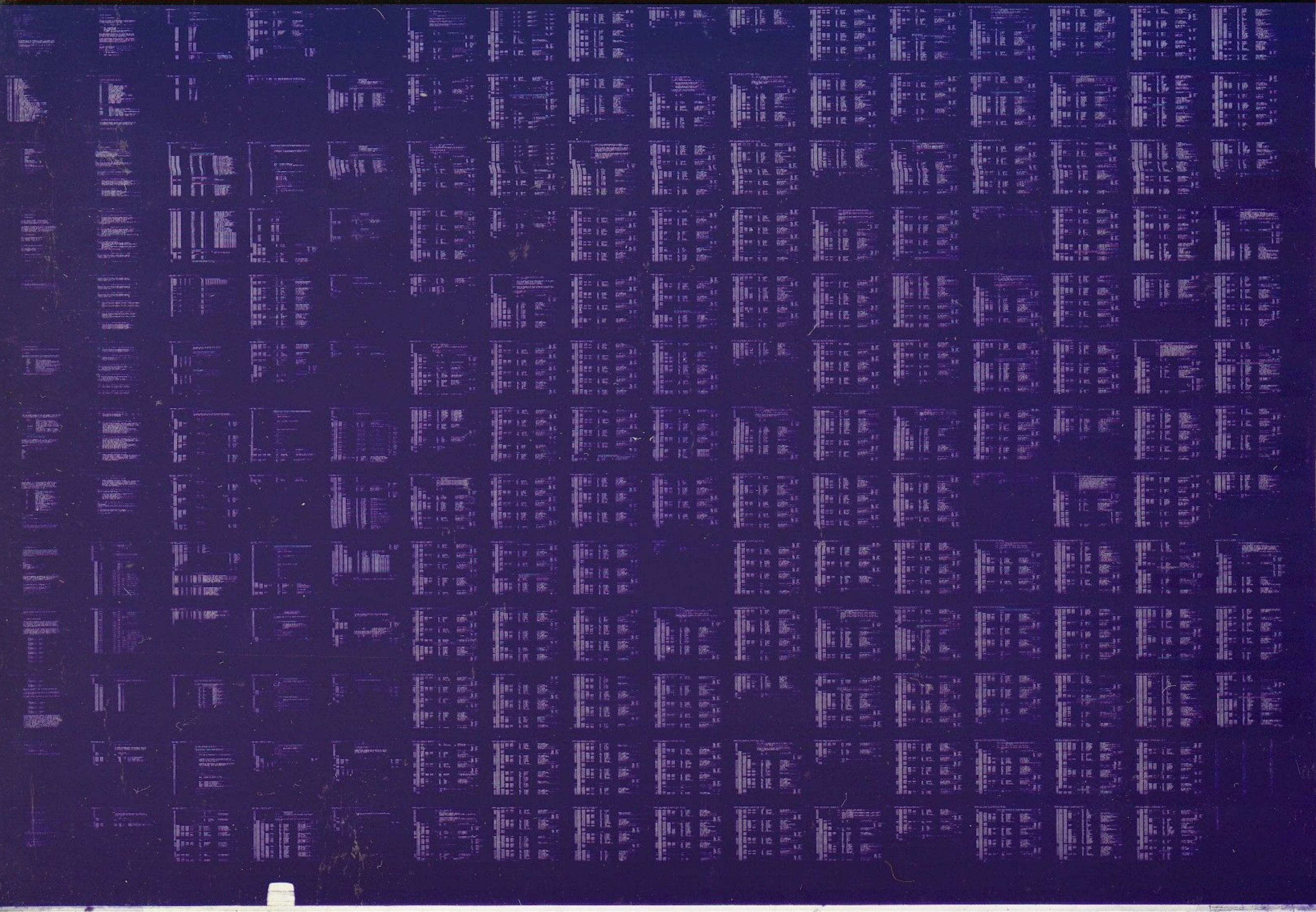


IEU11-A,
IEQ11-A

IEU/IEQ STATIC DIAG
CZIEABO

AH-T066B-MC
FICHE 1 OF 2

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IEU/IEQ STATIC DIAG
CZIEABO

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FICHE 2 OF 2

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.REM 8

IDENTIFICATION

PRODUCT CODE: AC-T064B-MC
 PRODUCT NAME: CZIEAB0 IEU/IEQ STATIC DIAG
 PRODUCT DATE: SEPTEMBER 1982
 MAINTAINER: CSS MUNICH
 AUTHOR: PETER SEEBACH

REMARKS TO VERSION B
 ++++++

INITCODE MODIFIED SO THAT SEVERAL UNITS CAN BE RUN .
 THE CHANGES ARE MARKED WITH *B*
 UPDATED TO VERSION B BY PETER SEEBACH, 6-SEP-82

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THE IEU-11/IEQ-11 DIAGNOSTIC PROGRAM PROVIDES A SERIES OF TESTS DESIGNED TO VERIFY THE INTEGRITY AND FUNCTIONALITY OF THE IEU-11 OR IEQ-11 INTERFACE. TEST 3, 27 AND 28 ARE DEPENDENT ON THE INTERFACE AND ON THE SOFTWARE P-TABLE ANSWERS (SEE 6.27 AND 6.28).

THIS DIAGNOSTIC HAS BEEN WRITTEN FOR USE WITH THE DIAGNOSTIC RUNTIME SERVICES SOFTWARE (SUPERVISOR). THESE SERVICES PROVIDE THE INTERFACE TO THE OPERATOR AND TO THE SOFTWARE ENVIRONMENT. THIS PROGRAM CAN BE USED WITH XXDP+, ACT, APT, SLIDE. FOR A COMPLETE DESCRIPTION OF THE RUNTIME SERVICES, REFER TO THE XXDP+ USER'S MANUAL. THERE IS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES IN SECTION 2 OF THIS DOCUMENT.

1.2 SYSTEM REQUIREMENTS

PDP-11/LSI-11 PROCESSOR WITH 32K MEMORY OR MORE
 IEQ-11 INTERFACE (M-8634) FOR THE LSI
 IEU-11 INTERFACE (M-5648) FOR THE PDP
 CONSOLE TERMINAL (VT100, LA36, ECT.)
 XXDP+ LOAD DEVICE (RX, RK, RL ECT.)

1.3 RELATED DOCUMENTS AND STANDARDS

XXDP+ USER MANUAL (CHQUSA)
 IEU11-A OPTION DESCRIPTION (YG-C03KC-00) OR
 IEQ11-A OPTION DESCRIPTION
 IEU/IEQ DIAGNOSTIC LISTING

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

ALL PDP-11 OR LSI-11 PROCESSOR DIAGNOSTIC SHOULD RUN SUCCESSFULLY

1.5 ASSUMPTIONS

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NONE

1.6 EXECUTION TIME

EXECUTION TIME IS DEPENDENT ON THE PROCESSOR SPEED AND THE TYPE OF
TEST EXECUTION (QUICK VERIFY PASS OR NOT):
THE FOLLOWING ARE TYPICAL EXECUTION TIMES OBSERVED ON A PDP-11/60:

QUICK VERIFY PASS ? YES ,EXECUTION TIME FOR THE WHOLE PASS IS 28 SEC.

QUICK VERIFY PASS ? NO ,EXECUTION TIME FOR THE WHOLE PASS IS 6.75 MIN.

2.0 OPERATING INSTRUCTIONS

THIS SECTION CONTAINS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES. FOR DETAILED INFORMATION, REFER TO THE XXDP+ USER'S MANUAL (CHQUS).

2.1 COMMANDS

THERE ARE ELEVEN LEGAL COMMANDS FOR THE DIAGNOSTIC RUNTIME SERVICES (SUPERVISOR). THIS SECTION LISTS THE COMMANDS AND GIVES A VERY BRIEF DESCRIPTION OF THEM. THE XXDP+ USER'S MANUAL HAS MORE DETAILS.

COMMAND	EFFECT
-----	-----
START	START THE DIAGNOSTIC FROM AN INITIAL STATE
RESTART	START THE DIAGNOSTIC WITHOUT INITIALIZING
CONTINUE	CONTINUE AT TEST THAT WAS INTERRUPTED (AFTER ^C)
PROCEED	CONTINUE FROM AN ERROR HALT
EXIT	RETURN TO XXDP+ MONITOR (XXDP+ OPERATION ONLY!)
ADD	ACTIVATE A UNIT FOR TESTING (ALL UNITS ARE CONSIDERED TO BE ACTIVE AT START TIME)
DROP	DEACTIVATE A UNIT
PRINT	PRINT STATISTICAL INFORMATION (IF IMPLEMENTED BY THE DIAGNOSTIC - SECTION 4.0)
DISPLAY	TYPE A LIST OF ALL DEVICE INFORMATION
FLAGS	TYPE THE STATE OF ALL FLAGS (SEE SECTION 2.3)
ZFLAGS	CLEAR ALL FLAGS (SEE SECTION 2.3)

A COMMAND CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. SO YOU MAY, FOR EXAMPLE, TYPE "STA" INSTEAD OF "START".

2.2 SWITCHES

THERE ARE SEVERAL SWITCHES WHICH ARE USED TO MODIFY SUPERVISOR OPERATION. THESE SWITCHES ARE APPENDED TO THE LEGAL COMMANDS. ALL OF THE LEGAL SWITCHES ARE TABULATED BELOW WITH A BRIEF DESCRIPTION OF EACH. IN THE DESCRIPTIONS BELOW, A DECIMAL NUMBER IS DESIGNATED BY "DDDD".

SWITCH	EFFECT
/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE - /TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDD	EXECUTE DDDDD PASSES (DDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDD = 1 TO 64000)
/UNITS:LIST	TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10-12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0-63)

EXAMPLE OF SWITCH USAGE:

```
-----
START/TESTS:1-5/PASS:1000/EOP:100
-----
```

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES AND 3) THE END OF PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1-5".

BELOW IS A TABLE THAT SPECIFIES WHICH SWITCHES CAN BE USED BY EACH COMMAND.

	TESTS	PASS	FLAGS	EOP	UNITS
START	X	X	X	X	X
RESTART	X	X	X	X	X
CONTINUE		X	X	X	
PROCEED			X		
DROP					X
ADD					X
PRINT					
DISPLAY					X
FLAGS					
ZFLAGS					
EXIT					

2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

FLAG	EFFECT
HOE	HALT ON ERROR - CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE
LOE	LOOP ON ERROR
IER*	INHIBIT ALL ERROR REPORTS
IBE*	INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXE*	INHIBIT EXTENDED ERROR REPORTS (THOSE CALLED BY PRINTX MACRO'S)
PRI	DIRECT MESSAGES TO LINE PRINTER
PNT	PRINT TEST NUMBER AS TEST EXECUTES
BOE	'BELL' ON ERROR
UAM	UNATTENDED MODE (NO MANUAL INTERVENTION)
ISR	INHIBIT STATISTICAL REPORTS (DOES NOT APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT STATISTICAL REPORTING)
IDU	INHIBIT PROGRAM DROPPING OF UNITS
ADR	EXECUTE AUTODROP CODE
LOT	LOOP ON TEST
EVL	EXECUTE EVALUATION (ON DIAGNOSTICS WHICH HAVE EVALUATION SUPPORT)

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

2.3.1 FLAG COMMANDS

 FLA(GS) THIS COMMAND PRINTED THE CURRENT SETTING

 OF ALL FLAGS

 ZFL(AGS) THIS COMMAND CLEARED ALL FLAGS

SEE THE XXDP* USER'S MANUAL FOR MORE DETAILS ON FLAGS. YOU MAY SPECIFY MORE THAN ONE FLAG WITH THE FLAG SWITCH. FOR EXAMPLE, TO CAUSE THE PROGRAM TO LOOP ON ERROR, INHIBIT ERROR REPORTS AND TYPE A 'BELL' ON ERROR, YOU MAY USE THE FOLLOWING STRING:

/FLAGS:LOE:IER:BOE

2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 6 OF THE XXDP+ USER'S MANUAL). WHEN YOU ANSWER THIS QUESTION WITH A "Y", THE RUNTIME SERVICES WILL ASK FOR THE NUMBER OF UNITS (IN DECIMAL). YOU WILL THEN BE ASKED THE FOLLOWING QUESTIONS FOR EACH UNIT.

EXAMPLE OF THE DIALOGUE:

```
CHANGE HW (L) ? Y
#UNITS (D) ? 1
UNIT 0
DEVICE ADDRESS          (0) 760150 ?
INTERRUPT VECTOR       (0) 420 ?
PRIORITY LEVEL         (0) 6 ?
DEVICE PRIMARY ADDRESS CH 0 (0) 0 ?
DEVICE PRIMARY ADDRESS CH 1 (0) 1 ?
IS TESTCABLE IN       (L)N/Y ?
```

2.5 SOFTWARE QUESTIONS

AFTER YOU HAVE ANSWERED THE HARDWARE QUESTIONS OR AFTER A RESTART OR CONTINUE COMMAND, THE RUNTIME SERVICES WILL ASK FOR SOFTWARE PARAMETERS. THESE PARAMETERS WILL GOVERN SOME DIAGNOSTIC SPECIFIC OPERATION MODES. YOU WILL BE PROMPTED BY "CHANGE SW (L) ?". IF YOU WISH TO CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUE ARE :

QUICK VERIFY PASS (L) Y ?

IF 'Y', THEN EACH TEST WILL ITERATE ONLY ONCE BEFORE CONTINUING TO THE NEXT TEST IN SEQUENCE.

IF 'N', THEN EACH TEST WILL ITERATE 20 TIMES BEFORE CONTINUING ON THE NEXT TEST IN SEQUENCE.
ALSO SOME TESTS WILL DO WITH MORE TESTPATTERNS .

NUMBER OF MATCH CHARACTER COUNTS (0) 63.?

AFTER THIS QUESTION YOU CAN CHANGE THE NUMBER OF DMA CYCLES

NUMBER OF BYTE COUNTS (0) 2047. ?

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AFTER THIS QUESTION YOU CAN SELECT THE ADDITIONAL STANDBY TEST WHICH CHECK EXTENDED ADDRESS BITS FOR THE Q-22 BUS WITHOUT MEMORY.

DO YOU WANT THE ADDITIONAL STANDBY TEST (L) ? N

2.6 EXTENDED P-TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF THE ANSWERS ARE REPETITIOUS.

TO ILLUSTRATE A MORE EFFICIENT METHOD, SUPPOSE YOU ARE TESTING A FICTIONAL DEVICE, THE XY11. SUPPOSE THIS DEVICE CONSISTS OF A CONTROL MODULE WITH EIGHT UNITS (SUB-DEVICES) ATTACHED TO IT. THESE UNITS ARE DESCRIBED BY THE OCTAL NUMBERS 0 THROUGH 7. THERE IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE Q-FACTOR. THIS Q-FACTOR MAY BE 0 OR 1. BELOW IS A SIMPLE WAY TO BUILD A TABLE FOR ONE XY11 WITH EIGHT UNITS.

UNITS (D) ? 8<CR>

UNIT 1
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 0<CR>
Q-FACTOR (O) 0 ? 1<CR>

UNIT 2
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 1<CR>
Q-FACTOR (O) 1 ? 0<CR>

UNIT 3
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 2<CR>
Q-FACTOR (O) 0 ? <CR>

UNIT 4
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 3<CR>
Q-FACTOR (O) 0 ? <CR>

UNIT 5
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 4<CR>
Q-FACTOR (O) 0 ? <CR>

UNIT 6
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 5<CR>

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Q-FACTOR (0) 0 ? <CR>

```

UNIT 7
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 6<CR>
Q-FACTOR (0) 0 ? 1<CR>

```

```

UNIT 8
CSR ADDRESS (0) 160000<CR>
SUB-DEVICE # (0) ? 7<CR>
Q-FACTOR (0) 1 ? <CR>

```

NOTICE THAT THE DEFAULT VALUE FOR THE Q-FACTOR CHANGES WHEN A NON-DEFAULT RESPONSE IS GIVEN. BE CAREFUL WHEN SPECIFYING MULTIPLE UNITS!

AS YOU CAN SEE FROM THE ABOVE EXAMPLE, THE HARDWARE PARAMETERS DO NOT VARY SIGNIFICANTLY FROM UNIT TO UNIT. THE PROCEDURE SHOWN IS NOT VERY EFFICIENT.

THE RUNTIME SERVICES CAN TAKE MULTIPLE UNIT SPECIFICATIONS HOWEVER. LET'S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION FEATURE.

UNITS (0) ? 8<CR>

```

UNIT 1
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 0,1<CR>
Q-FACTOR (0) 0 ? 1,0<CR>

```

```

UNIT 3
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 2-5<CR>
Q-FACTOR (0) 0 ? 0<CR>

```

```

UNIT 7
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 6,7<CR>
Q-FACTOR (0) 0 ? 1<CR>

```

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL BUILD AS MANY ENTRIES AS IT CAN WITH THE INFORMATION GIVEN IN ANY ONE PASS THROUGH THE QUESTIONS. IN THE FIRST PASS, TWO ENTRIES ARE BUILT SINCE TWO SUB-DEVICES AND Q-FACTORS WERE SPECIFIED. THE SERVICES ASSUME THAT THE CSR ADDRESS IS 160000 FOR BOTH SINCE IT WAS SPECIFIED ONLY ONCE. IN THE SECOND PASS, FOUR ENTRIES WERE BUILT. THIS IS BECAUSE FOUR SUB-DEVICES WERE SPECIFIED. THE "-" CONSTRUCT TELLS THE RUNTIME SERVICES TO INCREMENT THE DATA FROM THE FIRST NUMBER TO THE SECOND. IN THIS CASE, SUB-DEVICES 2, 3, 4 AND 5 WERE SPECIFIED. (IF THE SUB-DEVICE WERE SPECIFIED BY ADDRESSES, THE INCREMENT WOULD BE BY 2 SINCE ADDRESSES MUST BE ON AN EVEN BOUNDARY.) THE CSR ADDRESSES AND Q-FACTORS FOR THE FOUR ENTRIES ARE ASSUMED TO BE 160000 AND 0 RESPECTIVELY SINCE THEY WERE ONLY SPECIFIED ONCE. THE LAST TWO UNITS ARE SPECIFIED IN THE THIRD PASS.

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THE WHOLE PROCESS COULD HAVE BEEN ACCOMPLISHED IN ONE PASS AS SHOWN BELOW.

```
# UNITS (D) ? 8<CR>
```

```
UNIT 1
```

```
CSR ADDRESS (O) ? 160000<CR>
```

```
SUB-DEVICE # (O) ? 0-7<CR>
```

```
Q-FACTOR (O) 0 ? 0,1,0,,,,1,1<CR>
```

AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

2.7 QUICK START-UP PROCEDURE (XXDP+)

TO START-UP THIS PROGRAM:

1. BOOT XXDP+
2. GIVE THE DATE AND ANSWER THE LSI AND 50HZ (IF THERE IS A CLOCK) QUESTIONS
3. TYPE "R NAME", WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
4. TYPE "START"
5. ANSWER THE "CHANGE HW" QUESTION WITH "Y"
6. ANSWER ALL THE HARDWARE QUESTIONS
7. ANSWER THE "CHANGE SW" QUESTION WITH "N"

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.5.

2.7.1 CONTROL CHARACTERS

A CONTROL C ENTERED DURING THE EXECUTION OF A DIAGNOSTIC CAUSES A RETURN TO COMMAND MODE.

A CONTROL Z ENTERED DURING ONE OF THE OPERATOR DIALOGUES, CAUSES THE DEFAULTS TO BE TAKEN FOR THE REMAINDER OF THAT DIALOGUE.

3.0 ERROR INFORMATION

3.1 TYPES OF ERROR MESSAGES

THERE ARE THREE LEVELS OF ERROR MESSAGES THAT MAY BE ISSUED BY A DIAGNOSTIC: GENERAL, BASIC AND EXTENDED. GENERAL ERROR MESSAGES ARE ALWAYS PRINTED UNLESS THE "IER" FLAG IS SET (SECTION 2.3). THE GENERAL ERROR MESSAGE IS OF THE FORM:

NAME ,TYPE,NUMBER,UNIT NUMBER,TST NUMBER,PC:XXXXXX

.WHERE: NAME = DIAGNOSTIC NAME
 TYPE = ERROR TYPE (SYS FATAL, DEV FATAL, HARD OR SOFT)
 NUMBER = ERROR NUMBER
 UNIT NUMBER = 0 - N (N IS LAST UNIT IN PTABLE)
 TST NUMBER = TEST AND SUBTEST WHERE ERROR OCCURRED
 PC:XXXXXX = ADDRESS OF ERROR MESSAGE CALL

BASIC ERROR MESSAGES ARE MESSAGES THAT CONTAIN SOME ADDITIONAL INFORMATION ABOUT THE ERROR. THESE ARE ALWAYS PRINTED UNLESS THE "IER" OR "IBE" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL MESSAGE.

EXTENDED ERROR MESSAGES CONTAIN SUPPLEMENTARY ERROR INFORMATION SUCH AS REGISTER CONTENTS OR GOOD/BAD DATA. THESE ARE ALWAYS PRINTED UNLESS THE "IER", "IBR" OR "IXE" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL ERROR MESSAGE AND ANY ASSOCIATED BASIC ERROR MESSAGES.

EXAMPLES:

CZIEA SOFT ERR 00301 ON UNIT 00 TST 003 SUB 000 PC: 001234
 READ-WRITE BITS NOT CORRECT
 REGISTER : IIR , CHANNEL : 1 , GOOD DATA :00000 ,BAD DATA :00001

NOTE THAT THE ERROR NUMBER IS IN THE FORMAT 'TNN' WHERE:

T IS THE TEST NUMBER AND
 NN IS THE ERROR NUMBER WITHIN THE TEST

IE. 00302 = ERROR 2 IN TEST 03.
 00504 = ERROR 4 IN TEST 05.

3.2 SPECIFIC ERROR MESSAGES AND REPORTS

ERROR MESSAGES:

CALL	MESSAGE
E101	REGISTER ADDRESSING ERROR - TRAP 4
E200	REGISTER INCORRECT AFTER BUS RESET
E301	READ - WRITE BITS INCORRECT
E302	BITS NOT CLEARED AFTER BUS RESET
E303	MUX BIT IN CSR NOT SETTABLE
E401	CSR CONTENTS INCORRECT
E402	NO INTERRUPT WHEN EXPECTED
E403	INCORRECT PRIORITY LEVEL
E501	BITS IN IIR REGISTER INCORRECT
E502	BITS IN ISR REGISTER INCORRECT
E801	DATA TRANSFER FROM CHANNEL 1 TO 2 INCORRECT
E802	DATA TRANSFER FROM CHANNEL 2 TO 1 INCORRECT
E901	ICR CONTENTS INCORRECT
E222	DIR CONTENTS INCORRECT
E250	RX BUFFER CONTENTS INCORRECT AFTER DMA (2 TO 1)
E231	RX BUFFER CONTENTS INCORRECT AFTER DMA (1 TO 2)
E232	NO INTERRUPT AFTER DMA
E233	NO INTERRUPT AFTER READ FROM A NXM ADDRESS
E234	BAR CONTENTS INCORRECT
E235	BCR CONTENTS INCORRECT

ERROR REPORTS:

CALL	MESSAGE
ERR101	REGISTER AT (AAAAAA) DOES NOT RESPOND
ERR201	REGISTER: CSR,CHA.:(CC) ,GOOD DATA:NNNN,BAD DATA:NNN (FOR IEU11A IGNORE BIT 9-12)
ERR202	REGISTER: (RRR),CHA.:(CC) ,GOOD DATA:NNNN,BAD DATA:NNN
ERR401	CHAN.:(CC),CORRECT PRIORITY:(PPP) ,WRONG PRIORITY:(PPP)
ERR402	CHANNEL :(CC) IS SELECTED
ERR501	CHAN.:(CC),GOOD DATA:NNNN ,BAD DATA:NNNN,ITERATION:NN
ERR231	GOOD DATA TXADDR BAD DATA RXADDR BYTE CNT# DDDDDD AAAAAA DDDDD AAAAA CCCCC

4.0 PERFORMANCE AND PROGRESS REPORTS

AT THE END OF EACH PASS, THE PASS COUNT IS GIVEN ALONG WITH THE TOTAL NUMBER OF ERRORS REPORTED SINCE THE DIAGNOSTIC WAS STARTED. THE "EOP" SWITCH CAN BE USED TO CONTROL HOW OFTEN THE END OF PASS MESSAGE IS PRINTED. SECTION 2.2 DESCRIBES SWITCHES.

5.0 DEVICE INFORMATION TABLES

6.0 TEST SUMMARIES

6.1 TEST 1 - IEX11 : REGISTER ADDRESSING TEST

VERIFY THAT ADDRESSING THE 8 BUS DEVICE REGISTERS DOES NOT CAUSE A NON-EXISTENT MEMORY TRAP.
 AN ERROR IN THIS TEST COULD MEAN THAT THE DEVICE IS INCORRECTLY CONFIGURED OR THAT THE ADDRESS IS WRONG.
 COMMUNICATION BETWEEN THE MAIN CPU AND THE IEX11 IS ACCOMPLISHED THROUGH A SET OF SIXTEEN REGISTERS. THE SIXTEEN REGISTERS ARE ASSIGNED ADDRESSES IN THE I/O PAGE.

6.2 IEX - TEST 2 : INITIALIZATION TEST

RESETS THE IEX AND ENSURES THAT REGISTERS CSR, IIR, ISR, ICR, IDR, MCR IN BOTH CHANNELS ARE IN THEIR PROPER INITIALIZATION STATE.
 REGISTERS BAR AND BCR ARE NOT IN A DEFINITIVE STATE AFTER RESET SO THEY ARE NOT TESTED HERE.
 THE MUX BIT IN CSR IS ALSO TESTED.

6.3 IEX - TEST 3 : R/W BIT TEST

THIS TEST CHECKS ALL R/W BITS OF CSR, BAR, BCR AND MCR REGISTERS IN BOTH CHANNELS. IT ALSO TESTS THE MASTER CLEAR FUNCTION IN CSR1 + CSR2.
 THE TMS 9914 REGISTERS IIR, ISR, ICR, IDR ARE NOT CHECKED IN THIS TEST.

6.4 IEX - TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

PART 1 CHANNEL 1 WHICH IS SELECTED AS SYSTEM CONTROLLER, SENDS THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND SRE.
 ALSO, BOTH IIR AS WELL AS ISR REGISTERS ARE CHECKED.
 PART 2 CHANNEL 2 WHICH IS SELECTED AS SYSTEM CONTROLLER, SENDS THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND SRE.
 ALSO BOTH IIR AS WELL AS ISR REGISTERS ARE CHECKED.

6.5 IEX - TEST 5 : INTERRUPT TEST

PART 1 CHECKS THE DEVICE PRIORITY LEVEL AND THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 1.
 INITIATING THIS SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB BITS IN CSR1 AND BO BIT IN IIR 1 REGISTER.
 PART 2 CHECKS THE DEVICE PRIORITY LEVEL AND THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 2.
 INITIATING THIS SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB

BITS IN CSR2 AND BO BIT IN IIR 2 REGISTER.

6.6 IEX - TEST 6 : ADDRESS REGISTER TEST (ICR) OF CHANNEL 1

PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 1 (ADR) BY LOADING ITS DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING THE ASSIGNED LISTEN OR TALKER ADDRESS VIA THE IEC/IEEE BUS.

NOTE: THE ULPA BIT IN THE ISR1 REGISTER IS DEPENDENT FROM THE STATUS OF DPA1 (DPA1=ULPA IS SET)

PART 2 CHECKS THE FUNCTION OF THE 'DAT', 'DAL' AND 'EDPA' BIT OF ADR1 REGISTER IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION WILL DO IT WITH DIFFERENT DPA'S.

