	M9Ø4	M9Ø4	M9Ø4
		AD LT BR+	AD RT BR+		ADX CRY Ø	AD	AR6=AR1			AD CRY 36	ARX Ø-35=Ø	MB AR EN C	ADX FM-	ADX FM+	ADX AD EN A		AR OV EN		AR LT AD EN		AR MQ EN A	AD MB EN			NRT1 NORM RND	AR POS SCAD EN	TERM ⇕ THERM	FM Ø-7	FM 18-26 IN	FM 8-15	LMP TERM	AR AD EN	FM 16-23		FM 24-31	FM 32-35 MCF AD FM+ SET A	TERM	ARI SR2 DATA			IBC (FM 18-35 A)	IBC (MISC, MAR ADR Ø-4)	IBC (FM 18-35 IN)
					BR' SMEAR Ø S		ARI AR ØØ SELF DATA				ARX =Ø	DFDV DIVISOR SIGN										AR Ø1-Ø8 = Ø				AR EXP SCAD EN													ARI ROTX DATA				
					BR' SMEAR 1 S						ARX =Ø	SCAD EQV EN A													NRT2 NORM RND													NRT2				
					DNT5 COND	AD	ARMC AR 35 AUX MIX				ARX =Ø															AR RT AR RT AR12-17 SELF													ARX ADX EN				
					DS POS DVSR	BR-	ARX Ø =AR1Ø				MQ≠Ø		AR CRY Ø	AR CRY 1	PC CLK ET2 EN		AR AD EN J		AR RT AD EN		AR IR EN																			ARX SH RT EN				
		ADZ SIGN	DNT4		DS NEG DVSR	ARMC AR 35 AUX MIX	ARX Ø =AR1Ø	LMP TERM	FM Ø8-Ø8 IN	AD FM+EN B	MQ≠Ø					FM Ø9-17 IN			FAT4 ~SH RT	TERM	AR MQ EN A		TERM																	MA SPECIAL 35A				
					AD CRY Ø		ARXØ =ARX 9				MQ≠Ø								ARF STRB (ET2)		AD FM-																							
					AD CRY ØB		BR ØØ INPUT				MQ≠Ø																																		
					AD CRY 1B																																								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
G83Ø	M17Ø	M17Ø	M17Ø	M931	M171	M128	M17Ø	M956	M931	M181		M181	M181	M181	M952	M128	M931	M17Ø	M181	M181	M143		M362	M177	M172	M952		M17Ø	M143	M956		M177	M172	M931	M969	M17Ø	M181		M128		M9Ø4	M9Ø4	M9Ø4
	AR ØØ IN	AR Ø1 IN	ADX AD Ø1 IN B'	LMP TERM	AD ØØ IN A'	AD C IN Ø5B	AD Ø9-15 =Ø	MBD AR Ø-17 LOADS	LMP TERM	ADX FM+- A	ARI AR Ø Ø DATA		ARI AR Ø Ø SELF	ARI AR Ø2 DATA	ARI AR Ø5 DATA	TERM	AD C IN 13B	LMP TERM	FLAG 1	ARI AR Ø8 DATA	ARI AR 11 DATA	AR Ø7A			AD ØØA(1)				AD 18-25 =Ø	DFAM MUL STEP 1 ARX SH LT A	MBD AR 18-35 LOADS		ARX SH RT EN				AD 26-33 =Ø	AD CRY 36		AD BR+2 EN		IBC (MB ØØ-12)	IBC (FM ØØ-17 A)	IBC (MISC, MA 14-26)
					AD ØØ IN A'	AD C IN Ø5C																AR Ø8A								MQ AD EN													DFDV CONT ADD			
					ADAM AD-1 IN B	AD C IN Ø1C	AD Ø8-16, 17=Ø				ARI AR2 AUX DATA		ARI AR Ø1 AUX DATA 1	ARI AR Ø3 DATA	ARI AR Ø6 DATA		AD C IN 2ØA		ARI AR Ø1 AUX DATA 2	ARI AR 12 DATA	PC CLK ET 1 EN	AR 21A								MQ 8-35=Ø MQ 1Ø-35=Ø													NR ALL ZEROES			
	PWR						AD C IN 24A				ARI AR Ø1 DATA		ARI AR Ø8 DATA	ARI AR Ø4 DATA	ARI AR Ø7 DATA		AR SIGN SMEAR A		ARI AR 1Ø DATA	PC CLK ET 1 EN		AR 23A								MB 13A (Ø) MQ 31 34 IN PUTS													DFDV CONT SUB			
																	AD C IN 28A					AR 27A								FM ØØB FM ØØB															
																						AR 34A																								
																						AR 35A																								
																						MCF AD FM +SET B																								
																						MB AR EN A																								
G83Ø		M17Ø		M952	M241	M243	M172		M172	M931	M612		M241	M241	M243	M172		M172		M952	M241	M243		M362	M362		M241	M243	M172		M172	M612	M241	M931	M243	M172	M172		M241	M952	M9Ø4	M9Ø4	M9Ø4
		AD ØØ-Ø7 = Ø									MB FM EN			AR Ø5-11	BR Ø,9-15	MB MIX Ø9-17		BR Ø9-17 IN				BR 16-19																						
											AR LT												BR ØØA																						
	PWR	ADAM AD-2 IN B			AR Ø9-95	BR Ø1-Ø8	MB MIX ØØ-Ø8		BR Ø9-Ø8 IN		AR FLAGS EN AR IR EN	LMP TERM					AR CLK (17)			TERM	AR 12-17			BR CLK (29)		AR 18-23	BR 2Ø-27	MB MIX 18-26		BR 18-26 IN	MB AR EN AR RT AR PC EN	AR 24-29	LMP TERM	BR 28-35	MB MIX 27-35	BR 27-35 IN		AR 3Ø-35		TERM		IBC	IBC (MB 18-35 IN)	IBC (MB ØØ-17 IN)

ⓝ ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE #n WHEN THIS MODULE IS REPLACED

REVISIONS			
	CHK	CHANGE NO	REV
1	JM	KI1Ø-ØØØ42	A
2	D.GROSS		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

FIRST USED ON OPTION / MODEL KI1Ø

		DATE
DRN	D. Stutzman	6/9/72
CHKD	D. Gross	3/5 Jun 72
ENG	W. Van Kotch	30 Jun 72
PROJ ENG	Dan Kent	30 Jun 72
PROJ MGR	M. Guttman	3rd Jun 72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE —
SHEET 1 OF 1

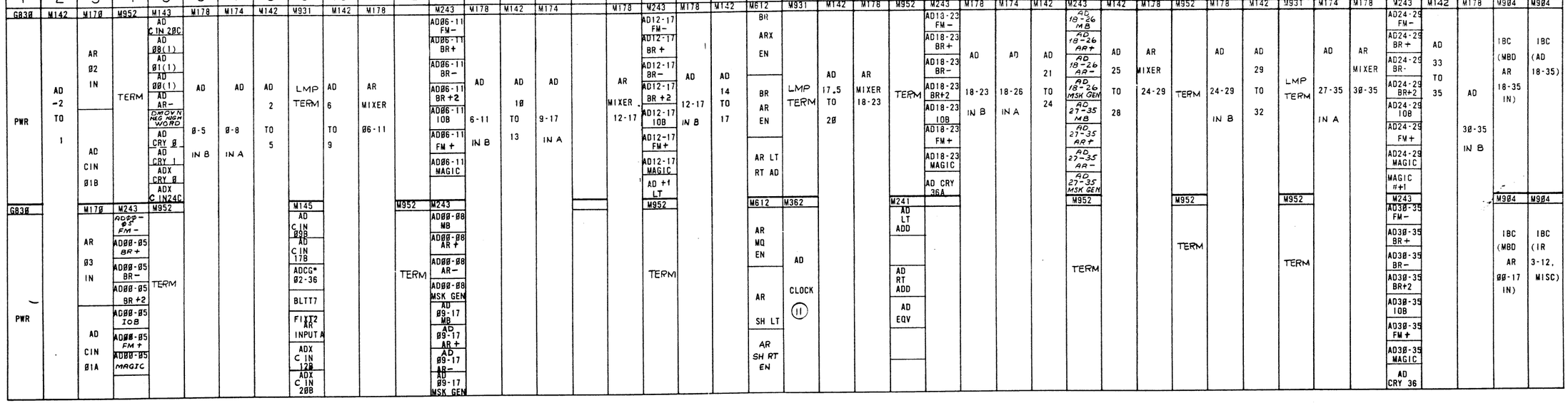
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MODULE UTILIZATION

SIZE	CODE	NUMBER	REV.
D	MU	KI1Ø-Ø-1K1N	A

DIST.

DEC FORM NO DRO 105



(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH PROCEDURE *n WHEN THIS MODULE IS REPLACED

UNLESS OTHERWISE SPECIFIED	DRN		DATE 5/15/72
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	CHKD	David Gross	DATE 31 JAN 72
	ENG	Alan Hotek	DATE 31 Jan 72
	PROJ. ENG.	Allan Kent	DATE 31 Jan 72
	PROD.		DATE 31 JAN 72
MATERIAL	NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		
FIRST USED ON OPTION / MODEL KI1Ø	FINISH	SCALE 2/1	SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MODULE UTILIZATION

SIZE	CODE	NUMBER	REV.
D	MU	KI1Ø-Ø-1P1T	

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. DRO 105

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
M984	M950	M950	M950	M950	M950	M247	M247	M931	M247	M247	M247	M969	M247	M143		M143	M126	M126		M126	M243	M952	M683	M126	M177		M3Ø7Ø	M3Ø7Ø																GR3Ø
IBC	CONSOLE 3Z72	CONSOLE 3Z73	CONSOLE 3Z62	CONSOLE 3Z63	CONSOLE 3Z52	DS ØØ — Ø5	DS Ø6 — 11	LMP TERM	DS 12 — 17	DS 18 — 23	DS 24 — 29	TERM & THERM	DS 3Ø — 35	KEY REPT NO BOUNCE KEY SINGLE PULSER KEY DS CLR KEY CLK SYNC CLR KEY CLK RDY SYNC KEY DS LOAD		KEY AS CLR KEY AS LOAD KEY STARF OR RESTART KT2 A KEY DONE KT2 IN KEY DEP DEP NXT	KEY RESET NO BOUNCE KEY RDI NO BOUNCE KEY START NO BOUNCE	KEY CONT NO BOUNCE KEY STOP NO BOUNCE KEY XCT NO BOUNCE		KEY RDI FFØ KEY IDLE IN KEY IDLE IN KEY DEP NEXT NO BOUNCE KEY IDLE IN	KEY RESET KEY RDI KEY START KEY CONT KEY STOP KEY XCT KEY EXAM KEY EX NXT	TERM	KEY SINGLE PULSE PA KEY INST RDY SET KEY LOAD DLY SET KEY DS CLR PULSE KEY AS CLR PULSE KEY CLK RUNNING AS PROG LOAD PULSE KEY FCN RDY	KEY SYNC IN KEY RUN IN KEY AS +1 IN KEY RDI NOT WAIT VXCT KEY DONE (KT2) KEY RDY SYNC IN	KEY CLK STOP KEY MEM OP KEY ANY ACT KEY CLK STOP AS AB 14-17=Ø		KEY CLK RUNNING (28) KEY LOAD DLY (21)	KEY RDI DLYD (38) KEY RDI PULSE (39)																PWR REG
M984	M950	M950	M950	M950	M171	M126		M243	M172	M931	M172	M172	M931	M172	M173	M952	M247	M126	M931	M177	M177	M172			M172					M171	M143				M931	M3Ø7Ø	M241		M931												GR3Ø
IBC	CONSOLE 3Z53	CONSOLE 3Z22	CONSOLE 3Z23	CONSOLE 3Z32	KEY CLK START KEY CLK RDY SYNC KEY EN INST DONE	KT3 IN KEY RDI FF1 IN KEY RDI SETUP IN KEY DEP CYCLE IN KEY AB PC EN KEY CLK INH		KEY CYCLE KEY RDI FFØ KEY RDI FF1 KEY RDI SETUP KEY RDI DATA WAIT KEY DEP CYCLE KEY IDLE	DS MIX ØØ — ØØ	LMP TERM	DS MIX Ø9 — 17	DS MIX 18 — 26	LMP TERM	DS MIX 27 — 35	KEY CONT NO BOUNCE IOT OUTGOING IOT DATAI IOT DATAO KEY DONE (KT2) KEY MANAL STOP IN KEY DONE A KEY EX NXT IN KEY STROBE	TERM	KEY WR COND KEY IN FET COND KEY RD COND KEY EXEC PAGING KEY USER PAGING KEY ADR BREAK	KEY EXAM NO BOUNCE KEY EX NXT NOBOUNCE KEY DEP NO BOUNCE	LMP TERM	KEY RDI IN KEY START IN KEY CONT IN KEY NOBOUNCE A KEY XCT IN KEY EXAM IN	KEY STOP IN KEY NOBOUNCE B APR1 ERR PI EN KEY DEP IN KEY DEP NXT IN KEY ANY NO BOUNCE	KEY RESET KEY RDI KEY START KEY COND KEY STOP KEY EXAM KEY EX NXT KEY DEP KEY DEP NXT		KEY XCT IN KEY AS LOAD PULSE KEY DONE		KEY MEM OP KEY NEXT KEY CLR KEY LATCH IN MC SYNC READ EN A KEY LATCH A B KEY ANY ACT KEY DONE (KT3)			LMP TERM	PIR UNGRANT TIMER (45)	PIR CYC STARTED PIR DONE		LMP TERM													PWR REG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
M984	M984	M950	M950	M950	M950	M948	M950	M948	M147	M177	M243	M931	M166	M166		M166	M247	M931	M243	M128	M962	M952	M683	M243		M683	M247	M126		M246	M143			M3Ø7Ø	M173			M931	M143			M481	GR3Ø
IBC	IBC	CONSOLE 2Z33	CONSOLE 3Z22	CONSOLE 3Z23	CONSOLE 3Z13	IND 3Z61	IND 3Z51	IND 3Z41	KEY AB AS EN APR 2 MAINT MODE MC SPLIT CYC SYNC P1 ACT INH R KEY ANY NO BOUNCE ET1 IOT LOOP	KEY CLK START IOT INST CMP ADR BRK COMP AS 26-29 COMP AS 18-21 COMP AS 22-25	KT1 KT2 KT3 ET2K PIT3 KEY MANUAL STOP KT1A	LMP TERM	AS +1 14 — 17	AS +1 18 — 26		AS +1 27 — 35	KEY NXM STOP KEY PAR STOP KEY SING INST KEY ADR STOP KEY MI PROG DIS KEY OVERLAP DIS	LMP TERM	KEY DEP KEY DEP NXT APR2 HI SPEED P1 FCN3 4 5	KT1 COND KEY PROG STOP IN KEY CYCLE KEY RDI DATA WAIT	CLK DRIVE DI AND D2 (7)	TERM	KEY MEM GO KEY MEM CONT (32) KEY MEM GO KEY STOP OR RESET KEY MANUAL STOP IN KEY RUN CLR KEY RD CONT KEY REPT HOLD	KEY LATCH KEY SYNC KEY RUN KEY AS +1 KEY REPT SYNC KEY SINGLE PULSE SYNC KEY RDY SYNC KEY PROG STOP		KEY DS LOADPULSE KEY AS LOAD PULSE KEY SINGLE PULSE SYNC IN MR KEY CLR P1A CYC STARTED KEY RDY SYNC IN APR2 NORMAL SPEED EN APR MAINT MODE	MARGIN ENABLE MAR ADR Ø 1 2 3 4	MARGIN ENABLE IN MAR ADR Ø IN 1 2 3 4		MAR ADR IOB MAR PROG EN MR RESTART B MR RESET SUCCESSFUL MR STATE CLR FF	APR1 ERR EN MR KEY CLR MR CROWBAR OFF MR STATE CLR MR STATE CLR A APR2 WR EVEN PAR EN MARGIN EN MR RESET PANIC DLY SET P1A CYC STARTED MR PWR CLR EN B		MR RESTART DLY (13) MR RESET PANIC DLY															MR PWR CLR EN C P1R DONE IN PF KEY CLR PF KEY CLR KEY REPT DLY START MR RESET MR PWR CLR EN A B			MR PWR CLR (14)	PWR REG
M984	M948	M948	M948	M3Ø1	W821	M950	M950	M126	M247	M931	M247	M247	M952	M247	M171	M143		M363	M247	M247	M931	M612	M388	M126		M145	M931	M612	M969	M246	M126	M246		M143	M3Ø7Ø	M388	M952	M581	M151	M243		A133	GB3Ø
IBC	IND 3Z31	IND 3Z21	IND 3Z11	CONSOLE 3Y71	CONSOLE 3Y51	CONSOLE 3Y21	CONSOLE 3Y11	USER PAGING AS AB 15 16 17 14 FM ADR EN	AS 14 15 16 17 17	LMP TERM	AS 18 — 23	AS 24 — 29	TERM	AS 3Ø — 35	AS 14 MIX AS 15 MIX AS 16 MIX	KT3 A INST DONE A KEY RDI FIRSTCYC KEY SNGL PLS SYNC A KEY RDI DEV EN IOT OUTGOING AS AB 14 AS AB 15 AS AB 16 AS AB 17		FM WR CLR (20) FM ADR MA IN	KEY SINGLE PULSE FM MANUAL FM BLOCK Ø FM BLOCK 1	APR2 SENSE 1 2 3 4 5 6	LMP TERM	KEY DS TOGGLE EN KEY DS MI EN KEY AS MI EN KEY AS AB EN	KEY REPT DLY	AS IN FET COND IN AS RD COND IN AS WR COND IN AS ADR BRK IN AS EXEC PAGING IN AS USER PAGING IN		MAR 2A-2J EN MAR 2K-2T EN APR2 NORMAL SPEED IN KEY INST FET ST SET KEY SINGLE PULSE SYNC IN KEY AS TOGGLE EN KEY RUN SET	KEY SPEED 6 5 4 3 2 1	APR2 DATAI MR RESET A MR STATE CLR MR RESET C,D MR RESET A,B	TERM & THERM	KEY REPT DONE KEY MEM CONTINUE APR2 WRITE EVEN PAR APR2 SPEED MARGIN KEY REPT	MAR PROG EN APR2 PAR ERR EN MARGIN EN MR KEY RESET APR2 SPEED MARGIN APR2 HI SPEED	APR1 I/O PF FLAG APR1 NXM FLAG APR1 PWR FAIL FLAG APR2 PAR ERR EN APR1 CLK FLAG		APR CLK P1 EN APR1 TIMER FF KEY MEM CONTINUE CLR APR2 RESTART CLR DLY APR1 CLK FLAG CLR APR2 MAR CLR APR2 CONI CLR APR2 DATAO CLR APR2 RESTART SET APR2 DATAI	(47) APR2 RESTART CLR DLY APR2 RESTART SET DLY (48)	APR1 TIMER (49)	TERM	APR1 PWR CLK	APR1 CLK P1'S APR1 ERR P1'S	APR1 ERR P1A 3Ø 31 32 APR1 CLK P1A 33 34 35 APR1 CLK EN APR1 TIMER EN		+5 MARGIN 2A — 2J	PWR REG

(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH PROCEDURE #n WHEN THIS MODULE IS REPLACED

REVISIONS	REV	CHANGE NO	CHK

UNLESS OTHERWISE SPECIFIED	DRN	DATE
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS	W. Stephenson	5/18/72
	CHKD David Frost	31 Jan 72
MATERIAL	ENG Larry Kotok	31 Jan 72
	PROJ ENG Mike Kent	31 Jan 72
	PROD Bob Matthews	31 JAN 72
FINISH	NEXT HIGHER ASSY. 8-DD-KI1Ø-Ø	
FIRST USED ON OPTION / MODEL KI1Ø	SCALE ~	SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MODULE UTILIZATION

SIZE	CODE	NUMBER	REV.
D	MU	KI1Ø - Ø - 2A2D	

DIST.

DEC FORM NO DRD 105

(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE "n WHEN THIS MODULE IS REPLACED.

[n] DELAY IN LOCATION NOTED BELOW MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE "n WHEN THIS MODULE IS REPLACED.

[20] FM WR DLY M363,2D19
[22] MC WR RS M603,2H17
[44] PIR CLK DLY M3070,2E28
[57] ST2 DLYD M321,2H16
[58] MCT AB AB SET M363,2M05
[60] MC PAGE DLY M363,2J19
[61] MC PAGE SLOW M363,2J23
[63] MC WR RS DLYD M363,2J24
[65] MCT3 M363,2K23
[69] MC REFILL DONE M363,2J21
[70] INST RDY DLYD M363,2J15
[73] FCE2 WAIT DLYD M363,2H20
[74] MC PF QUICK DLYD M363,2K19
[77] MCTN011 M363,2K15

REVISIONS		
CHK	CHANGE NO.	REV
DM	KI10-00030	A
Dave Stanley 2-24-72		
A. KENT 2 MAR 72		

UNLESS OTHERWISE SPECIFIED			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL			
FIRST USED ON OPTION/MODEL KI10	FINISH		

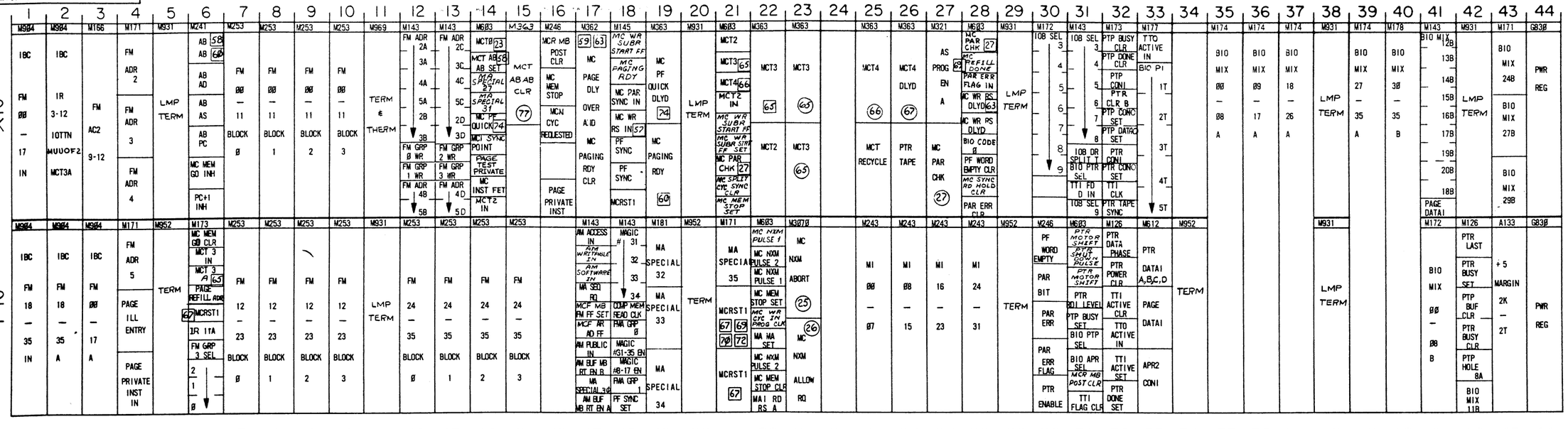
DRN.	Ed Stephenson	DATE 5/16/72
CHKD.	David Grose	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.		DATE 31 JAN 72
NEXT HIGHER ASSY.	8-DD-KI10-0	
SCALE	2	
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MODULE UTILIZATION

SIZE	CODE	NUMBER	REV.
D	MU	KI10-0-2E2J	A

DIST.



(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE "n WHEN THIS MODULE IS REPLACED.

[n] DELAY IN LOCATION NOTED BELOW MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE "n WHEN THIS MODULE IS REPLACED

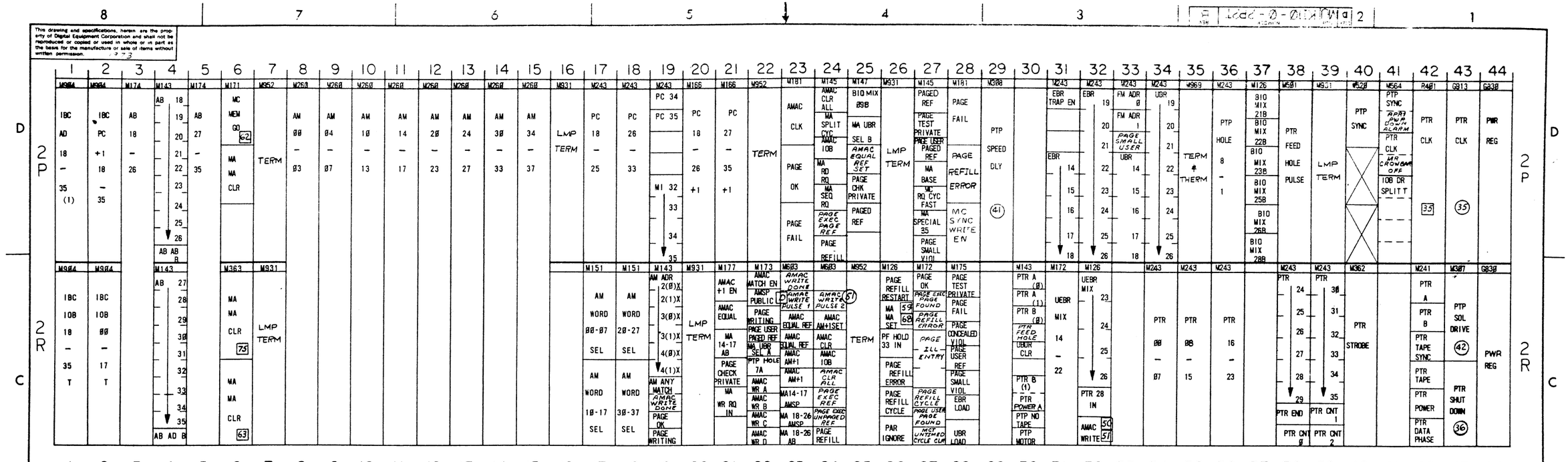
[23] MCTØ M363,2J27
[24] AB FF'S CLR M363,2M1Ø
[27] MC PAR CHK A M321,2K27
[57] ST2 DLYD M321,2H16
[58] MCT AB AB SET M363,2MØ5
[59] MC PAGE DLY OVER M363,2J19
[60] MC PAGE DLY M363,2J19
[63] MC WR RS DLYD M363,2J24
[65] MCT3 M363, 2K23
[66] MCT4 M363, 2K25
[67] MCT4 DLYD M363, 2K26
[68] MC MA MA SET M363, 2N23
[69] MC REFILL DONE M363,2J21
[70] INST RDY DLYD M363, 2J15
[72] FCE2 SYNC DLYD M363, 2H21
[74] MC PF QUICK DLYD M363, 2K19

REVISIONS			
CHK	CHANGE NO	REV.	
DW	KI1Ø-ØØØ3Ø	A	Chan MA,MB,MC Numbers 24MAR72 A. KENT 2 Mar 72
DW	KI1Ø-ØØØ38	B	Chan MCT Numbers 5 JUN 72 D GROSS 2 JUN 72

UNLESS OTHERWISE SPECIFIED	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30' FINAL SURFACE QUALITY √ REMOVE BURRS AND BREAK SHARP CORNERS	
MATERIAL	FINISH
FIRST USED ON OPTION / MODEL KI1Ø	

DRN. W. Stephenson	DATE 5/11/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHKD. D. Gross	DATE 5/Jun72	TITLE MODULE UTILIZATION
ENG. Allen Kent	DATE 5/Jun72	
PROJ. ENG. Allen Kent	DATE 31 Jan 72	
PROD.	DATE 31 JAN 72	
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		SIZE D CODE MU NUMBER KI1Ø-Ø-2K2N REV. B
SCALE		DIST.
SHEET 1 OF 1		

DEC FORM NO. DRD 105



(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE #n WHEN THIS MODULE IS REPLACED.

[n] DELAY IN LOCATION NOTED BELOW MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE #n WHEN THIS MODULE IS REPLACED.

[B] = [1] [2] [62] [63] [75]

[1] MC IMM REQ EN M321,3B06

[2] MC FAST REQ EN M321,3B07

[35] PTR CLK G913, 2P43

[50] AMAC WRITE PULSE 1 M603,2R23

[51] AMAC WRITE PULSE 2 M603,2R24

[57] ST2 DLYD M321,2H16

[59] MC PAGE DLY OVER M362, 2K17

[62] MC MEM GO DLYD M363, 3A03

[63] MC WR RS DLYD M363, 2J24

[68] MC MA MA SET M363, 2N23

[74] MC PF QUICK DLYD M363, 2K19

[75] MC MA MA SET M363, 2R06

[D] = [50] [72]

FIRST USED ON OPTION / MODEL: K110

REVISIONS	REV.
CHK CHANGE NO.	
K110-00032	A
K110-00040	B

A. KENT 8-AUGUST-73
D. GROSS 2-NOV-73

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH
SCALE
SHEET 1 OF 1

DRN W. Stedman 5/18/72
CHKD David Gross 31 JAN 72
ENG Allan Kotik 31 JAN 72
PROJ ENG Allan Kent 31 JAN 72
PROD [illegible] 31 JAN 72
NEXT HIGHER ASSY. B-DD-K110-0

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
MODULE UTILIZATION

SIZE D | CODE MU | NUMBER KI10-0-2P2T | REV B
DIST.

DEC FORM NO. DRD 105

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
M926		M363	M565	M565	M565	M565	M565	M565	M565	M565	M565	M565		M665	M665		M665	M665	M665
PTR + PTP CABLE		MC MEM GO DLYD [62] MC REQ CYC [62] [25]	MBD MB 00-07 IN	MBD AR 00-07 IN	MBD MB 08-15 IN	MBD AR 08-15 IN	MBD MB 16-23 IN	MBD AR 16-23 IN	MBD MB 24-31 IN	MBD AR 24-31 IN	MBD MB 32-35	MBD AR 32-35		MBD 00-07	MBD 08-15		MBD 16-23	MBD 24-31	MBD 32-35 MAI [63] WR RS MAI BUS PAR
	M126	M246	M143	M321	M321	M931	M565	M663	M663	M663	M663	M663		M663	M663	M663	M663	M663	M663
	MA RD RQ MC [62] REQ CYC [25] MCT UNTIMED CYCLE CLK PTR 29 IN MA AC REF MA MA CLR [25]		MCT UNTIMED CYCLE MCT ADR ACK 1 MCT ADR ACK 2 MCT DATA WARN 1 MC DATA WARN 2	MCT DATA WARN 2CLK MCT DATA WARN 1 SET MC(RD,WR) RS MCT ADR ACK 2CLR MC WR RS [57] MCS AR MBD EN A MCT ADR ACK 2CLK MCT ADR ACK 1 SET MCS AR MBD EN B MA SPLIT CYC	DO NOT USE (OPTIONAL MODULE) MCT IMM REQ EN (1)	DO NOT USE (OPTIONAL MODULE) MCT FAST REQ EN (2)	LMP TERM	MAI ADR ACK(NT) MAI [C] RD RS MAI PARITY MAI DATA WARN MAI ADR ACK(T) MAI IGN PAR	MAI [1] MC [62] RQ IMM [25] MAI MC RQ FAST MAI MC RQ SLOW	MAI SEQ REQ MAI WR REQ MAI RD RQ	MAI 14 MAI 15 MAI 16	MAI 17 MAI 18 MAI 19	MAI 20 MAI 21 MAI 22		MAI 23 MAI 24 MAI 25	MAI 26 MAI 27 MAI 28	MAI 29 MAI 30 MAI 31	MAI 32 MAI 33 MAI 34	MAI 35

QUICK LATCH
22
A2
MEM BUS LEFT

QUICK LATCH
28
A1
MEM BUS RIGHT

QUICK LATCH
33
A2
IOB BUS LEFT

QUICK LATCH
39
A1
IOB BUS RIGHT

(n) ONLY DELAYS ON THIS MODULE MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE "n" WHEN THIS MODULE IS REPLACED

[n] DELAY IN LOCATION NOTED BELOW MUST BE ADJUSTED IN ACCORDANCE WITH ADJUSTMENT PROCEDURE "n" WHEN THIS MODULE IS REPLACED

[C] = [27] [69] [70] [72]
[1] MC IMM REQ M321,3B06
[27] MC PAR CHK A M321,2K27
[57] ST2 DLYD M321,2H16
[62] MC MEM GO DLYD M363,3A03
[63] MC WR RS DLYD M363,2J24
[69] MC REFILL DONE M363,2J21
[70] INST RDY DLYD M363,2J15
[72] FCE2 SYNC DLYD M363,2H21
[25] MC MA MA CLR M363,2R06

REVISIONS | REV | CHANGE NO | CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 | ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL
FINISH

DRN. W. Stephenson DATE 4 Jan 72
CHK'D. David Gross DATE 31 Jan 72
ENG. Mary Kotok DATE 31 Jan 72
PROJ. ENG. Allen Kent DATE 31 Jan 72
PROD. Mac Thue DATE 31 Jan 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: MODULE UTILIZATION

NEXT HIGHER ASSY. B-DD-KI10-0
SCALE ∞
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	MU	KI10-0-3A3B	

DIST.

DEC FORM NO (SRI) 100-A

SIZE D | CODE MU | NUMBER KI10-0-3A3B | REV

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY B.HOVEY | CHECKED D.HEALY | SECTION 1
DATE 6/19/72 | DATE 6/19/72 |
ENG Allan Kent | PROD | ISSUED SECT. 1
DATE 27 Jul 72 | DATE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION qty/KI10 assy	Site & Cust Spares
	A133	ANALOG SWITCH	8	1
	G830	+5V REGULATOR	32	1
	G831	6 BIT D/A COMPARATOR & SWITCH	1	1
	G913	CLOCK CONTROL	1	1
	M040	SOLENOID DRIVER	1	1
	M126	SIX 2-2 AND NOR STATES	50	2
	M128	FOUR AND-NOR GATES	22	2
	M130	PARITY CHECKERS AND GATES	1	1
	M139.	3-8 INPUT NAND GATES	36	2
	M142	FOUR BIT ADDER	21	2
	M143	NAND GATE	72	3
	M145	SEVEN 3 INPUT NAND GATES	29	2
	M147	FIVE 4 INPUT NAND GATES	22	1
	M151	2 DECODERS	15	1
	M165	8 BUFFERS	9	1
	M166	+1 GATE	9	1
	M170	8 WIDE AND-NOR	44	2
	M171	THREE 2-2-2-3 AND NOR GATES	53	2
	M172	2 X 9 DATA MIXER	40	2
	M173	10 AND GATES	19	1
	M174	4 X 9 DATA MIXER	31	1
	M175	SEVEN 3 INPUT AND GATES	9	1

TITLE: MODULE UTILIZATION LIST
ASSY NO. SEE B-DD-KI10-0-0
SHEET 1 OF 4
SIZE A | CODE PL | NUMBER KI10-0-MU | REV. | ECO NO.
DIST.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY B.HOVEY | CHECKED D.HEALY | SECTION 1
DATE 6/19/72 | DATE 6/19/72 |
ENG Allan Kent | PROD | ISSUED SECT. 1
DATE 27 Jul 72 | DATE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION qty/KI10 assy	Site & Cust Spares
	M177	FIVE 4 INPUT AND GATES	30	2
	M178	8 X 6 DATA MIXER	12	1
	M181	THREE 2-2-2-3 AND-OR GATES	20	1
	M241	6 TYPE D FLIP FLOPS	26	2
	M243	8 TYPE D FLIP FLOPS	88	3
	M246	5 D TYPE FLIP FLOPS	9	1
	M247	CONSOLE SWITCH FLIP FLOPS	15	1
	M250	4 BIT 16 WORD MEMORY	8	1
	M253	12 BIT 16 WORD BINARY SELECT MEMORY	12	1
	M260	12 BIT 4 WORD ASSOCIATIVE MEMORY	8	1
	M307	INTERGRATING ONE SHOT	1	1
	M3070	INTERGRATING ONE SHOT	8	1
	M308	INTERGRATING ONE SHOT	5	1
	M321	TAPPED DELAY	4	1
	M362	LATCHED REGISTER DRIVER	20	1
	M363	VARIABLE DELAY	28	1
	M401	CLOCK	1	1
	M405	CRYSTAL CLOCK 19.200 kHz	1	1
	M501	SCHMITT TRIGGER	3	1
	M564	-3V I.O. BUS RECEIVER	7	1
	M565	MEMORY BUS RECEIVER	11	1
	M5940	EIA LEVEL CONVERTER	1	1

TITLE: MODULE UTILIZATION LIST
ASSY NO. SEE B-DD-KI10-0-0

SHEET 2 OF 4

SIZE A | CODE PL | NUMBER KI10-0-MU | REV. | ECO NO.
DIST.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY B. HOVEY	CHECKED D. HEALY	SECTION
DATE 6/19/72	DATE 6/19/72	1
ENG	PROD	ISSUED SECT.
DATE	DATE	1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	qty/KI10 assy	Site & Cust Spares
	M603	PULSE AMPLIFIER & GATES	21	1
	M663	50 OHM 'OR' BUS DRIVER	19	1
	M664	IO BUS DRIVER	6	1
	M665	MEMORY BUS TRANSMITTER	5	1
	M666	IO BUS RESET	4	1
	M921	DIODE CODE SELECT JUMPER BD	1	1
	M931	15 TERMINATOR WITH IND. RES.	75	1
	M952	27 LEVEL TERMINATOR	83	3
	M956	18 TERMINATOR	5	1
	M969	24 LEVEL TERMINATOR	12	1
	R401	CLOCK	1	1
	W106	P I GRANT REPEATER	1	1
	W520	COMPARATOR	1	1
	M612	POWER DRIVER MODULE	14	1

QUANTITY/VARIATION

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE UTILIZATION LIST	SEE B-DD-KI10-0-0	A	PL	KI10-0-MU		
	SHEET 3 OF 4	DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY ArKent	CHECKED	SECTION
DATE 15 Aug 72	DATE	
ENG	PROD	ISSUED SECT.
DATE	DATE	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION		qty/KI10 assy	Site & Cust Spares
	K003	Triple Expander	(3)	0	1
	K026	Triple AND/OR Expander	(2)	0	1
	K113	Gate, Triple Inverter	(5)	0	1
	K138	8 Inverters	(2)	0	1
	K303	One-Shot, Triple Timer	(3)	0	1
	K522-YA	Converter, Dual Sensor	(6)	0	1
	K614	AC Switch, Quad, Isolated	(1)	0	1
	K652	DC Driver, Quad	(1)	0	1
	K683	8 Lamp Drivers	(1)	0	1
	K731	+5 V Regulator and Control	(1)	0	1
	K732	+5 V Aux. Regulator	(1)	0	1
	W509	Low Voltage Detector	(1)	0	1
	W519	Timing and Crowbar	(1)	0	1

NOTE: Modules shown with a quantity of zero (0) are used in the 857 or 858 power control and are shown on this list for spares provisioning purposes. Quantity in parentheses is the usage in the 857 and 858.

QUANTITY/VARIATION

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO
MODULE UTILIZATION LIST (857/858 SPARES)	SEE B-DD-KI10-0-0	A	PL	KI10-0-MU		
	SHEET 4 OF 4	DIST.				

POWER SUPPLY 1A (H725) +15V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+15V	O	SPE 1KL J2-14
J1-2	+15V SEE-D-IC-KIØ-Ø-DET	O #18	AIR FLOW SW(BOT) "+"
J1-3	+15 RET	BK	SPE 1MN J2-1Ø
J1-4	+15V	O	SPE 1PR J2-14
J1-5	+15V	—	
J1-6	+15 RET	BK	SPE 1KL J2-10
J1-7	+15V	O	SPE 1MN J2-14
J1-8	+15 RET	—	
J1-9	+15 RET	BK	SPE 1PR J2-1Ø
J1-10	+15 V	O	SPE 1ST J2-14
J1-11	+15 RET (SEE D-IC-KIØ Ø-DET)	BK #18	AIR FLOW SW(BOT) "—"
J1-12	+15 RET	BK	SPE 1ST J2-1Ø
J2-1	+15 V	O	SPE 1AB J2-14
J2-2	+15V	O	BAY 1 IND PANEL RT ½ "+15"
J2-3	+15 RET	BK	SPE 1CD J2-1Ø
J2-4	+15 V	O	SPE 1EF J2-14
J2-5	+15V	O	BAY 1 IND PANEL LT 1/2 "+15"
J2-6	+15 RET	BK	SPE 1AB J2-1Ø
J2-7	+15 V	O	SPE 1CD J2-14
J2-8	+15 RET	BK	BAY 1 IND PANEL LT 1/2 "GND"
J2-9	+15 RET	BK	SPE 1EF J2-1Ø
J2-10	+15 V	O	SPE 1HJ J2-14
J2-11	+15 RET	BK	BAY 1 IND PANEL RT 1/2 "GND"
J2-12	+15 RET	BK	SPE 1HJ J2-1Ø

POWER SUPPLY 1B (H723) +8V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+8V "B"	R	SPE 1CD J2-3
J1-2	+8V "B"	—	
J1-3	+8 RET	BK	SPE 1HJ J2-1
J1-4	+8V "B"	R	SPE 1EF J2-3
J1-5	+8V "B"	—	
J1-6	+8 RET	BK	SPE 1HJ J2-2
J1-7	+8V "B"	R	SPE 1EF J2-9
J1-8	+8 RET	—	
J1-9	+8 RET	BK	SPE 1CD J2-1
J1-10	+8V "B"	R	SPE 1CD J2-9
J1-11	+8 RET	—	
J1-12	+8 RET	BK	SPE 1CD J2-2
J2-1	+8 V "A"	R	SPE 1HJ J2-3
J2-2	+8 V "A"	—	
J2-3	+8 RET	BK	SPE 1AB J2-2
J2-4	+8 V "A"	R	SPE 1HJ J2-9
J2-5	+8V "A"	—	
J2-6	+8 RET	BK	SPE 1EF J2-2
J2-7	+8V "A"	R	SPE 1AB J2-3
J2-8	+8 RET	—	
J2-9	+8 RET	BK	SPE 1AB J2-1
J2-10	+8V "A"	R	SPE 1AB J2-9
J2-11	+8 RET	—	
J2-12	+8 RET	BK	SPE 1EF J2-1

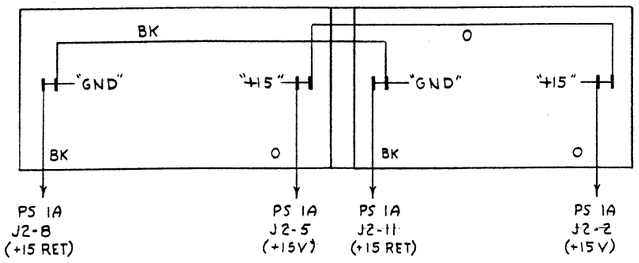
POWER SUPPLY 1D (H723) +8V

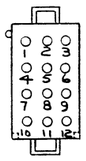
PIN	FUNCTION	COLOR	DESTINATION
J1-1	+8V "B"	R	SPE 1ST J2-3
J1-2	+8V "B"	R	SPE 1ST J2-12
J1-3	+8 RET	BK	SPE 1KL J2-1
J1-4	+8V "B"	R	SPE 1ST J2-9
J1-5	+8V "B"	R	SPE 1KL J2-3
J1-6	+8 RET	BK	SPE 1PR J2-2
J1-7	+8V "B"	R	SPE 1PR J2-6
J1-8	+8 RET	BK	SPE 1ST J2-5
J1-9	+8 RET	BK	SPE 1PR J2-4
J1-10	+8V "B"	R	SPE 1PR J2-12
J1-11	+8 RET	BK	SPE 1PR J2-5
J1-12	+8 RET	BK	SPE 1PR J2-1
J2-1	+8V "A"	R	SPE 1MN J2-3
J2-2	+8V "A"	R	SPE 1KL J2-9
J2-3	+8 RET	BK	SPE 1ST J2-1
J2-4	+8V "A"	R	SPE 1PR J2-3
J2-5	+8V "A"	R	SPE 1PR J2-9
J2-6	+8 RET	BK	SPE 1MN J2-2
J2-7	+8V "A"	R	SPE 1MN J2-9
J2-8	+8 RET	BK	SPE 1KL J2-5
J2-9	+8 RET	BK	SPE 1MN J2-1
J2-10	+8V "A"	R	SPE 1MN J2-12
J2-11	+8 RET	BK	SPE 1ST J2-2
J2-12	+8 RET	BK	SPE 1MN J2-5

POWER SUPPLY 1E (H725) -15V

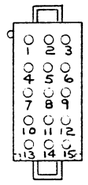
PIN	FUNCTION	COLOR	DESTINATION
J1-1	-15 RET	BK	SPE 1AB J2-7
J1-2	-15 RET	—	
J1-3	-15V	BL	SPE 1CD J2-8
J1-4	-15 RET	BK	SPE 1EF J2-7
J1-5	-15 RET	—	
J1-6	-15V	BL	SPE 1HJ J2-8
J1-7	-15 RET	BK	SPE 1CD J2-7
J1-8	-15V	—	
J1-9	-15V	BL	SPE 1AB J2-8
J1-10	-15 RET	BK	SPE 1HJ J2-7
J1-11	-15V	—	
J1-12	-15V	BL	SPE 1EF J2-8
J2-1	-15 RET	BK	SPE 1KL J2-7
J2-2	-15 RET	—	
J2-3	-15V	BL	SPE 1MN J2-8
J2-4	-15 RET	BK	SPE 1PR J2-7
J2-5	-15 RET	—	
J2-6	-15V	BL	SPE 1ST J2-8
J2-7	-15 RET	BK	SPE 1MN J2-7
J2-8	-15V	—	
J2-9	-15V	BL	SPE 1KL J2-8
J2-10	-15 RET	BK	SPE 1ST J2-7
J2-11	-15V	—	
J2-12	-15V	BL	SPE 1PR J2-8

BAY 1 INDICATOR PANEL
7006671-1





WIRING SIDE VIEW OF
12 PIN MALE CONNECTOR
(H723 & H725)



WIRING SIDE VIEW OF
15 PIN MALE CONNECTOR
(SERIES PASS ELEMENT
CENTER REAR)

NOTES:

1. PS = POWER SUPPLY
   SPE = SERIES PASS ELEMENT
2. BK = BLACK P = PURPLE
   BL = BLUE R = RED
   BR = BROWN S = SLATE (GRAY)
   G = GREEN W = WHITE
   O = ORANGE Y = YELLOW
3. UNLESS OTHERWISE NOTES
   ALL WIRES ARE #14 AWG

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

FIRST USED ON OPTION/MODEL: KIØ

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —"

FINISH —"

		DATE
DRN.		27 JAN 72
CHKD.	David Gross	31 Jan 72
ENG.	Alan Hatok	31 Jan 72
PROJ ENG.	Allen Kent	31 Jan 72
PROD.		31 Jan 72

NEXT HIGHER ASSY: B-DD-KIØ-Ø

SCALE

SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DC WIRING CHART (BAY 1 PWR SUPPLIES)

SIZE D | CODE IC | NUMBER KIIØ-Ø-1PS | REV.

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100

SERIES PASS ELEMENT 1AB (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1B J2-9
J2-2	+8 "A" RET.	BK	PS 1B J2-3
J2-3	+8 V "A" IN	R	PS 1B J2-7
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 1E J1-1
J2-8	-15 V IN	BL	PS 1E J1-9
J2-9	+8 V "B" IN	R	PS 1B J2-10
J2-10	+15 RET.	BK	PS 1A J2-6
J2-11	—	—	
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1CD J2-13
J2-14	+15 V IN	O	PS 1A J2-1
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	SPE 1CD J2-15
		G#18	PWR DIST BRKT-15 MARG TAB

SERIES PASS ELEMENT 1EF (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1B J2-12
J2-2	+8 "A" RET.	BK	PS 1B J2-6
J2-3	+8 V "A" IN	R	PS 1B J1-4
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 1E J1-4
J2-8	-15 V IN	BL	PS 1E J8-12
J2-9	+8 V "B" IN	R	PS 1B J1-7
J2-10	+15 RET.	BK	PS 1A J2-9
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1CD J2-13
		0#18	SPE 1HJ J2-13
J2-14	+15 V IN	O	PS 1A J2-4
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	SPE 1CD J2-15
		G#18	SPE 1HJ J2-15

SERIES PASS ELEMENT 1KL (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1D J1-3
J2-2	+8 "A" RET.	—	
J2-3	+8 V "A" IN	R	PS 1D J1-5
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	BK	PS 1D J2-8
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 1E J2-1
J2-8	-15 V IN	BL	PS 1E J2-9
J2-9	+8 V "B" IN	R	PS 1D J2-2
J2-10	+15 RET.	BK	PS 1A J1-6
J2-11	—	—	
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1HJ J2-13
		0#18	SPE 1MN J2-13
J2-14	+15 V IN	O	PS 1A J1-1
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET	G#18	SPE 1MN J2-15
		G#18	PWR DIST BRKT-15 MARG TAB

SERIES PASS ELEMENT 1PR (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1D J1-12
J2-2	+8 "A" RET.	BK	PS 1D J1-6
J2-3	+8 V "A" IN	R	PS 1D J2-4
J2-4	+8 "B" RET.	BK	PS 1D J1-9
J2-5	+8 "B" RET.	BK	PS 1D J1-11
J2-6	+8 V "A" IN	R	PS 1D J1-7
J2-7	-15 RET.	BK	PS 1E J2-4
J2-8	-15 V IN	BL	PS 1E J2-12
J2-9	+8 V "B" IN	R	PS 1D J2-5
J2-10	+15 RET.	BK	PS 1A J1-9
J2-11	—		
J2-12	+8 V "B" IN	R	PS 1D J1-10
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1MN J2-13
		0#18	SPE 1ST J2-13
J2-14	+15 V IN	O	PS 1A J1-4
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	SPE 1MN J2-15
		G#18	SPE 1ST J2-15

SERIES PASS ELEMENT 1CD (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1B J1-9
J2-2	+8 "A" RET.	BK	PS 1B J1-12
J2-3	+8 V "A" IN	R	PS 1B J1-1
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 1E J1-7
J2-8	-15 V IN	BL	PS 1E J1-3
J2-9	+8 V "B" IN	R	PS 1B J1-10
J2-10	+15 RET.	BK	PS 1A J2-3
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1AB J2-13
		0#18	SPE 1EF J2-13
J2-14	+15 V IN	O	PS 1A J2-7
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	SPE 1AB J2-15
		G#18	SPE 1EF J2-15

SERIES PASS ELEMENT 1HJ (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	J7-3 PS 1B J1-3
J2-2	+8 "A" RET.	BK	J7-6 PS 1B J1-6
J2-3	+8 V "A" IN	R	J6-1 PS 1B J2-1
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	J8-10 PS 1E J1-10
J2-8	-15 V IN	BL	J8-6 PS. 1E J1-6
J2-9	+8 V "B" IN	R	J6-4 PS 1B J2-4
J2-10	+15 RET.	BK	J5-12 PS 1A J2-12
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1EF J2-13
		0#18	SPE 1KL J2-13
J2-14	+15 V IN	O	J5-10 PS 1A J2-10
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	J2-15 SPE 1EF J2-15

SERIES PASS ELEMENT 1MN (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1D J2-9
J2-2	+8 "A" RET.	BK	PS 1D J2-6
J2-3	+8 V "A" IN	R	PS 1D J2-1
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	BK	PS 1D J2-12
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 1E J2-7
J2-8	-15 V IN	BL	PS 1E J2-3
J2-9	+8 V "B" IN	R	PS 1D J2-7
J2-10	+15 RET.	BK	PS 1A J1-3
J2-11	—	—	
J2-12	+8 V "B" IN	R	PS 1D J2-10
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1KL J2-13
		0#18	SPE 1PR J2-13
J2-14	+15 V IN	O	PS 1A J1-7
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	SPE 1KL J2-15
		G#18	SPE 1PR J2-15

SERIES PASS ELEMENT 1ST (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 1D J2-3
J2-2	+8 "A" RET.	BK	PS 1D J2-11
J2-3	+8 V "A" IN	R	PS 1D J1-1
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	BK	PS 1D J1-2
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 1E J2-10
J2-8	-15 V IN	BL	PS 1E J2-6
J2-9	+8 V "B" IN	R	PS 1D J1-4
J2-10	+15 RET.	BK	PS 1A J1-12
J2-11	—		
J2-12	+8 V "B" IN	R	PS 1D J1-2
J2-13	CKT BRKR TRIPPED (SEE D-IC-KIIØ-Ø-DET)	0#18	SPE 1PR J2-13
		0#18	SPE 2AB J2-13
J2-14	+15 V IN	O	PS 1A J1-10
J2-15	-15 MARG IN (SEE D-IC-KIIØ-Ø-DET)	G#18	SPE 1PR J2-15

NOTES:

1. PS = POWER SUPPLY
   SPE = SERIES PASS ELEMENT
2. BK = BLACK P = PURPLE
   BL = BLUE R = RED
   BR = BROWN S = SLATE (GRAY)
   G = GREEN W = WHITE
   O = ORANGE Y = YELLOW
3. UNLESS OTHERWISE NOTED ALL WIRES ARE #14 AWG
4. FOR INFORMATION ON THE WIRING OF THE OTHER SERIES PASS ELEMENT CONNECTORS SEE D-BS-KIIØ-Ø-DCP

REVISIONS | REV | CHANGE NO. | CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN.	J McCullough	DATE 4-27-72
CHK'D.	David Gross	DATE 31 Jan 72
ENG.	Allan Kotok	DATE 31 Jan 72
PROJ. ENG.	Allan Kent	DATE 31 Jan 72
PROD.	M Cullinane	DATE 31 JAN 72

NEXT HIGHER ASSY.: B-DD-KIIØ-Ø

SCALE

SHEET 1 OF 1

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DC WIRING CHART (BAY 1 SERIES PASS ELEMENTS)

SIZE	CODE	NUMBER	REV.
D	IC	KIIØ-Ø-1SPE	

DIST.