6.7 IEX - TEST 7 : ADDRESS REGISTER TEST (ICR) OF CHANNEL 2

THIS TEST IS THE SAME TEST AS TEST 6 EXCEPT THE CHANNEL IS CHANGED

PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 2 (ADR) BY LOADING ITS DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING THE ASSIGNED LISTEN OR TALKER ADDRESS VIA THE IEC/IEEE BUS.

NOTE: THE ULPA BIT IN THE ISR2 REGISTER IS DEPENDENT FROM THE STATUS OF DPA2 (DPA2=ULPA IS SET)

PART 2 CHECKS THE FUNCTION OF THE 'DAT', 'DAL' AND 'EDPA' BIT OF ADR2 REGISTER IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION WILL DO IT WITH DIFFERENT DPA'S.

6.8 IEX - TEST 8 : DATA TRANSFER TEST

THIS TEST IS DIVIDED INTO TWO PARTS.

IT CHECKS THE DATA OUT (DOR) AND DATA IN (DIR) REGISTERS.
PART 1 CHECKS DOR AND DIR REGISTERS BY LOADING THE DOR1 WITH A DATA BYTE AND READING IT FROM THE DIR2 (PROGRAMMED DATA TRANSFER FROM CHAN.1 TO CHAN.2).

PART 2 CHECKS DOR AND DIR REGISTERS BY LOADING THE DOR2 WITH A DATA BYTE AND READING IT FROM THE DIR1 (PROGRAMMED DATA TRANSFER FROM CHAN.2 TO CHAN.1).

IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION IS CARRIED OUT WITH A DIFFERENT DATA PATTERN

6.9 IEX - TEST 9 : SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY SECONDARY ADDRESS (MSA1)

6.10 IEX - TEST 10 : SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION.
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA1)

6.11 IEX - TEST 11 : SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA2)

6.12 IEX - TEST 12 : SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION .
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA2)

6.13 IEX - TEST 13 : DEVICE CLEAR INTERFACE FUNCTION TEST

PART 1 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 2 BY MEANS OF
RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS COMMAND
(SDC)
PART 2 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 1 BY MEANS OF
RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS COMMAND
(SDC)

6.14 IEX - TEST 14 : DEVICE TRIGGER INTERFACE FUNCTION TEST

PART 1 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 2 BY MEANS OF
RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY
COMMAND NOT FGET.
PART 2 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 1 BY MEANS OF
RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY
COMMAND NOT FGET.

6.15 IEX - TEST 15 : INCOMPLETE SOURCE HANDSHAKE TEST

PART 1 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 1.
SOURCE HANDSHAKE DOES NOT OCCUR DURING THE DATA TRANSFER,
BECAUSE CHANNEL 2 IS NOT SELECTED AS LISTENER.
PART 2 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 2.
SOURCE HANDSHAKE DOES NOT OCCUR DURING THE DATA TRANSFER,
BECAUSE CHANNEL 1 IS NOT SELECTED AS LISTENER.

6.16 IEX - TEST 16 : CHANGING OF THE CONTROLLER CONFIGURATION

- PART 1 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 1 TO 2
BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.
PART 2 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 2 TO 1
BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.

6.17 IEX - TEST 17 : REMOTE/LOCAL INTERFACE FUNCTION TEST

- PART 1 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 2 USING THE FOLLOWING
COMMANDS GTL, LLO, NOT RTL.
PART 2 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 1 USING THE FOLLOWING
COMMANDS GTL, LLG, NOT RTL.

6.18 IEX - TEST 18 : SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

- THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 1
PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 1
AND CHECKS THE SRQ BIT IN ISR2.
PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 1.
IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
OUT WITH DIFFERENT DATA.

6.19 IEX - TEST 19 : SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2

- THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 2.
PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 2 AND
CHECKS THE SRQ BIT IN ISR1.
PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 2.
IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
OUT WITH DIFFERENT DATA.

6.20 IEX - TEST 20 : PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

- PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).

6.21 IEX - TEST 21 : PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

- PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).

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6.22 IEX - TEST 22 : END OF A MESSAGE BLOCK TEST

- PART 1 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 1. CHANNEL 2 SENDS THE EOI MESSAGE VIA THE IEC/IEEE BUS.
- PART 2 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 2. CHANNEL 1 SENDS THE EOI MESSAGE VIA THE IEC/IEEE BUS.

6.23 IEX - TEST 23 : DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

- PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 1 TO 2 BY MEANS OF A DMA I.E. CHAN. 1 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE, WHEREAS CHAN.2 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB CYCLE. THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS 2K BYTES AND THE HIGHEST BUS ADDRESS IS BELOW 32 K.
- PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1. THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS SELECTED IN THE BUS ADDRESS REGISTER OF CHAN 1 (DATI CYCLE).
- PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
- PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).

6.24 IEX - TEST 24 : DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

- PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 2 TO 1 BY MEANS OF A DMA I.E. CHAN. 2 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE, WHEREAS CHAN.1 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB CYCLE. THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS 2K BYTES AND THE HIGHEST BUS ADDRESS IS BELOW 32 K.
- PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1. THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS SELECTED IN THE BUS ADDRESS REGISTER OF CHAN 2 (DATOB CYCLE).
- PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
- PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).

6.25 IEX - TEST 25 : MCR FUNCTION TEST OF CHANNEL 1

- PART 1 CHANNEL 2 TRANSMITS 9 DATA BYTES (50) THAN A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177) VIA THE IEC/IEEE BUS TO CHANNEL 1. AFTER RECEIVING THESE CHARACTERS THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 1 (COMP END).
- PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE EOS CHARACTER ARE TRANSMITTED. I.E. 2 EOS CHAR.(25),1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25).

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6.26 IEX - TEST 26 MCR FUNCTION TEST OF CHANNEL 2

- PART 1 CHANNEL 1 TRANSMITS 9 DATA BYTES (50) THAN
 A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177)
 VIA THE IEC/IEEE BUS TO CHANNEL 2. AFTER RECEIVING THESE CHARACTERS
 THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 2 (COMP END).
 PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
 CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE
 EOS CHARACTER ARE TRANSMITTED.
 I.E. 2 EOS CHAR.(25), 1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25).

6.27 IEX - TEST 27 EXTENDED ADDRESS BIT (Q22-BUS) TEST

 THIS TEST IS ONLY BE CARRIED OUT IF A Q-BUS IS USED AND IF THE AVAILABLE
 MEMORY IS GREATER THAN 128K (Q22-BUS).

- PART 1 FINDS OUT IF THE AVAILABLE MEMORY IS GREATER THAN 128K.
 IF YES ,THEN A DMA IS CARRIED OUT BY SENDING DATA VIA THE
 IEC/IEEE BUS FROM CHANNEL 1 TO 2.
 THE SEQUENCE DESCRIBED ABOVE IS ALSO EXECUTED WITH 256K (BA 19 SET),
 512K (BA 20 SET) AND 1024K (BA 21 SET).
 PART 2 SAME AS PART 1 EXCEPT THE CHANNELS .THE DMA DATA TRANSFER IS
 CARRIED OUT FROM CHANNEL 2 TO 1.

6.28 IEX - TEST 28 ADDITIONAL STANDBY TEST

 THIS TEST CAN BE USED IF YOU WANT TO CHECK THE EXTENDED ADDRESS BITS
 WITHOUT MEMORY.
 IT MOVES A SLIDING ONE'S BIT PATTERN ACROSS THE ADDRESS LINE 16,17,
 18,19,20,21 IGNORING NXM ERRORS BUT CHECKING THE ADDRESS REGISTER LINES TO
 THE BUS.

THE PATTERN SHOULD BE CHECKED ON A LOGIC ANALYSER .
 THE LOGIC ANALYSER HAS TO BE CONNECT TO THE ADDRESS LINES 16-21
 THE TRIGGER HAS TO BE CONNECT TO THE SIGNAL ADREN L(E9, PIN 4).

THIS TEST IS ONLY CARRIED OUT IF A Q-BUS IS USED AND IF YOU ANSWER
 THE SOFTWARE QUESTION.

7.0 PROGRAM LISTING

PROGRAM HEADER AND TABLES

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```

1011 .TITLE PROGRAM HEADER AND TABLES
1012 .SBTTL PROGRAM HEADER
1038
1040 000000 .ENABL AMA,ABS
1041 002000 = 2000
1043
1044
1045 002000 BGNMOD
1046
1047 :++
1048 : THE PROGRAM HEADER IS THE INTERFACE BETWEEN
1049 : THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
1050 :--
1051
1052 002000 POINTER BGNU,BGNAU,BGNSETUP,BGNSW,BGNSFT,ERRTBL
1053
1054
1071
1072 002000
002000 .HEADER CZIEA,B,0,0,0
002000 103 L$NAME:: ;DIAGNOSTIC NAME
002001 132 .ASCII /C/
002002 111 .ASCII /Z/
002003 105 .ASCII /I/
002004 101 .ASCII /E/
002005 000 .ASCII /A/
002006 000 .BYTE 0
002007 000 .BYTE 0
002010 L$REV:: ;REVISION LEVEL
002010 102 .ASCII /B/
002011 L$DEPO:: ;0
002011 060 .ASCII /O/
002012 L$UNIT:: ;NUMBER OF UNITS
002012 000001 .WORD T$PTHV
002014 L$TIML:: ;LONGEST TEST TIME
002014 000000 .WORD 0
002016 L$HPCP:: ;PTR. TO DEF. H.W. PTABLE
002016 076724 .WORD L$HARD
002020 L$SPCP:: ;PTR. TO S.W. PTABLE
002020 077336 .WORD L$SOFT
002022 L$HPTP:: ;PTR. TO DEF. H.W. PTABLE
002022 002216 .WORD L$HW
002024 L$SPTP:: ;PTR. TO S.W. PTABLE
002024 002234 .WORD L$SW
002026 L$LADP:: ;DIAG. END ADDRESS
002026 100004 .WORD L$LAST
002030 L$STA:: ;RESERVED FOR APT STATS
002030 000000 .WORD 0
002032 L$CO:: .WORD 0
002032 000000 .WORD 0
002034 L$DTYP:: ;DIAGNOSTIC TYPE
002034 000000 .WORD 0
002036 L$APT:: ;APT EXPANSION
002036 000000 .WORD 0
002040 L$DTP:: ;PTR. TO DISPATCH TABLE
002040 002124 .WORD L$DISPATCH
002042 L$PRIO:: ;DIAGNOSTIC RUN PRIORITY

```


PROGRAM HEADER AND TABLES
PROGRAM HEADER

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002042 000000
 002044 000000
 002046 000000
 002050 000000
 002050 003
 002051 003
 002052 000000
 002054 000000
 002056 000000
 002060 003352
 002062 000000
 002064 000000
 002066 000000
 002070 012422
 002072 012340
 002074 000000
 002076 003414
 002100 104035
 002102 002504
 002104 011120
 002106 012314
 002110 012230
 002112 011112
 002114 000000
 002116 000000
 002120 000000

LS\$ENVI:: .WORD 0 ;FLAGS DESCRIBE HOW IT WAS SETUP
 LS\$EXP1:: .WORD 0 ;EXPANSION WORD
 LS\$MREV:: .WORD 0 ;SVC REV AND EDIT #
 LS\$EF:: .BYTE C\$REVISION ;DIAG. EVENT FLAGS
 .BYTE C\$EDIT
 LS\$SPC:: .WORD 0
 LS\$DEVP:: .WORD 0 ; POINTER TO DEVICE TYPE LIST
 LS\$REPP:: .WORD LS\$DVTYP ;PTR. TO REPORT CODE
 LS\$EXP4:: .WORD 0
 LS\$EXP5:: .WORD 0
 LS\$AUT:: .WORD 0 ;PTR. TO ADD UNIT CODE
 LS\$DUT:: .WORD LS\$AU ;PTR. TO DROP UNIT CODE
 LS\$LUN:: .WORD LS\$DU ;LUN FOR EXERCISERS TO FILL
 LS\$DESP:: .WORD 0 ;POINTER TO DIAG. DESCRIPTION
 LS\$LOAD:: .WORD LS\$DESC ;GENERATE SPECIAL AUTOLOAD EMT
 EMT E\$LOAD
 LS\$ETP:: .WORD LS\$ERRTBL ;POINTER TO ERRTBL
 LS\$ICP:: .WORD LS\$INIT ;PTR. TO INIT CODE
 LS\$CCP:: .WORD LS\$CLEAN ;PTR. TO CLEAN-UP CODE
 LS\$ACP:: .WORD LS\$AUTO ;PTR. TO AUTO CODE
 LS\$PRT:: .WORD LS\$PROT ;PTR. TO PROTECT TABLE
 LS\$TEST:: .WORD 0 ;TEST NUMBER
 LS\$DLY:: .WORD 0 ;DELAY COUNT
 LS\$HIME:: .WORD 0 ;PTR. TO HIGH MEM

PROGRAM HEADER AND TABLES
DISPATCH TABLE

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1085
1086
1087
1088
1089
1090
1091
1092 002122
002122 000034
002124
002124 012430
002126 012704
002130 013424
002132 014076
002134 015574
002136 016762
002140 023062
002142 027416
002144 031764
002146 033550
002150 035316
002152 037066
002154 040744
002156 043116
002160 044022
002162 044776
002164 046344
002166 050722
002170 052032
002172 053142
002174 054212
002176 055262
002200 057250
002202 063270
002204 067270
002206 071012
002210 072544
002212 075456

.SBTTL DISPATCH TABLE

```

:++
: THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
: IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
:--

```

```

DISPATCH 28
.WORD 28
L$DISPATCH::
.WORD T1
.WORD T2
.WORD T3
.WORD T4
.WORD T5
.WORD T6
.WORD T7
.WORD T8
.WORD T9
.WORD T10
.WORD T11
.WORD T12
.WORD T13
.WORD T14
.WORD T15
.WORD T16
.WORD T17
.WORD T18
.WORD T19
.WORD T20
.WORD T21
.WORD T22
.WORD T23
.WORD T24
.WORD T25
.WORD T26
.WORD T27
.WORD T28

```

1093

PROGRAM HEADER AND TABLES
DEFAULT HARDWARE P-TABLE

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```

1101      .SBTTL  DEFAULT HARDWARE P-TABLE
1102
1103      :++
1104      : THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
1105      : THE TEST-DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
1106      : IS IDENTICAL TO THE STRUCTURE OF THE HARDWARE P-TABLES,
1107      : AND IS USED AS A "TEMPLATE" FOR BUILDING THE P-TABLES.
1108      :--
1109
1110      002214      BGNHW      DFPTBL
           002214      000006      .WORD      L10000-L$HW/2
           002216
           002216      L$HW::
           DFPTBL::

1111
1121      002216      160140      .WORD      160140      :1ST (OF 8) REGISTER ADDRESS
1122      002220      000420      .WORD      420      :1ST (OF 2) VECTJR ADDRESS
1123      002222      000300      .WORD      PRI06      :DEVICE PRIORITY LEVEL
1124      002224      000000      .WORD      0      :DEVICE PRIMARY ADDRESS FOR CH.1
1125      002226      000001      .WORD      1      :DEVICE PRIMARY ADDRESS FOR CH.2
1126      002230      000000      .WORD      0      :DEFAULT VALUE FOR TESTCABLE
1127
1128
1129      002232      ENDHW
           002232

```

L10000:

PROGRAM HEADER AND TABLES
SOFTWARE P-TABLE

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```

1132      .SBTTL  SOFTWARE P-TABLE
1133
1134      :++
1135      : THE SOFTWARE TABLE CONTAINS VARIOUS DATA USED BY THE
1136      : PROGRAM AS OPERATIONAL PARAMETERS.  THESE PARAMETERS ARE
1137      : SET UP AT ASSEMBLY TIME AND MAY BE VARIED BY THE OPERATOR
1138      : AT RUN TIME.
1139      :--
1140      002232      BGNSW  SFPTBL
1140      002232      .WORD  L10001-L$SW/2
1140      002234      000004
1140      002234
1141
1149
1150      002234      000001      QVP::  .WORD  1      ;QUICK VERIFY SWITCH
1151      002236      000077      MCINP:: .WORD  63.     ;NUMBER OF DEFAULT MATCH CHARACTER COUNTS
1152      002240      003777      BCINP:: .WORD  2047.  ;NUMBER OF DEFAULT BYTE COUNTS IS 2047 DECIMAL
1153      002242      000000      MAINB:: .WORD  0      ;STANDBY TEST 28,DEFAULT IS NO
1154      002244
1154      002244
1155
1156      002244      ENDSW
1156      002244      ENDMOD
1156      002244      L10001:

```

1159
1170
1171
1199
1209
1210 002244
1211
1212
1213
1214
1215
1216
1231
1232 002244

.TITLE GLOBAL AREAS
.SBTTL GLOBAL EQUATES SECTION

BGNMOD

..*+
: THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
: ARE USED IN MORE THAN ONE TEXT.
:--

EQUALS

:
: BIT DEFINITIONS

100000	BIT15== 100000
040000	BIT14== 40000
020000	BIT13== 20000
010000	BIT12== 10000
004000	BIT11== 4000
002000	BIT10== 2000
001000	BIT09== 1000
000400	BIT08== 400
000200	BIT07== 200
000100	BIT06== 100
000040	BIT05== 40
000020	BIT04== 20
000010	BIT03== 10
000004	BIT02== 4
000002	BIT01== 2
000001	BIT00== 1

001000	BIT9== BIT09
000400	BIT8== BIT08
000200	BIT7== BIT07
000100	BIT6== BIT06
000040	BIT5== BIT05
000020	BIT4== BIT04
000010	BIT3== BIT03
000004	BIT2== BIT02
000002	BIT1== BIT01
000001	BIT0== BIT00

:
: EVENT FLAG DEFINITIONS
: EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION

000040	EF.START== 32.	: START COMMAND WAS ISSUED
000037	EF.RESTART== 31.	: RESTART COMMAND WAS ISSUED
000036	EF.CONTINUE== 30.	: CONTINUE COMMAND WAS ISSUED
000035	EF.NEW== 29.	: A NEW PASS HAS BEEN STARTED
000034	EF.PWR== 28.	: A POWER-FAIL/POWER-UP OCCURRED

:
: PRIORITY LEVEL DEFINITIONS

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 19-1
GLOBAL EQUATES SECTION

000340	PRI07== 340
000300	PRI06== 300
000240	PRI05== 240
000200	PRI04== 200
000140	PRI03== 140
000100	PRI02== 100
000040	PRI01== 40
000000	PRI00== 0
	.
	;OPERATOR FLAG BITS
	.
000004	EVL== 4
000010	LOT== 10
000020	ADR== 20
000040	IDU== 40
000100	ISR== 100
000200	UAM== 200
000400	BOE== 400
001000	PNT== 1000
002000	PRI== 2000
004000	IXE== 4000
010000	IBE== 10000
020000	IER== 20000
040000	LOE== 40000
100000	HOE== 100000

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 20
GLOBAL DATA SECTION

```

1234      .SBTTL  GLOBAL DATA SECTION
1235
1236      :++
1237      : THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
1238      : IN MORE THAN ONE TEST.
1239      :--
1240
1253      :*****
1254      : IEX11 VECTOR AND REGISTER INDIRECT POINTERS
1255      :*****
1258 002244 000000 VECC1::      .WORD 0      ; INTERRUPT VECTOR FOR CHANNEL 1
1259 002246 000000 VECC2::      .WORD 0      ; INTERRUPT VECTOR FOR CHANNEL 2
1260 002250 000000 IIRX::      .WORD 0      ; POINTER TO IEEE INTERRUPT REGISTER
1261 002252 000000 IIRLX::     .WORD 0      ; POINTER TO LOW BYTE OF IIR REGISTER
1262 002254 000000 IIRHX::     .WORD 0      ; POINTER TO HIGH BYTE OF INTERRUPT REGISTER
1263 002256 000000 ISRX::      .WORD 0      ; POINTER TO IEEE STATUS REGISTER
1264 002260 000000 ISRLX::     .WORD 0      ; POINTER TO LOW BYTE OF ISR REGISTER
1265 002262 000000 ISRHX::     .WORD 0      ; POINTER TO HIGH BYTE OF STATUS REGISTER
1266 002264 000000 ICRX::      .WORD 0      ; POINTER TO IEEE COMMAND REGISTER
1267 002266 000000 ICRLX::     .WORD 0      ; POINTER TO LOW BYTE OF ICR REGISTER
1268 002270 000000 ICRHX::     .WORD 0      ; POINTER TO HIGH BYTE OF COMMAND REGISTER
1269 002272 000000 IDRX::      .WORD 0      ; POINTER TO IEEE DATA REGISTER
1270 002274 000000 IDRLX::     .WORD 0      ; POINTER TO LOW BYTE OF IDR REGISTER
1271 002276 000000 IDRHX::     .WORD 0      ; POINTER TO HIGH BYTE OF DATA REGISTER
1272 002300 000000 CSRX::      .WORD 0      ; POINTER TO CONTROL & STATUS REGISTER
1273 002302 000000 BARX::      .WORD 0      ; POINTER TO BUS ADDRESS REGISTER
1274 002304 000000 BCRX::      .WORD 0      ; POINTER TO BYTE COUNT REGISTER
1275 002306 000000 MCRX::      .WORD 0      ; POINTER TO MATCH CHARACTER REGISTER
1276 002310 000000 MCRHX::     .WORD 0      ; POINTER TO HIGH BYTE OF MCR REGISTER
1277 002312 000000 DPA1::      .WORD 0      ; POINTER TO DEVICE PRIMARY ADDRESS FOR CH.1
1278 002314 000000 DPA2::      .WORD 0      ; POINTER TO DEVICE PRIMARY ADDRESS FOR CH.2
1279 002316 000000 PLEV::      .WORD 0      ; POINTER TO THE PRIORITY LEVEL
1280
1281      :*****
1282      : PROGRAM CONTROL PARAMETERS
1283      :*****
1284 002320 000020 ITRDEF::     .WORD 20     ; ITERATION DEFAULT
1285 002322 000000 ITRCNT::     .WORD 0      ; ITERATION COUNTER
1286
1287      :*****
1288      : PROGRAM VARIABLES
1289      :*****
1290 002324 000000 PNTF::      .WORD 0      ; FLAG FOR TEST HEADER PRINTOUT
1291 002326 000000 NXMFLG::   .WORD 0      ; FLAG USED WHEN ADDRESS IS NXM.
1292 002330 000000 MM22::     .WORD 0      ; FLAG INDICATING 22 BIT MMU
1293 002332 000000 MMFLG::    .WORD 0      ; FLAG TO SEE IF MEMORY MANAGEMENT THERE
1294 002334 000000 PHHIGH::   .WORD 0      ; LOCATION FOR MEMORY SIZE
1295 002336 000000 PHLOW::    .WORD 0      ; LOCATION FOR MEMORY SIZE
1296 002340 000000 VIADD::    .WORD 0      ; LOCATION FOR VIRTUAL MEMORY SIZE
1297 002342 000000 PHHSIZ::   .WORD 0      ; LOCATION FOR MEMORY SIZE
1298 002344 000000 PHSIZ::    .WORD 0      ; LOCATION FOR MEMORY SIZE
1299 002346 000000 SIZEPA::   .WORD 0      ; LOCATION FOR MEMORY SIZE IN PAGE FORM
1300 002350 000000 MASK::     .WORD 0      ; BIT MASK OF READ/WRITE BITS
1301 002352 000000 MASCOM::   .WORD 0      ; COMPLEMENT OF MASK
1302 002354 000000 REGADD::   .WORD 0      ; ADDRESS OF REGISTER TO BE TESTED

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 20-1
GLOBAL DATA SECTION

```

1303 002356 000000 BUFAB:: .WORD 0 ;LOCATION FOR START ADDR. OF BUFFER A
1304 002360 000000 BUFBB:: .WORD 0 ;LOCATION FOR START ADDR. OF BUFFER B
1305 002362 000000 CSRMSK:: .WORD 0 ;WORK LOCATION USED IN TEST 27
1306 002364 000000 CSRMS1:: .WORD 0 ;WORK LOCATION USED IN TEST 27
1307 002366 000000 CSRMS2:: .WORD 0 ;WORK LOCATION USED IN TEST 27
1308 002370 000000 ANS:: .WORD 0 ;STORE FOR OPERATOR ANSWER USED IN T28
1309 002372 000000 LOGDEV:: .WORD 0 ;LOGICAL DEVICE NUMBER
13 0 002374 000000 CHAN:: .WORD 0 ;FLAG FOR CHANNEL
1311 002376 000000 INTFC1:: .WORD 0 ;INTERRUPT FLAG FOR CHA.1.
1312 002400 000000 INTFC2:: .WORD 0 ;INTERRUPT FLAG FOR CHA.2
1313 002402 000000 RSAVE:: .WORD 0 ;TEMPORARY LOCATION TO SAVE DATA
1314 002404 000000 CNT1:: .WORD 0 ;COUNTER USED IN TEST 23-26
1315 002406 000000 SDPA:: .WORD 0 ;TEMPORARY STORE TO SAVE DEVICE PRIM. ADDR.
1316 002410 000000 MLA1:: .WORD 0 ;STORE TO SAVE MY LISTENER ADDRESS
1317 002412 000000 MLA2:: .WORD 0 ;STORE TO SAVE MY LISTENER ADDRESS
1318 002414 000000 MTA1:: .WORD 0 ;STORE TO SAVE MY TALKER ADDRESS CH.1
1319 002416 000000 MTA2:: .WORD 0 ;STORE TO SAVE MY TALKER ADDRESS CH.2
1320 002420 000000 MSA1:: .WORD 0 ;STORE TO SAVE MSA
1321 002422 000000 RXADRH:: .WORD 0 ;LOCATION FOR RX HIGH ADDRESS
1322 002424 000000 RXADRL:: .WORD 0 ;LOCATION FOR RX LOW ADDRESS
1323 002426 000000 TXADRH:: .WORD 0 ;LOCATION FOR DMA TX HIGH ADDRESS
1324 002430 000000 TXADRL:: .WORD 0 ;LOCATION FOR DMA TX LOW ADDRESS
1325 002432 000000 ERNU:: .WORD 0 ;LINE COUNTER FOR ERROR PRINTOUT
1326 002434 000000 CDAT1:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1327 002436 000000 CDAT2:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1328 002440 000000 CDAT3:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1329 002442 000000 CDAT4:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1330 002444 000000 CDAT5:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1331 002446 000000 CDAT6:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1332 002450 000000 CDAT7:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1333 002452 000000 CDAT8:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1334 002454 000000 CDAT9:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1335 002456 000000 CDAT10:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1336 002460 000000 CDAT11:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1337 002462 000000 CDAT12:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1338 002464 000000 CDAT13:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1339 002466 000000 CDAT14:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1340 002470 000000 CDAT15:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1341 002472 000000 CDAT16:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1342 002474 000000 CDAT17:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1343 002476 000000 CDAT18:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1344
1345
1346 ;*****
1347 ;ERROR VARIABLES
1348 ;*****
1348 002500 000000 GOOD:: .WORD 0 ;WORD USED FOR ERROR PRINTOUT
1349 002502 000000 BAD:: .WORD 0 ;WORD USED FOR ERROR PRINTOUT
1350 002504 ERRTBL
1350 002504 L$ERRTBL::
1350 002504 ERRTYP:: .WORD 0
1350 002506 ERRNBR:: .WORD 0
1350 002510 ERRMSG:: .WORD 0
1350 002512 ERRBLK:: .WORD 0
1351
1352 ;*****
1353 ;TABLE AREA FOR MCR FUNTIONS (TEST 25,26)
1354 ;*****