DEC FORM NO DRD 100-A

POWER SUPPLY 2A (H725) +15V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+15V	O	SPE 2ST(€3AB) J2-14
J1-2	+15V	O	SPE 2PR J2-14
J1-3	+15 RET	BK	SPE 2ST(€3AB) J2-1Ø
J1-4	+15V	O	SPE 2MN J2-14
J1-5	+15V	—	
J1-6	+15 RET	BK	SPE 2PR J2-1Ø
J1-7	+15V (SEE D-IC-KI1Ø-Ø-DET)	O#18	AIR FLOW SW (BOT) "+"
J1-8	+15 RET	—	
J1-9	+15 RET	BK	SPE 2MN J2-1Ø
J1-10	+15 V	O	SPE 2KL J2-14
J1-11	+15 RET (SEE D-IC-KI1Ø-Ø-DET)	BK#18	AIR FLOW SW. (BOT) "—"
J1-12	+15 RET	BK	SPE 2KL J2-1Ø
J2-1	+15 V	O	SPE 2EF J2-14
J2-2	+15V	O	BAY 2 IND. PANEL RT 1/2 "+15"
J2-3	+15 RET	BK	SPE 2CD J2-1Ø
J2-4	+15 V	O	SPE 2CD J2-14
J2-5	+15V	O	BAY 2 IND PANEL LT 1/2 "+15"
J2-6	+15 RET	BK	SPE 2AB J2-1Ø
J2-7	+15 V	O	SPE 2AB J2-14
J2-8	+15 RET	BK	BAY 2 IND PANEL RT 1/2 "GND"
J2-9	+15 RET	BK	SPE 2EF J2-1Ø
J2-10	+15 V	O	SPE 2HJ J2-14
J2-11	+15 RET	BK	BAY 2 IND PANEL LT 1/2 "GND"
J2-12	+15 RET	BK	SPE 2HJ J2-1Ø

POWER SUPPLY 2B (H723) +8V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+8V "B"	R	SPE 2CD J2-3
J1-2	+8V "B"	R	SPE 2AB J2-6
J1-3	+8 RET	BK	SPE 2CD J2-1
J1-4	+8V "B"	R	SPE 2CD J2-9
J1-5	+8V "B"	—	
J1-6	+8 RET	BK	SPE 2CD J2-2
J1-7	+8V "B"	R	SPE 2AB J2-3
J1-8	+8 RET	BK	SPE 2AB J2-4
J1-9	+8 RET	BK	SPE 2AB J2-1
J1-10	+8V "B"	R	SPE 2AB J2-9
J1-11	+8 RET	—	
J1-12	+8 RET	BK	SPE 2AB J2-2
J2-1	+8 V "A"	R	SPE 2HJ J2-3
J2-2	+8 V "A"	R	SPE 2EF J2-3
J2-3	+8 RET	BK	SPE 2HJ J2-1
J2-4	+8 V "A"	R	SPE 2HJ J2-9
J2-5	+8V "A"	—	
J2-6	+8 RET	BK	SPE 2HJ J2-2
J2-7	+8V "A"	R	SPE 2HJ J2-6
J2-8	+8 RET	BK	SPE 2EF J2-2
J2-9	+8 RET	BK	SPE 2HJ J2-4
J2-10	+8V "A"	R	SPE 2EF J2-9
J2-11	+8 RET	—	
J2-12	+8 RET	BK	SPE 2EF J2-1

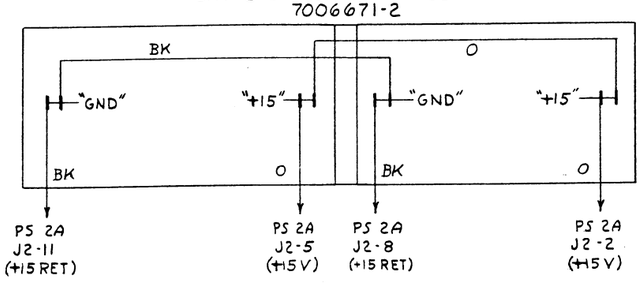
POWER SUPPLY 2D (H723) +8V

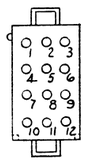
PIN	FUNCTION	COLOR	DESTINATION
J1-1	+8V "B"	R	SPE 2ST(€3AB) J2-9
J1-2	+8V "B"	R	SPE 2ST(€3AB) J2-3
J1-3	+8 RET	BK	SPE 2ST(€3AB J2-1
J1-4	+8V "B"	R	SPE 2ST(€3AB) J2-6
J1-5	+8V "B"	R	SPE 2ST(€3AB) J2-12
J1-6	+8 RET	BK	SPE 2ST(€3AB) J2-2
J1-7	+8V "B"	R	SPE 2PR J2-3
J1-8	+8 RET	BK	SPE 2ST(€3AB) J2-7
J1-9	+8 RET	BK	SPE 2ST(€3AB) J2-5
J1-10	+8V "B"	R	SPE 2PR J2-9
J1-11	+8 RET	BK	SPE 2PR J2-1
J1-12	+8 RET	BK	SPE 2PR J2-2
J2-1	+8V "A"	R	SPE 2MN J2-9
J2-2	+8V "A"	R	SPE 2MN J2-3
J2-3	+8 RET	BK	SPE 2MN J2-1
J2-4	+8V "A"	R	SPE 2KL J2-3
J2-5	+8V "A"	R	SPE 2KL J2-9
J2-6	+8 RET	BK	SPE 2MN J2-2
J2-7	+8V "A"	R	SPE 2KL J2-6
J2-8	+8 RET	BK	SPE 2KL J2-1
J2-9	+8 RET	BK	SPE 2KL J2-2
J2-10	+8V "A"	R	SPE 2KL J2-12
J2-11	+8 RET	BK	SPE 2KL J2-4
J2-12	+8 RET	BK	SPE 2KL J2-5

POWER SUPPLY 2E (H725) -15V

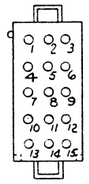
PIN	FUNCTION	COLOR	DESTINATION
J1-1	-15 RET	BK	SPE 2AB J2-7
J1-2	-15 RET	—	
J1-3	-15V	BL	SPE 2HJ J2-8
J1-4	-15 RET	BK	SPE 2CD J2-7
J1-5	-15 RET	—	
J1-6	-15V	BL	SPE 2EF J2-8
J1-7	-15 RET	BK	SPE 2EF J2-7
J1-8	-15V	—	
J1-9	-15V	BL	SPE 2CD J2-8
J1-10	-15 RET	BK	SPE 2HJ J2-7
J1-11	-15V	—	
J1-12	-15V	BL	SPE 2AB J2-8
J2-1	-15 RET	BK	SPE 2ST(€3AB) J2-7
J2-2	-15 RET	—	
J2-3	-15V	BL	SPE 2ST(€3AB) J2-8
J2-4	-15 RET	BK	SPE 2PR J2-7
J2-5	-15 RET	—	
J2-6	-15V	BL	SPE 2PR J2-8
J2-7	-15 RET	BK	SPE 2MN J2-7
J2-8	-15V	—	
J2-9	-15V	BL	SPE 2MN J2-8
J2-10	-15 RET	BK	SPE 2KL J2-7
J2-11	-15V	—	
J2-12	-15V	BL	SPE 2KL J2-8

BAY 2 INDICATOR PANEL
7006671-2





WIRING SIDE VIEW OF
12 PIN MALE CONNECTOR
(H723 & H725)



WIRING SIDE VIEW OF
15 PIN MALE CONNECTOR
(SERIES PASS ELEMENT
CENTER REAR)

NOTES:
1. PS = POWER SUPPLY
   SPE = SERIES PASS ELEMENT
2. BK = BLACK P = PURPLE
   BL = BLUE R = RED
   BR = BROWN S = SLATE (GRAY)
   G = GREEN W = WHITE
   O = ORANGE Y = YELLOW
3. UNLESS OTHERWISE NOTED
   ALL WIRES ARE #14 AWG

REVISIONS | REV. | CHANGE NO. | CHK

FIRST USED ON OPTION/MODEL: KI1Ø

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN.		DATE 27 APR 72
CHK'D.	Dave Gross	DATE 1 Jun 72
ENG.	Stan Kostek	DATE 1 Jun 72
PROJ. ENG.	Allen Kent	DATE 1 Jun 72
PROD.		DATE 1 Jun 72

NEXT HIGHER ASSY
B-DD-KI1Ø-Ø

SCALE X
SHEET 1 OF 1

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
DC WIRING CHART
(BAY 2 PWR SUPPLIES)

SIZE D | CODE IC | NUMBER KI1Ø-Ø-2PS | REV.
DIST.

DEC FORM NO. DRD 100

SERIES PASS ELEMENT 2AB (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2B J1-9
J2-2	+8 "A" RET.	BK	PS 2B J1-12
J2-3	+8 V "A" IN	R	PS 2B J1-7
J2-4	+8 "B" RET.	BK	PS 2B J1-8
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	R	PS 2B J1-2
J2-7	-15 RET.	BK	PS 2E J1-1
J2-8	-15 V IN	BL	PS 2E J1-12
J2-9	+8 V "B" IN	R	PS 2B J1-10
J2-10	+15 RET.	BK	PS 2A J2-6
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED	O≠18	1ST SPE J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	2CD SPE J2-13
J2-14	+15 V IN	O	PS. 2A J2-7
J2-15	-15 MARG IN	G≠18	2CD SPE J2-15
	(SEE D-IC-KI1Ø-Ø-DET)	G≠18	BAY MARG CHECK BRKT-15 MARG TAB

SERIES PASS ELEMENT 2CD (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2B J1-3
J2-2	+8 "A" RET.	BK	PS 2B J1-6
J2-3	+8 V "A" IN	R	PS 2B J1-1
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 2E J1-4
J2-8	-15 V IN	BL	PS 2E J1-9
J2-9	+8 V "B" IN	R	PS 2B J1-4
J2-10	+15 RET.	BK	PS 2A J2-3
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED	O≠18	2AB SPE J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	2EF SPE J2-13
J2-14	+15 V IN	O	PS 2A J2-4
J2-15	-15 MARG IN	G≠18	2AB SPE J2-15
	(SEE D-IC-KI1Ø-Ø-DET)	G≠18	2EF SPE J2-15

SERIES PASS ELEMENT 2EF (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2B J2-12
J2-2	+8 "A" RET.	BK	PS 2B J2-8
J2-3	+8 V "A" IN	R	PS 2B J2-2
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 2E J1-7
J2-8	-15 V IN	BL	PS 2E J1-6
J2-9	+8 V "B" IN	R	PS 2B J2-10
J2-10	+15 RET.	BK	PS 2A J2-9
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED	O≠18	SPE 2CD J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	SPE 2HJ J2-13
J2-14	+15 V IN	O	PS 2A J2-1
J2-15	-15 MARG IN	G≠18	SPE 2CD J2-15
	(SEE D-IC-KI1Ø-Ø-DET)	G≠18	SPE 2HJ J2-15

SERIES PASS ELEMENT 2HJ (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2B J2-3
J2-2	+8 "A" RET.	BK	PS 2B J2-6
J2-3	+8 V "A" IN	R	PS 2B J2-1
J2-4	+8 "B" RET.	BK	PS 2B J2-9
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	R	PS 2B J2-7
J2-7	-15 RET.	BK	PS 2E J1-10
J2-8	-15 V IN	BL	PS 2E J1-3
J2-9	+8 V "B" IN	R	PS 2B J2-4
J2-10	+15 RET.	BK	PS 2A J2-12
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED	O≠18	SPE 2EF J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	SPE 2KL J2-13
J2-14	+15 V IN	O	PS 2A J2-10
J2-15	-15 MARG IN	G≠18	SPE 2EF J2-15
	(SEE D-IC-KI1Ø-Ø-DET)		

SERIES PASS ELEMENT 2KL (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2D J2-8
J2-2	+8 "A" RET.	BK	PS 2D J2-9
J2-3	+8 V "A" IN	R	PS 2D J2-4
J2-4	+8 "B" RET.	BK	PS 2D J2-11
J2-5	+8 "B" RET.	BK	PS 2D J2-12
J2-6	+8 V "A" IN	R	PS 2D J2-7
J2-7	-15 RET.	BK	PS 2E J2-10
J2-8	-15 V IN	BL	PS 2E J2-12
J2-9	+8 V "B" IN	R	PS 2D J2-5
J2-10	+15 RET.	BK	PS 2A J2-12
J2-11	—		
J2-12	+8 V "B" IN	R	PS 2D J2-10
J2-13	CKT BRKR TRIPPED	O≠18	SPE 2HJ J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	SPE 2MN J2-13
J2-14	+15 V IN	O	PS 2A J2-10
J2-15	-15 MARG IN	G≠18	SPE 2MN J2-15
	(SEE D-IC-KI1Ø-Ø-DET)		

SERIES PASS ELEMENT 2MN (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2D J2-3
J2-2	+8 "A" RET.	BK	PS 2D J2-6
J2-3	+8 V "A" IN	R	PS 2D J2-2
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	—	
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 2E J2-7
J2-8	-15 V IN	BL	PS 2E J2-9
J2-9	+8 V "B" IN	R	PS 2D J2-1
J2-10	+15 RET.	BK	PS 2A J2-9
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED	O≠18	SPE 2KL J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	SPE 2PR J2-13
J2-14	+15 V IN	O	PS 2A J2-4
J2-15	-15 MARG IN	G≠18	SPE 2KL J2-15
	(SEE D-IC-KI1Ø-Ø-DET)	G≠18	SPE 2PR J2-15

SERIES PASS ELEMENT (2PR (7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	PS 2D J1-11
J2-2	+8 "A" RET.	BK	PS 2D J1-12
J2-3	+8 V "A" IN	R	PS 2D J1-7
J2-4	+8 "B" RET.	—	
J2-5	+8 "B" RET.	BK≠18	PC 3H J2-3
J2-6	+8 V "A" IN	—	
J2-7	-15 RET.	BK	PS 2E J2-4
J2-8	-15 V IN	BL	PS 2E J2-6
J2-9	+8 V "B" IN	R	PS 2D J1-10
J2-10	+15 RET.	BK	PS 2A J2-6
J2-11	—		
J2-12	+8 V "B" IN	—	
J2-13	CKT BRKR TRIPPED	O≠18	SPE 2MN J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	SPE 2ST(&3AB) J2-13
J2-14	+15 V IN	O	PS 2A J2-2
J2-15	-15 MARG IN	G≠18	SPE 2MN J2-15
	(SEE D-IC-KI1Ø-Ø-DET)	G≠18	SPE 2ST(&3AB) J2-15

SERIES PASS ELEMENT(2ST &3AB)(7006585)

PIN	FUNCTION	COLOR	DESTINATION
J2-1	+8 "A" RET.	BK	J6-3 PS 2D J1-3
J2-2	+8 "A" RET.	BK	J6-6 PS 2D J1-6
J2-3	+8 V "A" IN	R	J6-2 PS 2D J1-2
J2-4	+8 "B" RET.	BK	J6-8 PS 2D J1-8
J2-5	+8 "B" RET.	BK	J6-9 PS 2D J1-9
J2-6	+8 V "A" IN	R	J6-4 PS 2D J1-4
J2-7	-15 RET.	BK	J8-1 PS 2E J2-1
J2-8	-15 V IN	BL	J8-3 PS 2E J2-3
J2-9	+8 V "B" IN	R	J6-1 PS 2D J1-1
J2-10	+15 RET.	BK	J5-3 PS 2A J2-3
J2-11	—		
J2-12	+8 V "B" IN	R	J6-5 PS 2D J1-5
J2-13	CKT BRKR TRIPPED	O≠18	SPE 2PR J2-13
	(SEE D-IC-KI1Ø-Ø-DET)	O≠18	857 P.C. J2-8
J2-14	+15 V IN	O	J5-1 PS 2A J2-1
J2-15	-15 MARG IN	G≠18	J2-15 SPE 2PR J2-15
	(SEE D-IC-KI1Ø-Ø-DET)	G≠18	PWR DIST BRKT-15 MARG TAB

NOTES:
1. PS = POWER SUPPLY
   SPE: SERIES PASS ELEMENT
2. BK = BLACK P = PURPLE
   BL = BLUE R = RED
   BR = BROWN S = SLATE (GRAY)
   G = GREEN W = WHITE
   O = ORANGE Y = YELLOW
3. UNLESS OTHERWISE NOTED ALL WIRES ARE #14 AWG
4. FOR INFORMATION ON THE WIRING OF THE OTHER SERIES PASS ELEMENT CONNECTORS SEE D-BS-KI1Ø-Ø-DCP.

REVISIONS | REV. | CHANGE NO. | CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS .XXX = .005 .XX = .02 .X = .1 ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. P McCullough	DATE 6/26/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 5 Jan 72	
ENG. Allan Kotok	DATE 5 Jan 72	TITLE DC WIRING CHART (BAY 2 SERIES PASS ELEMENTS)
PROJ. ENG. Allan Kent	DATE 5 Jan 72	
PROD. M Mullins	DATE 5 Jan 72	
NEXT HIGHER ASSY. B-DD-KI1Ø-Ø		SIZE D CODE IC NUMBER KI1Ø-Ø-2SPE REV.
SCALE ℅ SHEET 1 OF 1		DIST.

DEC FORM NO DRD 100-A

POWER SUPPLY 3A (H7Ø4-C 115; H7Ø4-H 230V) +15V & -15V

PIN	FUNCTION	COLOR	DESTINATION
+OUT	+15V OUT	O #22	2SØ2 M1 (M9Ø8)
+SENSE	+15V SENSE	Y #22	2SØ2 S1 (M9Ø8)
-SENSE	+15 RET SENSE	BK #22	2SØ2 V1 (M9Ø8)
—		BK #22	PS 3A "+SENSE B" (H7Ø4)
-OUT	+15 RET	BK #22	2SØ2 P1 (M9Ø8)
		BK #22	PS 3A "+OUT B" (H7Ø4)
+OUT	-15 RET	BK #22	PS 3A "-OUT A" (H7Ø4)
+SENSE	-15 RET SENSE	BK #22	PS 3A "-SENSE A" (H7Ø4)
-SENSE	-15V SENSE	G #22	2SØ2 U1 (M9Ø8)
-OUT	-15V OUT	BL #22	2SØ2 N1 (M9Ø8)

POWER SUPPY 3B (783C) +10V & -15V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	-15V	BL	MAINT PANEL J1-2
J1-2	+10V	R	MAINT PANEL J1-1
J1-3	RETURN (GND)	BK	MAINT PANEL J1-4
J1-4	-15V		
J1-5	+10V		
J1-6	RETURN (GND)		
J1-7	-15V		
J1-8	RETURN (GND)		
J1-9	RETURN (GND)		
J1-10	-15V		
J1-11	RETURN (GND)		
J1-12	RETURN (GND)		
TAB	+10V	R	PWR.DIST.BKT.BAY 2 OPTIONAL
TAB	-15V	BL	PWR.DIST.BKT.BAY 2 FOR
TAB	RETURN (GND)	BK	PWR.DIST.BKT.BAY 2 DK IØ

POWER SUPPLY 3C (H732) ±20V VARIABLE

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+V	O	MAINT PANEL J2-11
J1-2	-V	—	
J1-3	-V	G	MAINT PANEL J2-12
J1-4	+V	—	
J1-5	-	—	
J1-6	-V	—	
J1-7	+V	—	
J1-8	+V	—	
J1-9	-V	—	
J1-10	AUTO TRANS COMM	W	MAINT PANEL J2-13
J1-11	AUTO TRANS LOAD	BR TW	MAINT PANEL J2-14
J1-12	AUTO TRANS "LINE"	O	MAINT PANEL J2-15

POWER SUPPLY 3D (H725) +15V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+15V	—	
J1-2	+15V	—	
J1-3	+15 RET	—	
J1-4	+15V	—	
J1-5	+15V	—	
J1-6	+15 RET	—	
J1-7	+15V	—	
J1-8	+15 RET	—	
J1-9	+15 RET	—	
J1-10	+15 V	—	
J1-11	+15 RET	—	
J1-12	+15 RET	—	
J2-1	+15V	O	BAY 3 IND PANEL RT ½ "+15"
J2-2	+15V	—	
J2-3	+15 RET	BK	BAY 3 IND PANEL RT ½ "GND"
J2-4	+15V	O	BAY 3 IND PANEL LT ½ "+15"
J2-5	+15V	—	
J2-6	+15 RET	BK	BAY3 IND PANEL LT ½ "GND"
J2-7	+15V	O	MAINT SW PANEL "+15"
J2-8	+15 RET	—	
J2-9	+15 RET	BK	MAINT SW PANEL "GND"
J2-10	+15V	—	
J2-11	+15 RET	—	
J2-12	+15 RET	—	

POWER SUPPLY 3E (H725) +15V

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+15V	O	RT CONSOLE SW PANEL LT ½ "+15"
J1-2	+15V	—	
J1-3	+15 RET	BK	RT CONSOLE SW PANEL LT ½ "GND"
J1-4	+15V	O	LT CONSOLE SW PANEL RT ½ "+15"
J1-5	+15V	—	
J1-6	+15 RET	BK	LT CONSOLE SW PANEL RT ½ "GND"
J1-7	+15V	O	LT CONSOLE SW PANEL LT ½ "+15"
J1-8	+15 RET	—	
J1-9	+15 RET	BK	LT CONSOLE SW PANEL LT ½ "GND"
J1-10	+15V	—	
J1-11	+15 RET	—	
J1-12	+15 RET	—	
J2-1	+15V	O	RT CONSOLE IND PANEL "+15"
J2-2	+15V	—	
J2-3	+15 RET	BK	RT CONSOLE IND PANEL "GND"
J2-4	+15V	O	LT CONSOLE IND PANEL "+15"
J2-5	+15V	—	
J2-6	+15 RET	BK	LT CONSOLE IND PANEL "GND"
J2-7	+15V	O	RT CONSOLE SW PANEL RT ½ "+15"
J2-8	+15 RET	—	
J2-9	+15 RET	BK	RT CONSOLE SW PANEL RT ½ "GND"
J2-10	+15V	—	
J2-11	+15 RET	—	
J2-12	+15 RET	—	

POWER CONTROL 3F (858) AUX POWER CONTROL

PIN	FUNCTION	COLOR	DESTINATION
J1-1	POWER DOWN ALARM L	W #22	2SØ2 C1 (M9Ø8)
J1-2	RESTART (1) L	BL #22	2SØ2 B1 (M9Ø8)
J1-3	RESTART CLR H	BL #22	2SØ2 F1 (M9Ø8)
J1-4	RESTART SET H	Y #22	2SØ2 H1 (M9Ø8)
J1-5	GROUND	BL #22	2SØ2 C2 (M9Ø8)
J1-6	—		
J2-1	THERMISTOR 7	W #22	2SØ2 D2 (M9Ø8)
J2-2	THERMISTOR 7 RET	BK #22	2SØ2 E2 (M9Ø8)
J2-3	THERMISTOR 8	W #22	2SØ2 F2 (M9Ø8)
J2-4	THERMISTOR 9	W #22	2SØ2 J2 (M9Ø8)
J2-5	THERMISTOR 9 RET	BK #22	2SØ2 K2 (M9Ø8)
J2-6	THERMISTOR 8 RET	BK #22	2SØ2 H2 (M9Ø8)
J2-7	THERMISTOR 1Ø	W #22	2SØ2 L2 (M9Ø8)
J2-8	THERMISTOR 1Ø RET	BK #22	2SØ2 M2 (M9Ø8)
J2-9	THERMISTOR 11	W #22	2SØ2 N2 (M9Ø8)
J2-10	THERMISTOR 12	W #22	2SØ2 R2 (M9Ø8)
J2-11	THERMISTOR 12 RET	BK #22	2SØ2 S2 (M9Ø8)
J2-12	THERMISTOR 11 RET	BK #22	2SØ2 P2 (M9Ø8)
J3-1	POWER REQUEST H	BL #22	PC 3H J3-1 (857)
J3-2	POWER DOWN LATCH(1) H	Y #22	PC 3H J3-2 (857)
J3-3	POWER ON COMMAND H	S #22	PC 3H J3-3 (857)
J3-4	LOW VOLTAGE L	W #22	PC 3H J3-4 (857)
J3-5	BUS POWER REQUEST L	—	
J3-6	CROWBAR RELEASED H	P #22	PC 3H J3-6 (857)
J3-7	POWER OK (857) L	BR #22	PC 3H J3-7 (857)
J3-8	+5V IN	R #18	PC 3H J3-8 (857)
J3-9	AUX TEMP OK H	W #22	PC 3H J3-9 (857)
J3-10	GROUND	BK #18	PC 3H J3-1Ø (857)
J3-11	~POWER REQUEST H	G #22	PC 3H J3-11 (857)
J3-12	SYSTEM POWER ON L	BL #22	PC 3H J3-12 (857)
R TABS	CONTROL AC IN	R TW	PC 3H UNSW'D R TABS (857)
W TABS	CONTROL AC RETURN	W TW	PC 3H UNSW'D W TABS (857)
R AND W TABS	VOLTAGE DETECTOR & A	R	PC 3H TB1-1 (857)
		R	PC 3J UNSW'D R TABS (845)
O TABS	VOLTAGE DETECTOR & B	O #18	PC 3J UNSW'D O TABS (845)
Y (OR) TABS	VOLTAGE DETECTOR & C	Y #18	PC 3J UNSW'D Y TABS (845)
NEUTRAL TABS	VOLTAGE DETECTOR NEUT	W	PC 3H TB1-2 (857)
		W	PC 3J UNSW'D W TABS (845)

CONTROL AC IN

POWER CONTROL 3H (857) MASTER POWER CONTROL

PIN	FUNCTION	COLOR	DESCRIPTION
J1-1	POWER SW N. O.	G #22	MAINT PANEL J2-2
J1-2	POWER SW COMMON	BK #22	MAINT PANEL J2-1
J1-3	POWER SW N.C.	R #22	MAINT PANEL J2-3
J1-4	OVERTEMP LAMP	G #22	MAINT PANEL J1-7
J1-5	DOOR OPEN LAMP	BL #22	MAINT PANEL J1-9
J1-6	CKT BRKR TRIPPED LAMP	Y #22	MAINT PANEL J1-8
J1-7	POWER SW ON LAMP	R #22	MAINT PANEL J1-14
J1-8	+15V	O #18	MAINT PANEL J1-5
J1-9	—		
J1-1Ø	—		
J1-11	—		
J1-12	—		
J2-1	EMERG SHUTDOWN EXP	—	
J2-2	BUS POWER REQUEST EXP	—	
J2-3	GROUND	BK #18	SPE 2PR J2-5
J2-4	AUX CONTACT IN	—	
J2-5	REG STACKS OK H	Y #22	BAY 2 (BOT) AIR FLOW SW "L"
J2-6	DOOR OPEN H	BL #22	BAY 1 DOOR SW
J2-7	DOOR OPEN RET	BK #22	BAY 2 DOOR SW
J2-8	CKT BRKR TRIPPED L	O #22	SPE 2 ST (& 3AB) J2-13
J2-9	—		
J2-1Ø	—		
J2-11	—		
J2-12	—		
J3-1	POWER REQUEST H	BL #22	PC 3F J3-1 (858)
J3-2	POWER DOWN LATCH (1) H	Y #22	PC 3F J3-2 (858)
J3-3	POWER ON COMMAND H	S #22	PC 3F J3-3 (858)
J3-4	LOW VOLTAGE L	W #22	PC 3F J3-4 (858)
J3-5	BUS POWER REQUEST L	—	
J3-6	CROWBAR RELEASED H	P #22	PC 3F J3-6 (858)
J3-7	POWER OK (857) H	BR #22	PC 3F J3-7 (858)
J3-8	+5V OUT	R #18	PC 3F J3-8 (858)
J3-9	AUX TEMP OK H	W #22	PC 3F J3-9 (858)
J3-1Ø	GROUND	BK #18	PC 3F J3-1Ø (858)
J3-11	POWER REQUEST L	G #22	PC 3F J3-11 (858)
J3-12	SYSTEM POWER ON L	BL #22	PC 3F J3-12 (858)
J4-1	THERMISTOR 1	W #22	1S43D2 (M9Ø8)
J4-2	THERMISTOR 1 RET	BK #22	1S43E2 (M9Ø8)
J4-3	THERMISTOR 2	W #22	1S43F2 (M9Ø8)
J4-4	THERMISTOR 3	W #22	1S43J2 (M9Ø8)
J4-5	THERMISTOR 3 RET	BK #22	1S43K2 (M9Ø8)
J4-6	THERMISTOR 2 RET	BK #22	1S43H2 (M9Ø8)
J4-7	THERMISTOR 4	W #22	1S43L2 (M9Ø8)
J4-8	THERMISTOR 4 RET	BK #22	1S43M2 (M9Ø8)
J4-9	THERMISTOR 5	W #22	1S43N2 (M9Ø8)
J4-1Ø	THERMISTOR 6	W #22	1S43R2 (M9Ø8)
J4-11	THERMISTOR 6 RET	BK #22	1S43S2 (M9Ø8)
J4-12	THERMISTOR 5 RET	BK #22	1S43P2 (M9Ø8)
J4-13	CROWBAR +	G #22	2SØ2K1 (M9Ø8)
J4-14	CROWBAR -	BR #22	2SØ2J1 (M9Ø8)
J4-15	-		

CON'T ON DRAWING D-IC-KIIØ-Ø-3PS2

NOTES:
1. PS = POWER SUPPLY
   SPE = SERIES PASS ELEMENT
2. BK = BLACK P = PURPLE
   BL = BLUE R = RED
   BR = BROWN S = SLATE (GRAY)
   G = GREEN W = WHITE
   O = ORANGE Y = YELLOW
3. UNLESS OTHERWISE NOTED ALL WIRES ARE #14 AWG
4. ALL INDICATOR AND SWITCH PANELS ARE REFERRED TO AS VIEWED FROM REAR OF MACHINE (LT = LEFT, RT = RIGHT)

REVISIONS			
REV	CHANGE NO.		CHK
A	KIIØ-00025	3rd Shop 11-10-72 KENT	Allen Kent 15 Nov 72

DRAWING 40-833 19840
DEC FORM NO DRD 103-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1; ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN.	J. McCullough	DATE 1-2-72
CHK'D.	David Gross	DATE 31 Jan 72
ENG.	Allen Kent	DATE 31 Jan 72
PROJ. ENG.	Allen Kent	DATE 31 Jan 72
PROD.	[illegible]	DATE 31 Jan 72

NEXT HIGHER ASSY. B-DD-KIIØ-Ø
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DC WIRING CHART (BAY 3 POWER CONTROL & SUPPLIES)

SIZE	CODE	NUMBER	REV.
D	IC	KIIØ-Ø-3PS1	A

DIST.