```


GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 20-2
GLOBAL DATA SECTION

```

1355
1356 002514 050 050 050 TABD:: .NLIST BEX .BYTE 50,50,50,50,50,50,50,50,50 :9DATA,63 EOS
1357 002525 125 125 125 .BYTE 125,125,125,125,125,125,125,125,125
1358 002537 125 125 125 .BYTE 125,125,125,125,125,125,125,125,125
1359 002551 125 125 125 .BYTE 125,125,125,125,125,125,125,125,125
1360 002563 125 125 125 .BYTE 125,125,125,125,125,125,125,125,125
1361 002575 125 125 125 .BYTE 125,125,125,125,125,125,125,125,125
1362 002607 125 125 125 .BYTE 125,125,125,125,125,125,125,125,125
1363 002621 125 125 125 .BYTE 125,125,125
1364 .EVEN
1365
1366 002624 000007 TABE:: .REPT 7 :72 DATA BYTES
1367 .BYTE 0,0,0,0,0,0,0,0,0,0
1368 .ENDR
1369 002732 000 000 .BYTE 0,0
1370 .EVEN
1371
1372 002734 050 050 050 TABF:: .BYTE 50,50,50,50,50,50,50,50,50 :9 DATA,63 EOS
1373 000006 .REPT 6
1374 .BYTE 177,177,177,177,177,177,177,177,177
1375 .ENDR
1376 003041 177 177 177 .BYTE 177,177,177
1377 .EVEN
1378
1379 003044 012 012 050 TABG:: .BYTE 12,12,50,12,12,12 :2EOS,1DATA,63EOS
1380 000006 .REPT 6
1381 .BYTE 12,12,12,12,12,12,12,12,12,12
1382 .ENDR
1383 .EVEN
1384
1385 003146 000 000 000 TABH:: .BYTE 0,0,0,0,0,0 :66 DATA BYTES
1386 000006 .REPT 6
1387 .BYTE 0,0,0,0,0,0,0,0,0,0
1388 .ENDR
1389 .EVEN
1390
1391 003250 025 025 050 TABK:: .BYTE 25,25,50,25,25,25 :2 EOS,1 DATABYTE,63 EOS
1392 000006 .REPT 6
1393 .BYTE 25,25,25,25,25,25,25,25,25,25
1394 .ENDR
1395 .EVEN
1396 .LIST BEX
1397
1398

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 21
GLOBAL TEXT SECTION

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1409
1410
1411
1412

003352			
003352			
003352	111	105	125
003355	061	061	040
003360	106	117	122
003363	040	125	116
003366	111	102	125
003371	123	040	134
003374	111	105	121
003377	061	061	040
003402	106	117	122
003405	040	121	055
003410	102	125	123
003413	000		

```

.SBTTL GLOBAL TEXT SECTION
:
: **
: THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
: MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
: MORE THAN ONE TEST.
: --
:
: *****
: NAMES OF DEVICES SUPPORTED BY PROGRAM
: *****
:
: DEVTYP <IEU11 FOR UNIBUS \IEQ11 FOR Q-BUS>
L$DVTYP::
: .ASCIZ /IEU11 FOR UNIBUS \IEQ11 FOR Q-BUS/

```

.EVEN

1413
1419
1420
1421
1422
1423

003414			
003414			
003414	111	105	125
003417	131	111	105
003422	121	040	104
003425	111	101	107
003430	116	117	123
003433	124	111	103
003436	040	101	103
003441	055	124	060
003444	066	064	101
003447	055	115	103
003452	000		

```

: *****
: TITEL OF PROGRAM
: *****
:
: DESCRIPT <IEU\IEQ DIAGNOSTIC AC-T064A-MC>
L$DESC::
: .ASCIZ /IEU\IEQ DIAGNOSTIC AC-T064A-MC/

```

.EVEN

.EVEN

1424
1425
1426
1433
1434
1435
1436
1447
1455
1456

000001
000001

```

:
: FORMAT STATEMENTS USED IN PRINT CALLS
:
:
: SVCGBL= 1
: SVCINS= 1

```

```

1458          .SBTTL GLOBAL ERROR REPORT SECTION
1459
1460          :++
1461          : THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
1462          : USED BY MORE THAN ONE TEST TO OUTPUT ADDITIONAL ERROR INFORMATION. PRINTB
1463          : (BASIC) AND PRINTX (EXTENDED) CALLS ARE USED TO CALL PRINT SERVICES.
1464          :--
1465
1466
1467 003454          BGNMSG ERR101
1468 003454          PRINTB #EMG101,R1
1469 003454 010146
1470 003456 012746 004116
1471 003462 012746 000002
1472 003466 010600
1473 003470 104414
1474 003472 062706 000006
1475          ENDMSG
1476 003476          L10002: TRAP C$MSG
1477 003476 104423
1478
1479
1480 003500          BGNMSG ERR201
1481 003500          PRINTB #EMG201,CHAN,GOOD,BAD
1482 003500 013746 002502
1483 003504 013746 002500
1484 003510 013746 002374
1485 003514 012746 004170
1486 003520 012746 000004
1487 003524 010600
1488 003526 104414
1489 003530 062706 000012
1490 003534          PRINTB #EMG203
1491 003534 012746 004265
1492 003540 012746 000001
1493 003544 010600
1494 003546 104414
1495 003550 062706 000004
1496          ENDMSG
1497 003554          L10003: TRAP C$MSG
1498 003554 104423
1499
1500
1501 003556          BGNMSG ERR202
1502 003556          PRINTB #EMG202,R2,CHAN,GOOD,BAD
1503 003556 013746 002502
1504 003562 013746 002500
1505 003566 013746 002374
1506 003572 010246
1507 003574 012746 004330
1508 003600 012746 000005
1509 003604 010600
1510 003606 104414
1511 003610 062706 000014
    
```

```

1495 003614
      003614
      003614 104423
1496
1497 003616
      003616
1498 003616
      003616 013746 002502
      003622 013746 002500
      003626 013746 002374
      003632 012746 004425
      003636 012746 000004
      003642 010600
      003644 104414
      003646 062706 000012
1499 003652
      003652
      003652 104423
1500
1501 003654
      003654
1502 003654
      003654 013746 002374
      003660 012746 004521
      003664 012746 000002
      003670 010600
      003672 104414
      003674 062706 000006
1503 003700
      003700
      003700 104423
1504
1505 003702
      003702
1506 003702
      003702 013746 002322
      003706 013746 002502
      003712 013746 002500
      003716 013746 002374
      003722 012746 004560
      003726 012746 000005
      003732 010600
      003734 104414
      003736 062706 000014
1507 003742
      003742
      003742 104423
1508
1509 003744
      003744
1510 003744
      003744 012746 004715
      003750 012746 000001
      003754 010600
      003756 104414
      003760 062706 000004
1511 003764 006337 002426

```

```

ENDMSG
BGNMSG ERR401
PRINTB #EMG401,CHAN,GOOD,BAD
ENDMSG
BGNMSG ERR402
PRINTB #EMG402,CHAN
ENDMSG
BGNMSG ERR501
PRINTB #EMG501,CHAN,GOOD,BAD,ITRCNT
ENDMSG
BGNMSG ERR231
PRINTB #DMAHAD
ASL TXADR

```

```

L10004: TRAP C$MSG
ERR401::
      MOV BAD,-(SP)
      MOV GOOD,-(SP)
      MOV CHAN,-(SP)
      MOV #EMG401,-(SP)
      MOV #4,-(SP)
      MOV SP,RO
      TRAP C$PNTB
      ADD #12,SP
L10005: TRAP C$MSG
ERR402::
      MOV CHAN,-(SP)
      MOV #EMG402,-(SP)
      MOV #2,-(SP)
      MOV SP,RO
      TRAP C$PNTB
      ADD #6,SP
L10006: TRAP C$MSG
ERR501::
      MOV ITRCNT,-(SP)
      MOV BAD,-(SP)
      MOV GOOD,-(SP)
      MOV CHAN,-(SP)
      MOV #EMG501,-(SP)
      MOV #5,-(SP)
      MOV SP,RO
      TRAP C$PNTB
      ADD #14,SP
L10007: TRAP C$MSG
ERR231::
      MOV #DMAHAD,-(SP)
      MOV #1,-(SP)
      MOV SP,RO
      TRAP C$PNTB
      ADD #4,SP

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 22-2
GLOBAL ERROR REPORT SECTION

```

1512 003770 006337 002422 ASL RXADRH
1513 003774 005737 002430 TST TXADRL
1514 004000 002005 BGE 1$
1515 004002 042737 100000 002430 BIC #100000, TXADRL
1516 004010 005237 002426 INC TXADRH
1517 004014 005737 002424 1$: TST RXADRL
1518 004020 002005 BGE 2$
1519 004022 042737 100000 002424 BIC #100000, RXADRL
1520 004030 005237 002422 INC RXADRH
1521 004034 2$: PRINTB #EMG231, GOOD, TXADRH, TXADRL, BAD, RXADRH, RXADRL, CNT1
      MOV CNT1, -(SP)
      MOV RXADRL, -(SP)
      MOV RXADRH, -(SP)
      MOV BAD, -(SP)
      MOV TXADRL, -(SP)
      MOV TXADRH, -(SP)
      MOV GOOD, -(SP)
      MOV #EMG231, -(SP)
      MOV #1, -(SP)
      MOV SP, R0
      TRAP ($PNTB)
      ADD #22, SP
1522 004110 ENDMSG
      L10010: TRAP ($MSG)
1523 004110 104423
1524 004112 EXIT MSG
      .WORD JSJMP
      .WORD L10010-2-.
1525 004114 000167
1526 004114 177772

```

: EXTENDED ERROR MESSAGES

```

1527 :
1528 :
1529 :
1530 :.NLIST BEX
1531 004116 045 123 063 EMG101: .ASCIZ /%S3%AREGISTER AT %06% DOES NOT RESPOND%/
1532 004170 045 101 122 EMG201: .ASCIZ /%AREGISTER: CSR ,CHA.:%01% ,GOOD DATA:%06% ,BAD DATA:%06%/
1533 004265 045 101 050 EMG203: .ASCIZ /%(FOR IEU11-A IGNORE BIT 9-12).%/
1534 004330 045 101 122 EMG202: .ASCIZ /%AREGISTER:%T% ,CHA.:%01% ,GOOD DATA:%06% ,BAD DATA:%06%/
1535 004425 045 101 103 EMG401: .ASCIZ /%ACHAN.:%01% ,CORRECT PRIORITY:%03% ,WRONG PRIORITY:%03%/
1536 004521 045 101 103 EMG402: .ASCIZ /%ACHANNEL :%01% IS SELECTED%/
1537 004560 045 101 103 EMG501: .ASCIZ /%ACHAN.:%01% ,GOOD :%06% ,BAD :%06% ,ITERATION :%03%/
1538 004651 045 117 066 EMG231: .ASCIZ /%06%S6%03%05%S6%06%S6%03%05%S6%06%/
1539 004715 045 101 107 LMAHAD: .ASCIZ /%AGOOD DATA TXADDR BAD DATA RXADDR BYTE CNT#%/

```

: ERROR MESSAGES

```

1540 :
1541 :
1542 :
1543 005012 040 122 105 E101:: .ASCIZ / REGISTER ADDRESSING ERROR - TRAP 4 /
1544 005057 040 122 105 E200:: .ASCIZ / REGISTER INCORRECT AFTER BUS RESET /
1545 005124 040 122 105 E301:: .ASCIZ / READ - WRITE BITS INCORRECT /
1546 005162 040 102 111 E302:: .ASCIZ / BITS NOT CLEARED AFTER MASTER RESET /
1547 005230 040 115 125 E303:: .ASCIZ / MUX BIT IN CSR NOT SETABLE /
1548 005265 040 103 123 E401:: .ASCIZ / CSR CONTENTS INCORRECT /
1549 005316 040 116 117 E402:: .ASCIZ / NO INTERRUPT WHEN EXPECTED /
1550 005353 040 111 116 E403:: .ASCIZ / INCORRECT PRIORITY LEVEL /
1551 005406 040 102 111 E501:: .ASCIZ / BITS IN IIR REGISTER INCORRECT /
1552 005447 040 102 111 E502:: .ASCIZ / BITS IN ISR REGISTER INCORRECT /

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 22-3
GLOBAL ERROR REPORT SECTION

1553	005510	040	104	101	E801::	.ASCIZ	/ DATA TRANSFER FROM CHANNEL 1 TO 2 INCORRECT /
1554	005566	040	104	101	E802::	.ASCIZ	/ DATA TRANSFER FROM CHANNEL 2 TO 1 INCORRECT /
1555	005644	040	111	103	E901::	.ASCIZ	/ ICR CONTENTS INCORRECT /
1556	005675	040	104	111	E222::	.ASCIZ	/ DIR CONTENTS INCORRECT /
1557	005726	040	122	130	E250::	.ASCIZ	/ RX BUFFER CONTENTS INCORRECT AFTER DMA (2 TO 1) /
1558	006010	040	122	130	E231::	.ASCIZ	/ RX BUFFER CONTENTS INCORRECT AFTER DMA (1 TO 2) /
1559	006072	040	116	117	E232::	.ASCIZ	/ NO INTERRUPT AFTER DMA /
1560	006123	040	116	117	E233::	.ASCIZ	/ NO INTERRUPT AFTER READ FROM A NXM ADDRESS /
1561	006200	040	102	101	E234::	.ASCIZ	/ BAR CONTENTS INCORRECT /
1562	006231	040	102	103	E235::	.ASCIZ	/ BCR CONTENTS INCORRECT /
1563							
1564						.EVEN	
1565						.LIST	BEX
1566							
1567							
1568							

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```

.SBTTL LOCAL MACRO DEFINITIONS
:++
:THIS SECTION CONTAINS ONLY MACROS WHICH ARE USED
:SEPARATE FROM THE MACRO LIBRARY (SVC34R)(LIBA.MLB)
:---
:*****
:PRIT MACRO - THIS MACRO CHECKS IF INTERRUPT OCCURES
:AND WHAT IS THE PRIORITY.
:*****
MACRO PRIT ARG,ENUM,ERRM,?A
:INTERRUPT OCCURED?
IST ARG
:BRANCH IF YES
BNE A
:CHECKSUM = 7
DEC R1
:CHANGE PROCESSOR PRIORITY TO 6
SETPRI #PRI06
:INTERRUPT OCCURED?
TST ARG
:BRANCH IF YES
BNE A
:CHECKSUM = 6
DEC R1
:CHANGE PROCESSOR PRIORITY TO 5
SETPRI #PRI05
:INTERRUPT OCCURED?
TST ARG
:BRANCH IF YES
BNE A
:CHECKSUM = 5
DEC R1
:CHANGE PROCESSOR PRIORITY TO 4
SETPRI #PRI04
:INTERRUPT OCCURED?
TST ARG
:BRANCH IF YES
BNE A
:CHECKSUM = 4
DEC R1
:CHANGE PROCESSOR PRIORITY TO 3
SETPRI #PRI03
:INTERRUPT OCCURED?
TST ARG
:BRANCH IF YES
BNE A
ERRSOFT ENUM,E402,ERRM ;NO INTERRUPT ERROR
A:
NOP
.ENDM PRIT
.SBTTL GLOBAL SUBROUTINES SECTION

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1661

```

:♦♦
: THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
: THAT ARE USED IN MORE THAN ONE TEST.
:♦♦
:*****
: SUBROUTINE REGTST - GENERAL PURPOSE REGISTER TEST.
:*****
:
: FUNCTIONAL DESCRIPTION:
:
:     CHECKS THAT ALL READ/WRITE BITS OF THE SELECTED REGISTER CAN BE
:     SET, CLEARED, AND INDIVIDUALLY SET (SLIDING ONES PATTERN).
:
: INPUTS:
:
:     IF ENTERED AT LOCATION REGTST, THE LOCATIONS FOLLOWING THE
:     SUBROUTINE CALL MUST CONTAIN THE READ/WRITE BIT MASK, THE
:     ADDRESS OF THE REGISTER TO BE TESTED, AND THE FIRST ERROR NUMBER
:     TO BE USED (SEE CALLING SEQUENCE).
:
:     IF ENTERED AT LOCATION REGTS1, THE READ/WRITE BIT MASK, REGISTER
:     ADDRESS TO BE TESTED, AND THE FIRST ERROR NUMBER MUST BE LOADED
:     INTO LOCATIONS MASK, REGADD, AND ERNBR RESPECTIVELY. THIS
:     ALLOWS THE ARGUMENTS TO BE VARIED AT RUN TIME.
:
: IMPLICIT INPUTS:      NONE.
:
: OUTPUTS:              ERROR MESSAGES IF ERRORS OCCUR.
:
: IMPLICIT OUTPUTS:
:
:     IF ENTERED AT LOCATION REGTST,
:
:     MASK   - CONTAINS THE READ/WRITE BIT MASK
:     REGADD - CONTAINS THE ADDRESS OF THE REGISTER BEING TESTED
:
:     ALWAYS,
:
:     MASLOM - CONTAINS THE COMPLEMENT OF THE MASK
:     GOOD   - CONTAINS LAST EXPECTED DATA
:     BAD    - CONTAINS LAST ACTUAL DATA
:     ERNBR  - CONTAINS THE INPUT ERROR NUMBER + 2
:     ERRTP  - CONTAINS 3 (SOFT ERROR)
:     ERRBK  - CONTAINS ADDRESS OF REGERR (REGISTER ERROR MESSAGE)
:     ERRMSG - CONTAINS 3RD REGISTER ERROR MESSAGE
:
: SUBORDINATE ROUTINES USED:  DRS ERROR MACRO
:
: FUNCTIONAL SIDE EFFECTS:   NONE.
:
: CALLING SEQUENCE:
:

```



```

1662      :           EITHER FIXED PARAMETERS FOLLOW THE SUBROUTINE CALL :
1663      :
1664      :           EG.      CALL      REGTST
1665      :                   177              : BIT MASK OF R/W BITS
1666      :                   CSR              : REGISTER ADDRESS
1667      :                   200.            : FIRST ERROR NUMBER
1668      :
1669      :           OR PARAMETERS ARE SET DYNAMICALLY :
1670      :
1671      :           EG.      MOV      #177,MASK  : BIT MASK OF R/W BITS
1672      :                   MOV      CSR,REGADD  : REGISTER ADDRESS
1673      :                   MOV      #200.,ERRNBR : FIRST ERROR NUMBER
1674      :                   CALL      REGTST1
1675      :
1676      : *****
1677      :
1678 006262 REGTST::
1679 006262 017637 000000 002350      MOV      @(SP),MASK      : GET R/W BIT MASK
1680 006270 062716 000002             ADD      #2,(SP)        : JUMP OVER ARGUMENT
1681 006274 017637 000000 002354      MOV      @(SP),REGADD    : GET REGISTER ADDRESS
1682 006302 062716 000002             ADD      #2,(SP)        : JUMP OVER ARGUMENT
1683 006306 017637 000000 002506      MOV      @(SP),ERRNBR   : GET FIRST ERROR NUMBER
1684 006314 062716 000002             ADD      #2,(SP)        : JUMP OVER ARGUMENT
1685 006320 REGTST1::
1686 006320 013737 002350 002352      MOV      MASK,MASCOM    : SET UP COMPLEMENT
1687 006326 005137 002352             COM      MASCOM         : OF R/W BIT MASK
1688 006332 012737 000003 002504      MOV      #3,ERRTYP     : SET UP FOR SOFT ERROR
1689 006340 012737 006612 002512      MOV      #REGERR,ERRBLK : SET UP ERROR MESSAGE ROUTINE
1690 006346 012737 006660 002510      MOV      #RERR1,ERRMSG  : FIRST ERROR MESSAGE
1691      :
1692      : CHECK THAT ALL R/W BITS CAN BE SET
1693      :
1694 006354 013737 002350 002500      MOV      MASK,GOOD      : SET UP EXPECTED DATA
1695 006362 006362 104404             BGNSEG
1696 006364 053777 002500 173762      BIS      GOOD,@REGADD   : SET ALL R/W BITS
1697 006372 017737 173756 002502      MOV      @REGADD,BAD    : READ THE RESULT
1698 006400 043737 002352 002502      BIC      MASCOM,BAD     : KEEP ONLY R/W BITS
1699 006406 023737 002502 002500      CMP      BAD,GOOD      : ALL R/W BITS SET?
1700 006414 001401             BEQ      1$            : IF YES, BRANCH
1701 006416 006416 104460             ERROR
1702 006420 006420 104405             1$:      ENDSEG
1703      :
1704      : CHECK THAT ALL R/W BITS CAN BE CLEARED
1705      :
1706 006422 005037 002500             CLR      GOOD           : SET UP EXPECTED DATA
1707 006426 005237 002506             INC      ERRNBR        : NEXT ERROR NUMBER
1708 006432 012737 006732 002510      MOV      #RERR2,ERRMSG  : NEXT ERROR MESSAGE
1709      :
1710 006440 006440 104404             BGNSEG
1711 006442 043777 002350 173704      BIC      MASK,@REGADD   : CLEAR ALL R/W BITS
1712 006450 017737 173700 002502      MOV      @REGADD,BAD    : READ THE RESULT
1713 006456 043737 002352 002502      BIC      MASCOM,BAD     : KEEP ONLY R/W BITS

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GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 24-2
GLOBAL SUBROUTINES SECTION

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1714 006464 023737 002502 002500      CMP      BAD,GOOD      ; ALL R/W BITS CLEAR?
1715 006472 001401                      BEQ      2$            ; IF YES, BRANCH
1716 006474                      ERROR                      ; ELSE REPORT ERROR
                                TRAP      C$ERROR
1717 006476                      2$:      ENDSEG
                                10001$:    TRAP      C$ESEG
006476 104460
006476 104405
1718
1719      ; CHECK THAT EACH R/W BIT CAN BE SET
1720
1721 006500 005237 002506                      INC      ERRNBR        ; NEXT ERROR NUMBER
1722 006504 012737 007010 002510      MOV      #RERR3,ERHMSG ; NEXT ERROR MESSAGE
1723 006512 012737 000001 002500      MOV      #1,GOOD      ; FIRST BIT TO TEST
1724 006520 033737 002500 002350      3$:     BIT      GOOD,MASK ; R/W BIT?
1725 006526 001004                      BNE     5$            ; IF YES, TEST IT
1726 006530 006337 002500      4$:     ASL     GOOD    ; ELSE FIND NEXT R/W BIT
1727 006534 103425                      BCS    7$            ; IF ALL DONE, RETURN
1728 006536 000770                      BR     3$            ; ELSE CHECK IF NEXT IS R/W
1729
1730                      5$:     BGNSEG
                                TRAP      C$BSEG
1731 006540 104404
1731 006542 042777 177767 173604      BIC     #177767,@REGADD ; CLEAR ALL BITS EXCEPT THE MUX BIT
1732 006550 053777 002500 173576      BIS     GOOD,@REGADD   ; SET THE BIT
1733 006556 017737 173572 002502      MOV     @REGADD,BAD    ; READ IT BACK
1734 006564 043737 002352 002502      BIC     MASCOM,BAD    ; KEEP ONLY R/W BITS
1735 006572 023737 002502 002500      CMP     BAD,GOOD      ; ALL OTHER BITS CLEAR?
1736 006600 001401                      BEQ     6$            ; IF YES, BRANCH
1737 006602                      ERROR                      ; ELSE REPORT ERROR
                                TRAP      C$ERROR
1738 006604                      6$:     ENDSEG
                                10002$:    TRAP      C$ESEG
006604 104405
1739 006606 000750                      BR     4$            ; TEST NEXT BIT
1740
1741 006610 000207      7$:     RETURN
1742
1743
1744
1745 006612      BGNMSG  REGERR
                                REGERR::
1746 006612      PRINTB #REGMSG,REGADD,CHAN,GOOD,BAD,MASK
                                MOV     MASK,-(SP)
006612 013746 002350                      MOV     BAD,-(SP)
006616 013746 002502                      MOV     GOOD,-(SP)
006622 013746 002500                      MOV     CHAN,-(SP)
006626 013746 002374                      MOV     REGADD,-(SP)
006632 013746 002354                      MOV     #REGMSG,-(SP)
006636 012746 007077                      MOV     #6,-(SP)
006642 012746 000006                      MOV     SP,R0
006646 010600                      TRAP   C$PNTB
006650 104414                      ADD    #16,SP
006652 062706 000016
1747 006656      ENDMSG
                                L10011:   TRAP      C$MSG
006656 104423
1748
1749      .NLIST BEX
1750

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 24-3
GLOBAL SUBROUTINES SECTION

1751	006660	122	105	107	RERR1: .ASCIZ %REGISTER READ/WRITE BITS COULD NOT BE SET%
1752	006732	122	105	107	RERR2: .ASCIZ %REGISTER READ/WRITE BITS COULD NOT BE CLEARED%
1753	007010	122	105	107	RERR3: .ASCIZ %REGISTER READ/WRITE BITS COULD NOT BE INDIVIDUALLY SET%
1754					
1755	007077	045	101	101	REGMSG: .ASCIZ .%AADD: %06%A,CHAN %01%A,GOOD %06%A, BAD %06%A, R/W BITS %06%N.
1756					
1757					.LIST BEX
1758					.EVEN

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*****
SUBROUTINE MEMINI - MEMORY SIZING AND MEMORY MANAGEMENT INIT ROUTINE.
*****
**
FUNCTIONAL DESCRIPTION:

    DETERMINES THE SIZE OF CONTIGUOUS USABLE MEMORY AND OUTPUTS IT
    TO THE CONSOLE. IF MEMORY MANAGEMENT IS AVAILABLE, THE KERNEL
    PAGE ADDRESS AND DESCRIPTOR REGISTERS ARE INITIALISED.

INPUTS:

    NONE.

IMPLICIT INPUTS:

    NONE.

OUTPUTS:

    PHHSIZ - HIGH WORD OF MEMORY SIZE
    PHLOW  - LOW WORD OF MEMORY SIZE
    MMFLG  - FLAG SET TO 1 IF MEMORY MANAGEMENT AVAILABLE
    MM22   - FLAG SET TO 1 IF 22 BIT MEMORY MANAGEMENT AVAILABLE

    MEMORY SIZE IN K WORDS IS PRINTED

IMPLICIT OUTPUTS:

    IF MEMORY MANAGEMENT IS AVAILABLE, THE KERNEL PAGE DESCRIPTOR
    AND PAGE ADDRESS REGISTERS ARE SET AS FOLLOWS :-

    KPDR0 TO KPDR7 ARE SET TO 77406

    KPAR0 IS SET TO 0
    KPAR1 IS SET TO 200
    KPAR2 IS SET TO 400
    KPAR3 IS SET TO 600
    KPAR4 IS SET TO 1000
    KPAR6 IS SET TO 1400

    KPAR5 POINTS TO THE HIGHEST ADDRESSABLE MEMORY BANK

    KPAR7 POINTS TO THE I/O PAGE

    IF 22 BIT MAPPING IS AVAILABLE, IT IS ENABLED VIA SR3. MEMORY
    MANAGEMENT IS LEFT DISABLED VIA SRO.

SUBORDINATE ROUTINES USED:

    NXM    - NON EXISTANT MEMORY TRAP SERVICE ROUTINE
    VPCON  - VIRTUAL TO PHYSICAL ADDRESS CONVERSION ROUTINE

FUNCTIONAL SIDE EFFECTS:

    NONE

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GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 25-1
GLOBAL SUBROUTINES SECTION

```

1817 ; CALLING SEQUENCE:
1818 ;
1819 ;     CALL     MEMINI
1820 ;
1821 ;--
1822 ;
1823 ; KI11 STATUS REGISTER ADDRESSES
1824 ;
1825 ; SR0= 177572
1826 ; SR1= 177574
1827 ; SR2= 177576
1828 ; SR3= 172516
1829 ;
1830 ; KERNEL PAGE DESCRIPTOR REGISTERS
1831 ;
1832 ; KPDR0= 172300
1833 ; KPDR1= 172302
1834 ; KPDR2= 172304
1835 ; KPDR3= 172306
1836 ; KPDR4= 172310
1837 ; KPDR5= 172312
1838 ; KPDR6= 172314
1839 ; KPDR7= 172316
1840 ;
1841 ; KERNEL PAGE ADDRESS REGISTERS
1842 ;
1843 ; KPAR0= 172340
1844 ; KPAR1= 172342
1845 ; KPAR2= 172344
1846 ; KPAR3= 172346
1847 ; KPAR4= 172350
1848 ; KPAR5= 172352
1849 ; KPAR6= 172354
1850 ; KPAR7= 172356
1851 ;
1852 ; MEMINI::
1853 ;     MOV     R0,-(SP) ; SAVE REGISTERS USED IN
1854 ;     MOV     R1,-(SP) ; THIS ROUTINE
1855 ;     MOV     R2,-(SP) ;
1856 ;     SETVEC  #4,#NXM,#340 ; SET UP NON-EXISTENT MEMORY TRAP VEC.
1857 ;     MOV     #340,-(SP)
1858 ;     MOV     #NXM,-(SP)
1859 ;     MOV     #4,-(SP)
1860 ;     MOV     #3,-(SP)
1861 ;     TRAP   C$SVEC
1862 ;     ADD     #10,SP
1863 ;     CLR     NXMFLG ; CLEAR NXM FLAG
1864 ;     CLR     PHLSIZ ; START WITH 1ST 2K BANK OF MEMORY
1865 ;     CLR     PHSIZ ;
1866 ;
1867 ; SIZE MEMORY UP TO 32K
1868 ;
1869 ; I0$: TST     @PHLSIZ ; CHECK THIS BANK EXISTS
1870 ;     TST     NXMFLG ; WAS THERE AN NXM TRAP?
1871 ;     BNE     140$ ; IF YES, PRINT THE MEMORY SIZE
1872 ;     ADD     #10000,PHLSIZ ; ELSE GET NEXT 2K BANK
1873 ;     CMP     PHLSIZ,#160000 ; HAVE WE REACHED THE I/O PAGE?

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 25-2
GLOBAL SUBROUTINES SECTION

```

1868 007274 001364          BNE      10$          : IF NOT, TRY NEXT 2K BANK
1869
1870          : 28K OR MORE - CHECK IF MEMORY MANAGEMENT UNIT PRESENT.
1871
1872 007276 005037 002332    CLR      MMFLG          : ASSUME NO MEMORY MANAGEMENT
1873 007302 005737 177572    TST      SRO           : ADDRESS MMU STATUS REGISTER 0
1874 007306 005737 002326    TST      NXMFLG        : WAS THERE AN NXM TRAP?
1875 007312 001131          BNE      140$          : IF YES, PRINT THE MEMORY SIZE
1876
1877          : MEMORY MANAGEMENT AVAILABLE - SET UP MMU REGISTERS
1878
1879 007314 012737 000001 002332  MOV      #1,MMFLG      : FLAG MEMORY MANAGEMENT AVAILABLE
1880 007322 012700 172340    MOV      #KPAR0,R0     : LOAD FIRST KPAR ADDRESS
1881 007326 005001          CLR      R1           : SET UP CONTENTS OF FIRST KPAR
1882 007330 012702 000006    MOV      #6,R2         : SET UP FIRST 6 KPAR'S
1883 007334 010120 50$:     MOV      R1,(R0)+      : LOAD KPAR VALUE
1884 007336 062701 000200    ADD      #200,R1       : NEXT KPAR VALUE
1885 007342 005302          DEC      R2           : ALL KPAR'S LOADED?
1886 007344 001373          BNE      50$          : IF NOT, LOAD NEXT
1887 007346 012737 177600 172356  MOV      #177600,KPAR7 : ELSE LOAD KPAR7 WITH I/O PAGE ADDRESS
1888
1889 007354 012700 172300    MOV      #KPDRO,R0     : LOAD FIRST PDR ADDRESS
1890 007360 012701 000010    MOV      #10,R1        : SET UP 8 PDR'S
1891 007364 012720 077406 60$:     MOV      #77406,(R0)+ : LOAD ALL PDR'S WITH 77406
1892 007370 005301          DEC      R1           : ALL LOADED?
1893 007372 001374          BNE      60$          : IF NOT, LOAD NEXT
1894
1895          : USE THE MEMORY MANAGEMENT UNIT TO SIZE THE MEMORY UP TO 128K
1896
1897 007374 005037 172352    CLR      KPAR5         : POINT KPAR5 TO FIRST PAGE
1898 007400 012737 000001 177572  MOV      #1,SRO        : ENABLE MEMORY MANAGEMENT
1899 007406 005737 120000 70$:     TST      120000        : ADDRESS PAGE POINTED TO BY KPAR5
1900 007412 005737 002326    TST      NXMFLG        : WAS THERE AN NXM TRAP?
1901 007416 001053          BNE      130$        : IF YES, PRINT THE MEMORY SIZE
1902 007420 062737 000200 172352  ADD      #200,KPAR5    : ELSE POINT KPAR5 TO NEXT PAGE
1903 007426 023727 172352 007600  CMP      KPAR5,#760    : ARE WE IN THE I/O PAGE?
1904 007434 001364          BNE      70$          : IF NOT, TEST NEXT PAGE
1905
1906          : 128 K OR MORE - CHECK IF 22 BIT MMU PRESENT
1907
1908 007436 005037 002330 90$:     CLR      MM22         : ASSUME NO 22 BIT MAPPING
1909 007442 005000          CLR      R0           : COMPARE DATA AT ADDRESS 0
1910 007444 012737 010000 172352  MOV      #10000,KPAR5  : WITH DATA AT 128 K
1911 007452 012701 120000    MOV      #120000,R1   : USING KPAR5
1912 007456 012702 000010    MOV      #10,R2       : WILL CHECK 8 WORDS
1913 007462 012737 000020 172516  MOV      #20,SR3      : ENABLE 22 BIT MAPPING
1914
1915 007470 022021 100$:     CMP      (R0)+,(R1)+  : DATA IDENTICAL?
1916 007472 001006          BNE      110$        : IF NOT, WE HAVE 22 BIT MMU
1917 007474 005302          DEC      R2           : ELSE CHECKED 8 WORDS?
1918 007476 001374          BNE      100$        : IF NOT, CHECK NEXT
1919 007500 012737 007600 172352  MOV      #7600,KPAR5  : ELSE CAN ONLY USE 124 K
1920 007506 000417          BR       130$        : PRINT OUT MEMORY SIZE
1921
1922          : 22 BIT MEMORY MANAGEMENT AVAILABLE - USE TO SIZE MEMORY UP TO 4 MBYTES
1923
1924 007510 012737 000001 002330 110$:    MOV      #1,MM22      : FLAG 22 BIT MMU AVAILABLE

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 25-3
GLOBAL SUBROUTINES SECTION

```

1925 007516 005737 120000      120$: TST      120000      : ADDRESS PAGE POINTED TO BY KPAR5
1926 007522 005737 002326      TST      NXMFLG      : WAS THERE AN NXM TRAP?
1927 007526 001007              BNE      130$        : IF YES, SAVE THE MEMORY SIZE
1928 007530 062737 000200 172352  ADD      #200,KPAR5  : ELSE POINT TO NEXT PAGE
1929 007536 023727 172352 177600  CMP      KPAR5,#177600 : REACHED THE I/O PAGE?
1930 007544 001364              BNE      120$        : IF NOT, TEST THE NEXT PAGE
1931
1932      : CONVERT VIRTUAL SIZE TO PHYSICAL SIZE
1933
1934 007546 005037 177572      130$: CLR      SRO        : DISABLE MEMORY MANAGEMENT
1935 007552 005037 002340      CLR      VIADD       : CONVERT KPAR5 TO PHYSICAL
1936 007556 004737 010024      JSR      PC,VPCON    : MEMORY SIZE
1937 007562 013737 002334 002342  MOV      PHHIGH,PHHSIZ : SAVE MEMORY SIZE
1938 007570 013737 002336 002344  MOV      PHLOW,PHLSIZ :
1939
1940      : PRINT OUT MEMORY SIZE AND RETURN FROM THE SUBROUTINE
1941
1942 007576 013701 002342      140$: MOV      PHHSIZ,R1    : GET SIZE HIGH WORD
1943 007602 013700 002344      MOV      PHLSIZ,R0    : AND LOW WORD
1944      000005      .REPT      5        : SHIFT HIGH AND LOW
1945      ASL      R0        : WORDS TO GET THE
1946      ROL      R1        : NUMBER OF K WORDS
1947      .ENDR
1948 007632      PRINTF #MSIZE,R1 : PRINT THE SIZE
      007632 010146
      007634 012746 007672      MOV      R1,-(SP)
      007640 012746 000002      MOV      #MSIZE,-(SP)
      007644 010600      MOV      #2,-(SP)
      007646 104417      MOV      SP,R0
      007650 062706 000006      TRAP    C$PNTF
1949 007654      CLRVEC #4      : RESET THE NXM VECTOR
      007654 012700 000004      ADD     #6,SP
      007660 104436      MOV      #4,R0
      007662 012602      TRAP    C$CVEC
1950 007662 012602      MOV      (SP)+,R2    : RESTORE THE REGISTERS
1951 007664 012601      MOV      (SP)+,R1    : USED BY THE ROUTINE
1952 007666 012600      MOV      (SP)+,R0
1953 007670 000207      RETURN
1954
1955
1956
1957 007672      045      101      115  MSIZE: .NLIST  BEX
      .ASCIZ  /%MEMORY SIZE = %D4%A K%N/
1958      .LIST  BEX
1959      .EVEN

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*****
SUBROUTINE PVCON - PHYSICAL TO VIRTUAL ADDRESS CONVERSION ROUTINE
*****
**
FUNCTIONAL DESCRIPTION:
    CONVERTS A PHYSICAL ADDRESS OF UP TO 22 BITS INTO A VIRTUAL
    ADDRESS USING KPAR 5.

INPUTS:
    PHHIGH - HIGH WORD OF PHYSICAL ADDRESS
    PHLOW  - LOW WORD OF PHYSICAL ADDRESS

IMPLICIT INPUTS:
    NONE.

OUTPUTS:
    VIADD  - VIRTUAL ADDRESS USING KPAR5
    KPAR5  - POINTS TO PHYSICAL PAGE

IMPLICIT OUTPUTS:
    NONE.

SUBORDINATE ROUTINES USED:
    NONE.

FUNCTIONAL SIDE EFFECTS:
    NONE.

CALLING SEQUENCE:
    CALL    PVCON
--
PVCON::
    MOV     R0,-(SP)           ; SAVE REGISTERS USED IN
    MOV     R1,-(SP)           ; THIS ROUTINE

    ; PUT ADDRESS BITS 0 TO 6 INTO THE VIRTUAL ADDRESS
    MOV     PHLOW,VIADD        ; LOAD LOWEST 15 BITS OF PHYSICAL ADDR.
    BIC     #177700,VIADD      ; CLEAR PAGE AND BLOCK INFORMATION
    BIS     #120000,VIADD      ; SET THE PAGE REGISTER TO KPAR5

    ; PUT ADDRESS BITS 6 TO 21 INTO KPAR5
    MOV     PHLOW,R0           ; INITIALISE OUR SHIFT REGISTER
    MOV     PHHIGH,R1          ; HIGH WORD WILL BE SHIFTED IN
    .REPT   6
    ASR     R1                 ; SHIFT HIGH WORD
  
```

```

007724
007724 010046
007726 010146
007730 013737 002336 002340
007736 042737 177700 002340
007744 052737 120000 002340
007752 013700 002336
007756 013701 002334
000006
  
```


GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 26-1
GLOBAL SUBROUTINES SECTION

2018
2019
2020 010012 010037 172352
2021 010016 012601
2022 010020 012600
2023 010022 000207

ROR RO
.ENDR
MOV RO,KPAR5
MOV (SP)+,R1
MOV (SP)+,RO
RETURN

: INTO LOW WORD
:
: SAVE AS KPAR5
: RESTORE THE REGISTERS
: USED BY THIS ROUTINE
:
:

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.....
SUBROUTINE VPCON - VIRTUAL TO PHYSICAL ADDRESS CONVERSION ROUTINE
.....
**
FUNCTIONAL DESCRIPTION:
    CONVERTS A VIRTUAL ADDRESS TOGETHER WITH KPAR 5 INTO A PHYSICAL
    ADDRESS OF UP TO 22 BITS.

INPUTS:
    VIADD - VIRTUAL ADDRESS (BITS 13 TO 15 ARE IGNORED)
    KPAR5 - PAGE ADDRESS REGISTER 5

IMPLICIT INPUTS:
    NONE.

OUTPUTS:
    PHHIGH - PHYSICAL ADDRESS HIGH WORD
    PHLOW - PHYSICAL ADDRESS LOW WORD

IMPLICIT OUTPUTS:
    NONE.

SUBORDINATE ROUTINES USED:
    NONE.

FUNCTIONAL SIDE EFFECTS:
    NONE.

CALLING SEQUENCE:
    CALL VPCON
    --
    
```

```

2067 010024
2068 010024 010046
2069 010026 013737 002340 002336
2070 010034 042737 160000 002336
2071 010042 013700 172352
2072 010046 005037 002334
2073      000006
2074
2075
2076
2077 010116 060037 002336
2078 010122 005537 002334
2079 010126 012600
2080 010130 000207
2081
    
```

```

VPCON::
MOV     R0,-(SP)           ; SAVE R0
MOV     VIADD,PHLOW       ; SET UP LOW WORD
BIC     #160000,PHLOW     ; DISCARD PAGE INFORMATION
MOV     KPAR5,R0         ; PAGE WILL GO IN HIGH WORD
CLR     PHHIGH           ; INITIALISE HIGH WORD
.REPT   6
ASL     R0               ; SHIFT PAGE NUMBER
ROL     PHHIGH           ; INTO HIGH WORD
.ENDR
ADD     R0,PHLOW          ; ADD BLOCK NO. TO LOW WORD
ADC     PHHIGH           ; CARRY ACROSS TO HIGH WORD
MOV     (SP)+,R0         ; RESTORE R0
RETURN
    
```

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010132
010132
010132 012737 000001 002326
010140
010140
010140 000002

```

:*****:
: INTERRUPT SERVICE ROUTINES :
:*****:
.SBTTL GLOBAL INTERRUPT HANDLING ROUTINES

:++
:THE INTERRUPT HANDLING SECTION CONTAINS CODING REQUIRED TO USE
:THE 'SETVEC' MACRO. NOTE EVERY INTERRUPT ROUTINE SHOULD SAVE
:AND RESTOR RO.
:---

:*****
:      NXM - INTERRUPT SERVICE ROUTINE
:
:FUNCTION:      THIS ROUTINE IS ASSIGNED TO VECTOR 4
:                WHEN ADDRESSING THE IEX FOR THE FIRST TIME.
:                IF THIS INTERRUPT IS GENERATED THE IEX
:                IS INCORRECTLY ADDRESSED.
:                THIS ROUTINE IS ALSO USED IN MEMORY MANAGEMENT
:                SUBROUTINE
:
:ENTRY CONDITON:
:
:EXIT CONDITON: WHEN THIS INTERRUPT IS SERVICED THE
:                NXMFLG IS SET.
:
:USED IN TESTS: AUTO DROP,23,24,
:*****

      BGNSRV  NXM
      MOV     #1,NXMFLG      ;SET FLAG IF MEMORY IS NON-EXISTENT.
      ENDSRV
                                L10012:
                                RTI

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 29
GLOBAL INTERRUPT HANDLING ROUTINES

2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130

```
.....
:      INTSC1 - INTERRUPT SERVICE ROUTINE
:
:FUNTION:      GENERAL PURPOSE INTERRUPT ROUTINE FOR CHANNEL 1.
:              SET A FLAG WHEN INTERRUPT WAS GENERATED
:ENTRY CONDION:
:
:EXIT CONDION: INTFC1 = FLAG, SET WHEN THIS INTERRUPT IS SERVID
:
:CALLED BY TEST:5,23,24,25,26
:
:.....
```

2131 010142
010142
2132 010142 012737 000001 002376
2133 010150
010150
010150 000002

```
      BGNSRV INTSC1
      MOV #1,INTFC1 ;SET INTERRUPT FLAG INTSC1::
      ENDSRV
      L10013: RTI
```

2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147

```
.....
:      INTSC2 - INTERRUPT SERVICE ROUTINE
:
:FUNTION:      GENERAL PURPOSE INTERRUPT ROUTINE FOR CHANNEL 2.
:              SET A FLAG WHEN INTERRUPT IN CHANNEL 2 WAS
:              GENERATED
:ENTRY CONDION:
:
:EXIT CONDION: INTFC2 = FLAG,SET WHEN THIS INTERRUPT IS SERVID
:
:USED IN TEST:5,23,24,25,26
:
:.....
```

2148 010152
010152
2149 010152 012737 000001 002400
2150 010160
010160
010160 000002

```
      BGNSRV INTSC2
      MOV #1,INTFC2 ;SET INTERRUPT FLAG INTSC2::
      ENDSRV
      L10014: RTI
```

2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170

```
.....  
:          INTERR - INTERRUPT ERROR SERVICE ROUTINE  
:  
:FUNCTION:      WHEN AN INVALID INTERRUPT IS FOUND A  
:                ERROR MESSAGE IS GENERATED.  
:ENTRY CONDITION:  
:  
:EXIT CONDITION:ERROR MESSAGE INVALID INTERRUPT  
:  
:USED IN TEST:5  
:.....
```

010162
010162
010162 104457
010164 000764
010166 010172
010170 000000
010172 040
010175 126
010200 111
010203 111
010206 105
010211 125
010214 000

111 116
101 114
104 040
116 124
122 122
120 124

BGNSRV INTERR
ERRSOFT 500,E400
E400: .ASCIZ / INVALID INTERRUPT/

INTERR::
TRAP CSERSOFT
.WORD 500
.WORD E400
.WORD 0

.EVEN
ENDSRV

L10015:
RTI

```

2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184 010220
      010220 104404
2185 010222
      010222 104433
2186 010224 112777 000000 172036      MOVB    #0,@ICRHX      ;LOAD NOT SWRST INTO ACR 1
2187 010232 012777 000010 172040      MOV     #10,@CSRX     ;SELECT CHANNEL 2
2188 010240 112777 000000 172022      MOVB    #0,@ICRHX     ;LOAD NOT SWRST INTO ACR 2
2189 010246 112777 000000 172000      MOVB    #0,@IIRHX     ;LOAD EVEN DPA INTO ADR 2
2190 010254 005077 172020      CLR     @CSRX         ;SELECT CHANNEL 1
2191 010260 052777 000002 172012      BIS     #2,@CSRX      ;SELECT CHA. 1 AS SYSTEM CONTROLLER
2192 010266 112777 000217 171774      MOVB    #217,@ICRHX   ;LOAD SIC INTO ACR1
2193 010274 012701 000100      MOV     #100,R1       ;WAIT 100 US
2194 010300 005301
2195 010302 001376      2$:    DEC     R1
      BNE    2$
2196 010304 112777 000017 171756      MOVB    #17,@ICRHX    ;LOAD NOT SIC INTO ACR1
2197 010312 112777 000040 171756      MOVB    #40,@IDRHX    ;LOAD EVEN MLA 2 INTO DOR 1
2198 010320 004737 011060      JSR     PC,LOOP
2199 010324 112777 000077 171744      MOVB    #77,@IDRHX    ;WAIT A LITTLE
2200 010332 004737 011060      JSR     PC,LOOP
2201 010336 112777 000200 171724      MOVB    #200,@ICRHX   ;LOAD UNL INTO DOR 1
2202 010344 112777 000000 171716      MOVB    #0,@ICRHX     ;WAIT A LITTLE
2203 010352 112777 000002 171674      MOVB    #2,@IIRHX     ;SET SYSTEM CONTROLLER 1 IN IDLE STATE
2204 010360 012777 000010 171712      MOV     #10,@CSRX     ;LOAD EVEN DPA INTO ADR 1
2205 010366 052777 000002 171704      BIS     #2,@CSRX      ;SELECT CHANNEL 2
2206 010374 112777 000217 171666      MOVB    #217,@ICRHX   ;SELECT CHANNEL 2 AS SYS. CONTROLLER
2207 010402 012701 000100      MOV     #100,R1       ;LOAD SIC INTO ACR2
2208 010406 005301      3$:    DEC     R1
      BNE    3$
2209 010410 001376      MOVB    #17,@ICRHX    ;WAIT 100 US
2210 010412 112777 000017 171650      MOVB    #17,@ICRHX    ;LOAD NOT SIC INTO ACR2
2211 010420 112777 000042 171650      MOVB    #42,@IDRHX    ;LOAD EVEN MLA INTO DOR 2
2212 010426 004737 011060      JSR     PC,LOOP
2213 010432 112777 000077 171636      MOVB    #77,@IDRHX    ;WAIT A LITTEL
2214 010440 004737 011060      JSR     PC,LOOP
2215 010444 112777 000200 171616      MOVB    #200,@ICRHX   ;LOAD UNL INTO DOR 2
2216 010452 112777 000000 171610      MOVB    #0,@ICRHX     ;WAIT A LITTLE
2217 010460 112777 000000 171572      MOVB    #0,@ISRLX     ;SET SYSTEM CONTROLLER 2 IN IDLE S'ATE
2218 010466 112777 000000 171566      MOVB    #0,@ISRHX     ;CLEAR LOW BYTE OF ISR2
2219 010474 005077 171600      CLR     @CSRX         ;CLEAR HIGH BYTE OF ISR2
2220 010500 112777 000000 171552      MOVB    #0,@ISRLX    ;SELECT CHANNEL 1
2221 010506 112777 000000 171546      MOVB    #0,@ISRHX    ;CLEAR LOW BYTE OF ISR1
2222 010514 112777 000200 171546      MOVB    #200,@ICRHX   ;CLEAR HIGH BYTE OF ISR1
2223 010522 112777 000000 171540      MOVB    #0,@ICRHX     ;SET SYSTEM CONTROLLER 1 IN IDEL STATE
2224 010530
      010530
      010530 104405
2225 010532 000207      ENDSEG
      10000$: TRAP    C$ESEG
      RETURN

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 32-1
GLOBAL INTERRUPT HANDLING ROUTINES

2226

```

2228
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2240
2241 010534
      010534 104404
2242 010536
      010536 104433
2243 010540 113777 002312 171506
2244 010546 012777 000010 171524
2245 010554 113777 002314 171472
2246 010562 005077 171512
2247 010566 112777 000000 171474
2248 010574 112777 000000 171456
2249 010602 112777 000000 171452
2250 010610 112777 000010 171462
2251 010616 112777 000000 171444
2252 010624 112777 000000 171426
2253 010632 112777 000000 171422
2254 010640 005077 171434
2255 010644 012737 000001 002374
2256 010652 052777 000002 171420
2257 010660 112777 000217 171402
2258 010666 012701 000100
2259 010672 005301
2260 010674 001376
2261 010676 112777 000017 171364
2262 010704
      010704
      010704 104405
2263 010706 000207

```

```

.....
SUBROUTINE BGIN1
=====
FUNCTION: THIS SUBROUTINE LOADS THE DPA ADDRESS AND THE
          SOFTWARE RESET INTO BOTH CHANNELS,
          IT ALSO SELECTS CHANNEL 1 AS SYSTEM CONTROLLER
          AND CLEARS MASK0+MASK1 REGISTER .
CALLING FORMAT: JSR PC,BGIN1
CALLED BY TEST: 5,7,8,11,12,13,14,15,16,17,19,21,22,23,26
.....
BGIN1:: BGNSEG
          TRAP CSBSEG
          BRESET
          TRAP CSRESET
          MOVB DPA1,@IIRHX ;LOAD DEVICE PRIM. ADDR.1
          MOV #10,@CSRX ;SELECT CHANNEL 2
          MOVB DPA2,@IIRHX ;LOAD DEVICE PRIM. ADDR. 2
          CLR @CSRX ;SELECT CHANNEL 1
          MOVB #0,@ICRHX ;LOAD NOT SWRST IN ACR 1
          MOVB #0,@ISRLX ;CLEAR LOW BYTE OF ISR1
          MOVB #0,@ISRHX ;CLEAR HIGH BYTE OF ISR1
          MOVB #10,@CSRX ;SELECT CHANNEL 2
          MOVB #0,@ICRHX ;LOAD NOT SWRST IN ACR 2
          MOVB #0,@ISRLX ;CLEAR LOW BYTE OF ISR2
          MOVB #0,@ISRHX ;CLEAR HIGH BYTE OF ISR2
          CLR @CSRX ;SELECT CHANNEL 1
          MOV #1,CHAN ;LOAD CHANNEL NUMBER
          BIS #2,@CSRX ;SELECT CHANNEL 1 AS SYSTEM CONTROLLER
          MOVB #217,@ICRHX ;LOAD SIC IN ACR 1
          MOV #100,R1 ;WAIT 100 US
          DEC R1
          BNE 1$
          MOVB #17,@ICRHX ;LOAD NOT SIC IN ACR1
          ENDSEG
          10001$: TRAP CSESEG
          RETURN

```


2265
2266
2267
2268
2269
2270
2271
2272
2273
2274
2275
2276
2277

```

*****
SUBROUTINE BGIN2
=====
FUNCTION: THIS SUBROUTINE LOADS THE DPA ADDRESSES AND THE
          SOFTWARE RESET INTO BOTH CHANNELS.
          IT ALSO SELECTS CHANNEL 2 AS SYSTEM CONTROLLER
          AND CLEARS MASK0+MASK1 REGISTER.
CALLING FORMAT: JSR PC,BGIN2
CALLED BY TEST: 5,6,8,9,10,13,14,15,16,17,18,20,22,24,25
*****

```

2278 010710
010710 104404
2279 010712
010712 104433
2280 010714 113777 002312 171332
2281 010722 012777 000010 171350
2282 010730 113777 002314 171316
2283 010736 005077 171336
2284 010742 112777 000000 171320
2285 010750 112777 000000 171302
2286 010756 112777 000000 171276
2287 010764 012777 000010 171306
2288 010772 012737 000002 002374
2289 011000 112777 000000 171262
2290 011006 112777 000000 171244
2291 011014 112777 000000 171240
2292 011022 052777 000002 171250
2293 011030 112777 000217 171232
2294 011036 012701 000100
2295 011042 005301
2296 011044 001376
2297 011046 112777 000017 171214
2298 011054
011054
011054 104405
2299 011056 000207

```

BGIN2:: BGNSEG
          BRESET ;RESET HARDWARE TRAP CSBSEG
          MOV     DPA1,@IIRHX ;LOAD DEVICE PRIM. ADDR.1
          MOV     #10,@CSRX ;SELECT CHANNEL 2
          MOV     DPA2,@IIRHX ;LOAD DEVICE PRIM. ADDR. 2
          CLR     @CSRX ;SELECT CHANNEL 1
          MOV     #0,@ICRHX ;LOAD NOT SWRST IN ACR 1
          MOV     #0,@ISRLX ;CLEAR LOW BYTE OF ISR1
          MOV     #0,@ISRHX ;CLEAR HIGH BYTE OF ISR1
          MOV     #10,@CSRX ;SELECT CHANNEL 2
          MOV     #2,CHAN ;LOAD CHANNEL FLAG
          MOV     #0,@ICRHX ;LOAD NOT SWRST IN ACR 2
          MOV     #0,@ISRLX ;CLEAR LOW BYTE OF ISR2
          MOV     #0,@ISRHX ;CLEAR HIGH BYTE OF ISR2
          BIS     #2,@CSRX ;SELECT CHANNEL 2 AS SYSTEM CONTROLLER
          MOV     #217,@ICRHX ;LOAD SIC IN ACR 2
          MOV     #100,R1 ;WAIT 100 US
1$: DEC     R1 ;...
   BNE     1$ ;...
   MOV     #17,@ICRHX ;LOAD NOT SIC IN ACR2
ENDSEG
          10002$: TRAP CSESEG
RETURN

```

2301
 2302
 2303
 2304
 2305
 2306
 2307
 2308
 2309
 2310
 2311
 2312 011060 012701 000001
 2313 011064 005301
 2314 011066 001376
 2315 011070 000207
 2316
 2317
 2318
 2319
 2320
 2321
 2322
 2323
 2324
 2325
 2326
 2327
 2328
 2329 011072 012701 000100
 2330 011076 005301
 2331 011100 001376
 2332 011102 000207
 2333
 2334 011104
 2335