REV A
SIZE D CODE IC NUMBER KIIØ-Ø-3PS1

CONTINUED FROM D-IC-KI10-0-3PS1

POWER CONTROL 3H (857) MASTER POWER CONTROL

PIN	FUNCTION	COLOR	DESTINATION
J5-1	SYSTEM POWER ON L		
J5-2	EMERG SHUTDOWN L		
J5-3	GROUND		
J6-1	SYSTEM POWER ON L		
J6-2	EMERG SHUTDOWN L		
J6-3	GROUND		
J7-1	SYSTEM POWER ON L		
J7-2	EMERG SHUTDOWN L		
J7-3	GROUND		
J8-1	LINE 1 (AC) THRU CKT BRKR	—	
J8-2	POWER ON TRIAC (IN)	BR # 18	PC 3J "CONSOLE" TAB (845)
J8-3	857 CONTACTOR COIL	—	
J8-4	POWER ON TRIAC (OUT)	BR # 18	PC 3J "CONSOLE" TAB (845)
J8-5	AUX CONTACT TRIAC (IN)	—	
J8-6	AUX CONTACT TRIAC (OUT)	—	
UNSW'D R TABS	UNSWITCHED 857AC OUT	R } TW	PC 3F R "CONTROL AC IN" TABS
UNSW'D W TABS	UNSWITCHED 857 AC RET	W } TW	PC 3F W "CONTROL AC IN" TABS
BK TABS	FRAME GROUND (857)	—	
SW'D R TABS	SWITCHED 857 AC OUT	—	
SW'D W TABS	SWITCHED 857 AC RET	—	

POWER CONTROL 3J (845) 3 PHASE POWER CONTROL

TAB	FUNCTION	COLOR	DESTINATION
SW'D W	SWITCHED NEUT OUT	W } TW	TTY PANEL SWD PLUG (7008682)
SW'D R	SWITCHED ϕA OUT	BK } TW	TTY PANEL SWD PLUG (7008682)
SW'D O	SWITCHED ϕB OUT	—	
SW'D Y	SWITCHED ϕC OUT	—	
6VAC Y	6.3 V AC OUT.	Y # 22	2S02 D1 (M908)
		Y # 18	MAINT PANEL J1-6
6VAC BK	6.3 AC RETURN	BK # 22	2S02 E1 (M908)
		BR # 18	MAINT PANEL J1-3
CON-SW BR	POWER FEED-OUT	BR # 18	PC 3H J8-2 (857)
CON-SW BR	CONTACTOR COIL IN	BR # 18	PC 3H J8-4 (857)
UNSW'D W	UNSWITCHED NEUT OUT	W	PC 3F "NEUT" (W) TABS (858)
		W	TTY PANEL UNSW'D PLUGS
UNSW'D R	UNSWITCHED ϕA OUT	R	PC 3F "ϕA" (R) TABS (858)
		R	TTY PANEL UNSW'D PLUGS
UNSW'D O	UNSWITCHED ϕB OUT	O # 18	PC 3F "ϕB" (O) TABS (858)
UNSW'D Y	UNSWITCHED ϕC OUT	Y # 18	PC 3F "ϕC" (Y) TABS (858)

MAINTENANCE PANEL (7006644)

PIN	FUNCTION	COLOR	DESTINATION
J1-1	+10V (FIXED) IN	R	PS 3B J1-2 (783C)
J1-2	-15 V (FIXED) IN	BL	PS 3B J1-1 (783C)
J1-3	TIME METER	BK # 22	845 6.3 VAC BK TAB
J1-4	+10 & 15 (FIXED) RETURN	BK	PS 3B J1-3 (783C)
J1-5	+15V IN (857 REM LAMPS)	O # 18	PC 3H J1-8 (857)
J1-6	TIME METER	Y # 22	845 6.3 VAC Y TAB
J1-7	OVERTEMP LAMP	G # 22	PC 3H J1-4 (857)
J1-8	CKT BRKR TRIPPED LAMP	Y # 22	PC 3H J1-6 (857)
J1-9	DOOR OPEN LAMP	BL # 22	PC 3H J1-5 (857)
J1-10	MONITOR VOLTAGE	P # 22	2S02 U2 (M908)
J1-11	MAR D/A OUTPUT	Y # 22	2S02 V2 (M908)
J1-12	MAR VOLTAGE	Y # 22	2S02 T2 (M908)
J1-13	MAR MANUEL EN	W # 22	2S02 R1 (M908)
J1-14	POWER SW ON LAMP	R # 22	PC 3H J1-7 (857)
J1-15	MAR VOLTAGE GND	BK # 22	2S02 L1 (M908)
J2-1	POWER SW COMMON	BK # 22	PC 3H J1-2 (857)
J2-2	POWER SW N.O.	G # 22	PC 3H J1-1 (857)
J2-3	POWER SW N.C.	R # 22	PC 3H J1-3 (857)
J2-4	—		
J2-5	—		
J2-6	—		
J2-7	—		
J2-8	—		
J2-9	—		
J2-10	—		
J2-11	+ VARIABLE IN	O	PS 3C J1-1 (H732)
J2-12	- VARIABLE IN	G	PS 3C J1-3 (H732)
J2-13	AUTOTRANS COMMON	W	PS 3C J1-10 (H732)
J2-14	AUTOTRANS LOAD	BR } TW	PS 3C J1-11 (H732)
J2-15	AUTOTRANS LINE	O	PS 3C J1-12 (H732)
J3-1	+10 MC (LT)		BC10B CABLE TO BAY 2 POWER DIST BRACKET
J3-2	-15 MC (LT)		
J3-3	GROUND (LT)		
J3-4	+ METER (LT)		
J3-5	- METER (LT)		
J3-6	-15V R.T.O. (LT)		
J4-1	+10 MC (RT)		BC10B CAB TO TD10C OR OTHER FIRST "RIGHT" PERIPHERAL CABINET
J4-2	-15 MC (RT)		
J4-3	GROUND (RT)		
J4-4	+ METER (RT)		
J4-5	- METER (RT)		
J4-6	-15V R.T.O. (RT)		
J5-1	GND (RT)		
J5-2	+5 METER (RT)		
J5-3	MAR VOLTAGE (RT)		
J6-1	GND (LT)		
J6-2	+15 METER (LT)		
J6-3	MAR VOLTAGE (LT)		

LOGIC CONNECTOR 1543 (M908)

PIN	FUNCTION	COLOR	DESTINATION
A1	—		
B1	—		
C1	—		
D1	—		
E1	—		
F1	—		
H1	—		
J1	—		
K1	—		
L1	—		
M1	—		
N1	—		
P1	—		
R1	—		
S1	—		
T1	GROUND	—	
U1	—		
V1	—		
A2	—		
B2	—		
C2	GROUND	—	
D2	THERMISTOR 1A+	W # 22	PC 3H J4-1 (857)
E2	THERMISTOR 1A-	BK # 22	PC 3H J4-2 (857)
F2	THERMISTOR 1B+	W # 22	PC 3H J4-3 (857)
H2	THERMISTOR 1B-	BK # 22	PC 3H J4-6 (857)
J2	THERMISTOR 1C+	W # 22	PC 3H J4-4 (857)
K2	THERMISTOR 1C-	BK # 22	PC 3H J4-5 (857)
L2	THERMISTOR 1D+	W # 22	PC 3H J4-7 (857)
M2	THERMISTOR 1D-	BK # 22	PC 3H J4-8 (857)
N2	THERMISTOR 1E+	W # 22	PC 3H J4-9 (857)
P2	THERMISTOR 1E-	BK # 22	PC 3H J4-12 (857)
R2	THERMISTOR 1F+	W # 22	PC 3H J4-10 (857)
S2	THERMISTOR 1F-	BK # 22	PC 3H J4-11 (857)
T2	—		
U2	—		
V2	—		

LOGIC CABLE CONNECTOR 2502 (M908)

PIN	FUNCTION	COLOR	DESTINATION
A1	—		
B1	RESTART (1) L	BL # 22	PC 3F J1-2 (858)
C1	POWER DOWN ALARM L	W # 22	PC 3F J1-1 (858)
D1	6.3 V AC IN	Y # 22	PC 3J 6.3 VAC Y TAB (845)
E1	GROUND (6.3 AC)	BK # 22	PC 3J 6.3 VAC BK TAB (845)
F1	RESTART CLR H	BL # 22	PC 3F J1-3 (858)
H1	RESTART SET H	Y # 22	PC 3F J1-4 (858)
J1	CROWBAR H (-)	BR # 22	PC 3H J4-14 (857) TW
K1	GROUND (CROWBAR +)	G # 22	PC 3H J4-13 (857) TW
L1	GROUND (MAR VOLTAGE)	BK # 22	MAINT PANEL J1-15
M1	+15 ANALOG	O # 22	PS 3A "+ OUT A" (H704)
N1	-15 ANALOG	BL # 22	PS 3A "- OUT B" (H704)
P1	GROUND (ANALOG)	BK # 22	PS 3A "- OUT A" (H 704)
R1	MAR MANUAL EN L	W # 22	MAINT PANEL J1-13
S1	+15 ANALOG (SENSE)	Y # 22	PS 3A "+ SENSE A" (H704)
T1	GROUND	—	
U1	-15 ANALOG (SENSE)	G # 22	PS 3A "- SENSE B" (H704)
V1	GROUND (ANALOG SENSE)	BK # 22	PS 3A "- SENSE A" (H704)
A2	(+5V)	—	
B2	(-15V)	—	
C2	GROUND (858 LOGIC)	BK # 22	PC 3F J1-5 (858)
D2	THERMISTOR 2A+	W # 22	PC 3F J2-1 (858)
E2	THERMISTOR 2A-	BK # 22	PC 3F J2-2 (858)
F2	THERMISTOR 2B+	W # 22	PC 3F J2-3 (858)
H2	THERMISTOR 2B-	BK # 22	PC 3F J2-6 (858)
J2	THERMISTOR 2C+	W # 22	PC 3F J2-4 (858)
K2	THERMISTOR 2C-	BK # 22	PC 3F J2-5 (858)
L2	THERMISTOR 2D+	W # 22	PC 3F J2-7 (858)
M2	THERMISTOR 2D-	BK # 22	PC 3F J2-8 (858)
N2	THERMISTOR 2E+	W # 22	PC 3F J2-9 (858)
P2	THERMISTOR 2E-	BK # 22	PC 3F J2-12 (858)
R2	THERMISTOR 2F+	W # 22	PC 3F J2-10 (858)
S2	THERMISTOR 2F-	BK # 22	PC 3F J2-11 (858)
T2	MAR VOLTAGE	Y # 22	MAINT PANEL J1-12
U2	MONITOR VOLTAGE	P # 22	MAINT PANEL J1-10
V2	MAR D TO A OUTPUT	Y # 22	MAINT PANEL J1-11

NOTES:

1. PS = POWER SUPPLY
   SPE = SERIES PASS ELEMENT
2. BK = BLACK P = PURPLE
   BL = BLUE R = RED
   BR = BROWN S = SLATE (GRAY)
   G = GREEN W = WHITE
   O = ORANGE Y = YELLOW
3. UNLESS OTHERWISE NOTED ALL WIRES ARE #14 AWG

REVISIONS	CHANGE NO.	CHK

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX ± .005 .XX ± .02 .X ± .1	± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN.		DATE 4-4-72
CHK'D.	David Stone	DATE 5 Jun 72
ENG.	Allan Kotok	DATE 5 Jun 72
PROJ. ENG.	Allan Kotok	DATE 5 Jun 72
PROD.		DATE 5 Jun 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DC WIRING CHART (BAY 3 POWER CONTROL & MISC LOGIC)

NEXT HIGHER ASSY. B-DD-KI10-0

SCALE

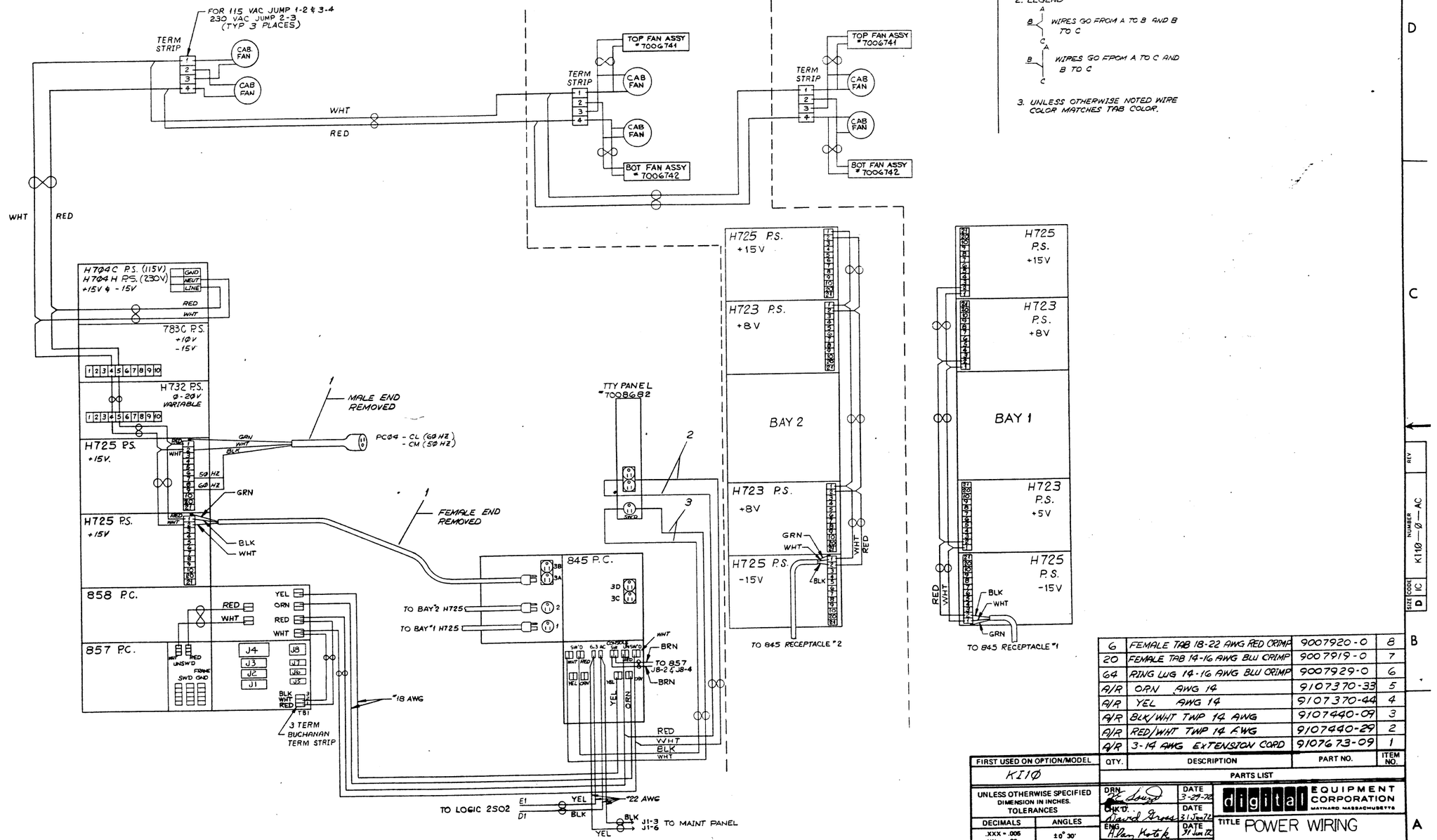
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	IC	KI10-0-3PS2	

DIST.

SIZE D CODE IC NUMBER KI10-0-3PS2 REV.

NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL WIRES ARE #14 AWG
2. LEGEND
   - A / B / C — WIRES GO FROM A TO B AND B TO C
   - A / B / C — WIRES GO FROM A TO C AND B TO C
3. UNLESS OTHERWISE NOTED WIRE COLOR MATCHES TAB COLOR.



ITEM NO.	DESCRIPTION	PART NO.	QTY.
8	FEMALE TAB 18-22 AWG RED CRIMP	9007920-0	6
7	FEMALE TAB 14-16 AWG BLU CRIMP	9007919-0	20
6	RING LUG 14-16 AWG BLU CRIMP	9007929-0	64
5	ORN AWG 14	9107370-33	A/R
4	YEL AWG 14	9107370-44	A/R
3	BLK/WHT TWP 14 AWG	9107440-09	A/R
2	RED/WHT TWP 14 AWG	9107440-29	A/R
1	3-14 AWG EXTENSION CORD	9107673-09	A/R

PARTS LIST

FIRST USED ON OPTION/MODEL: KIØ

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

		DATE
DRN	[illegible]	3-29-72
CHK'D	David Gross	31 Jan 72
ENG	Alan Kotok	31 Jan 72
PROJ. ENG.	Allen Kent	31 Jan 72
PROD	[illegible]	31 JAN 72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: POWER WIRING AC (KIØ) BAY 1 THRU BAY 3

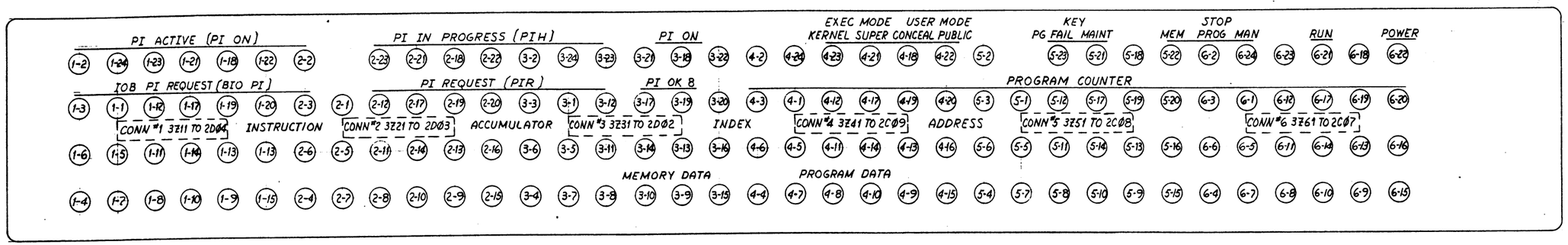
NEXT HIGHER ASSY: B-DD-KIØ-Ø
SCALE: NONE
SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	IC	KIØ—Ø—AC	

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DNC 100-A



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL //

FINISH //

DRN. P. McCullough	DATE 6-16-72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 6/30/72	
ENG. Allan Kotok	DATE 9/26/72	TITLE CONSOLE INDICATORS
PROJ. ENG. Allan Kotok	DATE 9/26/72	
PROD. [illegible]	DATE 9/26/72	

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

SCALE NONE

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	IC	KI1Ø-Ø-CONI	

DIST.

REV.	REVISIONS	CHANGE NO	CHK.

DRAWING 40-522 1968

DEC FORM NO DRD 102-8

KI1Ø-Ø-CONI

TOP OF REGULATOR STACK (BAY 2)

AIR FLOW SWITCH 1210756 — L, +, - — YEL, ORN, BLK

CKT BRKR TRIPPED L
-15V MARGIN IN

SPE 2AB	J2-13	ORN
	J2-15	GRN
SPE 2CD	J2-13	ORN
	J2-15	GRN
SPE 2EF	J2-13	ORN
	J2-15	GRN
SPE 2HJ	J2-13	ORN
	J2-15	GRN
SPE 2KL	J2-13	ORN
	J2-15	GRN
SPE 2MN	J2-13	ORN
	J2-15	GRN
SPE 2PR	J2-13	ORN
	J2-15	GRN
SPE 2ST (& 3AB)	J2-13	ORN
	J2-15	GRN

AIR FLOW SWITCH 1210756 — L, +, - — YEL, ORN, BLK

BOTTOM OF REGULATOR STACK (BAY 2)

BLU #22 — DOOR OPEN (BAY 1)

DOOR OPEN (BAY 2)

PC 3H J2-6 (857) ← BLU #22 (DOOR OPEN H)

PC 3H J2-7 (857) ← BLK #22 (GROUND)

PC 3H J2-8 (857) ← ORN #22 (CKT BRKR TRIPPED L)

PC 3H J2-5 (857) ← YEL #22 (REG STACK OK H)
(SEE D-CS-857 PRINT SET)

J1-11 J1-7 PS2A (+15V)

ORN

YEL

GRN -15 MC

ORN +10 MC

BLU -15 RTO

TO OPTIONAL DK13 IN BAY 3 — ORN #14, GRN #14
SEE D-IC-KI10-0-DET2

BC10B CABLE TO MAINT PANEL J3 "LEFT MARGIN"
(SEE D-BD-KI10-0-MAR2)

1	← 1	ORN
2	← 2	GRN
3	← 3	BLK
4	← 4	RED
5	← 5	BLU
6	← 6	BRN

BC10B CABLE

700586B POWER DIST BRACKET (BAY 2)

ALL WIRES NOT OTHERWISE NOTED ARE # 18 AWG

TOP OF REGULATOR STACK (BAY 1)

AIR FLOW SWITCH 1210756 — L, +, - — YEL, ORN, BLK

CKT BRKR TRIPPED L
-15V MARGIN IN
TYPICAL OF ALL SERIES PASS ELEMENTS

SPE 1AB	J2-13	ORN
	J2-15	GRN
SPE 1CD	J2-13	ORN
	J2-15	GRN
SPE 1EF	J2-13	ORN
	J2-15	GRN
SPE 1HJ	J2-13	ORN
	J2-15	GRN
SPE 1KL	J2-13	ORN
	J2-15	GRN
SPE 1MN	J2-13	ORN
	J2-15	GRN
SPE 1PR	J2-13	ORN
	J2-15	GRN
SPE 1ST	J2-13	ORN
	J2-15	GRN

AIR FLOW SWITCH 1210756 — L, +, - — YEL, ORN, BLK

BOTTOM OF REGULATOR STACK (BAY 1)

J1-2 J1-11 PS1A (+15V)

ORN

YEL

GRN -15 MC

ORN +10 MC

BLU -15 RTO

BC10B CABLE TO FIRST "LEFT PERIHERAL"

1	→ 1	ORN
2	→ 2	GRN
3	→ 3	BLK
4	→ 4	RED
5	→ 5	BLU
6	→ 6	BRN

700586B POWER DIST BRACKET (BAY 1)

PS1A H725 +15V	
PS1B H723 +8V	
PS1C (BLANK)	
PS1D H723 +8V	
PS1E H725 -15V	

PS2A H725 +15V	
PS2B H723 +8V	
PS2C (BLANK)	
PS2D H723 +8V	
PS2E H725 -15V	

PS3A H704C +15V & -15V	
PS3B 783C +12V & -15V	
PS3C H732 ±20V VAR	
PS3D H725 +15V	
PS3E H725 +15V	
PC3F 858 AUX POWER CONTROL	
PC3H 857 POWER CONTROL	

PC3J 845 3Ø POWER CONTROL

BAY 1 TOP HARNESS	7007067
BAY 1 BOT HARNESS	7007068
BAY 2 TOP HARNESS	7007069
BAY 2 BOT HARNESS	700707Ø
BAY 3 HARNESS	7007071
858/857 P.C. HARNESS	7007073

J1 J2

J2 J1

CONNECTOR LOCATION ON H723 & H725 POWER SUPPLIES

ITEM	CONNECTOR	MATES WITH
	2SØ2	858/857 HARNESS P1
	2TØ2	TTY PANEL HARNESS P1
783C	PS3B J1	BAY 3 HARNESS J5
H732	PS3C J1	BAY 3 HARNESS J4
H725 +15V	PS3D J1	NO CONNECTION
	PS3D J2	BAY 3 HARNESS J3
H725 +15V	PS3F J1	BAY 3 HARNESS J2
	PS3E J2	BAY 3 HARNESS J1
858 AUX PWR CONTROL	PC3F J1	858/857 HARNESS 858 J1
	PC3F J2	858/857 HARNESS 858 J2
	PC3F J3	858/857 HARNESS 858 J3
857 POWER CONTROL	PC3H J1	858/857 HARNESS 857 J1
	PC3H J2	858/857 HARNESS 857 J2
	PC3H J3	858/857 HARNESS 857 J3
	PC3H J4	858/857 HARNESS 857 J4
	PC3H J5	EXTERNAL PWR CONT BUS CABLE
	PC3H J6	EXTERNAL PWR CONT BUS CABLE
	PC3H J7	EXTERNAL PWR CONT BUS CABLE
	PC3H J8	UNIT ASSY WIRING TO 845 CON SW
MAINT PANEL	MP J1	BAY 3 HARNESS MAINT PNL J1*
	MP J2	BAY 3 HARNESS MAINT PNL J2*
	MP J3	BC10B TO BAY 2 PWR DIST BRKT
	MP J4	BC10B TO TD10C
	MP J5	—
	MP J6	—

ITEM	CONNECTOR	MATES WITH
H725 +15V	PS1A J1	BAY 1 BOT HARNESS J5
	PS1A J2	BAY 1 TOP HARNESS J5
H723 +8V	PS1B J1	BAY 1 TOP HARNESS J7
	PS1B J2	BAY 1 TOP HARNESS J6
H723 +8V	PS1D J1	BAY 1 BOT HARNESS J6
	PS1D J2	BAY 1 BOT HARNESS J7
H725 -15V	PS1E J1	BAY 1 TOP HARNESS J8
	PS1E J2	BAY 1 BOT HARNESS J8
	SPE 1AB J2	BAY 1 TOP HARNESS J4
	SPE 1CD J2	BAY 1 TOP HARNESS J3
	SPE 1EF J2	BAY 1 TOP HARNESS J2
	SPE 1HJ J2	BAY 1 TOP HARNESS J1
	SPE 1KL J2	BAY 1 BOT HARNESS J4
	SPE 1MN J2	BAY 1 BOT HARNESS J3
	SPE 1PR J2	BAY 1 BOT HARNESS J2
	SPE 1ST J2	BAY 1 BOT HARNESS J1
	1S43	858/857 HARNESS P2
H725 +15V	PS2A J1	BAY 2 BOT HARNESS J5
	PS2A J2	BAY 2 TOP HARNESS J5
H723 +8V	PS2B J1	BAY 2 TOP HARNESS J7
	PS2B J2	BAY 2 TOP HARNESS J6
H723 +8V	PS2D J1	BAY 2 BOT HARNESS J6
	PS2D J2	BAY 2 BOT HARNESS J7
H725 -15V	PS2E J1	BAY 2 TOP HARNESS J8
	PS2E J2	BAY 2 BOT HARNESS J8
	SPE 2AB J2	BAY 2 TOP HARNESS J4
	SPE 2CD J2	BAY 2 TOP HARNESS J3
	SPE 2EF J2	BAY 2 TOP HARNESS J2
	SPE 2HJ J2	BAY 2 TOP HARNESS J1
	SPE 2KL J2	BAY 2 BOT HARNESS J4
	SPE 2MN J2	BAY 2 BOT HARNESS J3
	SPE 2PR J2	BAY 2 BOT HARNESS J2
	SPE 2S (& 3BB) J2	BAY 2 BOT HARNESS J1