```

.....
SUBROUTINE LOOP
=====
:FUNCTION : ROUTINE FOR WAIT (AT LEAST) 1 US.
:CALLING FORMAT: JSR PC,LOOP
:CALLED BY TEST: ALL TESTS EXCEPT 1,2,3,4,5
.....
LOOP: MOV #1,R1 ;LOAD LOOP COUNTER
1$: DEC R1 ;DECREMENT LOOP COUNTER
BNE 1$ ;LOOP UNTIL DONE
RETURN

```

```

.....
SUBROUTINE WAIT
=====
:FUNCTION: ROUTINE FOR WAIT (AT LEAST) 100 US.
:CALLING FORMAT: JSR PC,WAIT
:CALLED BY TEST: 4,6,8,13,17
.....
WAIT:: MOV #100,R1
1$: DEC R1 ;DECREMENT COUNTER
BNE 1$ ;WAIT UNTIL DONE
RETURN
ENDMOD

```

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 36
GLOBAL INTERRUPT HANDLING ROUTINES

M
TI

```

2348          .TITLE MISCELLANEOUS SECTIONS
2349          .SBTTL  REPORT CODING SECTION
2377
2378 011104          BGNMOD
2379
2380          :
2381          : * *
2382          : THE REPORT CODING SECTION CONTAINS THE
2383          : "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
2384          : --
2385 011104          BGNRPT
2385 011104          LSRPT::
2386
2398
2399 011104          EXIT  RPT
2399 011104 000167          .WORD  JSJMP
2399 011106 000000          .WORD  L10016-2-.
2400
2412
2413          .EVEN
2414
2415 011110          ENDRPT
2415 011110          L10016:
2415 011110 104425          TRAP  CSRPT

```

MISCELLANEOUS SECTIONS MACRO M1:13 06-SEP-82 16:46 PAGE 37
PROTECTION TABLE

2417
2418
2419
2420
2421
2422
2423
2424 011112
011112
2425
2426 011112 000000
2427 011114 177777
2428 011116 177777
2429
2430 011120
2431

.SBTTL PROTECTION TABLE

:
:++
: THIS TABLE IS USED BY THE RUNTIME SERVICES
: TO PROTECT THE LOAD MEDIA.
:--

BGNPROT

LSPROT::

.WORD 0
.WORD -1
.WOPD -1

:CHECK CSR ADDRESS
:DON'T CHECK MASSBUS UNIT NUMBER
:DON'T CHECK DRIVE NUMBER

ENDPROT

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 38
INITIALIZE SECTION

```

2446          .SBTTL  INITIALIZE SECTION
2447
2448          :
2449          : THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
2450          : AT THE BEGINNING OF EACH PASS.
2451          :
2452          :--
2453          011120          BGNINIT
2454          011120
2478
2479          011120          RFLAGS  RO          ;GET THE OPERATOR FLAGS
2480          011120          104421          ;
2481          011122          032700          001000          BIT      #1000,RO          ;IS PNT FLAG SET?
2482          011126          001404          BEQ      2$          ;BRANCH IF NO
2483          011130          012737          000001          002324          MOV      #1,PNTF          ;SET FLAG FOR TEST HEADER PR'INTOUT
2484          011136          000402          BR      3$          ;
2485          011140          005037          002324          2$:      CLR      PNTF          ;CLEAR FLAG FOR DISABLE TEST HEADER PRINTOUT
2486          011144          012700          000040          3$:      REDEF   #EF.START          ;IS THIS JUST STARTED ?
2487          011144          012700          000040          MOV      #EF.START,RO
2488          011150          104447          TRAP   C$RFLA
2489          011152          BCOMPLETE STARST          ;IF YES - BRANCH.
2490          011152          103424          BCS    STARST
2491          011154          REDEF   #EF.RESTART          ;IS THIS A RESTART ?
2492          011154          012700          000037          MOV      #EF.RESTART,RO
2493          011160          104447          TRAP   C$REFG
2494          011162          BCOMPLETE NEWST          ;IF YES - BRANCH
2495          011162          103425          BCS    NEWST
2496          011164          REDEF   #EF.NEW          ;IS THIS A NEW PASS ?
2497          011164          012700          000035          MOV      #EF.NEW,RO
2498          011170          104447          TRAP   C$REFG
2499          011172          BCOMPLETE NEWST          ;IF YES - FIRST UNIT AGAIN
2500          011172          103421          BCS    NEWST
2501          011174          REDEF   #EF.CONTINUE          ;IS THIS A CONTINUE ?
2502          011174          012700          000036          MOV      #EF.CONTINUE,RO
2503          011200          104447          TRAP   C$REFG
2504          011202          BCOMPLETE EXINI          ;IF YES - DON'T INITIALIZE
2505          011202          103406          BCS    EXINI
2506          011204          REDEF   #EF.PWR          ;IS THIS A POWER FAIL
2507          011204          012700          000034          MOV      #EF.PWR,RO
2508          011210          104447          TRAP   C$REFG
2509          011212          BNCOMPLETE GETPRM          ;IF NOT-MUST BE A NEW UNIT
2510          011212          103014          BCC   GETPRM
2511          011214          004737          007176          JSR     PC,MEMINI          ;IF YES-MUST BE A POWER FAIL,RELOAD MMU
2512          011220          EXINI:  EXIT      INIT          ;
2513          011220          104432          TRAP   C$EXIT
2514          011222          001004          .WORD  L10020-.
2515          011224          STARST: SETPRI  #PRI07          ;SET DIAGNOSTIC TO PRIORITY 7
2516          011224          012700          000340          MOV      #PRI07,RO
2517          011230          104441          TRAP   C$SPRI
2518          011232          004737          007176          JSR     PC,MEMINI          ;INITIATE MEMORY MANAGEMENT
2519          011236          012737          177777          002372          NEWST: MOV      #-1,LOGDEV          ;INITIALIZE LOGICAL UNIT NUMBER.
2520          011244          005237          002372          GETPRM: INC      LOGDEV          ;NEXT LOGICAL UNIT TO BE TESTED ?
2521          011250          023737          002372          002012          CMP     LOGDEV,LSUNIT          ;IS THE MAXIMUM UNIT # EXCEEDED ?
2522          011256          002367          BGE    NEWST          ;IF YES - A NEW START
2523          2503          :          SETVEC  #14,#34716,#340          ;***JUST FOR DEBUG PROGRAM;*****
2524          2504          :          NOP          ;SPACE FOR DEBUG PROGRAM

```

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 38-1
INITIALIZE SECTION

```

2505 011262 000240      NOP      :...
2506 011264 000240      NOP      :...
2507 011266 000240      NOP      :...
2508 011270 000240      NOP      :...
2509 011272 000240      NOP      :...
2510 011274 000240      GPHARD  LOGDEV,R1  ;GET THE P-TABLE POINTER INTO R1
      011274 013700 002372      MOV      LOGDEV,R0
      011300 104442      TRAP     ($GPHRD
      011302 010001      MOV      R0,R1
2511 011304      BNCOMPLETE GETPRM  ;IF NOT AVAILABLE ,GET THE NEXT ONE
      011304 103357      BCC     GETPRM
2512 011306 011100      MOV      (R1),R0      ;SAVE THE ADDRESS
2513 011310 032700 000007      BIT      #7,R0      ;DOES THIS DEVICE ADDRESS END IN NON-ZERO?
2514 011314 001414      BEQ     10$         ;IF NOT - OK (76XXX0)
2515 011316 042711 000007      BIC     #7,(R1)     ;MAKE IT 76XXX0
2516 011322      PRINTB #FINIT1,(R1),R0 ;INFORM THE USER
      011322 010046      MOV      R0,-(SP)
      011324 011146      MOV      (R1),-(SP)
      011326 012746 012046      MOV      #FINIT1,-(SP)
      011332 012746 000003      MOV      #3,-(SP)
      011336 010600      MOV      SP,R0
      011340 104414      TRAP     ($PNTB
      011342 062706      ADD     #10,SP
2517 011346 011137 002256      10$: MOV      (R1),ISRX    ;LOAD ADDRESS 0
2518 011352 013737 002256 002260      MOV      ISRX,ISRLX  ;LOAD LOW BYTE LABLE OF ADDRSS 0
2519 011360 011137 002262      MOV      (R1),ISRHX  ;LOAD HIGH BYTE, ADDRESS 1
2520 011364 062737 000001 002262      ADD     #1,ISRHX
2521 011372 011137 002250      MOV      (R1),IIRX   ;LOAD ADDRESS 2
2522 011376 062737 000002 002250      ADD     #2,IIRX
2523 011404 013737 002250 002252      MOV      IIRX,IIRLX  ;LOAD LOW BYTE LABLE OF ADDRESS 2
2524 011412 011137 002254      MOV      (R1),IIRHX  ;LOAD HIGH BYTE, ADDRESS 3
2525 011416 062737 000003 002254      ADD     #3,IIRHX
2526 011424 011137 002264      MOV      (R1),ICRX   ;LOAD ADDRESS 4
2527 011430 062737 000004 002264      ADD     #4,ICRX
2528 011436 013737 002264 002266      MOV      ICRX,ICRLX  ;LOAD LOW BYTE LABLE OF ADDRESS 4
2529 011444 011137 002270      MOV      (R1),ICRHX  ;LOAD HIGH BYTE,ADDRESS 5
2530 011450 062737 000005 002270      ADD     #5,ICRHX
2531 011456 011137 002272      MOV      (R1),IDRX   ;LOAD ADDRESS 6
2532 011462 062737 000006 002272      ADD     #6,IDRX
2533 011470 013737 002272 002274      MOV      IDRX,IDRLX  ;LOAD LOW BYTE LABLE OF ADDRESS 6 (PPR)
2534 011476 011137 002276      MOV      (R1),IDRHX  ;LOAD HIGH BYTE,ADDRESS 7 (DOR)
2535 011502 062737 000007 002276      ADD     #7,IDRHX
2536 011510 011137 002300      MOV      (R1),CSRX   ;LOAD ADDRESS OF CONTROL&STATUS REGISTER
2537 011514 062737 000010 002300      ADD     #10,CSRX
2538 011522 011137 002302      MOV      (R1),BARX   ;LOAD ADDRESS OF BUS ADDRESS REGISTER
2539 011526 062737 000012 002302      ADD     #12,BARX
2540 011534 011137 002304      MOV      (R1),BCRX   ;LOAD ADDRESS OF BYTE COUNT REGISTER
2541 011540 062737 000014 002304      ADD     #14,BCRX
2542 011546 011137 002306      MOV      (R1),MCRX   ;LOAD ADDRESS OF MATCH CHARACTER REGISTER
2543 011552 062737 000016 002306      ADD     #16,MCRX
2544 011560 012137 002310      MOV      (R1)+,MCRHX ;LOAD HIGH BYTE OF MCR REGISTER
2545 011564 062737 000017 002310      ADD     #17,MCRHX
2546 011572 011100      MOV      (R1),R0     ;GET VECTOR
2547 011574 032700 000007      BIT      #7,R0      ;DOES THIS VECTOR END IN NON - ZERO ?
2548 011600 001414      BEQ     11$         ;IF NOT - OK (XX0)
2549 011602 042711 000007      BIC     #7,(R1)     ;MAKE IT XX0
2550 011606      PRINTB #FINIT2,(R1),R0 ;INFORM THE USER

```


2599
2600
2601
2602
2603
2604
2605
2606
2607
2608 012230
012230
2609
2616 012230
012230 012746 000340
012234 012746 010132
012240 012746 000004
012244 012746 000003
012250 104437
012252 062706 000010
2617 012256 005037 002326
2618 012262 005777 167762
2619
2620
2621
2622
2623
2624
2625 012266 005737 002326
2626 012272 001407
2627 012274
012274 013700 002372
012300 104451
2628 012302
012302 104444
2629 012304
012304 012700 000004
012310 104436
2630 012312
2631 012312
012312
012312 104461

.SBTTL AUTODROP SECTION

```

:++
: THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
: THE "ADR" FLAG WAS SET. THE UNIT(S) UNDER TEST ARE CHECKED TO
: SEE IF THEY WILL RESPOND. THOSE THAT DON'T ARE IMMEDIATELY
: DROPPED FROM TESTING.
:--

```

BGNAUTO

LSAUTO::

SETVEC #4,#NXM,#PRI07 ;SET UP NON -EXISTENT MEMORY TRAP VECTOR.

```

MOV #PRI07,-(SP)
MOV #NXM,-(SP)
MOV #4,-(SP)
MOV #3,-(SP)
TRAP C$SVEC
ADD #10,SP

```

```

CLR NXMFLG ;CLEAR NON -EXISTENT MEMORY FLAG
TST @IIRX ;REFERENCE MEMORY ADDRESS FOR THE DEVICE
;TO SEE IF IT EXISTS.

```

```

:*****
:IF THE DEVICE DOESN'T EXIST THE RESULTANT TRAP TO VECTOR 04 WILL
:CAUSE THE DEVICE TO BE DROPPED (SEE INTERRUPT ROUTINE)
:OTHERWISE THE MEMORY REFERENCE IS UNEVENTFUL AND THE DEVICE IS READY.
:*****

```

```

TST NXMFLG ;WAS THERE A TRAP ?
BEQ 10$ ;BR IF NOT
DODU LOGDEV ;DROP THE DEVICE

```

```

MOV LOGDEV,R0
TRAP C$DODU

```

DOCLN ;CLEAN UP CODE.

CLRVEC #4 ;RETURN VECTOR 04 TO NORMAL STATE

```

TRAP C$DCLN
MOV #4,R0
TRAP C$CVEC

```

10\$:

ENDAUTO

L10021:

TRAP C\$AUTO

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 40
CLEANUP CODING SECTION

```

2633          .SBTTL  CLEANUP CODING SECTION
2634
2635          : **
2636          : THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
2637          : AFTER THE HARDWARE TESTS HAVE BEEN PERFORMED.
2638          : --
2639
2640 012314          BGNCLN
2641 012314
2641
2650 012314          SETPRI  #PRI07          ;DISABLE INTERRUPTS
2650 012314 012700 000340
2650 012320 104441
2651 012322          BRESET          ;RESET THE IEX11
2651 012322 104433
2652 012324          CLRVEC  #4          ;RETURN VECTOR 04 TO NORMAL STATE
2652 012324 012700 000004
2652 012330 104436
2653
2654 012332          EXIT    CLN
2654 012332 104432
2654 012334 000002
2655
2667
2668          .EVEN
2669
2670 012336          ENDCLN
2670 012336
2670 012336 104412

```

```

L$CLEAN::
MOV  #PRI07,R0
TRAP C$SPRI
TRAP C$RESET
MOV  #4,R0
TRAP C$CVEC
TRAP C$EXIT
WORD L10022-
L10022: TRAP C$CLEAN

```

```

2672          .SBTTL  DROP UNIT SECTION
2673
2674          :++
2675          : THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
2676          : TO NO LONGER BE TESTED.
2677          :
2678          : SUPVSR DOES THE "DROPPING". THIS IS JUST TO TELL THE MAN.
2679          : "DROPPED" UNITS ARE RE-SELECTED ON OPERATOR "STA" OR "ADC"
2680          : COMMAND, OTHERWISE REMAIN INACTIVE. THE DISPLAY COMMAND
2681          : WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
2682          : WHICH ARE STILL ACTIVE.
2683          :--
2684
2685 012340      BGNDU
2685 012340
2686
2695 012340      PRINTF  #FMDROP,LOGDEV ;UNIT DROPPED
2695 012340 013746 002372
2695 012344 012746 012370
2695 012350 012746 000002
2695 012354 010600
2695 012356 104417
2695 012360 062706 000006
2696
2697 012364      EXIT    DU
2697 012364 000167
2697 012366 000030
2698
2710 012370      045      116      045  FMDROP: .ASCIZ  /%N%AUNIT %D2%A DROPPED/
2710 012373      101      125      116
2710 012376      111      124      040
2710 012401      045      104      062
2710 012404      045      101      040
2710 012407      104      122      117
2710 012412      120      120      105
2710 012415      104      000
2711
2712          .EVEN
2713
2714 012420      ENDDU
2714 012420
2714 012420 104453

```

L\$DU::

```

MOV  LOGDEV,-(SP)
MOV  #FMDROP,-(SP)
MOV  #2,-(SP)
MOV  SP,R0
TRAP C$PNTF
ADD  #6,SP

```

.WORD J\$JMP
.WORD L10023-2-

L10023: TRAP C\$DU

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 42
ADD UNIT SECTION

2716
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2724
2725
2734
2735
2736
2748
2749
2750
2751
2752
2753

012422
012422
012422 000167
012424 000000
012426
012426
012426 104452
012430

.SBTTL ADD UNIT SECTION

..+
: THE ADD-UNIT SECTION CONTAINS ANY CODE THE PROGRAMMER WISHES
: TO BE EXECUTED IN CONJUNCTION WITH THE ADDING OF A UNIT BACK
: TO THE TEST CYCLE.
:--

BGNAU

LSAU::

EXIT AU

.WORD JSJMP
.WORD L10024-2-

.EVEN

ENDAU

L10024: TRAP CSAU

ENDMOD

2756
2767
2803
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2809
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012430
012430
012430
012434
012436
012436
012442
012446
012450
012452
012456
012462
012462
012466
012472
012476
012502
012504
012510
012514
012520
012524
012526
012532
012532
012534
012536
012540
012542
012544
012546
012546
012550
012552

005737 002324
001410
012746 012642
012746 000001
010600
104417
062706 000004
005037 002322
012746 000340
012746 012636
012746 000004
012746 000003
104437
062706 000010
013701 002256
162701 000002
012702 000010
005003
062701 000002
104404
005004
005711
005704
001405
005203
104456
000145
005012

```
.TITLE HARDWARE TESTS
.SBTTL TEST 1: REGISTER ADDRESSING TEST

      BGNMOD

*****
      TEST 1 -IEX11
*****
:VERIFY THAT ADDRESSING THE 8 BUS DEVICE REGISTERS DOES NOT CAUSE
:A NON-EXISTENT MEMORY TRAP.
:
:AN ERROR IN THIS TEST COULD MEAN THAT THE DEVICE IS INCORRECTLY
:CONFIGURED OR THAT THE ADDRESS IS WRONG.
:
:COMMUNICATION BETWEEN THE MAIN CPU AND THE IEX11 IS ACCOMPLISHED
:THROUGH A SET OF SIXTEEN REGISTERS.THE SIXTEEN REGISTERS ARE
:ASSIGNED ADDRESSES IN THE I/O PAGE.
*****

      BGNTST
      TST     PNTF          ;IS THE PNT FLAG SET
      BEQ     7$           ;IF YES, PRINT THE TEST HEADER
      PRINTF  #TSHD1

      MOV     #TSHD1,-(SP)
      MOV     #1,-(SP)
      MOV     SP,R0
      TRAP   C$PNTF
      ADD     #4,SP

7$:   CLR     ITRCNT        ;CLEAR ITERATION COUNTER
      SETVEC #4,#LOCATE,#PRI07
      MOV     #PRI07,-(SP)
      MOV     #LOCATE,-(SP)
      MOV     #4,-(SP)
      MOV     #3,-(SP)
      TRAP   C$SVEC
      ADD     #10,SP

ITRAC1: MOV     ISRX,R1      ;GET REGISTER ADDRESS
      SUB     #2,R1
      MOV     #8.,R2        ;SET COUNTER FOR 8 REGISTER ADDRESSES
      CLR     R3
      ADD     #2,R1        ;GET NEXT REGISTER ADDRESS
      BGNSEG

      TRAP   C$BSEG

      CLR R4
      TST     (R1)         ;TEST REGISTER ADDRESS
      TST     R4           ;WAS THERE A TRAP
      BEQ     20$         ;BRANCH IF NO
      INC     R3
      ERRHRD 101,E101,ERR101
      TRAP   C$ERHRD
      .WORD 101
      .WORD E101
```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 43-1
TEST 1: REGISTER ADDRESSING TEST

HA
TE

```

2859 012554 003454                                .WORD  ERR101
                                20$:  ENDSEG
                                10000$:
2860 012556 104405                                TRAP  C$ESEG
012556 005302                                ;ALL REGISTER ADDRESSES TESTED ?
2861 012560 001361                                ;BRANCH IF YES
012560 005703                                :
2862 012562 001404                                :
012562 001404                                :
2863 012564 001404                                :
012564 001404                                :
2864 012570 013700 002372                                MOV  LOGDEV,RO
012570 104451                                TRAP  C$DODU
2865 012576 104444                                ;
012576 104444                                TRAP  C$DCLN
2866 012600 005737 002234                                30$:  TST  QVP
                                ;IS QUICK VERIFY PASS SELECTED ?
2867 012604 001007                                BNE  EXQV1
                                ;IF YES EXIT TEST
2868 012606 005237 002322                                INC  ITRCNT
                                ;ITERATION COUNTER +1
2869 012612 023737 002320 002322                                CMP  ITRDEF,ITRCNT
                                ;DEFAULT ITERATION EXECUTED
2870 012620 001401                                BEQ  EXQV1
                                ;IF YES EXIT TEST
2871 012622 000732                                BR   ITRAC1
                                ;IF NO TEST ITERATION
2872 012624 012700 000004                                EXQV1: CLRVEC #4
                                :
                                MOV  #4,RO
                                TRAP  C$CVEC
2873 012632 104432                                EXIT TST
                                TRAP  C$EXIT
012632 104432                                .WORD  L10025-.
012634 000046
2874 012636 005204                                BGNSRV LOCATE
                                ;SERVICE ROUTINE LOCATE
012636 005204                                INC  R4
                                LOCATE::
2875 012640 000002                                ENDSRV
                                :
                                L10026:
2876 012640 000002                                RTI
2877
2889
2890 012642 045 123 062 TSHD1: .NLIST BEX
                                .ASCIZ /%S2%AREGISTER ADDRESSING TEST%N/
2891 .LIST BEX
2892 .EVEN
2893 012702 104401                                ENDTST
                                L10025:
2894 012702 104401                                TRAP  C$ETST
2895

```

```

2902 .SBTTL TEST 2: INITIALIZATION TEST
2903 .....
2904 IEX - TEST 2
2905 :RESET THE IEX AND ENSURE THAT REGISTERS CSR,IIR,ISR,ICR,IDR,MCR :
2906 :IN BOTH CHANNELS ARE IN THEIR PROPER INITIALIZATION STATE .
2907 .....
2908 :REGISTERS BAR & BCR ARE NOT IN A DEFINATE STATE AFTER RESET
2909 :SO THEY ARE NOT TESTED HERE
2910 .....
2911 :THE MUX BIT IN CSR IS ALSO TESTED
2912 .....
2913 BGNST
2914 012704 005737 002324 TST PNTF T2:: :IS THE PNT FLAG SET
2915 012710 001410 BEQ 7$ :IF YES, PRINT THE TEST HEADER
2916 012712 PRINTF #TSHD2 :...
      012712 012746 013367 MOV #TSHD2,-(SP)
      012716 012746 000001 MOV #1,-(SP)
      012722 010600 MOV SP,R0
      012724 104417 TRAP C$PNTF
      012726 062706 000004 ADD #4,SP
2917 012732 005037 002322 7$: CLR ITRCNT :CLEAR ITERATION COUNTER
2918 012736 ITRAC2: BRESET :CLEAR HARDWARE
      012736 104433 TRAP C$RESET
2919 012740 012737 000001 002374 MOV #1,CHAN :LOAD CANNEL NUM.
2920 012746 BGNSEG
      012746 104404 TRAP C$BSEG
2921 012750 017737 167324 002502 MOV @CSRX,BAD :TEST THE INITIALIATION STATE OF CSR REGISTER
2922 012756 042737 017060 002502 BIC #17060,BAD :BIT 9-12 AND BIT 4+5 ARE NOT TESTED
2923 012764 005737 002502 TST BAD :CSR SHOULD BE ZERO
2924 012770 001406 BEQ 10$ :BRANCH IF DATA CORRECT
2925 012772 005037 002500 CLR GOOD :SET UP DATA FOR ERROR MESSAGE
2926 012776 ERRSOF T 201,E200,ERR201 :ERROR HANDLER
      012776 104457 TRAP C$ERSOF T
      013000 000311 .WORD 201
      013002 005057 .WORD E200
      013004 003500 .WORD ERR201
2927 013006 10$: ENDSEG
      013006 10000$: TRAP C$ESEG
2928 013010 13$: BGNSEG
      013010 104404 TRAP C$BSEG
2929 013012 017737 167232 002502 MOV @IIRX,BAD :GET IIR CONTENTS
2930 013020 005737 002502 TST BAD :CONTENTS SHOULD BE ZERO
2931 013024 001410 BEQ 20$ :BRANCH IS YES
2932 013026 005037 002500 CLR GOOD :SET UP DATA FOR ERROR MESSAGE
2933 013032 012702 013336 MOV #IIRNAM,R2
2934 013036 ERRSOF T 202,E200,ERR202 :ERROR HANDLER
      013036 104457 TRAP C$ERSOF T
      013040 000312 .WORD 202
      013042 005057 .WORD E200
      013044 003556 .WORD ERR202
2935 013046 20$: ENDSEG
      013046 10001$: TRAP C$ESEG
2936 013050 BGNSEG
      013050 104404 TRAP C$BSEG

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 44-1
TEST 2: INITIALIZATION TEST

```

2937 013052 017737 167200 002502      MOV      @ISR,X,BAD      ;GET ISR CONTENTS
2938 013060 042737 000001 002502      BIC      #1,BAD         ;CLEAR ULPA BIT
2939 013066 005737 002502          TST      BAD           ;CONTENTS SHOULD BE ZERO
2940 013072 001410          BEQ      30$           ;BRANCH IF YES
2941 013074 005037 002500      CLR      GOOD          ;SET UP DATA FOR ERROR MESSAGE
2942 013100 012702 013343      MCV      #ISR,NAM,R2
2943 013104          ERRSOF T 203,E200,ERR202 ;ERROR HANDLER
                                TRAP      CSERSOFT
                                .WORD     203
                                .WORD     E200
                                .WORD     ERR202
                                10002$:
2944 013114          30$:      ENDSEG
                                TRAP      CSFSEG
                                .WORD     10002$
2945 013116          104405      BGNSEG
                                TRAP      CSBSEG
2946 013120 117737 167140 002502      MOV      @ICR,X,BAD     ;GET ICR CONTENTS
2947 013126 005737 002502      TST      BAD           ;CONTENTS SHOULD BE ZERO
2948 013132 001410      BEQ      40$           ;BRANCH IF YES
2949 013134 005037 002500      CLR      GOOD          ;SET UP DATA FOR ERROR MESSAGE
2950 013140 012702 013350      MCV      #ICR,NAM,R2
2951 013144          ERRSOF T 204,E200,ERR202 ;ERROR HANDLER
                                TRAP      CSERSOFT
                                .WORD     204
                                .WORD     E200
                                .WORD     ERR202
                                10003$:
2952 013154          40$:      ENDSEG
                                TRAP      CSESEG
                                .WORD     10003$
2953 013156          104405      BGNSEG
                                TRAP      CSBSEG
2954 013160 017737 167122 002502      MOV      @MCR,X,BAD     ;GET MCR CONTENTS
2955 013166 005737 002502      TST      BAD           ;CONTENTS SHOULD BE ZERO
2956 013172 001410      BEQ      50$           ;BRANCH IF YES
2957 013174 005037 002500      CLR      GOOD          ;SET UP DATA FOR ERROR MESSAGE
2958 013200 012702 013362      MCV      #MCR,NAM,R2
2959 013204          ERRSOF T 205,E200,ERR202 ;ERROR HANDLER
                                TRAP      CSERSOFT
                                .WORD     205
                                .WORD     E200
                                .WORD     ERR202
                                10004$:
2960 013214          50$:      ENDSEG
                                TRAP      CSESEG
                                .WORD     10004$
2961 013216 042737 000002 002374      CMP      #2,CHAN        ;LOOK AT CHANNEL FLAG
2962 013224 001427          BEQ      61$           ;EXIT IF CHANNEL 2 WAS SELECTED
2963 013226 052777 000010 167044      BIS      #10,@CSR,X    ;SET MUX BIT
2964 013234 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL FLAG
2965 013242 017737 167032 002502      MOV      @CSR,X,BAD     ;GET CSR2 CONTENTS
2966 013250 042737 017060 002502      BIC      #17060,BAD     ;IGNORE BIT 9-12 AND BIT 4+5
2967 013256 022737 000010 002502      CMP      #10,BAD        ;MUX BIT SHOULD BE SET
2968 013264 001651          BEQ      13$           ;BRANCH IF YES
2969 013266 012737 000010 002500      MOV      #10,GOOD       ;GET GOOD DATA
2970 013274          ERRSOF T 206,E200,ERR201 ;ERROR HANDLER
                                TRAP      CSERSOFT
                                .WORD     206
                                .WORD     E200
                                .WORD     ERR201
2971 013274 104457          104457
2972 013276 000316          000316
2973 013300 005057          005057

```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 45
TEST 3: R/W BIT TEST

2989
2990
2991
2992
2993
2994
2995
2996
2997
2998
2999 013424
3000 013424 005737 002324
3001 013430 001410
3002 013432
013432 012746 014047
013436 012746 000001
013442 010600
013444 104417
013446 062706 000004
3003 013452 005037 002322
3004 013456
013456 012700 000340
013462 104441
3005 013464
013464 104433
3006 013466 005037 002502
3007 013472 012737 000001 002374
3008 013500
013500 104407
3009 013502
013502 103004
3010 013504 012737 017167 002350
3011 013512 000403
3012 013514 012737 000167 002350
3013 013522 013737 002300 002354
3014 013530 012737 000455 002506
3015 013536 004737 006320
3016 013542
013542 104404
3017 013544 012777 000107 166526
3018 013552 052777 000400 166520
3019 013560 117737 166514 002502
3020 013566 105777 166506
3021 013572 001410
3022 013574 005037 002500
3023 013600 012702 014042
3024 013604
013604 104457
013606 000460
013610 005167
013612 003556
3025 013614
013614
013614 104405
3026 013616 012737 177767 002350
3027 013624 013737 002302 002354

```
.SBTTL TEST 3: R/W BIT TEST
:.....:
: IEX - TEST 3 :
: THIS TEST CHECKS ALL R/W BITS OF CSR, BAR, BCR AND MCR REGISTER :
: IN BOTH CHANNELS. IT ALSO TESTS THE MASTER CLEAR FUNCTION IN :
: CSR1 + CSR2. :
: THE TMS 9914 REGISTERS IIR, ISR, ICR, IDR ARE NOT CHECKED :
: IN THIS TEST. :
:.....:
```

```
BGNTST
T3::
TST PNTF ;IS THE PNT FLAG SET
BEQ 7$ ;IF YES, PRINT THE TEST HEADER
PRINTF #TSHD3 ;....
MOV #TSHD3, -(SP)
MOV #1, -(SP)
MOV SP, R0
TRAP C$PNTF
ADD #4, SP
7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
SETPRI #PRI07 ;INTERRUPT NOT ALLOWED
MOV #PRI07, R0
TRAP C$SPRI
ITRAC3: BRESET ;RESET ALL HARDWARE
TRAP C$RESET
CLR BAD ;CLEAR ERROR LABEL BAD
MOV #1, CHAN ;LOAD CHANNEL NO.
T3SEC: READBUS ;DETERMINE BUS TYPE
TRAP C$RDBU
BNCOMPLETE UNIMSK ;BRANCH IF UNI-BUS
BCC UNIMSK
MOV #17167, MASK ;LOAD BIT MASK FOR Q-BUS DEVICE
BR .+10 ;
UNIMSK: MOV #167, MASK ;LOAD BIT MASK FOR UNI-BUS DEVICE
MOV CSRX, REGADD ;LOAD REGISTER ADDRESS
MOV #301, ERRNBR ;FIRST ERROR NUMBER
JSR PC, REGTST ;CALL REGISTER TEST
BGNSEG
TRAP C$BSEG
MOV #107, @CSRX ;SET ALL R/W BITS THAT CAN BE CLEARED BY MC
BIS #400, @CSRX ;MASTER CLEAR
MOVB @CSRX, BAD ;GET CSR CONTENTS
TSTB @CSRX ;ALL BITS CLEARED
BEQ 10$ ;BRANCH IF YES
CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
MOV #CSRNAM, R2 ;....
ERRSOFT 304, E302, ERR202
TRAP C$ERSOFT
WORD 304
WORD E302
WORD ERR202
10$: ENDSEG
10000$: TRAP C$ESEG
MOV #177767, MASK ;BIT MASK OF R/W BITS
MOV BARX, REGADD ;GET REGISTER ADDRESS OF BAR
```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 45-1
TEST 3: R/W BIT TEST

```

3028 013632 012737 000461 002506      MOV      #305.,ERRNBR      ;FIRST ERROR NUMBER
3029 013640 004737 006320              JSR      PC,REGTS1        ;CALL REGISTER TEST
3030 013644 013737 002304 002354      MOV      BCRX,REGADD      ;GET REGISTER ADDRESS OF BCR
3031 013652 012737 000464 002506      MOV      #308.,ERRNBR      ;FIRST ERJOR NUMBER
3032 013660 004737 006320              JSR      PC,REGTS1        ;CALL REGISTER TEST
3033 013664 012737 137767 002350      MOV      #137767,MASK     ;BIT MASK OF R/W BITS
3034 013672 013737 002306 002354      MOV      MCRX,REGADD      ;GET REGISTER ADDRESS OF MCR
3035 013700 012737 000467 002506      MOV      #311.,ERRNBR      ;FIRST ERROR NUMBER
3036 013706 004737 006320              JSR      PC,REGTS1        ;CALL REGISTER TEST
3037 013712 032737 000001 002374      BIT      #1,CHAN          ;WAS CHANNEL 2 SELECTED
3038 013720 001433                    BEQ      QVT3             ;IF YES JUMP TO QUICK VERIFY PASS
3039 013722 012737 000002 002374      MOV      #2,CHAN          ;SET CHANNEL FLAG
3040 013730 005037 002502              CLR      BAD              ;CLEAR ERROR LABLE BAD
3041 013734                    BGNSEG
3042 013736 012777 000003 166334      MOV      #3,@CSRX         ;SELECT CHANNEL 2
3043 013744 117737 166330 002502      MOV      @CSRX,BAD        ;GET CSR CONTENTS
3044 013752 032737 000010 002502      BIT      #10,BAD         ;IS MUX BIT SET
3045 013760 001411                    BEQ      20$              ;BRANCH IF YES
3046 013762 012702 014042              MOV      #CSRNAM,R2       ;SET UP DATA FOR ERROR MESSAGE
3047 013766 012737 000010 002500      MOV      #10,GOOD        ;...
3048 013774                    ERRSOF 314,E303
3049 014004                    20$: ENDSEG
3050 014006 000634                    10001$: TRAP C$ESEG
3051 014010 005737 002234      QVT3:  TST      QVP        ;REPEAT TEST WITH CHANNEL 2
3052 014014 001010                    BNE      EXQV3           ;IS QUICK VERIFY PASS SELECTED
3053 014016 005237 002322      INC      ITRCNT         ;IF YES EXIT TEST
3054 014022 023737 002322 002320      CMP      ITRCNT,ITRDEF   ;ITERATION COUNTER + 1
3055 014030 001402                    BEQ      EXQV3           ;DEFAULT ITERATION EXECUTED
3056 014032 000137 013464      JMP      ITRAC3         ;IF YES EXIT TEST
3057 014036                    EXQV3: EXIT  TST        ;IF NO TEST ITERATION
3058 014040 000034                    TRAP    C$EXIT
3059 014042 040 103 123  CSRNAM: .NLIST BEX
3060 014047 045 123 062  TSHD3: .ASCIZ / CSR/
3061 .LIST BEX
3062 .EVEN
3063 014074                    .ASCIZ /%S2%AR-W BIT TEST%N/
3064 014074                    .LIST BEX
3065 014074 104401                    .EVEN
3066 014074                    ENDTST
3067 014074                    L10030: TRAP C$E1ST

```

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TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

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3065 .SBTTL TEST 4 : SYSTEM CONTROLLER COMMANDS TEST
3066 .....
3067 IEX - TEST 4
3068 :PART 1 CHANEL 1 WHICH IS SELECTED AS SYSTEM CONTROLLER SENDS
3069 THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND
3070 SRE. ALSO BOTH IIR AS WELL AS ISR REGISTER ARE CHECKED.
3071 :PART 2 CHANEL 2 WHICH IS SELECTED AS SYSTEM CONTROLLER SENDS
3072 THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND
3073 SRE. ALSO BOTH IIR AS WELL AS ISR REGISTER ARE CHECKED.
3074 .....
3075 BGNTST
                                T4::
3076 014076 005737 002324      TST      PNTF      ;IS THE PNT FLAG SET
3077 014102 001410              BEQ      7$      ;IF YES, PRINT THE TEST HEADER
3078 014104              PRINTF  #TSHD4      ;....
                                MOV      #TSHD4,-(SP)
                                MOV      #1,-(SP)
                                MOV      SP,RO
                                TRAP    C$PNTF
                                ADD     #4,SP
3079 014124 005037 000004      7$: CLR      ITRCNT      ;CLEAR ITERATION COUNTER
3080 014130 004737 010220      ITRAC4: JSR     PC,CULPA    ;CLEAR ULPA BIT IN ISR 1 AND 2
3081 014134 113777 002312 166112  MOVB   DPA1,@IIRHX    ;LOAD DEVICE PRIM. ADDR. 1 IN ADDR 1
3082 014142 112777 000010 166130  MOVB   #10,@CSRX     ;SELECT CHANNEL 2
3083 014150 113777 002314 166076  MOVB   DPA2,@IIRHX    ;LOAD DEVICE PRIM. ADDR 2 IN ADDR REG.
3084 014156              BGNSEG
                                TRAP    C$BSEG
3085 014160 105077 166114      CLRB   @CSRX         ;SELECT CHANNEL 1
3086 014164 052777 000002 166106  BIS    #2,@CSRX     ;SELECT CHANNEL 1 AS SYSTEM CONTROLLER
3087 014172 112777 000217 166070  MOVB  #217,@ICRHX    ;--SEND INTERFACE CLEAR TO CHANNEL 1--
3088 014200 004737 011072      JSR    PC,WAIT       ;WAIT 100 US.
3089 014204 052777 000010 166066  BIS    #10,@CSRX    ;SELECT CHANNEL 2
3090 014212 012737 000002 002374  MOV    #2,CHAN       ;LOAD CHANNEL NO.
3091 014220 017737 166024 002502  MOV    @IIPX,BAD     ;GET IIR2 CONTENTS
3092 014226 022737 000400 002502  CMP    #400,BAD     ;IFC BIT IN IIR 2 SHOULD BE SET
3093 014234 001410              BEQ    10$          ;BRANCH IF YES
3094 014236 012737 000400 002500  MOV    #400,GOOD     ;SET UP DATA FOR ERROR MESSAGE
3095 014244              ERRSOFT 401,E501,ERR501 ;ERROR HANDLER
                                TRAP    C$ERRSOFT
                                .WORD  401
                                .WORD  E501
                                .WORD  ERR501
3096 014254              CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP    C$CLP1
3097 014256 017737 165774 002502 10$: MOV    @ISR2,BAD     ;GET ISR2 CONTENTS
3098 014264 022737 121040 002502  CMP    #121040,BAD   ;ATN,NDAC,IFC,ATN SHOULD BE SET
3099 014272 001410              BEQ    20$          ;BRANCH IF YES
3100 014274 012737 121040 002500  MOV    #121040,GOOD  ;SET UP DATA FOR ERROR MESSAGE
3101 014302              ERRSOFT 402,E502,ERR501 ;ERROR HANDLER
                                TRAP    C$ERRSOFT
                                .WORD  402
                                .WORD  E502
                                .WORD  ERR501
3102 014312              CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP    C$CLP1
3103 014314 042777 000010 165756 20$: BIC    #10,@CSRX    ;SELECT CHANNEL 1
3104 014322 012737 000001 002374  MOV    #1,CHAN       ;LOAD CHANNEL NUMBER

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 46-1
 TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

3105	014330	017737	165714	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
3106	014336	022737	000020	002502		CMP	#20,BAD		:BO BIT IN IIR1 SHOULD BE SET
3107	014344	001410				BEQ	30\$		:BRANCH IF YES
3108	014346	012737	000020	002500		MOV	#20,GOOD		:SET UP DATA FOR ERROR MESSAGES
3109	014354					ERRSOFT	403,E501,ERR501		:ERROR HANDLER
	014354	104457							TRAP C\$ERSOFT
	014356	000623							.WORD 403
	014360	005406							.WORD E501
	014362	003702							.WORD ERR501
3110	014364					CKLOOP			:BRANCH TO BGNSEG IF ERRLOOP IS SET
	014364	104406							TRAP C\$CLP1
3111	014366	017737	165664	002502	30\$:	MOV	@ISRX,BAD		:GET ISR1 CONTENTS
3112	014374	022737	120040	002502		CMP	#120040,BAD		:ATN,NDAC,ATN IN ISR1 SHOULD BE SET
3113	014402	001410				BEQ	40\$		:BRANCH IF YES
3114	014404	012737	120040	002500		MOV	#120040,GOOD		:SET UP DATA FOR ERROR MESSAGES
3115	014412					ERRSOFT	404,E502,ERR501		:ERROR HANDLER
	014412	104457							TRAP C\$ERSOFT
	014414	000624							.WORD 404
	014416	005447							.WORD E502
	014420	003702							.WORD ERR501
3116	014422					CKLOOP			:BRANCH TO BGNSEG IF ERRLOOP IS SET
	014422	104406							TRAP C\$CLP1
3117	014424	112777	000017	165636	40\$:	MOVB	#17,@ICRMX		:----LOAD NOT SIC IN ACR-----
3118	014432	017737	165612	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
3119	014440	005737	002502			TST	BAD		:IIR1 CONTENTS SHOULD BE ZERO
3120	014444	001406				BEQ	50\$		:BRANCH IF YES
3121	014446	005037	002500			CLR	GOOD		:SET UP DATA FOR ERROR MESSAGES
3122	014452					ERRSOFT	405,E501,ERR501		:ERROR HANDLER
	014452	104457							TRAP C\$ERSOFT
	014454	000625							.WORD 405
	014456	005406							.WORD E501
	014460	003702							.WORD ERR501
3123	014462				50\$:	ENDSEG			
	014462								10000\$:
	014462	104405							TRAP C\$ESEG
3124	014464					BGNSEG			TRAP C\$BSEG
	014464	104404							
3125	014466	042777	000010	165604		BIC	#10,@CSRX		:SELECT CHANNEL 1
3126	014474	112777	000220	165566		MOVB	#220,@ICRMX		:----LOAD SRE IN ICR1-----
3127	014502	004737	011072			JSR	PC,WAIT		:WAIT 100 US.
3128	014506	052177	000010	165564		BIS	#10,@CSRX		:SELECT CHANNEL 2
3129	014514	012737	000002	002374		MOV	#2,CHAN		:SET CHANNEL FLAG
3130	014522	017737	165522	002502		MOV	@IIRX,BAD		:GET IIR2 CONTENTS
3131	014530	005737	002502			TST	BAD		:IIR2 SHOULD BE ZERO
3132	014534	001407				BEQ	11\$		:BRANCH IF YES
3133	014536	005037	002500			CLR	GOOD		:SET UP DATA FOR ERROR MESSAGES
3134	014542					ERRSOFT	406,E501,ERR501		:ERROR HANDLER
	014542	104457							TRAP C\$ERSOFT
	014544	000626							.WORD 406
	014546	005406							.WORD E501
	014550	003702							.WORD ERR501
3135	014552					CKLOOP			:BRANCH TO BGNSEG IF ERRLOOP IS SET
	014552	104406							TRAP C\$CLP1
3136	014554	017737	165476	002502	11\$:	MOV	@ISRX,BAD		:GET ISR2 CONTENTS
3137	014562	022737	120440	002502		CMP	#120440,BAD		:ATN,NDAC,REN,ATN IN ISR2 SHOULD SET
3138	014570	001410				BEQ	12\$		:BRANCH IF YES
3139	014572	012737	120440	002500		MOV	#120440,GOOD		:SET UP DATA FOR ERROR MESSAGES

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 TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

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3175 015042 017737 165210 002502 15$:  MOV @ISRX,BAD          :GET ISR1 CONTENTS
3176 015050 022737 121040 002502      CMP #121040,BAD       :ATN,NDAC,IFC,ATN SHOULD BE SET
3177 015056 001410                    BEQ 16$              :BRANCH IF YES
3178 015060 012737 121040 002500      MOV #121040,GOOD     :SET UP DATA FOR ERROR MESSAGES
3179 015066 104457                      ERRSOFT 411,E502,ERR501 :ERROR HANDLER
      015066 104457                                TRAP C$ERSOFT
      015070 000633                                .WORD 411
      015072 005447                                .WORD E502
      015074 003702                                .WORD ERR501
3180 015076 104406                      CKLOOP              :BRANCH TO BGNSEG IF ERRLOOP IS SET
      015076 104406                                TRAP C$CLP1
3181 015100 052777 000010 165172 16$:  BIS #10,@CSRX        :SELECT CHANNEL 2
3182 015106 012737 000002 002374      MOV #2,CHAN         :LOAD CHANNEL FLAG
3183 015114 017737 165130 002502      MOV @IIRX,BAD       :GET IIR2 CONTENTS
3184 015122 022737 000020 002502      CMP #20,BAD         :BO BIT IN IIR2 SHOULD BE SET
3185 015130 001410                    BEQ 17$              :BRANCH IF YES
3186 015132 012737 000020 002500      MOV #20,GOOD        :SET UP DATA FOR ERROR MESSAGES
3187 015140 104457                      ERRSOFT 412,E501,ERR501 :ERROR HANDLER
      015140 104457                                TRAP C$ERSOFT
      015142 000634                                .WORD 412
      015144 005406                                .WORD E501
      015146 003702                                .WORD ERR501
3188 015150 104406                      CKLOOP              :BRANCH TO BGNSEG IF ERRLOPP IS SET
      015150 104406                                TRAP C$CLP1
3189 015152 112777 000017 165110 17$:  MOVB #17,@ICRHX     :----LOAD NOT SIC IN ICR2 (ACR)----
3190 015160 017737 165064 002502      MOV @IIRX,BAD       :GET IIR2 CONTENTS
3191 015166 005737 002502              TST BAD              :IIR2 SHOULD BE ZERO
3192 015172 001406                    BEQ 21$              :BRANCH IF YES
3193 015174 005037 002500              CLR GOOD             :SET UP DATA FOR ERROR MESSAGES
3194 015200 104457                      ERRSOFT 413,E501,ERR501 :ERROR HANDLER
      015200 104457                                TRAP C$ERSOFT
      015202 000635                                .WORD 413
      015204 005406                                .WORD E501
      015206 003702                                .WORD ERR501
3195 015210 104405                      21$:  ENDSEG              10002$:
      015210 104405                                TRAP C$ESEG
3196 015212 104404                      BGNSEG              TRAP C$BSEG
      015212 104404
3197 015214 052777 000010 165056      BIS #10,@CSRX        :SELECT CHANNEL 2
3198 015222 112777 000220 165040      MOVB #220,@ICRHX    :----LOAD SRE IN ACR 2-----
3199 015230 004737 011072              JSR PC,WAIT          :WAIT 100 US.
3200 015234 042777 000010 165036      BIC #10,@CSRX        :SELECT CHANNEL 1
3201 015242 012737 000001 002374      MOV #1,CHAN         :LOAD CHANNEL FLAG
3202 015250 017737 164774 002502      MOV @IIRX,BAD       :GET IIR1 CONTENTS
3203 015256 005737 002502              TST BAD              :IIR 1 SHOULD BE ZERO
3204 015262 001407                    BEQ 22$              :BRANCH IF YES
3205 015264 005037 002500              CLR GOOD             :SET UP DATA FOR ERROR MESSAGES
3206 015270 104457                      ERRSOFT 414,E501,ERR501 :ERROR HANDLER
      015270 104457                                TRAP C$ERSOFT
      015272 000636                                .WORD 414
      015274 005406                                .WORD E501
      015276 003702                                .WORD ERR501
3207 015300 104406                      CKLOOP              :BRANCH TO BGNSEG IF ERRLOOP IS SET
      015300 104406                                TRAP C$CLP1
3208 015302 017737 164750 002502 22$:  MOV @ISRX,BAD          :GET ISR1 CONTENTS
3209 015310 022737 120440 002502      CMP #120440,BAD     :ATN,NDAC,REN,ATN BITS SHOULD BE SET

```


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 TEST 5: INTERRUPT TEST

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3246 .SBTTL TEST 5: INTERRUPT TEST
3247 :*****
3248 : IEX - TEST 5
3249 : PART 1 CHECKS THE DEVICE PRIORITY LEVEL AND
3250 : THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 1. INITIATING THIS
3251 : SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB BITS IN CSR1
3252 : AND BO BIT IN IIR1 REGISTER.
3253 :
3254 : PART 2 CHECKS THE DEVICE PRIORITY LEVEL AND
3255 : THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 2. INITIATING THIS
3256 : SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB BITS IN CSR2
3257 : AND BO BIT IN IIR2 REGISTER.
3258 :*****
3259 015574 BGNTST
015574
3260 015574 005737 002324 TST PNTF ;IS THE PNT FLAG SET
3261 015600 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3262 015602 PRINTF #TSHD5 ;...
015602 012746 016732 MOV #TSHD5,-(SP)
015606 012746 000001 MOV #1,-(SP)
015612 010600 MOV SP,R0
015614 104417 TRAP C$PNTF
015616 062706 000004 ADD #4,SP
3263 015622 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
3264 015626 004737 010220 ITRAC5: JSR PC,CULPA ;RESET HARDWARE
3265 015632 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
3266 015636 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NO.
3267 015644 BGNSEG
015644 104404 TRAP C$BSEG
3268 015646 005037 002376 CLR INTFC1 ;CLEAR INTERRUPT FLAG FOR CHANNEL 1
3269 015652 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG FOR CHANNEL 2
3270 015656 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHA.1
015656 012746 000340 MOV #PRI07,-(SP)
015662 012746 010142 MOV #INTSC1,-(SP)
015666 013746 002244 MOV VECC1,-(SP)
015672 012746 000003 MOV #3,-(SP)
015676 104437 TRAP C$SVEC
015700 062706 000010 ADD #10,SP
3271 015704 SETVEC VECC2,#INTERR,#PRI07 ;
015704 012746 000340 MOV #PRI07,-(SP)
015710 012746 010162 MOV #INTERR,-(SP)
015714 013746 002246 MOV VECC2,-(SP)
015720 012746 000003 MOV #3,-(SP)
015724 104437 TRAP C$SVEC
015726 062706 000010 ADD #10,SP
3272 015732 SETPRI #PRI07 ;NO INTERRUPT
015732 012700 000340 MOV #PRI07,R0
015736 104441 TRAP C$SPRI
3273 015740 112777 000020 164312 MOVB #20,@ISRLX ;::SET BO BIT IN ISR1
3274 015746 052777 000101 164324 BIS #101,@CSRX ;::SET INT ENB AND DMA ENB BIT IN CSR
3275 015754 012701 000010 MOV #10,R1 ;::SET PRIORITY COUNTER
3276 .LIST MEB
3277 015760 PRIT INTFC1,501,ERR402 ;::TRY WITH INTERRUPT
015760 005737 002376 TST INTFC1 ;INTERRUPT OCCURED?
015764 001040 BNE 64$ ;BRANCH IF YES
015766 005301 DEC R1 ;CHECKSUM = 7
015770 012700 000300 MOV #PRI06,R0
    
```


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TEST 5: INTERRUPT TEST

```

015774 104441
015776 005737 002376      TST   INTFC1      ;INTERRUPT OCCURED?
016002 001031              BNE   64$         ;BRANCH IF YES
016004 005301              DEC   R1          ;CHECKSUM = 6
016006 012700 000240      MOV   #PRI05,RO
016012 104441              TRAP  C$SPRI
016014 005737 002376      TST   INTFC1      ;INTERRUPT OCCURED?
016020 001022              BNE   64$         ;BRANCH IF YES
016022 005301              DEC   R1          ;CHECKSUM = 5
016024 012700 000200      MOV   #PRI04,RO
016030 104441              TRAP  C$SPRI
016032 005737 002376      TST   INTFC1      ;INTERRUPT OCCURED?
016036 001013              BNE   64$         ;BRANCH IF YES
016040 005301              DEC   R1          ;CHECKSUM = 4
016042 012700 000140      MOV   #PRI03,RO
016046 104441              TRAP  C$SPRI
016050 005737 002376      TST   INTFC1      ;INTERRUPT OCCURED?
016054 001004              BNE   64$         ;BRANCH IF YES
016056 104457              TRAP  C$ERSOFT
016060 000765              .WORD 501
016062 005316              .WORD E402
016064 003654              .WORD ERR402
016066 000240
3278 3279 016070              64$: NOP
3279 016070 012700 000340      .NLIS1 MEB
016074 104441              SETPRI #PRI07      ;SET PRIORITY
016076 106301              MOV   #PRI07,RO
3280 016076 106301              TRAP  C$SPRI
3281 016100 106301              ASLB  R1           ;CREATE CORRECT PRI. FOR COMPARISON
3282 016102 106301              ASLB  R1           ;...
3283 016104 106301              ASLB  R1           ;...
3284 016106 106301              ASLB  R1           ;...
3285 016110 020137 002316      CMP   R1,PLEV     ;CHECK INTERRUPT PRIORITY
3286 016114 001412              BEQ   20$         ;BRANCH IF INTERRUPT WAS OK
3287 016116 010137 002502      MOV   R1,BAD      ;SET UP DATA FOR ERROR MESSAGE
3288 016122 013737 002316 002500  MOV   PLEV,GOOD
3289 016130              ERRSOFT 502,E403,ERR401 ;ERROR HANDLER
016130 104457              TRAP  C$ERSOFT
016132 000766              .WORD 502
016134 005353              .WORD E403
016136 003616              .WORD ERR401
3290 016140              CKLOOP           ;BRANCH BACK TO BGNSEG IF ERROR
016140 104406              TRAP  C$CLP1
3291 016142              20$: MOV   @CSR1,BAD   ;GET CSR1 CONTENTS
3292 016142 017737 164132 002502      BIC   #17000,BAD  ;IGNORE BIT 9-12
3293 016150 042737 017000 002502      CMP   #202,BAD   ;INT,SYS CONT SHOULD BE SET
3294 016156 022737 000202 002502      BEQ   30$         ;BRANCH IF YES
3295 016164 001410              MOV   #202,GOOD  ;SET UP DATA FOR ERROR MESSAGE
3296 016166 012737 000202 002500  ERRSOFT 503,E401,ERR501 ;ERROR HANDLER
3297 016174              TRAP  C$ERSOFT
016174 104457              .WORD 503
016176 000767              .WORD E401
016200 005265              .WORD ERR501
016202 003702              CKLOOP           ;BRANCH TO BGNSEG IF ERRLOOP IS
3298 016204              SET
016204 104406              TRAP  C$CLP1
3299 016206              30$:

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 TEST 5: INTERRUPT TEST