* ALSO HAS WIRES FROM 858/857 HARNESS

NOTE:
SEE D-BD-KI10-0-MR2 FOR LOCATION OF THERMISTERS IN LOGIC

REVISIONS			
CHK	CHANGE NO	REV	
	KI10-00025	A	Shirley KENT
	KI10-00037	B	A KENT

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRWN W. Stephenson — DATE 5/4/72
CHK'D. David Gross — DATE 5/10/72
ENG. Wm Kotok — DATE 5/10/72
PROJ. ENG. Wm Kotok — DATE 5/10/72
PROD. M Mullins — DATE 5/10/72

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø
SCALE —
SHEET 1 OF 1

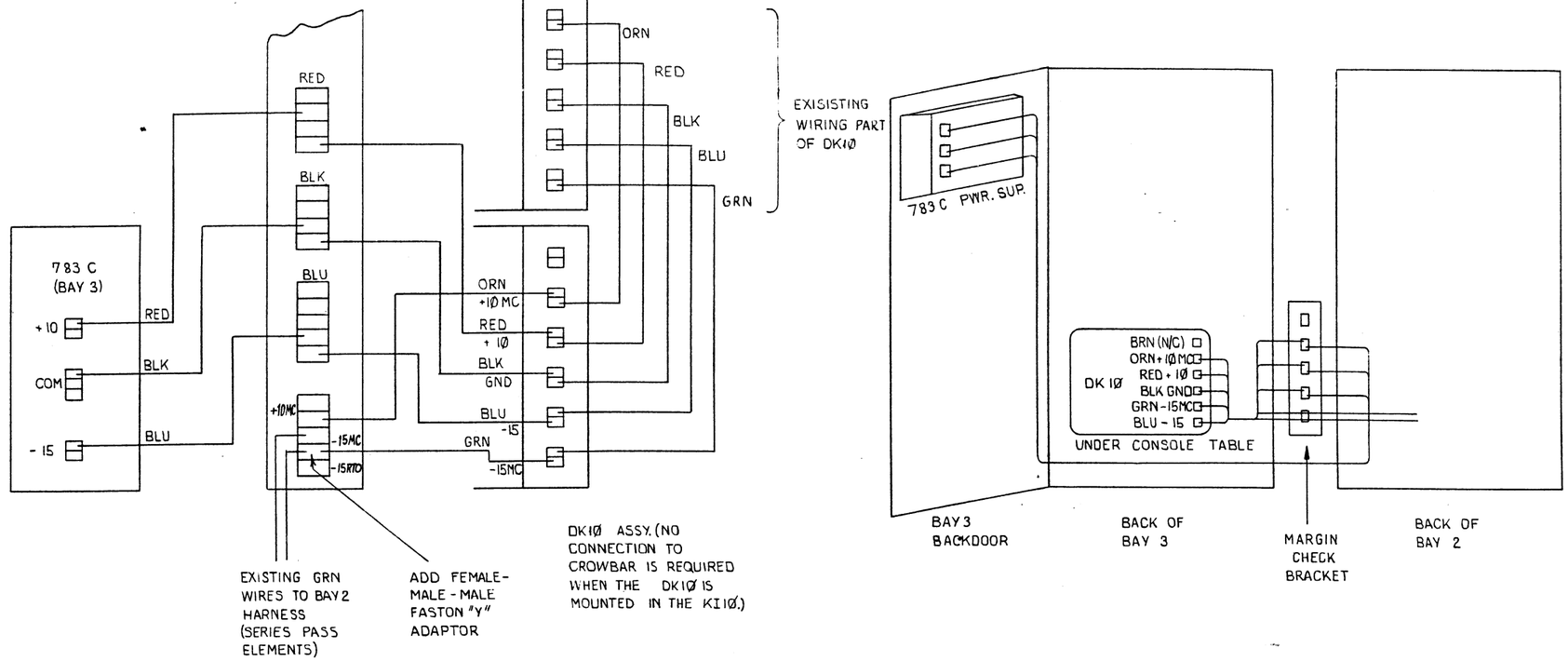
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DC WIRING (BAY 1, 2 & 3 DETAILS)

SIZE D | CODE | NUMBER IC KI1Ø-Ø-DET | REV. E
DIST

DEC FORM NO DRD 102-B
BRUNING 40-522 15840

BAY 2 MARGIN CHECK BRACKET (70053681) BETWEEN BAY 2 & 3



ALL WIRING IS 14 AWG STRANDED

REVISIONS			
CHK	CHANGE NO.	REV.	
—	K10-00025 ORIGINATED	—	

DRAWING 40-1477 12988

DEC FORM NO DRD 100-A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
K10		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. Bradley	DATE 11.7.72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. R Gillette	DATE 11-10-72	
ENG. Allan Kent	DATE 15 Nov 72	
PROJ. ENG. Allan Kent	DATE 15 Nov 72	
PROD. Allan Kent	DATE 15 Nov 72	

NEXT HIGHER ASSY. B-DD-K10-0

SCALE NONE

SHEET 1 OF 1

TITLE: DC WIRING (DK10)

SIZE	CODE	NUMBER	REV.
D	IC	K10-0-DET2	—

DIST.

1X11-1A43	BLT F1 T0 T1 T2 T3 T4 T5 T6 T7 T8 T9 BYF5 BYF6 · DFA T1 T2 T3 T4 T5 · DFD F1 T1 · 0 9 10 11 · ADX 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	1X21-1B42
1X12-1A42	DFD T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 · DFM T1 T2 T3 · DMOVE T1 · DMOVN T1 T2 T3 · DN T1 T2 · 0 9 10 11 · APX 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	1X22-1B41
1X13-1A41	DN T3 T4 T5 T6 T7 T8 T9 · DS F2 T1 T2 T3 · E T4 T5 T6 · FA T0 T1 T2 · ADX ENABLES T1 T2 T3 FM+ FM− FM+2 BR− · ADX ADD · ADX EQV · AD ENABLES AR+ AR− MB MSK GEN BR+ BR− BR+2 FM+ FM− MAGIC IOB · PFT3 · AD ADD · AD EQV · AD +1 LT · AD CRY36 · BR SIGN SMEAR · MAGIC #+1 · SAC BR FF · FLAG 1 2 3	1X23-1C42
1X14-1B43	FA T4 · FD T0 T1 T2 T3 T4 T5 T6 T7 · FIX T1 T2 · FM T1 T2 · F T1 T2 T3 T4 T5 T6 T7 T8 · I T0 T1 T2 · JFFO T1 · PC CLK EN · NR T1 T2 T3 T4 T5 T6 · SC T1 T2 · SR T1 · S T1 T2 T3 T4 T5 · XCTF · XCTP RD WR ACTIVE · TRAP CYC · TN 0 1 · TRAP PAGE FAULT	1X24-1C41
1X15-2H04	AM ADR 0 1 2 3 4 · EXEC PAG'G · ~18 ~19 ~20 ~21 ~22 ~23 ~24 ~25 ~26 · AM · WORD EMPTY · SPARE · KEY DEP CYC · AB 14 15 16 17 · MA AC REF LATCH · MA RQ RQ · MA WR RQ · MA SEQ RQ · MA 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	1X25-2H03

KI10 BAY 1
REV.- A

2X11-1E42	AD 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 · SCAD SC+ · SCAD SC− · SCAD FE · SCAD 0 1 2 3 4 5 6 7 8	2X21-1J39
2X12-1E43	AR 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 · SCAD AR EXP · SCAD AR POS · SCAD −SIZE · SCAD DATA 0 1 2 3 4 5 6 7 8	2X22-1J40
2X13-1D41	BR 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 · SCAD DATA · SCAD ADD · SCAD EQV · SC 0 1 2 3 4 5 6 7 8	2X23-1J41
2X14-1D42	MQ 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 · SCAD +1 · SCAD +1 INH · INST FETCH NEXT · FE 0 1 2 3 4 5 6 7 8	2X24-1J42
2X15-1D43	FM 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 · IR IR · IR MB · INST DONE · AR FLAGS CRY0 CRY1 FOV FXU FXU HOLD OV DCK · CLOCK LONG CYC · INH	2X25-1F42

KI10 BAY 2
REV.- A

3X11-2F05	IOB-PTR 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 · FM ADR 0 1 · SMALL USER · USER ADR COMP · UBR 14 15 16 17 18 19 20 21 22 23 24 25 26 · TRAP ENABLE · EBR 14 15 16 17 18 19 20 21 22 23 24 25 26 · MB-UEBR 27 28 29 30 31 32 33 34 35 · MC SPEC · SPEC UBR · AR AD FF · MB FM · CYC REQD · UNTIMED CYC · FM ADR MA · FMC STORE IN AC · FM SEL 0 1 · FMA KEY CYC · KEY RPT SYNC	3X21-2E03
3X12-2F06	PI RDY SYNC · CYC RDY · CYC · ACT · OV · OVERT INDIR · KEY RDI SETUP · PI FCN 3 4 5 · PI NORM CYC · PI T1 T2 T3 · PIC T0 · AB AB AD AS PC · MA MA · PC+1 INH · PF SYNC T1 T2 F1 T4 · USER IOT · FCE2 WAIT SYNC · INST RDY · MUUO F1 F2 · MC ASYNC START · IN FET START · FCE2 START · PSDO IN FET · STOP SYNC · WR SUBR START · MEM GO · GO INH · MC SPLIT CYC SYNC · MC MB POST CLR · KEY LATCH SYNC IDLE CLK RUN G · SNG PLS SYNC · CYCLE	3X22-2E04
3X13-2F07	IOB PI · IOT RESET SYNC · IOS EN · DATA TIME · BLKX SKIP · IOT T0 T1 T2 T5 T6 T7 T8 T9 · IOT TIMER A B C D · PAR BIT ERR IGN · PAGE REFILL ERR · SYNC REFILL · PAGE LAST MUUO PUB · PAGE PRIV INST · PAGE REFILL CYC · COMP AC WR · MEM RD · SYNC AB=AS · ASYNC AB=AS · MC STORE IN AC · MC SYNC RD · RD HOLD · WR · WR HOLD · MC PAR SYNC · MC WR CYC IN PROG · ADR ACK 1 2 · DATA WARN 1 2 · MC REQ CYC · KEY RDI FFO · RDY SYNC · RDI FF1 · K T1 T2 T3	3X23-2E05
3X14-2J03	SPEED MAR · WRITE EVEN PAR · HI SPEED · MAR PROG EN · AMAC EQUAL REF · AM ANY MATCH · PTR BIN · PWR · EN · PTR CNT 0 1 2 · PTR TAPE SYNC · TAPE · DATA PHASE · PTP BIN · PTP HOLE 8 7 6 5 4 3 2 1 · SPIKE DET · TTI 8 7 6 5 4 3 2 1 · TTY TEST · ACTIVE · ACTIVE LATE · SHIFT · TTO STOP 2 · STOP 1 · 8 7 6 5 4 3 2 1 · LINE	3X24-2F03
3X15-2J04	PI GEN 1 2 3 4 5 6 7 · COMP ADR BRK INH · FLAGS I/O PF · NXM · PWR FAIL · TIMER FLAG · EN · PAR ERR FLAG · EN · DATA PHASE · APR ERR PIA 30 31 32 · APR CLK FLAG · EN · APR CLK PIA 33 34 35 · PTR BUSY · DONE · PTR PIA 33 34 35 · PTP BUSY · DONE · PTP PIA 33 34 35 · TTI BUSY · DONE · TTO BUSY · DONE · TTY PIA 33 34 35 · KEY RDI DATA WAIT · PF WORD EMPTY · PF HOLD USER 31 32 33 34 35	3X25-2F04

KI10 BAY 3
REV.- A

FIRST USED ON OPTION/MODEL: KI10	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. W. Stephenson	DATE 6/21/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 31 Jan 72	TITLE: BAY 1, 2 & 3 INDICATORS
ENG. Allan Kotok	DATE 31 Jan 72	
PROJ ENG. Allan Kent	DATE 31 Jan 72	
PROD. [illegible]	DATE [illegible]	
NEXT HIGHER ASSY. B-DD-KI10-Ø		SIZE D · CODE IC · NUMBER KI10-Ø-INDL · REV.
SCALE ½		
SHEET 1 OF 1		DIST.

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40-522 15M0
DEC-10PM-NO
ORD 102-B

SIZE D · CODE IC · NUMBER KI10-Ø-INDL · REV

FM MANUAL | FM BLOCK Ø 1 | SENSE SWITCHES 1 2 3 4 5 6

1-3 | 1-5 | 1-8 | 1-9 | 2-1 | 2-3 | 2-5 | 2-8 | 2-9

CONNECTOR #1 3Y11 TO 2DØ8 — CONNECTOR #2 3Y21 TO 2DØ7

MI PROG DIS | MEM OVERLAP DIS | SING PULSER | MARGIN ENABLE | MANUAL MARGIN Ø 1 2 3 4

1-1 | 1-2 | 1-4 | 1-6 | 1-7 | 2-2 | 2-4 | 2-6 | 2-7

CONNECTOR #3 3Y12 TO 2E02 — CONNECTOR #4 3Y22 (NOT USED)

READ IN DEVICE 3 4 5 6 7 8 9

3-2 | 3-4 | 3-6 | 3-7 | 3-9 | 3-1 | 3-8

CONSOLE LAMP TEST | LOCK | DATA LOCK | POWER

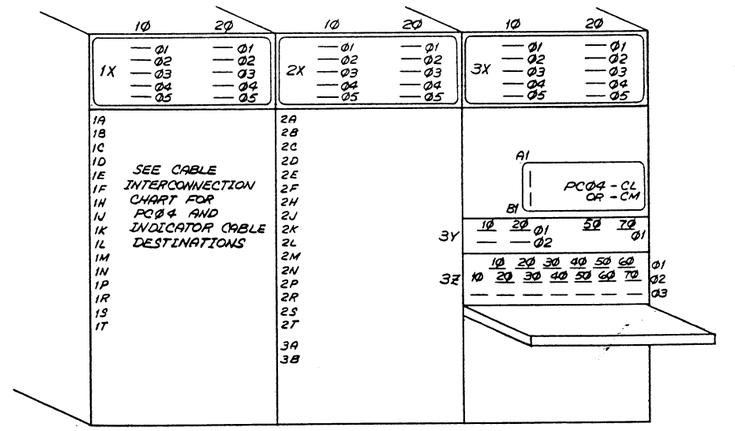
1-4 | 1-2 | 1-1 | 1-3

CONNECTOR 3Y51 TO 2DØ6

MAINTENANCE PANEL SWITCHES

IND SELECT | SPEED CONTROL COARSE | FINE

CONNECTOR 3Y71 TO 2DØ5



MISC SLOT LOCATIONS

PAGING EXEC | USER

2-8 | 2-9

CONNECTOR #2 3Z22 TO 2C04

ADDRESS SWITCHES

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

4-3 | 4-5 | 4-6 | 4-8 | 6-3 | 6-5 | 6-8 | 6-9 | 6-7 | 8-3 | 8-5 | 8-6 | 8-8 | 10-3 | 10-5 | 10-8 | 10-9 | 10-7 | 12-3 | 12-5 | 12-6 | 12-8

CONNECTOR #4 3Z32 TO 2B05 — CONNECTOR #6 3Z42 TO 2BØ3 — CONNECTOR #8 3Z52 TO 2A06 — CONNECTOR #10 3Z62 TO 2A04 — CONNECTOR #12 3Z72 TO 2A02

ADDRESS CLEAR | LOAD

12-9 | 12-7

DATA SWITCHES

Ø 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

1-4 | 1-2 | 1-1 | 1-3 | 1-5 | 1-8 | 1-9 | 1-7 | 1-6 | 2-1 | 2-2 | 2-4 | 3-8 | 3-9 | 4-1 | 4-2 | 5-5 | 5-8 | 6-1 | 6-2 | 6-4 | 7-8 | 7-9 | 8-1 | 8-2 | 9-5 | 9-8 | 10-1 | 10-2 | 10-4 | 11-8 | 11-9 | 12-1 | 12-2 | 13-5 | 13-8

CONNECTOR #1 3Z13 TO 2C06 — CONNECTOR #3 3Z23 TO 2C05 — CONNECTOR #5 3Z33 TO 2C03 — CONNECTOR #7 3Z43 TO 2B04 — CONNECTOR #9 3Z53 TO 2B02 — CONNECTOR #11 3Z63 TO 2A05 — CONNECTOR #13 3Z73 TO 2A03

DATA CLEAR | LOAD

13-9 | 13-7

SING INST | SING PULSE | STOP PAR | STOP NXM | REPEAT

3-7 | 5-1 | 5-2 | 5-4 | 5-6

INST FETCH | DATA FETCH | WRITE | ADR STOP | ADR BREAK

7-2 | 7-4 | 7-6 | 7-7 | 9-1

READ IN | START | CONT | STOP | RESET | XCT | EXAMINE THIS | NEXT

9-4 | 9-6 | 11-1 | 11-2 | 11-4 | 11-6 | 11-7 | 13-1

DEPOSIT THIS | NEXT

13-4 | 13-6

CONSOLE SWITCHES

FM MAN | FM BLOCK Ø 1 | SENSE SWITCH 1 2 3 4 5 6

CONN #1 PIN H2 — CONN #2 PIN H2

MI PROG DIS | MEM OVERLAP DIS | SING PULSER | MAR EN | MAN MAR Ø 1 2 3 4 ADR

CONN #1 PIN V1 #2 PIN V1

READ IN DEVICE 3 4 5 6 7 8 9

CONN #3 PIN H2 & V1

ENABLING LINES

PAGING EXEC USER 14 15 16 17 — CONN #2 PIN H2 #4 PIN V1

18 19 20 21 22 23 24 25 26 — CONN #6 PIN H2 #8 PIN V1

27 28 29 30 31 32 33 34 35 CLEAR LOAD — CONN #10 PIN H2 #12 PIN V1

Ø 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 — CONN #1 PIN H2, N2, V1 — CONN #2 PIN V1 #4 PIN H2

18 19 20 21 22 23 24 25 26 — CONN #6 PIN V1 #8 PIN H2

27 28 29 30 31 32 33 34 35 CLEAR LOAD — CONN #10 PIN V1 #12 PIN H2

SING INST | SING PULSE — CONN #3 PIN V1 #5 PIN H2

STOP PAR | STOP NXM | REPEAT — CONN #3 PIN H2 #5 PIN V1

INST FETCH | DATA FETCH | WRITE — CONN #7 PIN H2 #9 PIN V1

ADR STOP | ADR BREAK — CONN #7 PIN V1 #9 PIN H2

READ IN | START — CONN #7 PIN H2 #9 PIN V1

CONT | STOP | RESET | XCT — CONN #11 PIN H2 #13 PIN V1

EXAMINE THIS | NEXT — CONN #11 PIN V1 #13 PIN H2

DEPOSIT THIS | NEXT — CONN #11 PIN H2 #13 PIN V1

SWITCH

13-5

NUMBER INSIDE BOX IS THE CONNECTOR IT COMES FROM FOLLOWED BY THE "SECTION" OF THE CONNECTOR

SWITCH CABLE PIN TABLE

SECTION	NO	NC	LAMP
1	A1	C1	B1
2	F1	H1	E1
3	D2	F2	E2
4	K1	L1	J1
5	L2	K2	J2
6	N1	P1	M1
7	S1	U1	R1
8	R2	S2	P2
9	T2	U2	V2

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL: KI/Ø

QTY. | DESCRIPTION | PART NO. | ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005	±0° 30'
.XX = .02	
.X = .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. W. Stephenson	DATE 5/5/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. David Gross	DATE 5/24/72	
ENG. Stan Kotik	DATE 9/11/72	
PROJ. ENG. Dan Post	DATE 9/11/72	
PROD. J. Mauthner	DATE 9/26/72	

TITLE: SWITCH AND CONNECTOR LAYOUT

NEXT HIGHER ASSY. B-DD-KI1Ø-Ø

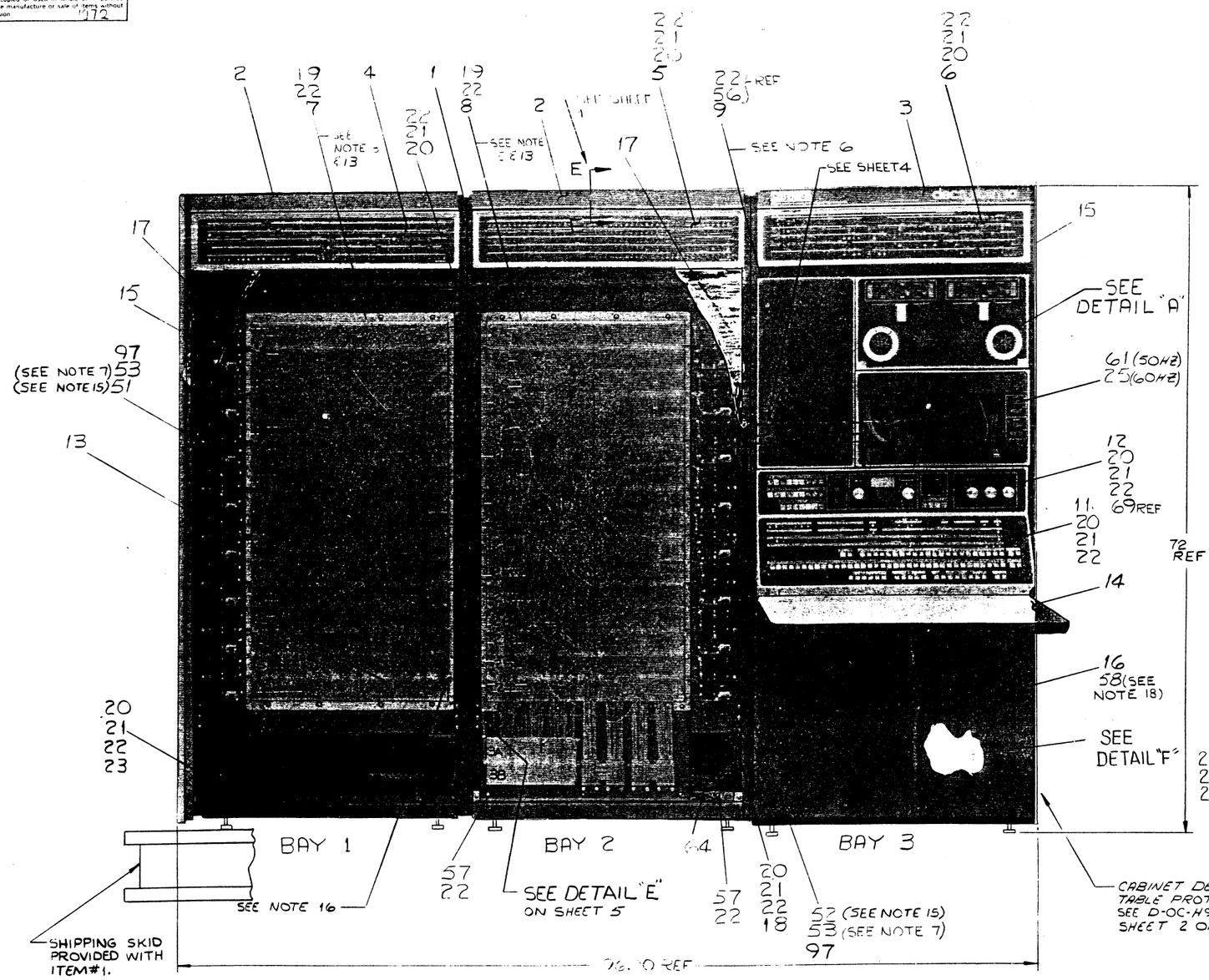
SCALE NONE

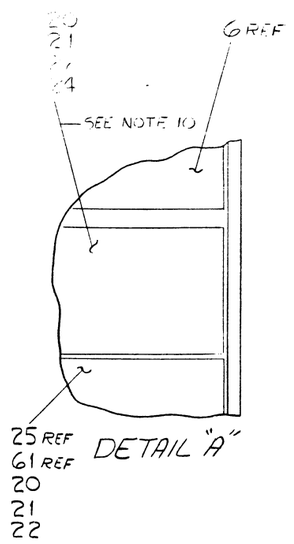
SHEET 1 OF 1

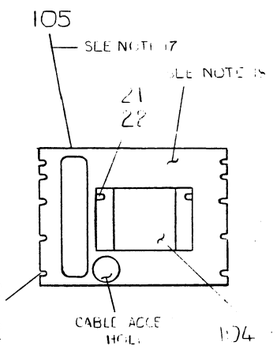
SIZE D | CODE IC | NUMBER KI1Ø-Ø-SCL | REV.

DIST.

SIZE D | CODE IC | NUMBER KI1Ø-Ø-SCL | REV







NOTES:

1. FOR DRAWING DIRECTORY LIST REFER TO D-DC-KIIØ-Ø.
2. FOR ASSEMBLY INSTRUCTIONS REFER TO D-OC-H95Ø-Ø-Ø,D-OC-H951-Ø-Ø,D-OC-H952-Ø-Ø,D-OC-H955-Ø-Ø.
3. REMOVE HANDLES FROM LOGIC ASSY'S ITEMS "7 & "8 2 PLACES TOP & BOTTOM) WHEN INSTALLING TO COOLING ASSY
4. TELETYPE ITEM 86 (50 HZ) OR 87 (60HZ) & HARN ITEM #8 NOT SHOWN ON ASSY.
5. REMOVE [illegible] ITEM# TOP, RIGHT & LEFT SIDE) WHEN INSTALLING TO COOLING ASSY
6. FOR INSTALLATION OF PHONE REFER TO EME-7001609-Ø-Ø NOTE 12
7. ITEM#52 CONNECTS REAR OF SERIES PASS ELEMENT TO G850 MODULE (32 PLACES).
8. ~~TELETYPE MODULE M908 (PART OF ITEM 27 OR 59) PLUGS INTO SLOT 2T02 ON PWR#2.~~
9. ATTACH GND CABLE (PART OF ITEM #27 OR 59 TO 5/16-18 STUD LOCATED IN BOT. OF ENY 3 CAB WITH ITEM 60.
10. D-UA-TU56-Ø-Ø IS OPTIONAL EQUIP IN AREA WHERE ITEM 24 IS USED.
11. ~~DECAL ITEM #58 MOUNTS ON INSIDE OF DOOR ITEM #16~~
12. FOR INSPECTION PROCEDURE REFER TO A-II-KIIØ-Ø-6
13. ADD EXTERNAL COMPONENTS PER B-CP-KIIØ-Ø-EC
14. ADD AC WIRING PER D-IC-KIIØ-Ø-AC
15. TACK SOLDER PWR CONNECTIONS TO LOGIC AFTER SLIPPING A 1 INCH PIECE OF SLEEVING, ITEM#97, OVER EACH WIRE. THEN SLIDE SLEEVING DOWN OVER THE LOGIC PINS. DO NOT USE A HEAT GUN ON OR NEAR THE LOGIC. SEE DETAILS "C" "E" ON SHEET 5.
16. ADD LAMPS ITEM#48 BETWEEN PINS A2 & C2 AT SLOT 1A44 THRU 1T44; 2A01 THRU 2N01; 2S01 & 2T01; AND 3A20 & 3R20.
17. ITEM #105 MOUNTS DIRECTLY OVER ITEM 27 OR 59 USING SAME MOUNTING HARDWARE.
18. DECAL ITEM #58 MOUNTS ON BACK OF ITEM #16 WHEN PROVIDED UNLESS IT MOUNTS ON INSIDE OF DOOR ITEM #16
19. TELETYPE MODULE M908 (PART OF ITEM 27 OR 59) PLUGS INTO SLOT 2T02 PWR#2 THIS HARNESS IS TO BE ROUTED SEPARATELY FROM ALL OTHER HARNESSES. SEE SECTION F-F (2ND) SHT 6.

REVISIONS			
REV	CHANGE NO	DESCRIPTION	DATE
A	[illegible]	[illegible]	[illegible]

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KIIØ		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX .005	±0° 30'
XX .02	
X .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. KENT	DATE 12 26 71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D [illegible]	DATE 12/27/72	
ENG. [illegible]	DATE 12/27/72	
PROJ. ENG. [illegible]	DATE [illegible]	
PROD. [illegible]	DATE [illegible]	

NEXT HIGHER ASSY. R-DL-KIIA-Ø

SCALE NONE

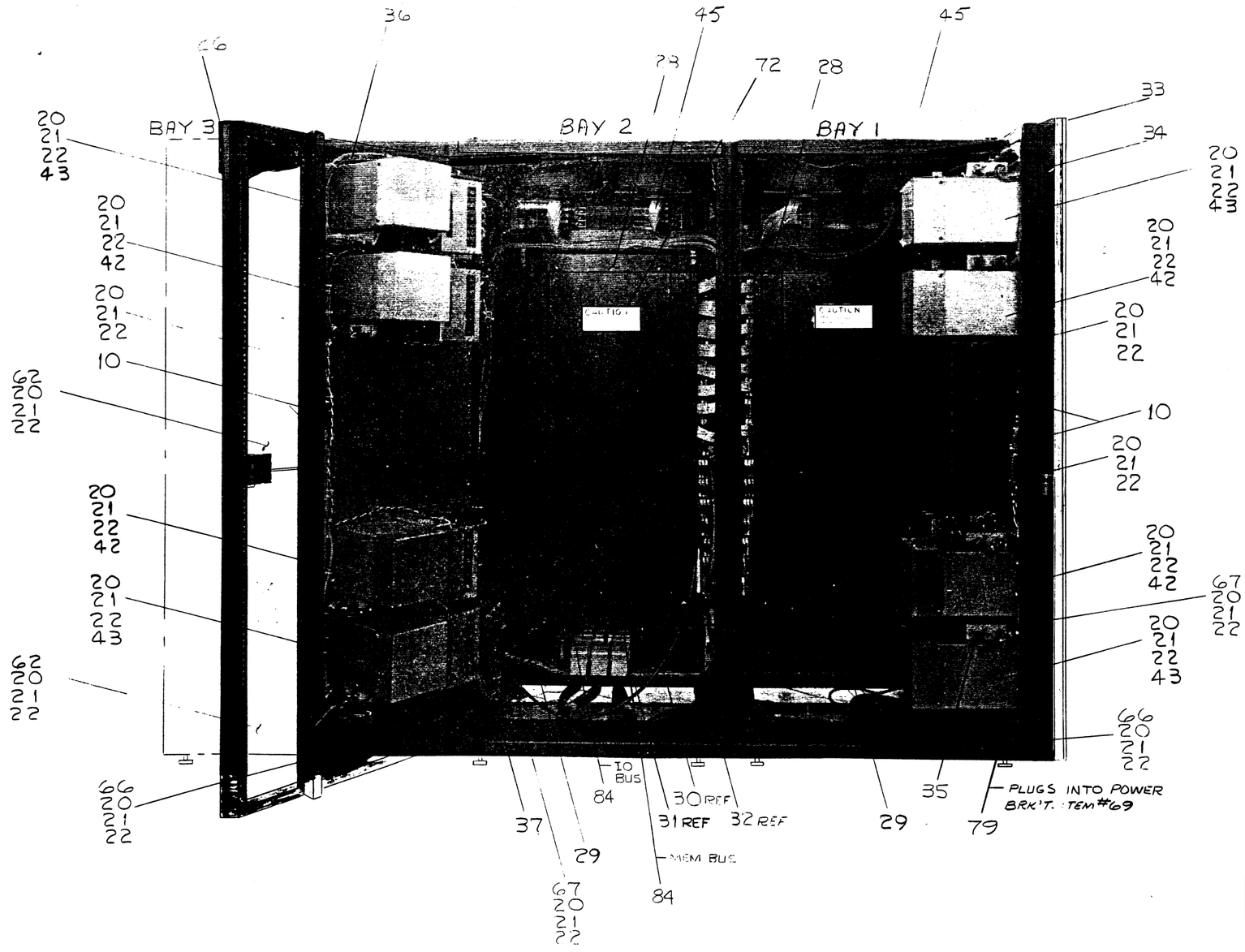
SHEET 1 OF 6

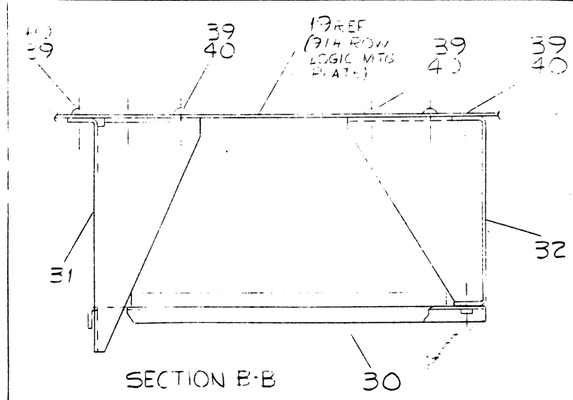
TITLE: ARITHMETIC PROCESSOR KIIØ ASSY

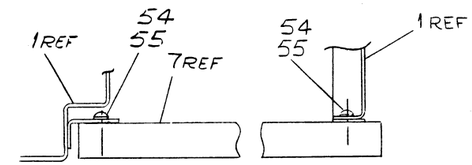
SIZE	CODE	NUMBER	REV
D	UA	KIIØ-C-C	B

DIST

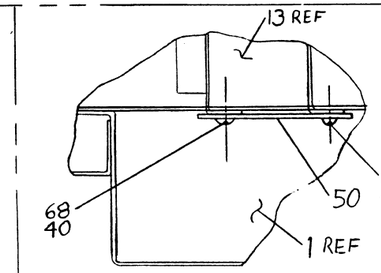
SIZE CODE D UA KIIØ-Ø-Ø REV B







SECTION A-A
(2 PLACES (BAY 1))
(2 PLACES (BAY 2))



SECTION C-C

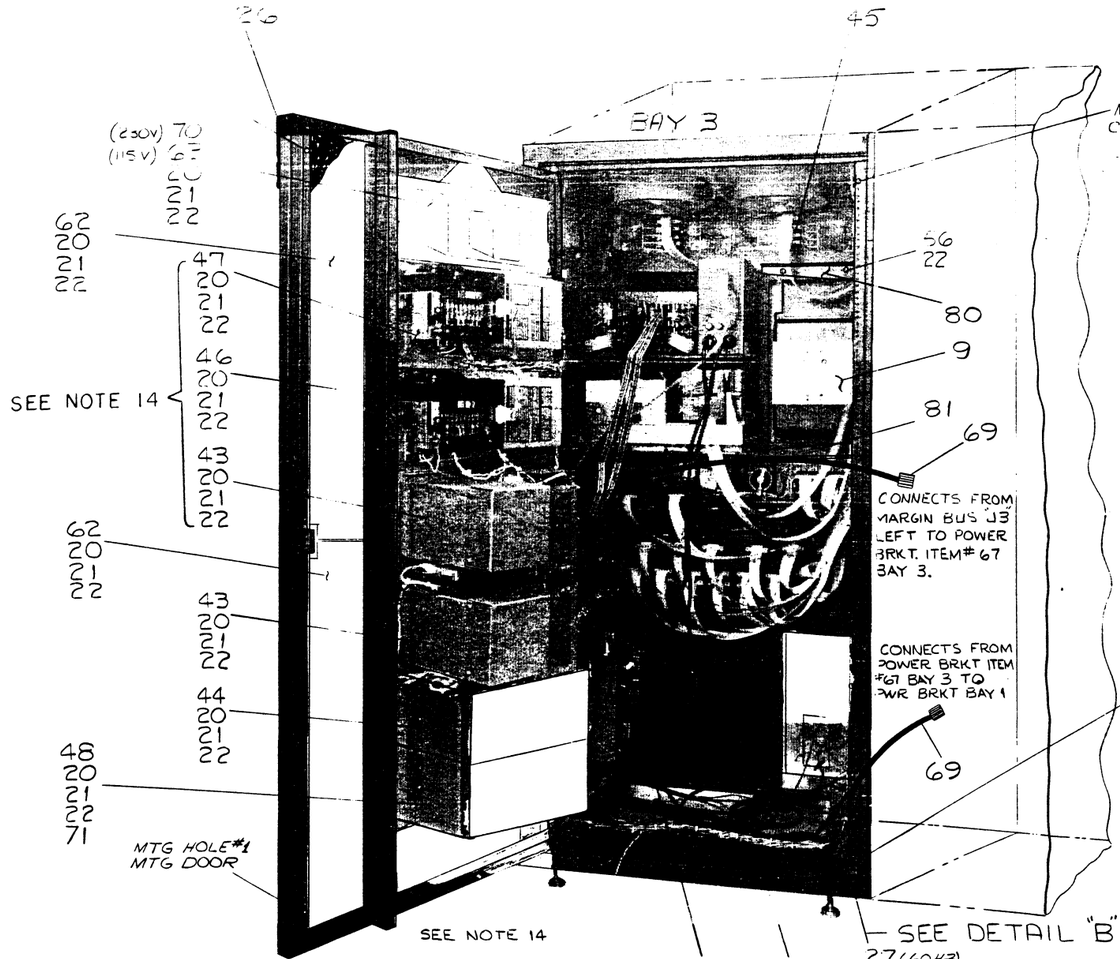
REVISIONS

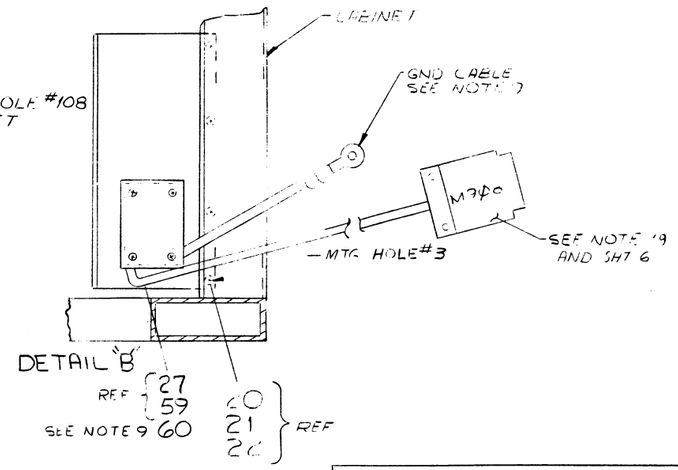
REV	CHANGE NO	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. W. Hoffman	DATE 2/20/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D	DATE 4/24/72	
ENG.	DATE	
PROJ. ENG. Mac Kent	DATE 7/11/72	TITLE ARITHMETIC PROCESSOR KI1Ø ASSY
PROD.	DATE 7/3/72	
NEXT HIGHER ASSY. —		SIZE D · CODE 1A · NUMBER KI10-0-C · REV. B
SCALE NONE		
SHEET 2 OF 6		DIST.





LOCATION OF SPEED NUTS ITEM 20

BAY 3 LEFT SIDE		BAY 3 RIGHT SIDE	
FRONT	REAR	FRONT	REAR
12,28,42,46,51,56, 61,63,64,99,100	12,28	10,26,42,46, 51,56,61	10,26

BAY 3 FRONT		BAY 1 L. SIDE	BAY 2 R SIDE
RIGHT	LEFT	FRONT & REAR	FRONT & REAR
34,66,70,75,79 87,97,100,103,107	32,25,32,34,100 103,107	7,10	7,10

BAY 1 FRONT		BAY 2 FRONT	
RIGHT	LEFT	RIGHT	LEFT
4,10,100,103,107	4,10,100,103,107	10,100,103,107	100,103,107

MOUNTING PANEL DOOR HOLE LOCATIONS BAY 3

LEFT SIDE	RIGHT SIDE
1,14,19,26,32,42,47,57,62,76, 77,87,92,96	1,14,19,26,32,42,47,57,62,76, 77,87,92,96

MOUNTING PANEL DOOR HOLE LOCATIONS BAY 1 & 2

LEFT SIDE	RIGHT SIDE
3,10,15,25,30,40,45,55,60,70 75,85,90,100	3,10,15,25,30,40,45,55,60, 70,75,85,90,100

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KI1Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0°30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. W. Hunt — DATE 6-20-72
CHK'D — DATE 6/26/72
ENG — DATE 6/27/72
PROJ ENG. Wm. Kotz — DATE 24 Aug 72
PROD. — DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ARITHMETIC PROCESSOR KI1Ø ASSY

NEXT HIGHER ASSY. —
SCALE NONE
SHEET 3 OF 6

SIZE D | CODE 04 | NUMBER KI1Ø-C-Ø | REV. E
DIST.

REVISIONS: REV. | CHANGE NO | CHK

REV E | NUMBER KI1Ø-Ø-Ø | SIZE D | CODE 04

	SIGNAL	MOD. TYPE	LOC.	PRINT	SWITCH SETTING & (SECTION)	DLY ADJ.	MFG CHECKOUT PROCEDURE	ADJUSTMENT PROCEDURE (* = See Picture)
1	MC IMM REQ EN	M321	3B06	MCTN	JUMPER	150 ns	I 5.9	JUMPER 3BØ6D2 - 3BØ6K1 AND REMOVE MODULE if fastest "Immediate" memory has ADR ACK time greater than 15Ø ns
2	MC FAST REQ EN	M321	3B07	MCTN	JUMPER	150 ns	I 5.9	JUMPER 3BØ7D2 - 3BØ7K1 AND REMOVE MODULE if fastest "Fast" memory has ADR ACK time greater than 15Ø ns
3	*CLK A, A1	M362	1H16	CLK	N/A	28ns	II 2.1	Sync. Pos. with Ch #1 on 1F33E1 and Ch #2 on 1H16K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
4	*CLK B, B1	M362	1M24	CLK	N/A	28ns	II 2.1	Sync. Pos. with Ch #1 on 1F33E1 and Ch #2 on 1M24K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
5	*CLK C, C1	M362	1F35	CLK	N/A	28ns	II 2.1	Sync. Pos. with Ch #1 on 1F33E1 and Ch #2 on 1F35K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
6	*CLK Drive C1, C2	M362	2E2Ø	CLK	N/A	28ns	II 2.1	Sync Pos. with Ch #1 on 1H16K2 and Ch #2 on 2E2ØK2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
7	*CLK Drive D1, D2	M362	2C22	CLK	N/A	28ns	II 2.1	Sync. Pos. with Ch #1 on 1H16K2 and Ch #2 on 2C22K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
8	*CLK Drive A1, A2	M362	1D17	CLK	N/A	28ns	II 2.1	Sync. Pos. with Ch #1 on 1H16K2 and Ch #2 on 1D17K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
9	*CLK Drive B1, B2	M362	1F17	CLK	N/A	28ns	II 2.1	Sync. Pos. with Ch #1 on 1H16K2 and Ch #2 on 1F17K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
1Ø	*CLK 11Øns	M363	1E32	CLK	N/A	11Øns	II 2.1	Sync. Pos. with Ch #1 on 1H16K2 ADJ. Ch #1 for Proper Frequency
11	*AD CLK	M362	1R23	ADC1	N/A	28ns	II 2.1	Sync. Positive Ch #1 on 1H16K2 and Ch #2 on 1R23K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
12	MR PWR CLR EN	M3Ø7Ø	2E28	MR1	1 (2)	1Øms	II 5.4	Sync. Pos. with Ch #1 on 2E28M1 and Ch #2 on 2E28F2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
13	MR RESTART DLY	M3Ø7Ø	2C34	MR1	1 (1)	1Øms	II 5.4	Sync. Pos. with Ch #1 on 2C34L1, Ch #2 on 2C34E2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
14	MR PWR CLR	M4Ø1	2C43	MR1	N/A	5ØØKHz	II 5.7	Sync. Pos. with Ch #1 on 2C43D2 ADJ. Ch #1 for Proper Frequency (2µs)
15	IOB RESET T	M3Ø7Ø	2F26	IOBC	5 (1)	4ØØns	II 5.7	Sync. Pos. with Ch #1 on 2F26L1 and Ch #2 on 2F26E2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
16	MR RESET PANIC DLY	M3Ø7Ø	2C34	MR1	1 (2)	1Øms	II 5.9	Sync. Pos. with Ch #1 on 2C34M1 and Ch #2 on 2C34F2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2

TITLE		SIZE	CODE	NUMBER	REV
DELAY CHART	SHEET 2 OF 6	B	SP	KI1Ø-Ø-DLY	C

	SIGNAL	MOD. TYPE	LOC.	PRINT	SWITCH SETTING	DLY. ADJ.	SCOPE SET-UP	ADJUSTMENT PROCEDURE (* = See Picture)
17	*AR CLK	M362	1N24	ARMC	N/A	28ns	II 7.1	Sync. Ext. Pos. 1N24D2, Ch #1 on 1H16K2 and Ch #2 on 1N24K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2.
18	*MB CLK	M362	2MØ9	IRMB	N/A	28ns	II 7.1	Sync. Exc. Pos. 2MØ9D2, Ch #1 on 1H16K2 and Ch #2 on 2MØ9K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2.
19	*COMP MI CLK	M362	2F19	CMP2	N/A	28ns	II 7.1	Sync. Ext. Pos. 2F19D2, Ch #1 on 1H16K2 and Ch #2 on 2F19K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2.
2Ø	*FM WR DLY	M363	2D19	FMC	N/A	9Øns	II 7.1	Sync. Ext. Neg. 2E17B1, Ch #1 on 2E17U2, Ch #2 on 2E17D2. Adjust for rising edge of the Second Pulse on Ch #1 to the falling edge of Ch #2.
21	KEY LOAD DLY	M3Ø7Ø	2A28	KEY2	5(2)	1 µs	II 13.Ø	Sync. Pos. with Ch #1 on 2A28M1 and Ch #2 on 2A28P2 ADJ. rising edge of Ch #1 to rising edge of Ch #2.
22	MC WR RS	M6Ø3	2H17	MCRW	N/A	8Øns	II 19.Ø	Sync. Pos. on 2H17L2 Ch #1 ADJ. for Proper Pulse Width.
23	MCTØ	M363	2J27	MCTN	N/A	2Øns or Min.	II 19.Ø	Sync. Pos. on Ch #1 2TØ9K1 and Ch #2 2K14J1 ADJ. for minimum setting.
24	*AB FF's CLR	M363	2M1Ø	ABC	N/A	3Ønz	II 19.Ø	Sync. Neg. on 2KØ6C1 with Ch #1 and Ch #2 on 2M1ØK2 ADJ. for falling edge of Ch #1 to the falling edge of Ch #2.
25	MC EXM ABORT	M3Ø7Ø	2L23	MCTN	5(1)	2µs	II 19.Ø	Sync. Pos. on Ch #1 2L23L1, Ch #2 on 2L23E2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2
26	MC EXM ALLOW RQ	M3Ø7Ø	2L23	MCTN	3(2)	1ØØµs	II 19.1Ø	Sync. Pos. on Ch #1 2L23M1 and Ch #2 on 2L23F2 ADJ. for the rising edge of Ch #1 to the rising edge of Ch #2.
27	*MC PAR CHK A	M321	2K27	MCP	JUMPER	195ns Min.	II 22.Ø	Sync. Neg. Ch #1 on 3BØ9C1, Ch #2 on 2K21N2 ADJ. for falling edge of Ch #1 to rising edge of Ch #2.
28	KEY CLK RUNNING	M3Ø7Ø	2A28	KEY1	2(1)	1ms	II 22.Ø	Sync. Pos. with Ch #1 on 2A28K1 ADJ. Ch #1 for Proper DLY.
29	*BR CLK	M362	1N25	BRC	N/A	28ns	III 4.1	Sync. Ext. Pos. 1N25D2, Ch #1 on 1H16K2 and Ch #2 on 1N25K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2.
3Ø	*MQ CLK	M362	1S2Ø	MQC	N/A	28ns	III 4.1	Sync Ext. Pos. 1S2ØD2, Ch #1 on 1H16K2 and Ch #2 on 1S2ØK2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2.
31	*ARX CLK	M362	1S22	ARXC	N/A	28ns	III 4.1	Sync. Ext. Pos. 1S22D2, Ch #1 on 1H16K2 and Ch #2 on 1S22K2 ADJ. for rising edge of Ch #1 to rising edge of Ch #2.
32	KEY MEM. CONT.	M6Ø3	2C24	KEY	N/A	8Øns	III 4.1Ø	Sync. Pos. with Ch #1 on 2C24L2 ADJ. Ch #1 for Proper Pulse Width.

TITLE		SIZE	CODE	NUMBER	REV
DELAY CHART	SHEET 3 OF 6	B	SP	KI1Ø-Ø-DLY	C

	SIGNAL	MOD. TYPE	LOC.	PRINT	SWITCH SETTING & (SECTION)	DLY ADJ.	MFG CHECKOUT PROCEDURE	ADJUSTMENT PROCEDURE (* = See Picture)
33	IOB DISCHARGE	M3Ø8	2P27	IOBC	N/A	7ØØns	III 9.1	Sync. Pos. with Ch #1 on 2P27T2 ADJ. Ch #1 for Proper Dly.
34	IOB PULSE LIMITER	M3Ø7Ø	2P26	IOBC	5(2)	1.5µs	III 9.1	Sync. Pos. with Ch #1 on 2P26H2 ADJ. Ch #1 for Proper Dly.
35	PTR CLK	G913	2P43	PTR2	N/A	1.66ms	IV 1.1	Sync. Pos. with Ch #1 on 2M4ØL2 ADJ. for Proper Frequency.
36	PTR SHUTDOWN	M3Ø7	2R43	PTR2	2(2)	4Øms	IV 2.4	Sync. Pos. with Ch #1 on 2R43H2. ADJ. Ch #1 for Proper Dly.
37	*PC CLK	M362	2EØ6	PCC	N/A	28ns	III 13.Ø	Sync. Ext. Pos. 2EØ6D2, Ch #1 1H16K2, Ch #2 2P17B1. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
38	KEY RDI PULSE	M3Ø7Ø	2A29	KEY2	5(2)	4ØØns	IV 4.3	Sync. Pos. on 2A29H2 Ch #1 ADJ. for Proper Dly.
39	KEY RDI DLY	M3Ø7Ø	2A29	KEY2	5(1)	1µs	IV 4.3	Sync. Pos. with Ch #1 on 2A29L1 and Ch #2 on 2A29E2 ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
4Ø	PTP SCR DLY	M3Ø8	2M38	PTP	N/A	5 SEC.	VI 1.Ø	Sync. Neg. with Ch #1 on 2M38J2, Ch #2 on 2M38T2. ADJ. for Falling Edge of Ch #1 to Falling Edge of Ch #2.
41	PTP SPEED DLY	M3Ø8	2P29	PTP	N/A	1 SEC.	VI 1.Ø	Sync. Pos. with Ch #1 on 2P29T2. ADJ. for Proper Dly.
42	PTP SOL DRIVE	M3Ø7	2R43	PTP	2(1)	1Øms	VI 1.1	Sync. Pos. with Ch #1 on 2R43K1. ADJ. for Proper Dly.
43	*SC CLK	M362	1H15	SCC	N/A	28ns	VII 1.Ø	Sync. Ext. Pos. 1H15D2, Ch #1 on 1H16K2, Ch #2 on 1H15K2. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
44	*PIR CLK DLY	M3Ø7Ø	2E28	PIR	5(1)	3ØØns	VII 2.Ø	Sync. Pos. on 2H22J1 Ch #1. ADJ. for Proper Frequency.
45	PIR UNGRANT TIMER	M3Ø7Ø	2B3Ø	PIR	5(1)	1µs	VII 2.Ø	Sync. Pos. 2B3ØL1 Ch #1, Ch #2 2B3ØE2. ADJ. Rising Edge of Ch #1 to Rising Edge of Ch #2.
46	*SC FE CLK	M362	1J12	SCC	N/A	28 ns	VII 3.Ø	Sync. Ext. Pos. 1J12D2, Ch #1 on 1H16K2, Ch #2 on 1J12K2. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
47	APR2 RESTART CLR DLY	M3Ø7Ø	2D36	APR2	3(1)	2Øµs	VII 1Ø.Ø	Sync. Pos. 2D36K1 Ch #1 ADJ. for Proper Dly.
48	APR2 RESTART SET	M3Ø7Ø	2D36	APR2	3(2)	2Øµs	VII 1Ø.Ø	Sync. Pos. 2D36H2 Ch #1. ADJ. for Proper Dly.

TITLE	SHEET	SIZE	CODE	NUMBER	REV
DELAY CHART	4 OF 6	B	SP	KI1Ø-Ø-DLY	C

	SIGNAL	MOD. TYPE	LOC.	PRINT	SWITCH SETTING & (SECTION)	DLY ADJ	TPG BACKOUT	ADJUSTMENT PROCEDURE (° = See Picture) ($ = Adjust these delays in the order given)
49	APR1 TIMER	M3Ø8	2D37	APR1	N/A	1.2 sec.	VII 11.Ø	Sync. Pos. 2D37H2 Ch #1. ADJ. for Rising Edge of Ch #1 to proper Timing
5Ø	AMAC WRITE PULSE 1	M6Ø3	2R23	AMAC	N/A	8Øns	VII 13.Ø	Sync. Neg. 2R32U1 Ch #1. ADJ. Neg. Edge of Ch #1 to First Pos. Edge.
51	AMAC WRITE PULSE 2	M6Ø3	2R24	AMAC	N/A	15Øns	VII 13.Ø	Sync. Neg. 2R32U1 Ch #1. ADJ. Neg Edge of Ch #1 to Second Rising Edge.
52	PF CLK START	M363	2F14	PF	N/A	MAX.	VII 13.Ø	Adjust for Maximum Delay. Fully CCW.
53	PF REG CLK	M362	2H25	PF	N/A	28ns	VII 13.Ø	Sync. Ext. Pos. 2H25D2, Ch #1 2H25C1, Ch #2 2H25L2. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
54	CLK 17Øns	M363	1E33	CLK	N/A	17Øns	VIII 1.Ø	Sync. Pos. on 1E33V1 Ch #1, Ch #2 on 1H16K2. ADJ. Ch #2 for Proper Frequency.
55	CLK 191ns	M363	1E35	CLK	N/A	191ns	VIII 2.Ø	Sync. Pos. on 1D2ØJ1 Ch #1, Ch #2 on 1H16K2. ADJ. Ch #2 for Proper Frequency.
56	CLK 23Øns	M363	1E36	CLK	N/A	23Øns	VIII 2.Ø	Sync. Pos. on 1D2ØD2, Ch #1, Ch #2 on 1H16K2. ADJ. Ch #2 for Proper Frequency.
57	ST2 DLYD	M321	2H16	ST1	JUMPER	126ns Min	VIII 4.Ø	Sync. Ext. Pos. 1D38P2, Ch #1 1D38U2, Ch #2 3A2ØE1. ADJ. for Rising Edge of the Second Pulse on Ch #1 to the Rising Edge of Ch #2.
58	MCT AB AB SET	M363	2MØ5	MCTN	N/A	73ns	VIII 5.Ø	Sync. Neg. 2JØ6H2 Ch #1, Ch #2 2KØ6D2. ADJ. for FALLING Edge of Ch #1 to Rising Edge of Ch #2.
59	MC PAGE DLY OVER	M362	2K17	MCP	N/A	44ns	VIII 6.Ø	Sync. Ext. Pos. 1A23N1, Ch #1 2TØ9F2, Ch #2 2TØ9K1. ADJ. for the First Rising Edge of Ch #1 to the Second Rising Edge of Ch #2.
6Ø	MC PAGE DLY	M363	2J19	MCP	N/A	125ns	VIII 7.Ø	Sync. Ext. Pos. 2KØ6C1, Ch #1 2KØ6U2, Ch #2 2K17K2. ADJ. for Rising Edge of the Second Pulse on Ch #1 to Rising Edge of Ch #2.
61	MC SLOW CYC	M363	2J23	MCP	N/A	87ns	VIII 8.Ø	Sync. Neg. 2K19M2 Ch #1, Ch #2 2K19N1. ADJ. for Neg. Edge of Ch #1 to Neg. Edge of Ch #2.
62	MC MEM GO DLYD	M363	3AØ3	MCR	N/A	5Øns	VIII 9.Ø	Sync. Pos. 2K17K2 Ch #1, Ch #2 on the Earlist of MC RQ IMM, Fast, Slow 3B1Ø--. ADJ. for Rising Edge of Ch #1 to Falling Edge of Ch #2.
63	MC WR RS DLYD	M363	2J24	MCRW	N/A	11Øns	VIII 1Ø.Ø	Sync. Neg. 3A2ØL2 Ch #1, Ch #2 use Earlist MAI Mc RQ determined by DLY #62. ADJ. for Neg. Edge of Ch #1 to Neg. Edge of Ch #2.
64	MCT3	M363	2K22	MCTP	N/A	MAX.	VIII 11.Ø	Set to MAX. Fully CCW.