```

3300 016206 017737 164036 002502      MOV    @IIRX,BAD      ;GET IIR1 CONTENTS
3301 016214 022737 000220 002502      CMP    #220,BAD      ;INT0,B0 SHOULD BE SET
3302 016222 001407                BEQ    33$           ;BRANCH IF YES
3303 016224 012737 000220 002500      MOV    #220,GOOD     ;SET UP DATA FOR ERROR MESSAGE
3304 016232                ERRSOFT 504,E501,ERR501 ;ERROR HANDLER
                                TRAP    C$ERSOFT
                                .WORD   504
                                .WORD   E501
                                .WORD   ERR501
                                104457
                                000770
                                005406
                                003702
3305 016242                33$:  ENDSEG
                                10000$:
                                TRAP    C$ESEG
3306 016244                CLRVEC VECC2          ;RESTORE INTERRUPT VECTOR
                                MOV     VECC2,R0
                                TRAP    C$CVEC
                                016242 104405
                                016244 013700 002246
                                016250 104436
                                ;(DISABLE INTERRUPT)
3307                                ;...
3308 016252                CLRVEC VECC1
                                MOV     VECC1,R0
                                TRAP    C$CVEC
                                016252 013700 002244
                                016256 104436
3309
3310 :-----:
3311 :PART 2 CHECK THE INTERRUPT FUNCTION AND THE PRIORITY LEVEL OF CHANNEL 2
3312 :-----:
3312 016260 004737 010710      JSR    PC,BGIN2      ;SET UP PARAMETER FOR CHAN 2
3313 016264                SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
                                MOV     #PRI07,-(SP)
                                MOV     #INTSC2,-(SP)
                                MOV     VECC2,-(SP)
                                MOV     #3,-(SP)
                                TRAP    C$$SVEC
                                ADD     #10,SP
3314 016312                SETVEC VECC1,#INTERR,#PRI07 ;SET VECTOR FOR CHANNEL 1
                                MOV     #PRI07,-(SP)
                                MOV     #INTERR,-(SP)
                                MOV     VECC1,-(SP)
                                MOV     #3,-(SP)
                                TRAP    C$$SVEC
                                ADD     #10,SP
3315 016340                BGNSEG
                                TRAP    C$BSEG
3316 016342 005037 002376      CLR    INTFC1        ;CLEAR OLD FLAG
3317 016346 005037 002400      CLR    INTFC2
3318 016352                SETPRI #PRI07        ;NO INTERRUPT
                                MOV     #PRI07,R0
                                TRAP    C$SPRI
3319 016360 112777 000020 163672      MOVB   #20,@ISRLX    ;:::SET B0 BIT IN ISR2 REGISTER
3320 016366 052777 000101 163704      BIS    #101,@CSRX   ;:::SET INT ENB,DMA ENB IN CSR2
3321 016374 012701 000010      MOV    #10,R1       ;:::SET PRIORITY COUNTER
3322
3323 016400                .LIST MEB
                                PRIT   INTFC2,505,ERR402 ;:::TRY INTERRUPT
                                TST    INTFC2          ;INTERRUPT OCCURED?
                                BNE    65$           ;BRANCH IF YES
                                DEC    R1             ;CHECKSUM = 7
                                MOV     #PRI06,R0
                                TRAP    C$SPRI
3324 016400 005737 002400      TST    INTFC2        ;INTERRUPT OCCURED?
3325 016404 001040                BNE    65$           ;BRANCH IF YES
3326 016406 005301                DEC    R1             ;CHECKSUM = 6
3327 016410 012700 000300      TST    INTFC2
3328 016414 104441                BNE    65$
3329 016416 005737 002400      DEC    R1
3330 016422 001031
3331 016424 005301

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 TEST 5: INTERRUPT TEST

```

016426 012700 000240                                MOV    #PRI05,RO
016432 104441                                TRAP   C$SPRI
016434 005737 002400                                TST    INTFC2                ;INTERRUPT OCCURED?
016440 001022                                BNE    65$                   ;BRANCH IF YES
016442 005301                                DEC    R1                     ;CHECKSUM = 5
016444 012700 000200                                MOV    #PRI04,RO
016450 104441                                TRAP   C$SPRI
016452 005737 002400                                TST    INTFC2                ;INTERRUPT OCCURED:
016456 001013                                BNE    65$                   ;BRANCH IF YES
016460 005301                                DEC    R1                     ;CHECKSUM = 4
016462 012700 000140                                MOV    #PRI03,RO
016466 104441                                TRAP   C$SPRI
016470 005737 002400                                TST    INTFC2                ;INTERRUPT OCCURED?
016474 001004                                BNE    65$                   ;BRANCH IF YES
016476 104457                                TRAP   C$ERSOFT
016500 000771                                .WORD 505
016502 005316                                .WORD E402
016504 003654                                .WORD ERR402
016506 000240
3324 3325 016510                                65$: NOP
016510 012700 000340                                .NLIST MEB
016514 104441                                SETPRI #PRI07                ;SET PRIORITY
3326 016516 106301                                ASLB   R1                     ;CREATE CORRECT PRI. FOR COMPARISON
3327 016520 106301                                ASLB   R1                     :...
3328 016522 106301                                ASLB   R1                     :...
3329 016524 106301                                ASLB   R1                     :...
3330 016526 106301                                ASLB   R1                     :...
3331 016530 020137 002316                                CMP    R1,PLEV                ;CHECK INTERRUPT PRIORITY
3332 016534 001412                                BEQ    40$                   ;BRANCH IF INTERRUPT PRI.WAS OK
3333 016536 010137 002502                                MOV    R1,BAD                 ;SET UP DATA FOR ERROR MESSAGE
3334 016542 013737 002316 002500                                MOV    PLEV,GOOD
3335 016550                                ERRSOFT 506,E403,ERR401      ;ERROR HANDLER
016550 104457                                TRAP   C$ERSOFT
016552 000772                                .WORD 506
016554 005353                                .WORD E403
016556 003616                                .WORD ERR401
3336 016560                                CKLOOP                        ;BRANCH TO BGNSEG IF ERRLOOP IS SET
016560 104406                                TRAP   C$CLP1
3337 016562                                40$:
3338 016562 017737 163512 002502                                MOV    @CSR2,BAD              ;GET CSR2 CONTENTS
3339 016570 042737 017000 002502                                BIC    #17000,BAD            ;IGNORE BIT 9-12
3340 016576 022737 000212 002502                                CMP    #212,BAD              ;INT,SYS CONT,MUX SHOULD BE SET
3341 016604 001410                                BEQ    43$                   ;BRANCH IF YES
3342 016606 012737 000212 002500                                MOV    #212,GOOD             ;SET UP DATA FOR ERROR MESSAGE
3343 016614                                ERRSOFT 507,E401,ERR501      ;ERROR HANDLER
016614 104457                                TRAP   C$ERSOFT
016616 000773                                .WORD 507
016620 005265                                .WORD E401
016622 003702                                .WORD ERR501
3344 016624                                CKLOOP                        ;BRANCH BACK TO BGNSEG IF ERRLOOP SET
016624 104406                                TRAP   C$CLP1
3345 016626                                43$:
3346 016626 017737 163416 002502                                MOV    @IIR2,BAD             ;GET IIR2 CONTENTS
3347 016634 022737 000220 002502                                CMP    #220,BAD              ;INTO,BO BIT SHOULD BE SET
3348 016642 001407                                BEQ    50$                   ;BRANCH IF YES
3349 016644 012737 000220 002500                                MOV    #220,GOOD             ;SET UP DATA FOR ERROR MESSAGE

```

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TEST 5: INTERRUPT TEST

```

3350 016652          ERRSOFT 508,E501,ERR501          ;ERROR HANDLER
      016652 104457
      016654 000774
      016656 005406
      016660 003702
3351 016662          50$:  ENDSEG
      016662
      016662 104405
3352 016664          CLRVEC VECC1                    ;RESTORE VECTOR (DICABLE INTERRUPT)
      016664 013700 002244
      016670 104436
3353 016672          CLRVEC VECC2                    ;...
      016672 013700 002246
      016676 104436
3354 016700          TST      QVP                    ;IS QUICK VERIFY PASS SELECTED
3355 016704          BNE      EXQV5                  ;IF YES EXIT TEST
3356 016706          INC      ITRCNT                  ;ITERATION COUNTER + 1
3357 016712          CMP      ITRDEF,I TRCNT          ;DEFAULT ITERATION EXECUTED
3358 016720          BEQ      EXQV5                  ;IF YES EXIT TEST
3359 016722          JMP      ITRAC5                  ;IF NO TEST ITERATION
3360 016726          EXQV5: EXIT TST
      016726 104432
      016730 000030
3361
3362
3363 016732          045      123      062  TSHD5: .NLIST BEX
3364
3365
3366 016760          .ASCIZ  /%S2%AINTERRUPT TEST%N/
      016760
      016760 104401          .LIST  BEX
                                   .EVEN
                                   ENDTST
                                   L10032:
                                   TRAP  C$E1ST

```

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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

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3368 .SBTTL TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1
3369 .....
3370 IEX - TEST 6
3371
3372 :PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 1 (ADP) BY LOADING ITS
3373 :DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING THE ASSIGNED
3374 :LISTEN OR TALK ADDRESS VIA THE IEC/IEEE BUS.
3375 :NOTE: THE ULPA BIT IN THE ISR1 REGISTER IS DEPENDENT
3376 :ON THE STATUS OF DPA1 (ODD DPA1 => ULPA IS SET)
3377
3378 :PART 2 CHECKS THE FUNCTION OF THE DAT BIT (DISABLES THE TALK FUNCTION),
3379 :THE DAL BIT (DISABLES THE LISTEN FUNCTION) AND THE EDPA BIT (ENABLES
3380 :THE DUAL PRIMARY ADDRESSING MODE, WHICH ARE ALSO PRESENT IN THE
3381 :ADR1 REGISTER.
3382
3383 :IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION WILL DO
3384 :IT WITH DIFFERENT DPA'S.
3385 .....
3386 BGNTST
3387 016762 005737 002324 TST PNTF ;IS THE PNT FLAG SET T6::
3388 016766 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3389 016770 PRINTF #TSHD6 ;...
3390 016770 012746 023000 MOV #TSHD6,-(SP)
3391 016774 012746 000001 MOV #1,-(SP)
3392 017000 010600 MOV SP,R0
3393 017002 104417 TRAP ($PNTF
3394 017004 062706 000004 ADD #4,SP
3395 017010 005037 002322 7$: CLR ITRCNT ;CLEAR COUNTER
3396 017014 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
3397 017020 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
3398 017024 013701 002312 A1: MOV DPA1,R1 ;GET DPA1 ADDRESS
3399 017030 062701 000040 ADD #40,R1 ;CREATE MY LISTENER ADDRESS (MLA)
3400 017034 010137 002410 MOV R1,MLA ;STORE MLA
3401 017040 032737 000001 BIT #1,DPA1 ;IS DPA EVEN
3402 017046 001420 BEQ 3$ ;BRANCH IF YES
3403 017050 052737 000001 BIS #1,CDAT1 ;SET ULPA BIT IN COMPARE DATA FOR ISR
3404 017056 052737 000001 BIS #1,CDAT2 ;...
3405 017064 052737 000001 BIS #1,CDAT3 ;...
3406 017072 052737 000001 BIS #1,CDAT4 ;...
3407 017100 052737 000001 BIS #1,CDAT5 ;...
3408 017106 000417 BR +40 ;BRANCH TO BGNSEG
3409 017110 042737 000001 3$: BIC #1,CDAT1 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3410 017116 042737 000001 BIC #1,CDAT2 ;...
3411 017124 042737 000001 BIC #1,CDAT3 ;...
3412 017132 042737 000001 BIC #1,CDAT4 ;...
3413 017140 042737 000001 BIC #1,CDAT5 ;...
3414 017146 104404 BGNSEG TRAP ($BSEG
3415 017150 052777 000010 BIS #10,@CSRX ;SELECT CHANNEL 2
3416 017156 012737 000002 MOV #2,CHAN ;LOAD CHANNEL NUMBER
3417 017164 113777 002410 MOVB MLA1,@IDRHX ;-----LOAD MLA1 INTO DOR 2-----
3418 017172 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3419 017176 017737 163046 MOV @IIRX,BAD ;GET IIR2 CONTENTS
3420 017204 022737 000020 CMP #20,BAD ;BO BIT SHOULD BE SET
3421 017212 001410 BEQ 10$ ;BRANCH IF YES
3422 017214 012737 000020 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGES
    
```

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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

3418 017222 ERRSOFT 601,E501,ERR501 :ERROR HANDLER
      017222 104457 TRAP C$ERSOFT
      017224 001131 .WORD 601
      017226 005406 .WORD E501
      017230 003702 .WORD ERR501
3419 017232 CKLOOP :BRANCH TO BGNSEG WHEN ERROR LOOP IS SET
      017232 104406 TRAP C$CLP1
3420 017234 017737 163016 002502 10$: MOV @ISR2,BAD :GET ISR2 CONTENTS
3421 017242 022737 120040 002502 CMP #120040,BAD :ATN,ATN,NDAC BIT OF ISR2 SHOULD BE SET
3422 017250 001410 BEQ 20$ :BRANCH IF YES
3423 017252 012737 120040 002500 MOV #120040,GOOD :SET UP DATA FOR ERROR MESSAGES
3424 017260 ERRSOFT 602,E502,ERR501 :ERROR HANDLER
      017260 104457 TRAP C$ERSOFT
      017262 001132 .WORD 602
      017264 005447 .WORD E502
      017266 003702 .WORD ERR501
3425 017270 CKLOOP :BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      017270 104406 TRAP C$CLP1
3426 017272 042777 000010 163000 20$: BIC #10,@CSRX :SELECT CHANNEL 1
3427 017300 012737 000001 002374 MOV #1,CHAN :LOAD CHANNEL NUMBER
3428 017306 017737 162736 002502 MOV @IIR1,BAD :GET IIR1 CONTENTS
3429 017314 022737 002401 002502 CMP #2401,BAD :MA,MAC,IFC,BIT IN IIR1 SHOULD BE SET
3430 017322 001410 BEQ 30$ :BRANCH IF YES
3431 017324 012737 002401 002500 MOV #2401,GOOD :SET UP DATA FOR ERROR MESSAGES
3432 017332 ERRSOFT 603,E501,ERR501 :ERROR HANDLER
      017332 104457 TRAP C$ERSOFT
      017334 001133 .WORD 603
      017336 005406 .WORD E501
      017340 003702 .WORD ERR501
3433 017342 CKLOOP :BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      017342 104406 TRAP C$CLP1
3434 017344 017737 162706 002502 30$: MOV @ISR1,BAD :GET ISR1 CONTENTS
3435 017352 023737 002444 002502 CMP (DAT5,BAD :ATN,ATN,LADS,NDAC LPAS,(ULPA) BIT SET
3436 017360 001410 BEQ 40$ :BRANCH IF YES
3437 017362 013737 002444 002500 MOV (DAT5,GOOD :SET UP DATA FOR EPROR MESSAGES
3438 017370 ERRSOFT 604,E502,ERR501 :ERROR HANDLER
      017370 104457 TRAP C$ERSOFT
      017372 001134 .WORD 604
      017374 005447 .WORD E502
      017376 003702 .WORD ERR501
3439 017400 CKLOOP :BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      017400 104406 TRAP C$CLP1
3440 017402 052777 000010 162670 40$: BIS #10,@CSRX :SELECT CHANNEL 2
3441 017410 012737 000002 002374 MOV #2,CHAN :LOAD CHANNEL NUMBER
3442 017416 112777 000077 162652 MOVB #77,@IDRHX :-----LOAD UNL INTO DOR-----
3443 017424 004737 011060 JSR PC,LOOP :WAIT A LITTLE
3444 017430 017737 162614 002502 MOV @IIR2,BAD :GET IIR2 CONTENTS
3445 017436 022737 000020 002502 CMP #20,BAD :CHECK BO BIT IN IIR2
3446 017444 001410 BEQ 50$ :BRANCH IF YES
3447 017446 012737 000020 002500 MOV #20,GOOD :SET UP DATA FOR ERROR MESSAGES
3448 017454 ERRSOFT 605,E501,ERR501 :ERROR HANDLER
      017454 104457 TRAP C$ERSOFT
      017456 001135 .WORD 605
      017460 005406 .WORD E501
      017462 003702 .WORD ERR501
3449 017464 CKLOOP :BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      017464 104406 TRAP C$CLP1

```

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

3450 017466 017737 162564 002502 50$: MOV @ISRX,BAD ;GET ISR2 CONTENTS
3451 017474 022737 120040 002502 CMP #120040,BAD ;ATN,ATN,NDAC BIT SHOULD BE SET
3452 017502 001410 BEQ 60$ ;BRANCH IF YES
3453 017504 012737 120040 002500 MOV #120040,GOOD ;SET UP DATA FOR ERROR MESSAGES
3454 017512 ERRSOFT 606,E502,ERR501 ;ERROR HANDLER
      017512 104457 TRAP C$ERSOFT
      017514 001136 .WORD 606
      017516 005447 .WORD E502
      017520 003702 .WORD ERR501
3455 017522 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      017522 104406 TRAP C$CLP1
3456 017524 042777 000010 162546 60$: BIC #10,@CSRX ;SELECT CHANNEL 1
3457 017532 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
3458 017540 017737 162504 002502 MOV @IIRX,BAD ;GET IIR1 CONTENTS
3459 017546 122737 000001 002502 CMPB #1,BAD ;MAC BIT IN IIR1 SHOULD BE SET
3460 017554 001410 BEQ 11$ ;BRANCH IF YES
3461 017556 012737 000001 002500 MOV #1,GOOD ;SET UP DATA FOR ERROR MESSAGES
3462 017564 ERRSOFT 607,E501,ERR501 ;ERROR HANDLER
      017564 104457 TRAP C$ERSOFT
      017566 001137 .WORD 607
      017570 005406 .WORD E501
      017572 003702 .WORD ERR501
3463 017574 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      017574 104406 TRAP C$CLP1
3464 017576 017737 162454 002502 11$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
3465 017604 023737 002434 002502 CMP CDAT1,BAD ;ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
3466 017612 001407 BEQ 12$ ;BRANCH IF YES
3467 017614 013737 002434 002500 MOV CDAT1,GOOD ;SET UP DATA FOR ERROR MESSAGES
3468 017622 ERRSOFT 608,E502,ERR501 ;ERROR HANDLER
      017622 104457 TRAP C$ERSOFT
      017624 001140 .WORD 608
      017626 005447 .WORD E502
      017630 003702 .WORD ERR501
3469 017632 12$: ENDSEG
      017632 104405 10000$: TRAP C$ESEG
3470 017634 BGNSEG TRAP C$BSEG
      017634 104404 TRAP C$BSEG
3471 017636 052777 000010 162434 BIS #10,@CSRX ;SELECT CHANNEL 2
3472 017644 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
3473 017652 013701 002312 MOV DPA1,R1 ;LOAD DPA1 IN R1
3474 017656 062701 000100 ADD #100,R1 ;CREATE MY TALKER ADDRESS (MTA)
3475 017662 010137 002414 MOV R1,MTA1 ;SAVE MTA
3476 017666 ENDSEG
      017666 104405 10001$: TRAP C$ESEG
3477 017670 BGNSEG TRAP C$BSEG
      017670 104404 TRAP C$BSEG
3478 017672 113777 002414 162376 MOVB MTA1,@IDRHX ;---LOAD TALKER ADDR. INTO DOR 2-----
3479 017700 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3480 017704 017737 162340 002502 MOV @IIRX,BAD ;GET IIR2 CONTENTS
3481 017712 022737 000020 002502 CMP #20,BAD ;PO BIT IN IIR2 SHOULD BE SET
3482 017720 001410 BEQ 13$ ;BRANCH IF YES
3483 017722 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGES
3484 017730 ERRSOFT 609,E501,ERR501 ;ERROR HANDLER
      017730 104457 TRAP C$ERSOFT
      017732 001141 .WORD 609

```

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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

017734 005406                                .WORD E501
017736 003702                                .WORD ERR501
3485 017740                                CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
017740 104406                                TRAP C$CLP1
3486 017742 017737 162310 002502 13$: MOV @ISR1,BAD ;GET ISR2 CONTENTS
3487 017750 022737 120040 002502 CMP #120040,BAD ;ATN,ATN,NDAC BIT IN ISR2 SHOULD BE SET
3488 017756 001410 BEQ 14$ ;BRANCH IF YES
3489 017760 012737 120040 002500 MOV #120040,GOOD ;SET UP DATA FOR ERROR MESSAGES
3490 017766 ERRSOFT 610,E502,ERR501 ;ERROR HANDLER
017766 104457 TRAP C$ERSOFT
017770 001142 .WORD 610
017772 005447 .WORD E502
017774 003702 .WORD ERR501
3491 017776 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
017776 104406 TRAP C$CLP1
3492 020000 042777 000010 162272 14$: BIC #10,@CSR1 ;SELECT CHANNEL 1
3493 020006 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
3494 020014 017737 162230 002502 MOV @IIR1,BAD ;GET IIR1 CONTENTS
3495 020022 022737 002001 002502 CMP #2001,BAD ;MA,MAC,BIT IN IIR1 SHOULD BE SET
3496 020030 001410 BEQ 15$ ;BRANCH IF YES
3497 020032 012737 002001 002500 MOV #2001,GOOD ;SET UP DATA FOR ERROR MESSAGES
3498 020040 ERRSOFT 611,E501,ERR501 ;ERROR HANDLER
020040 104457 TRAP C$ERSOFT
020042 001143 .WORD 611
020044 005406 .WORD E501
020046 003702 .WORD ERR501
3499 020050 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
020050 104406 TRAP C$CLP1
3500 020052 017737 162200 002502 15$: MOV @ISR1,BAD ;GET ISR1 CONTENTS
3501 020060 023737 002440 002502 CMP CDAT3,BAD ;ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
3502 020066 001410 BEQ 16$ ;BRANCH IF YES
3503 020070 013737 002440 002500 MOV CDAT3,GOOD ;SET UP DATA FOR ERROR MESSAGE
3504 020076 ERRSOFT 612,E502,ERR501 ;ERROR HANDLER
020076 104457 TRAP C$ERSOFT
020100 001144 .WORD 612
020102 005447 .WORD E502
020104 003702 .WORD ERR501
3505 020106 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
020106 104406 TRAP C$CLP1
3506 020110 052777 000010 162162 16$: BIS #10,@CSR2 ;SELECT CHANNEL 2
3507 020116 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
3508 020124 112777 000137 162144 MOVB #137,@IDRHX ;-----LOAD UNT INTO DOR 2-----
3509 020132 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3510 020136 017737 162106 002502 MOV @IIR2,BAD ;GET IIR2 CONTENTS
3511 020144 022737 000020 002502 CMP #20,BAD ;BO BIT IN IIR2 SHOULD BE SET
3512 020152 001410 BEQ 21$ ;BRANCH IF YES
3513 020154 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGES
3514 020162 ERRSOFT 613,E501,ERR501 ;ERROR HANDLER
020162 104457 TRAP C$ERSOFT
020164 001145 .WORD 613
020166 005406 .WORD E501
020170 003702 .WORD ERR501
3515 020172 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
020172 104406 TRAP C$CLP1
3516 020174 017737 162056 002502 21$: MOV @ISR2,BAD ;GET ISR2 CONTENTS
3517 020202 022737 120040 002502 CMP #120040,BAD ;ATN,ATN,NDAC IN ISR2 SHOULD BE SET
3518 020210 001410 BEQ 22$ ;BRANCH IF YES
    
```


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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

3519 020212 012737 120040 002500      MOV      #120040,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3520 020220      ERRSOFT 614,E502,ERR501 ;ERROR HANDLER
      020220 104457      TRAP      C$ERSOFT
      020222 001146      .WORD    614
      020224 005447      .WORD    E502
      020226 003702      .WORD    ERR501
3521 020230      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      020230 104406      TRAP      C$CLP1
3522 020232 042777 000010 162040 22$: BIC      #10,@CSRX      ;SELECT CHANNEL 1
3523 020240 012737 000001 002374      MOV      #1,CHAN        ;LOAD CHANNEL NUMBER
3524 020246 017737 161776 002502      MOV      @IIRX,BAD      ;GET IIR1 CONTENTS
3525 020254 022737 000001 002502      CMP      #1,BAD        ;MAC BIT IN IIR1 SHOULD BE SET
3526 020262 001410      BEQ      23$           ;BRANCH IF YES
3527 020264 012737 000001 002500      MOV      #1,GOOD        ;SET UP DATA FOR ERROR MESSAGES
3528 020272      ERRSOFT 615,E501,ERR501 ;ERROR HANDLER
      020272 104457      TRAP      C$ERSOFT
      020274 001147      .WORD    615
      020276 005406      .WORD    E501
      020300 003702      .WORD    ERR501
3529 020302      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      020302 104406      TRAP      C$CLP1
3530 020304 017737 161746 002502 23$: MOV      @ISRX,BAD      ;GET ISR1 CONTENTS
3531 020312 023737 002434 002502      CMP      CDAT1,BAD      ;ATN,ATN,NDAC,(ULPA)BITS SHOULD BE SET
3532 020320 001407      BEQ      24$           ;BRANCH IF YES
3533 020322 013737 002434 002500      MOV      CDAT1,GOOD     ;SET UP DATA FOR ERROR MESSAGES
3534 020330      ERRSOFT 616,E502,ERR501 ;ERROR HANDLER
      020330 104457      TRAP      C$ERSOFT
      020332 001150      .WORD    616
      020334 005447      .WORD    E502
      020336 003702      .WORD    ERR501
3535 020340      24$: ENDSEC
      020340      10002$: TRAP      C$ESEG
      020340 104405
3536
3537
3538
3539
3540
3541 020342 013701 002312      MOV      DPA1,R1        ;GET DEVICE PRIM. ADDR. 1
3542 020346 052701 000040      BIS      #40,R1        ;ADD DAT BIT TO DAP1
3543 020352 110177 161676      MOV      R1,@IIR4X     ;LOAD DEVICE PRIM. ADDR.1 + DAT BIT
3544 020356      BGNSEG      TRAP      C$BSEG
      020356 104404
3545 020360 052777 000010 161712      BIS      #10,@CSRX     ;SELECT CHANNEL 2
3546 020366 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL NUMBER
3547 020374 113777 002410 161674      MOV      MLA1,@IDRHX    ;----LOAD MLA IN DOR REGISTER-----
3548 020402 004737 011060      JSR      PC,LOOP        ;WAIT A LITTLE
3549 020406 042777 000010 161664      BIC      #10,@CSRX     ;SELECT CHANNEL 1
3550 020414 012737 000001 002374      MOV      #1,CHAN        ;LOAD CHANNEL NUMBER
3551 020422 017737 161630 002502      MOV      @ISRX,BAD      ;GET ISR1 CONTENTS
3552 020430 023737 002444 002502      CMP      CDAT5,BAD      ;ATN,ATN,LADS,NDAC,LPAS,(ULPA)BIT SET
3553 020436 001410      BEQ      40$           ;BRANCH IF YES
3554 020440 013737 002444 002500      MOV      CDAT5,GOOD     ;SET UP DATA FOR ERROR MESSAGES
3555 020446      ERRSOFT 617,E502,ERR501 ;ERROR HANDLER
      020446 104457      TRAP      C$ERSOFT
      020450 001151      .WORD    617
      020452 005447      .WORD    E502
    