TITLE	SHEET	SIZE	CODE	NUMBER	REV
DELAY CHART	5 OF 6	B	SP	KI1Ø-Ø-DLY	C

	SIGNAL	MOD. TYPE	LOC.	PRINT	SWITCH SETTING & (SECTION)	DLY. ADJ.	MFG CHECKOUT PROCEDURE	ADJUSTMENT PROCEDURE (* = See Picture)
65	*MCT 3	M363	2K23	MCTF	N/A	22Ø±5	VIII 11.Ø	Sync. Neg. Ch #1 2E17N2, Ch #2 1N24K2. ADJ. Neg. Edge of Ch #1 to the Rising Edge of the Second Pulse on Ch #2.
66	*MCT 4	M363	2K25	MCTF	N/A	5ns	VII 11.Ø	Sync. Ext. Pos. 2K25A1, Ch #1 1N24K2, Ch#2 2K21J2. ADJ. the Rising Edge of Ch #1 to the Rising Edge of Ch #2.
67	*MCT4 DLYD	M363	2K26	MCTF	N/A	**	VIII 11.Ø	Sync. Neg. 2E17S1 Ch #1, Ch #2 1D17K2. ADJ. Neg. Edge of Ch #1 to the Pos. Edge of Ch #2.
68	*MC MA MA SET	M363	2N23	MCM	N/A	8Øns	VIII 12.Ø	Sync. Ext. Neg. 2R25S1, Ch #1 2K17K2, Ch #2 2TØ9K1. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
69	*MC REFILL DONE	M363	2J21	MCRW	N/A	87ns	VIII 12.Ø	Sync. Ext. Pos. 2J2ØJ2, Ch #1 3BØ9C1, Ch #2 2K28L2. ADJ. for Falling Edge of Ch #1 to Rising Edge of Ch #2.
7Ø	*INST RDY DLYD	M363	2J15	INST	N/A	1ØØns	VIII 13.Ø	Sync. Neg. 3BØ9C1 Ch #1, Ch #2 1H16B1. ADJ. for Falling Edge of Ch #1 to Rising Edge of Ch #2.
71	*INST DONE DLYD	M363	1C28	INST	N/A	115ns	VIII 14.Ø	Sync. Neg. 1AØ7P1 Ch #1, Ch #2 1H16K2. ADJ. For Last Clock of the Instruction to the Next Clock.
72	*FCE2 SYNC DLYD	M363	2H21	F1	N/A	1ØØns	VIII 15.Ø	Sync. Ext. Neg. 2H21P1, Ch #1 3BØ9C1, Ch #2 1H16B1. ADJ. for the Neg. Edge of Ch #1 to the Rising Edge of Ch #2.
73	*FCE2 WAIT DLYD	M363	2H2Ø	F1	N/A	55ns	VIII 16.Ø	Sync. Ext. Pos. 2J11J1, Ch #1 2J11B1, Ch #2 1H16B1. ADJ. for Rising Edge of Ch #1, to Rising Edge of Ch #2.
74	*MC PF QUICK DLYD	M363	2K19	MCP	N/A	83ns	VIII 17.Ø	Sync. Ext. Pos. 2K14D2, Ch #1 2K17K2, Ch #2 2R23L2. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
75	*MC MA MA CLR	M363	2RØ6	MCR	N/A	33ns	VIII 18.Ø	Sync. Pos. on the Last MAI MC REQ IMM, Fast, Slow to go high on 3B1Ø- Ch #1, Ch #2 2TØ9K1. ADJ. for RISING Edge of Ch #1 to the FALLING Edge of Ch #2.
76	*CLK 1ØØns	M363	1E31	CLK	N/A	1ØØns	VIII 19.Ø	Sync. Pos. with Ch #1 on 1H16K2. ADJ. Ch #1 for Proper Frequency.
77	MCTNØ11	M363	2K15	MCTN	N/A	55ns	VIII 2Ø.Ø	Sync. Pos. with Ch #1 on 2MØ7E1, Ch #2 on 2MØ7F2. ADJ. for Rising Edge of Ch #1 to Rising Edge of Ch #2.
								* These DLYS have an associated picture in the Delay Chart pictorial section. NOTE: All DLY Times are ± 5%.
								** 116ns or minimum whichever is greater.

TITLE		SHEET	SIZE	CODE	NUMBER	REV
DELAY CHART		6 OF 6	B	SP	KI10-Ø-DLY	C

DRB 107
DEC 16-(325)-1062-3-N871

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 15 AUG 72

TITLE KI1Ø DELAY CHART SETUP PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	KI 10-00030	A.KENT	2/73	Allen Kent	2 Mar 73
B	ECO CHANGE	KI 10-00037	A.KENT	5/73	Allen Kent	13 July 73

ENG	APPD	SIZE	CODE	NUMBER	REV
J Rosen	Allen Kent 15 Aug 72	A	SP	KI1Ø-Ø-DPRO	B

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE DELAY CHART SETUP PROCEDURES

1. Set the speed control coarse to #5 and fine control fully clockwise, depress the Repeat Switch and then Examine This Switch.

2. Set the speed control coarse to #5 and fine control fully clockwise, depress the Repeat Switch and then Examine This Switch.

3. thru 11.
Hold Stop Switch on.

12. 13.
Remove M663 in Loc. 2T28 and momentarily ground 2P41P1 on and off. Reinstall M663 in 2T28.

14. 15.
Depress the Single Pulse Switch and then depress the Reset Switch and hold it on.

16. Depress the Reset Switch on and off.

17. 18. 19. 2Ø.
Set the speed control coarse to #5 and fine control fully clockwise, depress the Repeat and Exec. Paging switches Set the address switches to zero and depress Deposit This.

21. Depress the Data Load Switch on and off.

22. 23. 24.
Set the speed control to #6 and the fine fully clockwise. Set the address switches to $1ØØ_8$ and depress Deposit This.

25. 26.
Set the speed control to #3 and fine fully clockwise. Set the address switches to some address above Memory. Depress the Repeat Switch and the Deposit This.

27. Set the speed control to #5 and the fine fully clockwise. Set the address switches to $1ØØ_8$. Depress the Repeat Switch and then Examine This.

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-DPRO	B

28. Set the speed control to #2 and fine clockwise. Set the address switches to 100_8 and depress the Repeat Switch and then Examine This Switch.

29. 30. 31.
Insert and execute the following program:

```
100/JRST 100      254000,000100
```

32. Insert the following program:

```
100/JRST 100
```

Set the Exec Paging, Address Stop and the Inst. Fetch Switch. Set the address switches to 100_8 and depress Start. Depressing the continue switch and adjust Dly.

33. Execute the following program:

```
100/DATAI APR,0    (700040,000000)
101/JRST .-1       (254000,000100)
```

34. Insert the following program:

```
100/DATAO PI, 0      (700540,000000)
101/JRST .-1         (254000,000100)
```

Set the speed control to #5 and fine fully clockwise. Start the program and then depress the Repeat Switch and then the Single Pulse Switch.

35. Depress PTR Feed Switch.

36. Set the speed control coarse switch to position #2 and fine counter clockwise. Put a CONO PTR, 20 (710600000020) in the Data switches. Depress the Repeat Switch and then the XCT Switch.

37. Insert the following program:

```
100/SKIPA  0    (334000,000000)
101/HALT        (254200,000100)
102/JRST  .-2   (254000,000100)
```


38. 39.
Depress Read In and then Reset switches. Adjust Dly.

40. 41.
Depress the PTP Feed Switch momentarily on and off.

42. Depress the PTP Feed Switch and hold it on.

43. Insert the following program:

```
100/ROT 0, 7    (241000,000007)
101/JRST .-1    (254000,000100)
```

44. 45.
Insert the following program:

```
100/CONO PI, 4300    (700600,004300)
101/JRST 101         (254000,000101)
102/CONO PI, 30100   (700600,030100)
103/JRST 100         (254000,000100)
 42/JSP 102          (265000,000102)
```

46. Insert the following program:

```
100/FAD 0, 1    (140000,000001)
101/JRST .-1    (254000,000100)
```

47. Insert the following program:

```
100/CONO APR, 020000    (700200,020000)
101/JRST 100            (254000,000100)
```

Set the speed control to #5 and the fine COUNTER CLOCKWISE. Start the program at 100_8, depress the Repeat Switch and then the Single Pulse Switch.

48. Insert the following program:

```
100/CONO APR, 010000    (700200,010000)
101/JRST .-1            (254000,000100)
```

Set the speed control to #5 and the fine counter clockwise. Start the program at 100_8, depress the Repeat Switch and then the Single Pulse Switch.

49. Insert the following program:

```
1ØØ/CONO APR, 44ØØØØ   (7ØØ2ØØ,44ØØØØ)
1Ø1/JRST 1Ø1            (254ØØØ,ØØØ1Ø1)
 7Ø/JRST 1ØØ            (254ØØØ,ØØØ1ØØ)
```

5Ø. 51. 52.
Insert the following program:

```
1ØØ/DATAO PAG, 5ØØ   (7Ø114Ø,ØØØ5ØØ)
1Ø1/MOVEM Ø, 4ØØØØØ  (2Ø2ØØØ,4ØØØØØ)
1Ø2/JRST 1ØØ         (254ØØØ,ØØØ1ØØ)
5ØØ/4ØØØØØ,42ØØØØ
2ØØ/76ØØØØ,ØØØØØØ
42Ø/JRST 1ØØ         (254ØØØ,ØØØ1ØØ)
```

53. Insert the following program:

```
1ØØ/DATAO PAG, 5ØØ    (7Ø114Ø,ØØØ5ØØ)
1Ø1/MOVEM Ø, 4ØØØØØ   (2Ø2ØØØ,4ØØØØØ)
1Ø2/JRST 1ØØ          (254ØØØ,ØØØ1ØØ)
5ØØ/4ØØØØØ,42ØØØØ
2ØØ/66ØØØØ,ØØØØØØ
42Ø/JRST 1ØØ          (254ØØØ,ØØØ1ØØ)
```

54. Insert the following program:

```
1ØØ/ADDI Ø, 1    (271ØØØ,ØØØØØ1)
1Ø1/JRST 1ØØ     (254ØØØ,ØØØ1ØØ)
```

55. 56.
Insert the following program:

```
1ØØ/DFDV Ø, 3    (113ØØØ,ØØØØØ3)
1Ø1/JRST 1ØØ     (254ØØØ,ØØØ1ØØ)
```

57. Insert the following program:

```
1ØØ/MOVEM Ø, 2ØØ   (2Ø2ØØØ,ØØØ2ØØ)
1Ø1/JRST 1ØØ       (254ØØØ,ØØØ1ØØ)
```

Remove jumper from 2H16N2 - 2H16J1
Jumper M321, 2H16 from N2 to leftmost pin on ST1 print which provides at least 126 ns delay.

58. Insert the following program:

```
1ØØ/MOVE Ø, 2ØØ   (2ØØØØØ,ØØØ2ØØ)
1Ø1/JRST 1ØØ      (254ØØØ,ØØØ1ØØ)
```

*59. Insert the following program:

```
1ØØ/MOVE Ø, 2ØØ   (2ØØØØØ,ØØØ2ØØ)
1Ø1/JRST 1ØØ      (254ØØØ,ØØØ1ØØ)
```

*6Ø. Insert the following program.

```
1ØØ/JRST 1ØØ   (254ØØØ,ØØØ1ØØ)
```

*61. Set the speed control to #5 the fine clockwise and set address switch 29 to a one. Depress the Repeat Switch and then Examine This Switch.

62. Insert the following program:

```
1ØØ/JRST 1ØØ   (254ØØØ,ØØØ1ØØ)
```

Find earliest of 3B1ØD2 - MAI MC RQ IMM,
3B1ØK2 - MAI MC RQ FAST, and 3B1ØS2 - MAI MC RQ SLOW.

63. Insert the following program:

```
1ØØ/MOVEM Ø, 2ØØ   (2Ø2ØØØ,ØØØ2ØØ)
1Ø1/JRST 1ØØ       (254ØØØ,ØØØ1ØØ)
```

64. 65. 66. 67.
Insert the following program:

```
1ØØ/MOVE Ø, 1    (2ØØØØØ,ØØØØØ1)
1Ø1/JRST 1ØØ     (254ØØØ,ØØØ1ØØ)
```

* These delays have to be adjusted in this order.

68. 69.
Insert the following program:

```
100/DATAO PAG, 500    (701140,000500)
101/MOVE 0, 400000    (200000,400000)
102/JRST 100          (254000,000100)
500/400000,420000
200/760001,000000
```

70. Insert the following program:

```
100/JRST 100    (254000,000100)
```

71. Insert the following program:

```
100/IMUL 0, 200    (220000,000200)
101/JRST 100       (254000,000100)
  0/0
200/0
```

72. Insert the following program:

```
100/DMOVE 0,200    (120000,000200)
101/JRST 100       (254000,000100)
```

73. Insert the following program:

```
100/DFAD 0, 200    (110000,000200)
101/JRST 100       (254000,000100)
```

Set the speed control to #5 and the fine clockwise. Start the program, depress the Repeat Switch and then the Single Pulse Switch.

74. Insert the following program:

```
100/DATAO PAG, 500    (701140,000500)
101/MOVEM 0, 400000   (202000,400000)
102/JRST 100          (254000,000100)
500/400000,420000
200/660000,000000
420/JRST 100          (254000,000100)
```


75. Insert the following program:

```
100/JRST 100    (254000000100)
```

Determine the last one of MAI MC RQ EMM-3B10D2, MAI MC RQ FAST-3B10K2, and MAI MC RQ SLOW-3B10S2 to go high. If there are no MB10 or OLDER MEMORIES on the system, adjust M363 2R06 for 33ns.

If older memories are on the system MB, 161 and 163, adjust M363 2R06 for 51ns. Adjust for rising edge of Ch. #1 to falling edge of Ch. #2.

76. Insert the following program:

```
100/DATAO APR, 0    (700140,000000)
101/JRST 101        (254000,000101)
  0/000000,004000
```

Depress the Margin Enable Switch and then start the program.

77. Insert the following program:

```
100/MOVE 0, 200    (200000,000200)
101/JRST 100       (254000,000100)
```

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 16 AUG 72

TITLE DELAY CHART PICTORIALS

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	KII0-00030	A.KENT	2/73	Allan Kent	2 Mar 73

SHEET 1 OF 14

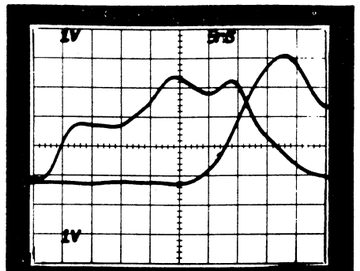
ENG	APPD	SIZE	CODE	NUMBER	REV
J Rosen	Allan Kent 8 Sept 72	A	SP	KI1Ø-Ø-DPIX	A

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

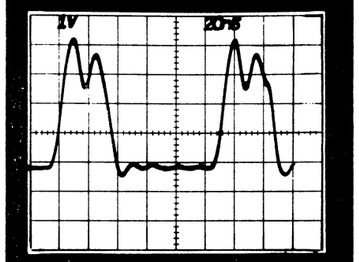
TITLE DELAY CHART PICTORIALS

Delay No. 3-9, 11, 17, 18, 19, 29, 30, 31, 37, 43, 46 and 53



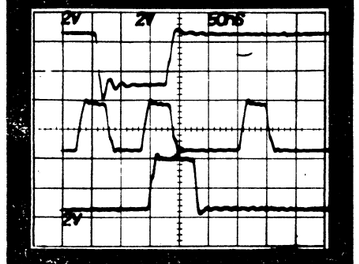
Typical clock drive delay. Refer to chart for location and set-up.

Delay No. 10



1. CLK A 1H16K2

Delay No. 20

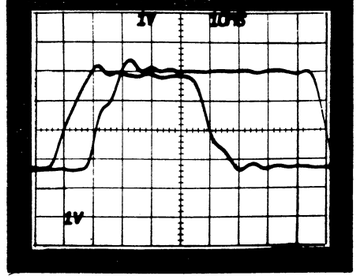


SYNC: FM WRITE IN 2E17B1

1. CLK DRIVE C2 2E17U2

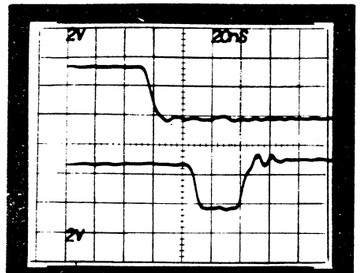
2. FM WRITE 2E17D2

Delay No. 20 (Enlarged)



SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-DPIX	A

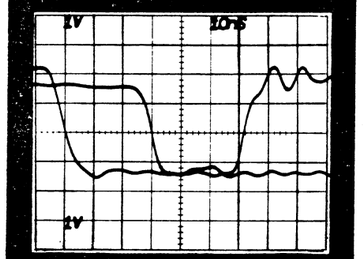
Delay No. 24



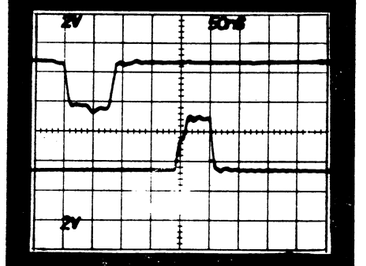
1. AB AB 2K06C1

2. ABC 043 2M10K2

Delay No. 24
(Enlarged)



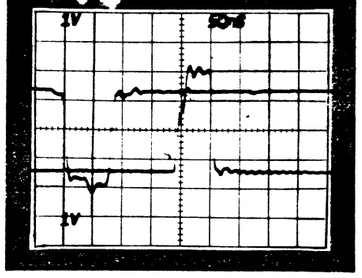
Delay No. 27



1. MAI BUS RD RS 3BØ9C1

2. MC PAR CHK 2K21N2

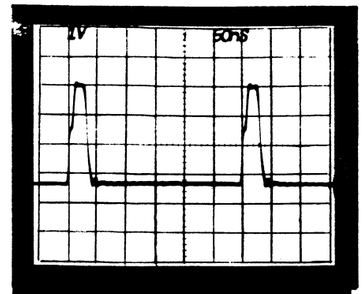
Delay No. 27
(Enlarged)



ENGINEERING SPECIFICATION digital CONTINUATION SHEET

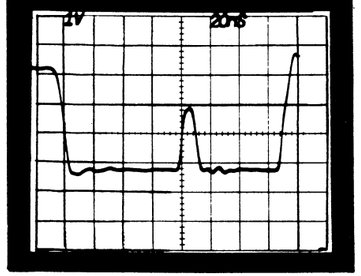
TITLE DELAY CHART PICTORIALS

Delay No. 44



1 PIR ASYNC CLK 2H22J1

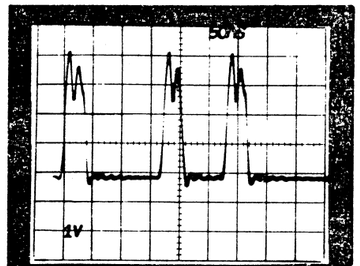
Delay No. 51



1. AMAC WRITE 2R32U1

SIZE A | CODE SP | NUMBER KI1Ø-Ø-DPIX | REV A

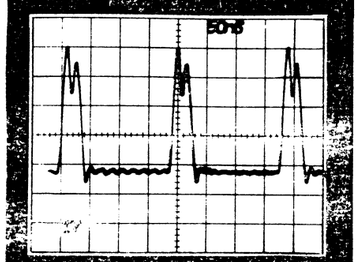
Delay No. 54



NOTE: Sync pos. Ch. 1 on
AD ADD 1J33V1

2. CLK A 1H16K2

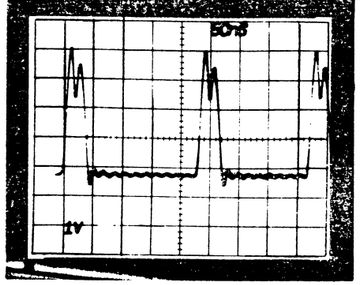
Delay No. 55



NOTE: Sync pos. Ch. 1 on
DFDT3 1D20J1

2. CLK A 1H16K2

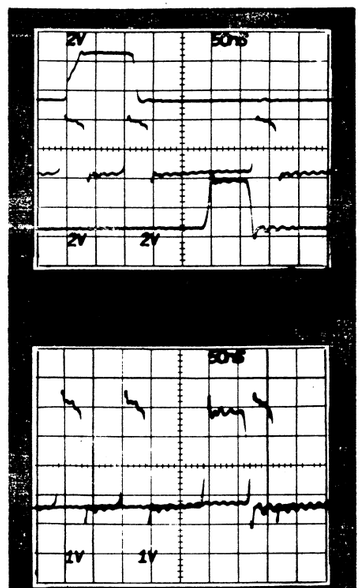
Delay No. 56



NOTE: Sync pos. Ch. 1 on
DFDT2 1D20D2

2. CLK A 1H16K2

Delay No. 57



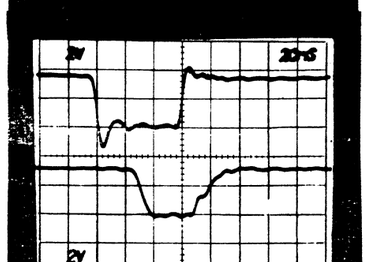
SYNC: ST1 1D38P2

1. CLK DRIVE B1 1D38U2

2. MC WR RS D 3A20E1

Delay No. 57
(Enlarged)

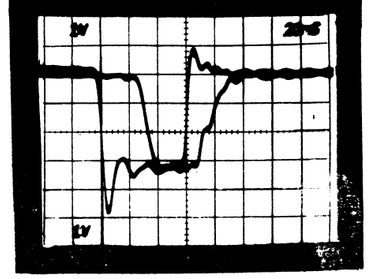
Delay No. 58



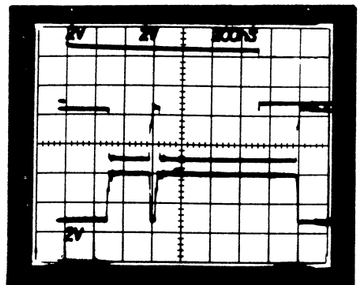
1. MC RECYCLE 2JØ6K2

2. AB AB 2KØ6D2

Delay No. 58
(Enlarged)



Delay No. 59

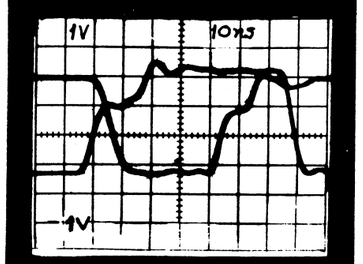


SYNC: IR FWT 1A23N1

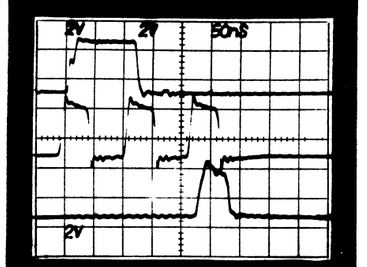
1. MA MA (Ø) H 2TØ9F2

2. MA MA (1) H 2TØ9K1

Delay No. 59
(Enlarged)



Delay No. 60



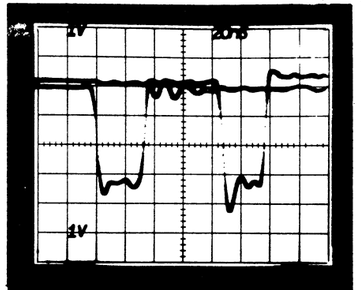
SYNC: AB AB 2KO6C1

1. CLK DRIVE C2 2KØ6U2

2. MC PAGE DLY OVER 2K17K2

Delay No. 60
(Enlarged)

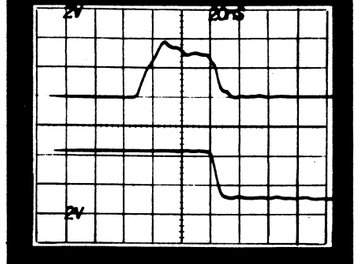
Delay No. 61



1. MCPØØ3 2K19M2

2. MCPØØ2 2K19N1

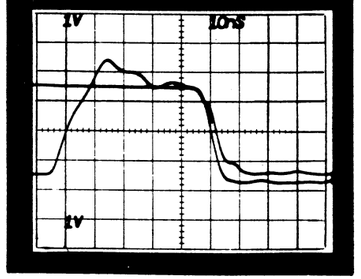
Delay No. 62



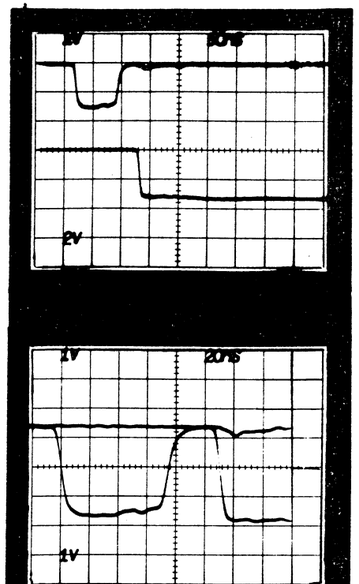
1. MC PAGE DLY OVER 2K17K2

2. Refer to delay chart and picture (example No. 1a) to determine earliest MAI MC RQ to go low. (Sheet 14)

Delay No. 62
(Enlarged)



Delay No. 63

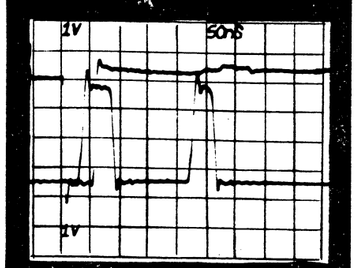


1. MAI WR RS 3A20L2

2. Earliest MAI MC reg. refer to delay chart and picture. (Example 1b) (Sheet 14)

Delay No. 63 (Enlarged)

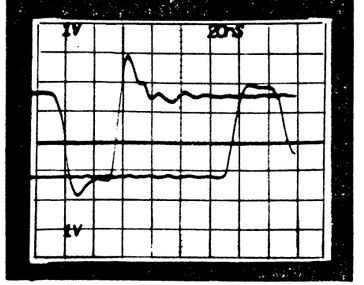
Delay No. 65



1. FMC011 2E17N2

2. AR CLK A 1N24K2

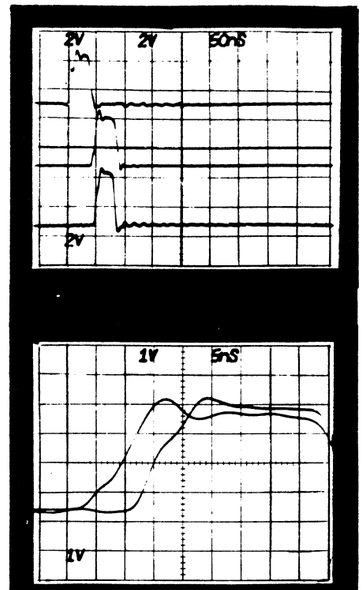
Delay No. 67



1. MCT4 2E17S1

2. CLK DRIVE A1 1D17K2

Delay No. 66



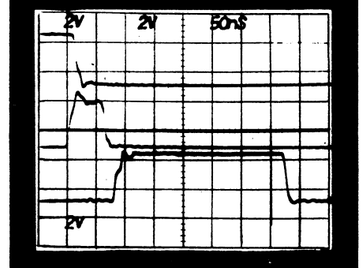
SYNC: MCT3 2K25A1

1. AR CLK A 1N24K2

2. MCT4 2K21J2

Delay No. 66 (Enlarged)

Delay No. 68

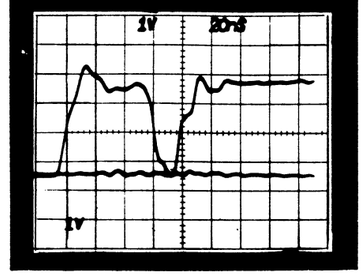


SYNC: PAGE REFILL CYCLE 2R26S1

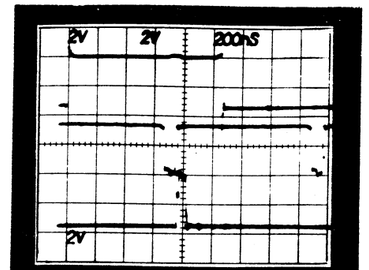
1. MC PAGE DLY OVER 2K17K2

2. MA MA 2T09K1

Delay No. 68 (Enlarged)



Delay No. 69

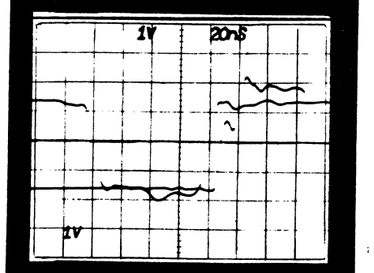


SYNC: PAGE REFILL RESTART 2J2ØJ2

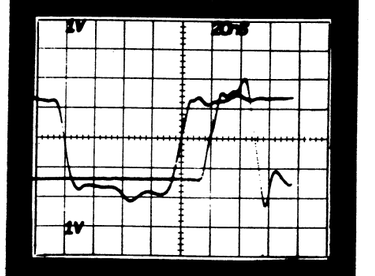
1. MAI BUS RD RS 3B09C1

2. MC PAGE REFILL DONE 2K28L2

Delay No. 69 (Enlarged)



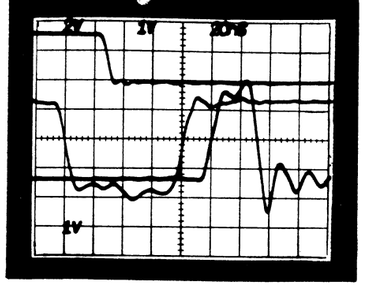
Delay No. 70



1. MAI BUS RD RS 3B09C1

2. CLK MISC INPUT 1H16B1

Delay No. 72



SYNC: FCE2 SYNC 2H21P1

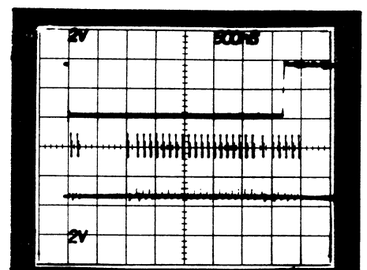
1. MAI BUS RD RS 3B09C1

2. CLK MISC INPUT 1H16B1

	SIZE	CODE	NUMBER	REV
	A	SP	KI1Ø-Ø-DPIX	A

DEC FORM NO DEC 16—(381)—1022—N370

Delay No. 71

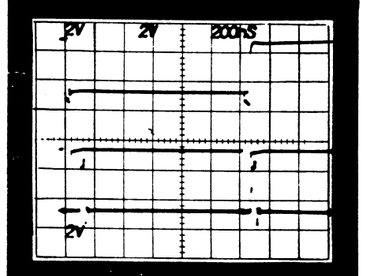


1. IR XMULX 1A07P1

2. CLK A 1H16K2

Delay No. 71 (Enlarged)

Delay No. 73

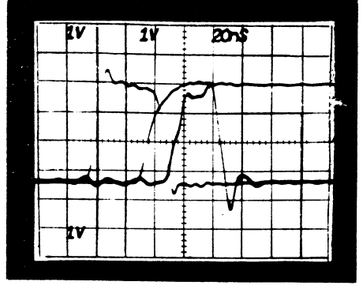


SYNC: FCE2 WAIT 2J11J1

1. CLK DRIVE C2 2J11B1

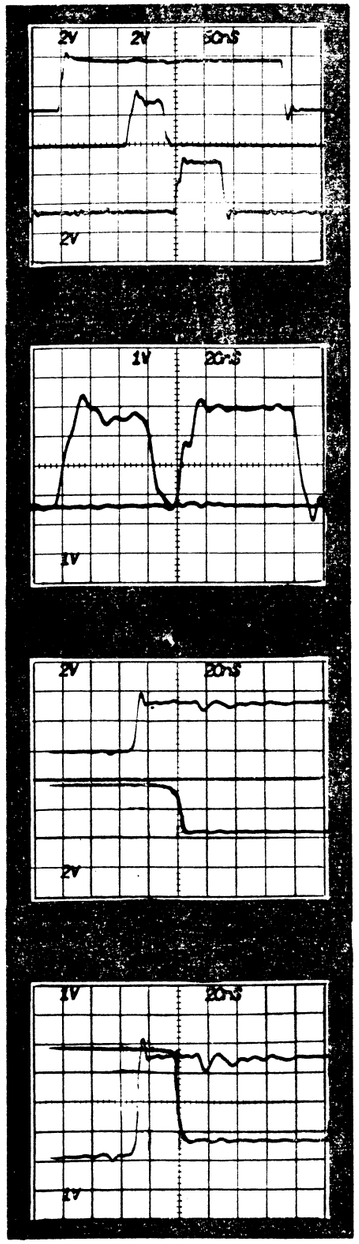
2. CLK MISC INPUT 1H16B1

Delay No. 73 (Enlarged)



	SIZE	CODE	NUMBER	REV
	A	SP	KI1Ø-Ø-DPIX	A

Delay No. 74



Delay No. 74 (Enlarged)

Delay No. 75

Delay No. 75 (Enlarged)

SYNC: PAGE FAIL 2K14D2

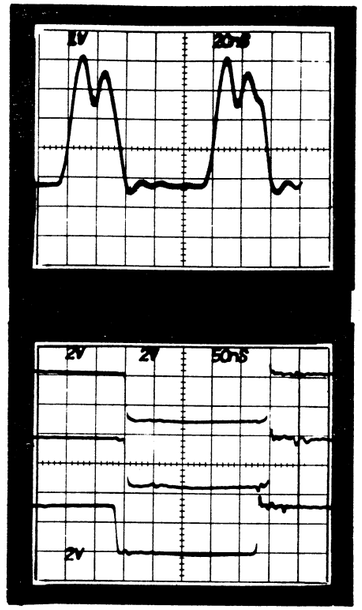
1. MC PAGE DLY OVER 2K17K2

2. AMAC WRITE PULSE 1
2R23L2

1. Last MAI MC req. to go high. Refer to procedure.

2. MA MA 2T09K1

Delay No. 76



EXAMPLE No. 1:
1a) Showing first MAI MC RQ going low (3)

1b) Showing first MAI MC RQ going high(3)

1. CLK A 1H16K2

1. MAI MC RQ IMM 3B10D2

2. MAI MC RQ FAST 3B10K2

3. MAI MC RQ SLOW 3B10S2

REVISIONS	CHK	CHANGE NO.	REV.
		K11Ø-00037	A
		A. KENT	
		Allan Kent 13 July 73	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL —"—

FINISH —"—

DRN. J Rosen	DATE 6/1/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. J Rosen	DATE 6/1/72	
ENG. Allan Kent	DATE 24 Aug 72	
PROJ. ENG. Allan Kent	DATE 24 Aug 72	
PROD. Maessetfine	DATE 8/24/72	
FIRST USED ON KI1Ø		
SCALE —		
SHEET 1 OF 2		

TITLE
CARRY PROPAGATE & GENERATE CHART

SIZE	CODE	NUMBER	REV.
B	SP	K11Ø-Ø-CPCG	A

DIST.

DEC FORM NO.

ENGINEERING SPECIFICATION

TITLE CP CG CHART

EXAMPLE #1

ADDER BITS	-2	-1	Ø	1	2	3	4	5	6	7	8	9	1Ø	11	12	13	14	15	16	17	17.5	18	19	2Ø	21	22	23	24	25	26	27	28	29	3Ø	31	32	33	34	35	*
AD A INPUT 1 = H	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø
AD B INPUT 1 = H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	Ø
AD A INPUT (Comp.) 1=L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	Ø	1
AD B INPUT (Comp.) 1=L	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	1
OUTPUT (Comp.) 1 = L	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø
OUTPUT 1 = H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	Ø	1
CP AND/OR CG for each 4 BIT ADDER					CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP ~CG				CG		

* AD CRY 36

SEE NOTE

EXAMPLE #2

AD A INPUT 1 = H	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø
AD B INPUT 1 = H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	1	1	1	Ø	1
AD A INPUT (Comp.) 1=L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	1	1	1	1	1	1	1	1	1	Ø	1	1	1	1	1	Ø	1
AD B INPUT (Comp.) 1=L	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	1	Ø
OUTPUT (Comp.) 1 = L	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	1	1	1	1	1	Ø
OUTPUT 1 = H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Ø	Ø	Ø	Ø	Ø	Ø	1
CP AND/OR CG for each 4 BIT ADDER					CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP ~CG				CP~CG				CP CG				~CG		

SEE NOTE

NOTE: Actual complemented 39 BIT Numbers seen at AD A and AD B Inputs, used to determine Carry Propagates and Carry Generates.

SIZE	CODE	NUMBER	REV
B	SP	KI1Ø-Ø-CPCG	A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 17AUG 72

TITLE SINGLE PULSE CHART (CHECKOUT PROCEDURE)

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	KI10-00037	A.KENT	5/73	Allan Kent	13 July 73

SHEET 1 OF 22

ENG	APPD	SIZE	CODE	NUMBER	REV
J Rosen	Allan Kent 24 Aug 72	A	SP	KI1Ø-Ø-SPC	A

DEC 16-(327)-1071-N971

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE SINGLE PULSE CHART - KEY STOP - FROM POWER UP

/ = 1 X = Misc. 1, Ø = Ø

#	INDICATOR	STEP 1	2	3	4	5	6
1	Key Latch	/	/				
2	Key Idle	/	/	/	/	/	/
~~3~~	~~Key Sinc Pls Sync~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~
4	Key Sync RDY	/	/	/	/		/
5	Key Sync		/	/			
6	Single Pulser	/	/	/	/	/	
7	Clock INH						/
8	Maint. Mode	/	/	/	/	/	/
9	KT1				/		
10	PI Divert Inder				/	/	
11	AD EN IOB					/	
12	Clock Long Cyc.					/	
13	Stop MAN					/	/
14	Adder	-1	-1	-1	-1		-1
15	PC + 1 INH					/	/
16	Sing Pulse	/	/	/	/	/	/
17	Stop			/	/		
18	IOT Timer	1	2	3	4	5	6

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	

DEC FORM NO DEC 16-(381)-1022-N370
DRA 108

SHEET 2 OF

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- RESET FROM POWER UP

/ = 1 X = Misc. 1, Ø
=Ø

=	INDICATOR	STEP 1	2	3	4	5	6
1	Key Latch	/	/				
2	Key Idle	/	/	/	/	/	/
3	~~Key Sing Pulse~~ Sync	/	/	/	/	/	/
4	Key Sync. RDY	/	/	/	/		/
5	Key Sync		/	/			
6	Sing. Pulser	/	/	/	/	/	
7	Clock INH						/
8	Maint. Mode	/	/	/	/	/	/
9	Clock Long Cyc				/	/	
1Ø	BR Sign Smear						
11	KT1				/		
12	Reset			/	/		
13	Stop MAN					/	/
14	AD EN IOB					/	
15	PC + 1 INH					/	/
16	SCAD AR EXP						
17	SCAD ADD						
18	Key Clock Run'g	/	/	/	/	/	/
19	IOB Reset Sync	/					/

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- Deposit Ø's - 1's Core Mem or Ac's (1 of 2)
AS = 1Ø8 for AC's, 1ØØ8 Core Memory

/ = 1 X = Misc. 1, Ø
= Ø

#	INDICATOR	1	2	3	4	5	6	7	8	9	1Ø
1	Key Latch	/	/								
2	Key Idle	/	/	/	/	/	/	/	/	/	/
3	~~Key Sing Pls Sync~~	/	/	/	/	/	/	/	/	/	/
4	Key Sync RDY	/	/	/	/		/	/	/	/	/
5	Key Sync		/	/							
6	Single Pulser	/	/	/	/	/	/	/	/	/	
7	Clock INH						/		*		/
8	Maint Mode	/	/	/	/	/	/	/	/	/	/
9	PI Divert Inder				/	/					
1Ø	AD EN IOB					/					
11	Clock Long Cyc					/				/	
12	Adder	-1	-1	-1	-1	*	-1	-1	-1	-1	-1
13	PC + 1 INH	X	X	X	X	/	/	/	/	/	/
14	KT1				/						
15	Single Pulse	/	/	/	/	/	/	/	/	/	/
16	AB AS	X	X	X	X	/					
17	MA	X	X	X	X	*	*	*	*	*	*
18	AB	x	x	x	x	*	*	*	*	*	*
19	MA AC Ref Latch	X	X	X	X	*	*	*	*	*	*
2Ø	AR	X	X	X	X	X	*	*	*	*	*
21	Key Cycle					/	/	/	/		
22	MA MA						/	/	*	*	
23	FM	X	X	X	X	X	X	X	X	*	X
24	FMA Key Cycle					*	*	*	*		
25	KT3						/				
26	Mem Go INH						/	/			
27	AB AB	X	X	X	X		/	/	/	/	/
28	MC Sync WR						/				
29	Comp AC WR						/				
3Ø	Comp Sync AB=AS						/	/	/	/	/
31	~~COMP MEM RD~~	X	X	X	X	X	X	X	X	X	X
32	MC Store IN AC						*	*	*	*	*
33	MA WR RQ						/	/	*	*	
34	Deposit this			/	/	/	/	/	/	/	

* = 1 for Core Memory

* = DATA SW'S

* = 1Ø8 or 1ØØ8

* = 1Ø8 or 1ØØ8

* = Ø for Core Mem 1 for AC's

* = AR gets (data SW's)

* = 1 for AC's

* = Ø or 1's DATA FOR AC'S

* =1 IF, Exec, user Paging=Ø

* =1 FOR AC'S

* =1 FOR AC'S

SIZE	CODE	NUMBER	REV
A	SP	KT1Ø-Ø-SPC	A

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- DEPOSIT Ø's - 1's CORE MEM OR A C's (2 of 2)
AS = 1Ø8 for AC's, 1ØØ8 CORE MEM

/ = 1 X = Misc 1, Ø
= Ø

#	INDICATOR	STEP 1	2	3	4	5	6	7	8	9	1Ø	
35	ST1							/				
36	KT2					/						
37	ST2								/			
38	FM ADR MA								*	*		* = 1 FOR AC'S
39	FMC Store in AC									*		* = 1 FOR AC'S
4Ø	ST5									/		
41	IOB				*	*						* = Ø's or 1's DATA
42	MI	X	X	X	X	X	X	*	*	*	*	* = Ø's or 1's DATA
43	MC Sync WR Hold						*	*				* = 1 FOR CORE MEM
44	MB								*	*	*	* = Ø for Core Mem and Data SW's for AC's

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

DEC FORM NO

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- Examine Ø's - 1's Core Mem. or AC's
(AS = 1Ø8 for AC's + 1ØØ8 Core Mem.)

/ = 1 X = Misc. 1.Ø
= Ø

#	INDICATOR	STEP 1	2	3	4	5	6	
1	Key Latch	/	/					
2	Key IDLE	/	/	/	/	/	/	
~~3~~	~~Key Sing. Sync. Pulse~~	/	/	/	/	/	/	
4	Key Sync RDY	/	/	/	/		/	
5	Key Sync		/	/				
6	MB					*		* = DATA
7	Clock INH						/	
8	Maint Mode	/	/	/	/	/	/	
9	PI Divert Inder				/	/		
1Ø	AD EN IOB					/		
11	Clock Long Cyc					/		
12	Adder	-1	-1	-1	-1	X	*	* = Misc for AC's , -1 Core Mem.
13	PC + 1 INH	X	X	X	X	/	/	
14	MI	X	X	X	X	X	*	* = DATA
15	KT1				/			
16	AB AS	X	X	X	X	/		
17	MA	X	X	X	X	*	*	* = The Address SW's
18	AB	X	X	X	X	*	*	* = The Address SW's
19	MA AC REF LATCH	X	X	X	X	*	*	* = 1 for AC's , Ø for Core Memory
2Ø	AR	X	X	X	X	X	*	* = DATA
21	Key Cycle					/	/	
~~22~~	~~FM~~						*	~~* = Ø's or 1's for AC's~~
23	FMA Key Cycle					/	/	
24	KT2					/		
25	AB AB	X	X	X	X		/	
26	MC Sync RD						/	
27	Comp AC WR						/	
28	Comp Sync AB AS						/	
29	Comp Mem RD	X	X	X	X	X	/	
3Ø	MC Store IN AC	X	X	X	X	X	*	* = 1 FOR AC'S
31	MA RD RQ						/	
32	Examine this			/	/	/	/	
33	KT3						/	
34	AD EN FM+						*	* = Ø for Core Memory

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- KEY XCT OF HALT, 1Ø0 (1 of 2)

/ = 1 X = Misc. 1, Ø
= Ø I = Instruction
P = PC AT STEP 1

#	INDICATOR	STEP 1	2	3	4	5	6	7	8	9	1Ø	11	12	
1	Key Latch	/	/										/	
2	Key Idle	/	/	/	/								/	
~~3~~	~~Key Sing Pls Sync~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	~~/~~	
4	Key Sync RDY	/	/	/	/		/	/	/	/	/	/	/	
5	Single Pulser	/	/	/	/	/	/	/	/	/	/	/	/	
6	Maint. Mode	/	/	/	/	/	/	/	/	/	/	/	/	
7	PI Divert Inder													
8	Adder	-1	-1	-1	-1	I	-1	-1	I	-1	I	I	-1	
9	Single Pulse	/	/	/	/	/	/	/	/	/	/	/	/	
1Ø	MA AC Ref Latch	X	X	X	X	X	X	X						
11	MA	X	X	X	X	P	P	P	*	-1	*	*	*	* = $1ØØ_8$
12	AR	X	X	X	X	X	I	I	I	I	P	P	P	
13	PC	P	P	P	P	P	P	P	P	P	P	P	*	* = $1ØØ_8$
14	AB	X	X	X	X	P	P	P	*	-1	*	*	*	* = $1ØØ_8$
15	AB AB	X	X	X	X							/	/	
16	BR	X	X	X	X	X	X	X	X	X	I	I	I	
17	Key Sync		/	/										
18	AD EN IOB					/								
19	Clock-Long Cycle					/								
2Ø	KT1				/									
21	AB PC					/	/	/						
22	IOB				I	I								
23	KT2					/								
24	Key Cycle					/	/	/	/					
25	KT3						/							
26	Inst RDY						/	/						
27	ITØ							/						
28	IR MB							/	/			/	/	
29	Inst Done							/	/			/	/	
3Ø	IR IR								/	/	/			
31	IR							I	I	I	I	I	I	
32	IT1								/					
33	AD MB								/					
34	AB AD								/	/	/			

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

DEC FORM NO DEC 16-(381)-1022-NJ70 DRA 109

SHEET 7 OF 22

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- KEY XCT OF HALT, 1Ø0 (2 of 2)

/ = 1 X = Misc. 1, Ø
= Ø I = Instruction

#	INDICATOR	STEP 1	2	3	4	5	6	7	8	9	1Ø	11	12
35	ET2									/			
36	MA RD RQ											/	
37	PROG STOP									/	/	/	/
38	FM SEL								2	2	2		
39	ST1										/		
4Ø	AD BR +										/	/	
41	MA SQ RQ											/	
42	PI CYC RDY											/	
43	MC ASYNC START											/	
44	MC INFET START											/	
45	CLOCK INH							/				/	
46	MB							I	I	I	I	I	I
47	PC + 1 INH	/	/	/	/	/	/	/	/	/	/	/	/
48	PC CLK EN											/	

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

DEC FORM NO DEC 16-(381)-1022-N370 DRA 109

SHEET 8 OF 22

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- KEY START OF 100/JRST 100
(Starting at IT0)

/ = 1 X = Misc 1, 2
= 0 I = Instruction

#	INDICATOR	6	7	8	9
1	ITØ	/			/
2	ADDER	-1	I	I	I
3	PC + 1 INH				
4	Single Pulse	/	/	/	/
5	AB PC				
6	MA	*	*	*	*
7	AR	X	X	I	*
8	PC	*	*	*	*
9	AB	*	*	*	*
10	AB AB	/		/	/
11	MB	I	I	I	I
12	Inst RDY	/		/	/
13	IR MB	/	/		/
14	IR IR		/	/	
15	Inst. Done	/	/		/
16	IR	I	I	I	I
17	IT1		/		
18	AD MB		/	/	
19	AB AD		/		
20	ET2			/	
21	MA RD RQ	/		/	/
22	BR	X	X	X	I
23	AD BR +				/
24	FM SEL		2	2	
25	MA SQ RQ	/		/	/
26	MC Async Start	/		/	/
27	MC Infet Start	/		/	/
28	Clock INH	/			/

* = 100 Octal
* = 101 Octal
* = 100 Octal
* = 100 Octal

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

DEC FORM NO

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- KEY XCT OF MOVE Ø, 1 (1 of 2)

AC 1 = -1 / = 1 X = Misc. 1, Ø
AC Ø = Ø = Ø I = Instruction

#	INDICATOR	STEP 1	2	3	4	5	6	7	8	9	1Ø	11	12	13
														P=PC AT STEP 1
1	Key Latch	/	/											
2	Key Idle	/	/	/	/									/
~~3~~	~~Key Sing Pls Sync~~	/	/	/	/	/	/	/	/	/	/	/	/	/
4	Key Sync RDY	/	/	/	/		/	/	/	/	/	/	/	/
5	Key Sync		/	/										
6	Single Pulser	/	/	/	/	/	/	/	/	/	/	/	/	/
7	Clock INH							/		/			/	
8	MAINT Mode	/	/	/	/	/	/	/	/	/	/	/	/	/
9	PI Divert Inder													
10	AD EN IOB					/								
11	Clock Long Cycle					/								
12	ADDER	-1	-1	-1	-1	I	-1	-1	I			-1	-1	-1
13	PC + 1 INH	/	/	/	/	/	/	/	/	/	/	/	/	/
~~14~~	~~Single Pulser~~	/	/	/	/	/	/	/	/	/	/	/	/	/
15	KT1				/									
16	KT2					/								
17	AB AS	X	X	X	X									
18	MA	X	X	X	X	P	P	P	1	P	P	P	P	P
19	AB	X	X	X	X	P	P	P	1	P	P	P	P	P
20	MA AC REF Latch	X	X	X	X	X	X	X	/	X	X	X	X	X
21	PC	P	P	P	P	P	P	P	P	P	P	P	P	P
22	AR	X	X	X	X	X	I	I	I	-1	-1	-1	-1	-1
23	MA MA													
24	FM											-1	X	X
25	KT3					/								
26	AB AB	X	X	X	X					/	/	/	/	/
27	XCT			/	/	/	/	/	/					
28	AB PC					/	/	/						
29	Key Cycle					/	/	/	/	/				
30	ITØ							/						
31	IR MB							/	/				/	/
32	INST Done							/	/				/	/
33	INST RDY						/	/						
34	IR IR								/	/	/	/		

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE SINGLE PULSE CHART - KEY XCT OF DATAI APR, Ø (2 of 4)

#	36	37
1		
2		
3	/	/
4	/	/
5		
6	/	/
7	/	/
8		
9	-1	-1
1Ø	I	I
11	I	I
12	15	16
13	/	X
14		
15		
16	/	/
17		X
18	X	I
19		
2Ø		
21	/	
22		/
23		
24	I	I
25	/	/
26		
27		
28	I	I
29		
3Ø		
31		
32	2	
33		
34	/	

STEP (15-30 = 15 Clocks)

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

DEC FORM NO

ENGINEERING SPECIFICATION

digital CONTINUATION SHEET

TITLE SINGLE PULSE CHART - KEY XCT OF DATAI APR, Ø (3 of 4)

/ = 1 X = Misc. 1, Ø = Ø I = Instruction

#	INDICATOR	1	2	3	4	5	6	STEP 7	8	9	1Ø	11	12	13	14	15	3Ø	31	32	33	34	35
35	IR MB							/	/													
36	Inst. Done							/	/													
37	Mem Go INH									/	/	/	/	/	/	/	/	/	/	/		
38	MA MA									/	/	/	/	/	/	/	/	/	/	/	/	/
39	Inst RDY						/	/														
4Ø	MC Sync WR									/												
41	MC Store IN AC									/	/	/	/	/	/	/	/	/	/	/	/	/
42	FT6									/												
43	MA WR RQ									/	/	/	/	/	/	/	/	/	/	/	/	/
44	I OB IOT										/	/	/	/	/	/	/	/	/	/		
45	ET1										/											
46	AD AR-											/										
47	IOT IOS EN											/	/	/	/	/	/	/	/			
48	IOT TØ											/										
49	IOT T1												/	/	/							
5Ø	IOT Data Time													/	/	/	/	/				
51	IOT T2															/	/					
52	IOT T8																	/				
53	PI Cyc RDY																		/	/	/	/
54	IOT T9																		/			
55	AD AR +																		/	/		
56	MC Async Start																		/	/	/	/
57	MC Infet Start																		/	/	/	/
58	ET 2																			/		
59	ST1																				/	
6Ø	FM ADR MA																					/
61	PAR BIT																					/
62	ST2																					/
63	ST5																					
64	IOB Reset Sync																			/		
65	FMC Store IN AC																					
66	COMP AC WR																					
67	PC CLK EN																					
68	AD BR +																		/	/		

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

DEC FORM NO DEC 16-(381)-1022-N370
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ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART -- KEY XCT OF DATAI APR,Ø (4 of 4)

/ = 1 X = Misc. 1, Ø
= Ø I = Instruction
(15-30=15 clocks)

#	STEP 36	37
35		/
36		/
37		
38	/	
39		
40		
41	/	/
42		
43	/	
44		
45		
46		
47		
48		
49		
50		
51		
52		
53	/	/
54		
55		
56	/	/
57	/	/
58		
59		
60	/	
61	/	/
62		
63	/	
64		
65	/	
66		
67		/
68		

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A

ENGINEERING SPECIFICATION — digital — CONTINUATION SHEET

TITLE SINGLE PULSE CHART --KEY XCT OF ADDI Ø, 1 (ACØ = Ø)

/ = 1 X = Misc. 1, Ø
= Ø I = Instruction

#	INDICATOR	STEP 7	8	9	1Ø	11
1	ITØ	/				
2	MA	X	1	X	X	X
3	ADDER	-1	I	1	-1	-1
4	AR	I	I	1	1	1
5	IR MB	/	/			/
6	IR IR		/	/	/	
7	Inst Done	/	/			/
8	Clock INH	/				/
9	AB PC	/		/		
1Ø	PC + 1 INH	/	/	/	/	/
11	Inst RDY	/				
12	MB	I	I	I	I	I
13	AB AD		/			
14	FM SEL		2	2	2	
15	IT1		/			
16	AD EN MB		/			
17	MA AC Ref Latch	X	/	X	X	X
18	ET2			/		
19	AD EN AR +			/		
2Ø	AD EN FM +			/		
21	AD ADD			/		
22	AD EQV			/		
23	Inst Fetch Next			/		
24	ST1				/	
25	MA RD RQ				/	/
26	MA SEQ RQ				/	/
27	AB AB				/	/
28	MC Async Start				/	/
29	MC Infet START				/	/
3Ø	FM				1	1
31	PI Cyc RDY				/	/
32	PC Clock EN					/
33	ADR BUS	X	1	X	X	X

SIZE	CODE	NUMBER	REV
A	SP	KI1Ø-Ø-SPC	A