```

COPA1:

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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

Address	Register	Value	Label	Instruction	Comment
3556	020454	003702	CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	020456	104406			:SELECT CHANNEL 2
3557	020460	052777	40\$:	BIS #10,@CSRX	:LOAD CHANNEL NUMBER
3558	020466	012737		MOV #2,CHAN	:-----LOAD UNL INTO DOR-----
3559	020474	112777		MOVB #77,@IDRHX	:WAIT A LITTLE
3560	020502	004737		JSR PC,LOOP	:SELECT CHANNEL 1
3561	020506	042777		BIC #10,@CSRX	:LOAD CHANNEL NUMBER
3562	020514	012737		MOV #1,CHAN	:GET ISR1 CONTENTS
3563	020522	017737		MOV @ISR1,BAD	:ATN,ATN,NDAC,(ULPA)BIT SHOULD BE SET
3564	020530	023737		CMP CDAT1,BAD	:BRANCH IF YES
3565	020536	001407		BEQ 12\$	:SET UP DATA FOR ERROR MESSAGES
3566	020540	013737	002434 002500	MOV CDAT1,GOOD	:ERROR HANDLER
3567	020546	003702	ERRSOFT 618,E502,ERR501		
	020550	001152			TRAP C\$ERSOFT
	020552	005447			.WORD 618
	020554	003702			.WORD E502
3568	020556		12\$:	ENDSEG	.WORD ERR501
	020556	104405			10003\$:
3569	020560		BGNSEG		TRAP C\$ESEG
	020560	104404			TRAP C\$BSEG
3570	020562	052777	000010 161510	BIS #10,@CSRX	:SELECT CHANNEL 2
3571	020570	012737	000002 002374	MOV #2,CHAN	:LOAD CHANNEL NUMBER
3572	020576	113777	002414 161472	MOVB MTA1,@IDRHX	:-----LOAD MTA1 IN DOR REGISTER (IDR2)
3573	020604	004737	011060	JSR PC,LOOP	:WAIT A LITTLE
3574	020610	042777	000010 161462	BIC #10,@CSRX	:SELECT CHANNEL 1
3575	020616	012737	000001 002374	MOV #1,CHAN	:LOAD CHANNEL NUMBER
3576	020624	017737	161426 002502	MOV @ISR1,BAD	:GET ISR1 CONTENTS
3577	020632	023737	002436 002502	CMP CDAT2,BAD	:ATN,ATN,NDAC,TPAS,(ULPA)SHOULD BE SET
3578	020640	001407		BEQ 33\$	:BRANCH IF YES
3579	020642	013737	002436 002500	MOV CDAT2,GOOD	:SET UP DATA FOR ERROR MESSAGE
3580	020650		ERRSOFT 619,E502,ERR501		:ERROR HANDLER
	020650	104457			TRAP C\$ERSOFT
	020652	001153			.WORD 619
	020654	005447			.WORD E502
	020656	003702			.WORD ERR501
3581	020660		33\$:	ENDSEG	
	020660	104405			10004\$:
3582	020662	013701	002312	MOV DPA1,R1	TRAP C\$ESEG
3583	020666	052701	000100	BIS #100,R1	:GET DEVICE PRIM. ADDR. 1
3584	020672	110177	161356	MOVB R1,@IRHX	:SET DAL BIT
3585	020676	052777	000010 161374	BIS #10,@CSRX	:-----LOAD DPA1 + DAL BIT INTO ADR 1--
3586	020704	012737	000002 002374	MOV #2,CHAN	:SELECT CHANNEL 2
3587	020712		BGNSEG		:LOAD CHANNEL NUMBER
	020712	104404			TRAP C\$BSEG
3588	020714	113777	002410 161354	MOVB MLA1,@IDRHX	:-----LOAD MLA1 INTO DOR 2-----
3589	020722	004737	011060	JSR PC,LOOP	:WAIT A LITTLE
3590	020726	042777	000010 161344	BIC #10,@CSRX	:SELECT CHANNEL 1
3591	020734	012737	000001 002374	MOV #1,CHAN	:LOAD CHANNEL NUMBER
3592	020742	017737	161310 002502	MOV @ISR1,BAD	:GET ISR1 CONTENTS
3593	020750	023737	002442 002502	CMP CDAT4,BAD	:ATN,ATN,NDAC,LPAS,(ULPA)BITS SET
3594	020756	001407		BEQ 36\$	:BRANCH IF YES
3595	020760	013737	002442 002500	MOV CDAT4,GOOD	:SET UP DATA FOR ERROR MESSAGE
3596	020766		ERRSOFT 620,E502,ERR501		:ERROR HANDLER

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

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020766 104457 TRAP C$ERSOFT
020770 001154 .WORD 620
020772 005447 .WORD E502
020774 003702 .WORD ERR501
3597 020776 36$: ENDSEG
020776 10005$: TRAP C$ESEG
020776 104405 TRAP C$BSEG
3598 021000 BGNSEG
021000 104404 TRAP C$BSEG
3599 021002 052777 000010 161270 BIS #10,@CSRX ;SELECT CHANNEL 2
3600 021010 012737 000002 002374 MOV #2,CHAN ;GET CHANNEL NUMBER
3601 021016 113777 002414 161252 MOVB MTA1,@IDRHX ;----LOAD MTA1 INTO DOR 2-----
3602 021024 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3603 021030 042777 000010 161242 BIC #10,@CSRX ;SELECT CHANNEL 1
3604 021036 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
3605 021044 017737 161206 002502 MOV @ISRX,BAD ;GET ISR1 CONTENTS
3606 021052 023737 002440 002502 CMP CDAT3,BAD ;ATN,ATN,TADS,NDAC,TPAS,(ULPA) BITS SET
3607 021060 001410 BEQ 16$ ;BRANCH IF YES
3608 021062 013737 002440 002500 MOV CDAT3,GOOD ;SET UP DATA FOR ERROR MESSAGE
3609 021070 ERRSOFT 621,E502,ERR501 ;ERROR HANDLER
021070 104457 TRAP C$ERSOFT
021072 001155 .WORD 621
021074 005447 .WORD E502
021076 003702 .WORD ERR501
3610 021100 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
021100 104406 TRAP C$CLP1
3611 021102 052777 000010 161170 16$: BIS #10,@CSRX ;SELECT CHANNEL 2
3612 021110 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
3613 021116 112777 000137 161152 MOVB #137,@IDRHX ;----LOAD UNT INTO DOR 2-----
3614 021124 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3615 021130 042777 000010 161142 BIC #10,@CSRX ;SELECT CHANNEL 1
3616 021136 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
3617 021144 017737 161106 002502 MOV @ISRX,BAD ;GET ISR1 CONTENTS
3618 021152 023737 002434 002502 CMP CDAT1,BAD ;ATN,ATN,NDAC,(ULPA)BITS SHOULD BE SET
3619 021160 001407 BEQ 24$ ;BRANCH IF YES
3620 021162 013737 002434 002500 MOV CDAT1,GOOD ;SET UP DATA FOR ERROR MESSAGES
3621 021170 ERRSOFT 622,E502,ERR501 ;ERROR HANDLER
021170 104457 TRAP C$ERSOFT
021172 001156 .WORD 622
021174 005447 .WORD E502
021176 003702 .WORD ERR501
3622 021200 24$: ENDSEG
021200 10006$: TRAP C$ESEG
021200 104405 TRAP C$ESEG
3623 021202 022737 000036 002312 CMP #36,DPA1 ;IS LAST DPA1 ADDRESS EXECUTED
3624 021210 001002 BNE 25$ ;BRANCH IF NO
3625 021212 000137 022636 JMP TQVP6 ;BRANCH IF YES
3626 021216 042777 000010 161054 25$: BIC #10,@CSRX ;SELECT CHANNEL 1
3627 021224 013701 002312 MOV DPA1,R1 ;GET DPA1
3628 021230 052701 000200 BIS #200,R1 ;SET EDPA BIT
3629 021234 110177 161014 MOVB R1,@IIRHX ;----LOAD DPA1 & EDPA BIT INTO ADR 1----
3630 021240 BGNSEG
021240 104404 TRAP C$BSEG
3631 021242 052777 000010 161030 BIS #10,@CSRX ;SELECT CHANNEL 2
3632 021250 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
3633 021256 113777 002410 161012 MOVB MLA1,@IDRHX ;----LOAD MLA1 INTO DOR 2-----
3634 021264 004737 011060 COPB1: JSR PC,LOOP ;WAIT A LITTLE

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

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3635 021270 042777 000010 161002      BIC      #10,@CSRX      ;SELECT CHANNEL 1
3636 021276 012737 000001 002374      MOV      #1,CHAN        ;LOAD CHANNEL NUMBER
3637 021304 017737 160746 002502      MOV      @ISR1,BAD      ;GET ISR1 CONTENTS
3638 021312 023737 002444 002502      CMP      CDAT5,BAD      ;ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
3639 021320 001410                    BEQ      40$            ;BRANCH IF YES
3640 021322 013737 002444 002500      MOV      CDAT5,GOOD     ;SET UP DATA FOR ERROR MESSAGES
3641 021330 104457                    ERRSOFT 623,E502,ERR501 ;ERROR HANDLER
      021330 104457                    TRAP    C$ERSOFT
      021332 001157                    .WORD  623
      021334 005447                    .WORD  E502
      021336 003702                    .WORD  ERR501
3642 021340 104406                    CKLOOP                ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      021340 104406                    TRAP    C$CLP1
3643 021342 052777 000010 160730 40$:  BIS      #10,@CSRX      ;SELECT CHANNEL 2
3644 021350 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL NUMBER
3645 021356 112777 000077 160712      MOVB    #77,@IDRHX     ;----LOAD UNL INTO DOR 2-----
3646 021364 004737 011060                    JSR      PC,LOOP        ;WAIT A LITTLE
3647 021370 042777 000010 160702      BIC      #10,@CSRX      ;SELECT CHANNEL 1
3648 021376 012737 000001 002374      MOV      #1,CHAN        ;LOAD CHANNEL NUMBER
3649 021404 017737 160646 002502      MOV      @ISR1,BAD      ;GET ISR1 CONTENTS
3650 021412 023737 002434 002502      CMP      CDAT1,BAD      ;ATN,ATN,NDAC,(ULPA)BITS SHOULD BE SET
3651 021420 001407                    BEQ      12$            ;BRANCH IF YES
3652 021422 013737 002434 002500      MOV      CDAT1,GOOD     ;SET UP DATA FOR ERROR MESSAGES
3653 021430 104457                    ERRSOFT 624,E502,ERR501 ;ERROR HANDLER
      021430 104457                    TRAP    C$ERSOFT
      021432 001160                    .WORD  624
      021434 005447                    .WORD  E502
      021436 003702                    .WORD  ERR501
3654 021440 104405                    12$:  ENDSEG                10007$: TRAP    C$ESEG
      021440 104405
3655 021442 052777 000010 160630      BIS      #10,@CSRX      ;SELECT CHANNEL 2
3656 021450 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL NUMBER
3657 021456 113701 002410                    MOVB    MLA1,R1        ;GET MY LISTENER ADDRESS
3658 021462 032737 000001 002312      BIT      #1,DPA1        ;IS DPA ODD
3659 021470 001021                    BNE     13$            ;BRANCH IF YES
3660 021472 105201                    INCB    R1             ;CHANCH MLA1 TO ODD
3661 021474 052737 000001 002434      BIS      #1,CDAT1        ;SET ULPA BIT IN COMPARE DATA FOR ISR
3662 021502 052737 000001 002436      BIS      #1,CDAT2
3663 021510 052737 000001 002440      BIS      #1,CDAT3
3664 021516 052737 000001 002442      BIS      #1,CDAT4
3665 021524 052737 000001 002444      BIS      #1,CDAT5
3666 021532 000420                    BR      +42            ;BRANCH TO BGNSEG
3667 021534 105301                    13$:  DECB    R1        ;CHANGE MLA1 TO EVEN
3668 021536 042737 000001 002434      BIC      #1,CDAT1        ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3669 021544 042737 000001 002436      BIC      #1,CDAT2
3670 021552 042737 000001 002440      BIC      #1,CDAT3
3671 021560 042737 000001 002442      BIC      #1,CDAT4
3672 021566 042737 000001 002444      BIC      #1,CDAT5
3673 021574 104404                    BGNSEG                TRAP    C$BSEG
      021574 104404
3674 021576 052777 000010 160474      BIS      #10,@CSRX      ;SELECT CHANNEL 2
3675 021604 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL NUMBER
3676 021612 110177 160460                    MOVB    R1,@IDRHX     ;----LOAD NEW MLA1 INTO DOR 2-----
3677 021616 004737 011060                    JSR      PC,LOOP        ;WAIT A LITTLE
3678 021622 042777 000010 160450      BIC      #10,@CSRX      ;SELECT CHANNEL 1
3679 021630 012737 000001 002374      MOV      #1,CHAN        ;LOAD CHANNEL NUMBER

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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

3680	021636	017737	160414	002502	MOV	@ISR1,BAD	:GET ISR1 CONTENTS
3681	021644	023737	002444	002502	CMP	CDAT5,BAD	:ATN,ATN,LADS,NDAC,(ULPA),LPAS BITS SET
3682	021652	001410			BEQ	40\$	:BRANCH IF YES
3683	021654	013737	002444	002500	MOV	CDAT5,GOOD	:SET UP DATA FOR ERROR MESSAGES
3684	021662				ERRSOFT	625,E502,ERR501	:ERROR HANDLER
	021662	104457					TRAP C\$ERSOFT
	021664	001161					.WORD 625
	021666	005447					.WORD E502
	021670	003702					.WORD ERR501
3685	021672				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	021672	104406					TRAP C\$CLP1
3686	021674	052777	000010	160376	40\$: BIS	#10,@CSRX	:SELECT CHANNEL 2
3687	021702	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
3688	021710	112777	000077	160360	MOVB	#77,@IDRHX	:-----LOAD UNL INTO DOR 2-----
3689	021716	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
3690	021722	042777	000010	160350	BIC	#10,@CSRX	:SELECT CHANNEL 1
3691	021730	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
3692	021736	017737	160314	002502	MOV	@ISR1,BAD	:GET ISR1 CONTENTS
3693	021744	023737	002434	002502	CMP	CDAT1,BAD	:ATN,ATN,NDAC,(ULPA)BIT SHOULD BE SET
3694	021752	001407			BEQ	12\$	:BRANCH IF YES
3695	021754	013737	002434	002500	MOV	CDAT1,GOOD	:SET UP DATA FOR ERROR MESSAGES
3696	021762				ERRSOFT	626,E502,ERR501	:ERROR HANDLER
	021762	104457					TRAP C\$ERSOFT
	021764	001162					.WORD 626
	021766	005447					.WORD E502
	021770	003702					.WORD ERR501
3697	021772				12\$: ENDSEG		
	021772						10010\$: TRAP C\$ESEG
	021772	104405					
3698	021774	032737	000001	002312	BIT	#1,DPA1	:IS DPA EVEN
3699	022002	001420			BEQ	17\$	:BRANCH IF YES
3700	022004	052737	000001	002434	BIS	#1,CDAT1	:SET ULPA BIT IN COMPARE DATA FOR ISR
3701	022012	052737	000001	002436	BIS	#1,CDAT2	:...
3702	022020	052737	000001	002440	BIS	#1,CDAT3	:...
3703	022026	052737	000001	002442	BIS	#1,CDAT4	:...
3704	022034	052737	000001	002444	BIS	#1,CDAT5	:...
3705	022042	000417			BR	+40	:BRANCH TO BGNSEG
3706	022044	042737	000001	002434	17\$: BIC	#1,CDAT1	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3707	022052	042737	000001	002436	BIC	#1,CDAT2	:...
3708	022060	042737	000001	002440	BIC	#1,CDAT3	:...
3709	022066	042737	000001	002442	BIC	#1,CDAT4	:...
3710	022074	042737	000001	002444	BIC	#1,CDAT5	:...
3711	022102				BGNSEG		
	022102	104404					TRAP C\$BSEG
3712	022104	052777	000010	160166	BIS	#10,@CSRX	:SELECT CHANNEL 2
3713	022112	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
3714	022120	113777	002414	160150	MOVB	MTA1,@IDRHX	:-----LOAD MTA INTO DOR 2-----
3715	022126	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
3716	022132	042777	000010	160140	BIC	#10,@CSRX	:SELECT CHANNEL 1
3717	022140	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
3718	022146	017737	160104	002502	MOV	@ISR1,BAD	:GET ISR1 CONTENTS
3719	022154	023737	002440	002502	CMP	CDAT3,BAD	:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
3720	022162	001410			BEQ	16\$	:BRANCH IF YES
3721	022164	013737	002440	002500	MOV	CDAT3,GOOD	:SET UP DATA FOR ERROR MESSAGE
3722	022172				ERRSOFT	627,E502,ERR501	:ERROR HANDLER
	022172	104457					TRAP C\$ERSOFT
	022174	001163					.WORD 627

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 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

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        022176 005447
        022200 003702
3723 022202      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
        022202 104406      ;TRAP C$CLP1
3724 022204 052777 000010 160066 16$: BIS #10,@CSRX      ;SELECT CHANNEL 2
3725 022212 012737 000002 002374      MOV #2,CHAN      ;LOAD CHANNEL NUMBER
3726 022220 112777 000137 160050      MOVB #137,@IDRMX ;----LOAD UNT INTO DOR 2-----
3727 022226 004737 011060      JSR PC,LOOP      ;WAIT A LITTLE
3728 022232 042777 000010 160040      BIC #10,@CSRX    ;SELECT CHANNEL 1
3729 022240 012737 000001 002374      MOV #1,CHAN      ;LOAD CHANNEL NUMBER
3730 022246 017737 160004 002502      MOV @ISR,BAD     ;GET ISR1 CONTENTS
3731 022254 023737 002434 002502      CMP CDAT1,BAD    ;ATN,ATN,NDAC,(ULPA)SHOULD BE SET
3732 022262 001407      BEQ 24$          ;BRANCH IF YES
3733 022264 013737 002434 002500      MOV CDAT1,GOOD  ;SET UP DATA FOR ERROR MESSAGES
3734 022272      ERRSOFT 628,E502,ERR501 ;ERROR HANDLER
        022272 104457      TRAP C$ERSOFT
        022274 001164      .WORD 628
        022276 005447      .WORD E502
        022300 003702      .WORD ERR501
3735 022302      24$: ENDSEG      10011$: TRAP C$ESEG
        022302 104405
3736 022304 052777 000010 157766      BIS #10,@CSRX    ;SELECT CHANNEL 2
3737 022312 012737 000002 002374      MOV #2,CHAN      ;LOAD CHANNEL NUMBER
3738 022320 013701 002414      MOV MTA1,R1      ;GET TALKER ADDRESS
3739 022324 032737 000001 002312      BIT #1,DPA1      ;IS DPA1 ODD
3740 022332 001021      BNE 25$          ;BRANCH IF YES
3741 022334 105201      INCB R1          ;CHANGE MTA1 TO ODD
3742 022336 052737 000001 002434      BIS #1,CDAT1     ;SET ULPA BIT IN COMPARE DATA FOR ISR
3743 022344 052737 000001 002436      BIS #1,CDAT2
3744 022352 052737 000001 002440      BIS #1,CDAT3
3745 022360 052737 000001 002442      BIS #1,CDAT4
3746 022366 052737 000001 002444      BIS #1,CDAT5
3747 022374 000420      BR +42          ;BRANCH TO BGNSEG
3748 022376 105301      25$: DECB R1    ;CHANGE MTA1 TO EVEN
3749 022400 042737 000001 002434      BIC #1,CDAT1     ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3750 022406 042737 000001 002436      BIC #1,CDAT2
3751 022414 042737 000001 002440      BIC #1,CDAT3
3752 022422 042737 000001 002442      BIC #1,CDAT4
3753 022430 042737 000001 002444      BIC #1,CDAT5
3754 022436      BGNSEG      TRAP C$BSEG
        022436 104404
3755 022440 052777 000010 157632      BIS #10,@CSRX    ;SELECT CHANNEL 2
3756 022446 012737 000002 002374      MOV #2,CHAN      ;LOAD CHANNEL NUMBER
3757 022454 110177 157616      MOVB R1,@IDRMX  ;----LOAD NEW MTA INTO DOR 2-----
3758 022460 004737 011060      JSR PC,LOOP      ;WAIT A LITTLE
3759 022464 042777 000010 157606      BIC #10,@CSRX    ;SELECT CHANNEL 1
3760 022472 012737 000001 002374      MOV #1,CHAN      ;LOAD CHANNEL NUMBER
3761 022500 017737 157552 002502      MOV @ISR,BAD     ;GET ISR1 CONTENTS
3762 022506 023737 002440 002502      CMP CDAT3,BAD    ;ATN,ATN,TADS,NDAC,(ULPA),TPAS BIT SET
3763 022514 001410      BEQ 16$          ;BRANCH IF YES
3764 022516 013737 002440 002500      MOV CDAT3,GOOD  ;SET UP DATA FOR ERROR MESSAGE
3765 022524      ERRSOFT 629,E502,ERR501 ;ERROR HANDLER
        022524 104457      TRAP C$ERSOFT
        022526 001165      .WORD 629
        022530 005447      .WORD E502
        022532 003702      .WORD ERR501
    
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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

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3766 022534          CKLOOP          ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      022534 104406          TRAP      C$CLP1
3767 022536 052777 000010 157534 16$: BIS      #10,@CSRX          ;SELECT CHANNEL 2
3768 022544 012737 000002 002374      MOV      #2,CHAN          ;LOAD CHANNEL NUMBER
3769 022552 112777 000137 157516      MOVB     #137,@IDRHX       ;----LOAD UNIT INTO DOR 2-----
3770 022560 004737 011060          JSR      PC,LOOP          ;WAIT A LITTLE
3771 022564 042777 000010 157506      BIC      #10,@CSRX       ;SELECT CHANNEL 1
3772 022572 012737 000001 002374      MOV      #1,CHAN          ;LOAD CHANNEL NUMBER
3773 022600 017737 157452 002502      MOV      @ISRX,BAD        ;GET ISR1 CONTENTS
3774 022606 023737 002434 002502      CMP      (DAT1,BAD        ;ATN,ATN,NDAC,(ULPA)SHOULD BE SET
3775 022614 001407          BEQ      24$              ;BRANCH IF YES
3776 022616 C13737 002434 002500      MOV      (DAT1,GOOD       ;SET UP DATA FOR ERROR MESSAGES
3777 022624          ERRSOFT 630,E502,ERR501 ;ERROR HANDLER
      022624 104457          TRAP      C$ERSOFT
      022626 001166          .WORD    630
      022630 C05447          .WORD    E502
      022632 003702          .WORD    ERR501
3778 022634          24$:  ENDSEG
      022634          10012$: TRAP      C$ESEG
      022634 104405          ;IS QUICK VERIFY PASS SELECTED
3779 022636 005737 002234          TQVP6: TST      QVP          ;IF YES EXIT TEST
3780 022642 001054          BNE      EXQV6           ;IS THIS THE FIRST TIME THROUGH THE TEST
3781 022644 005737 002322          TST      ITRCNT         ;BRANCH IF NO
3782 022650 001007          BNE      1$              ;SAVE ENTERED DPA1
3783 022652 013737 002312 002406      MOV      DPA1,SDPA       ;CLR DPA1
3784 022660 005037 002312          CLR      DPA1           ;SET FLAG TO SEE FIRST TIME PASS
3785 022664 005237 002322          INR      ITRCNT         ;GET NEW DPA1
3786 022670 005237 002312          IN      DPA1            ;IS DPA1 = DPA2
3787 022674 023737 002312 002314      CMP      DPA1,DPA2       ;BRANCH IF NO
3788 022702 001002          BNE      2$              ;INCREMENT DPA1
3789 022704 005237 002312          INC      DPA1           ;ALL DONE
3790 022710 022737 000037 002312      CMP      #37,DPA1        ;BRANCH IF YES
3791 022716 001423          BEQ      3$              ;SELECT CHANNEL 2
3792 022720 052777 000010 157352      BIS      #10,@CSRX       ;----LOAD SIC INTO ACR 2
3793 022726 112777 000217 157334      MOVB     #217,@ICRHX     ;WAIT A LITTLE
3794 022734 004737 011072          JSR      PC,WAIT         ;----LOAD NOT SIC INTO ACR 2
3795 022740 112777 000017 157322      MOVB     #17,@ICRHX     ;SELECT CHANNEL 1
3796 022746 042777 000010 157324      BIC      #10,@CSRX       ;LOAD NEW DPA1 INTO ADR1
3797 022754 113777 002312 157272      MOVB     DPA1,@IIRHX     ;REPEAT THE TEST WITH THE NEW DPA1
3798 022762 000137 017024          JMP      A1              ;RESTOR ENTERED DPA1
3799 022766 013737 002406 002312      MOV      SDPA,DPA1
3800 022774          EXQV6: EXIT      TST
      022774 104432          TRAP      C$EXIT
      022776 000062          .WORD    L10033-
3801
3802
3803 023000          045 123 062  TSHD6: .NLIST  BEX
      .ASCIZ  /%S2%ADDRESS REGISTER TEST (ICR) OF CHANNEL 1%N/
3804          .LIST  BEX
3805          .EVEN
3806 023060          .ENDTST
      023060          L10033: TRAP      C$ETST
      023060 104401

```

```

3808 .SBTTL TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2
3809 :*****
3810 :THIS TEST IS THE SAME TEST AS TEST 6 EXCEPT THE CHANNEL IS CHANGED
3811 :
3812 :PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 2 (ADR) BY
3813 :LOADING ITS DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING
3814 :THE ASSIGNED LISTEN OR TALK ADDRESS VIA THE IEC/IEEE BUS.
3815 :NOTE: THE ULPA BIT IN THE ISR2 REGISTER IS DEPENDENT ON THE STATUS OF
3816 :DPA2 (ODD DPA2 => ULPA IS SET)
3817 :
3818 :PART 2 CHECKS THE FUNCTION OF THE DAT BIT (DISABLES THE TALK FUNCTION),
3819 :THE DAL BIT (DISABLES THE LISTEN FUNCTION) AND THE EDPA BIT
3820 :(ENABLES THE DUAL PRIMARY ADDRESSING MODE), WHICH ARE ALSO
3821 :PRESENT IN THE ADR2 REGISTER.
3822 :IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION
3823 :WILL DO IT WITH DIFFERENT DPA'S.
3824 :*****
3825 BGNST
3826 023062 005737 002324 TST PNTF ;IS THE PNT FLAG SET
3827 023066 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3828 023070 PRINTF #TSHD7 ;...
3829 023070 012746 027334 MOV #TSHD7,-(SP)
3830 023074 012746 000001 MOV #1,-(SP)
3831 023100 010600 MOV SP,R0
3832 023102 104417 TRAP C$PNTF
3833 023104 062706 000004 ADD #4,SP
3834 023110 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
3835 023114 004737 010220 JSR PC,CULFA ;CLEAR ULPA BIT IN ISR 1 AND 2
3836 023120 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
3837 023124 013701 002314 A2: MOV DPA2,R1 ;GET DPA2 ADDRESS
3838 023130 062701 000040 ADD #40,R1 ;CREATE MY LISTENER ADDRESS (MLA)
3839 023134 010137 002412 MOV R1,MLA2 ;STORE MLA
3840 023140 032737 000001 002314 BIT #1,DPA2 ;IS DPA EVEN
3841 023146 001420 BEQ 3$ ;BRANCH IF YES
3842 023150 052737 000001 002434 BIS #1,CDAT1 ;SET ULPA BIT IN COMPARE DATA FOR ISR
3843 023156 052737 000001 002436 BIS #1,CDAT2 ;...
3844 023164 052737 000001 002440 BIS #1,CDAT3 ;...
3845 023172 052737 000001 002442 BIS #1,CDAT4 ;...
3846 023200 052737 000001 002444 BIS #1,CDAT5 ;...
3847 023206 000417 BR +40 ;BRANCH TO BGNSEG
3848 023210 042737 000001 002434 3$: BIC #1,CDAT1 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3849 023216 042737 000001 002436 BIC #1,CDAT2 ;...
3850 023224 042737 000001 002440 BIC #1,CDAT3 ;...
3851 023232 042737 000001 002442 BIC #1,CDAT4 ;...
3852 023240 042737 000001 002444 BIC #1,CDAT5 ;...
3853 023246 BGNSEG
3854 023246 104404 TRAP C$BSEG
3855 023250 042777 000010 157022 BIC #10,@CSRX ;SELECT CHANNEL 1
3856 023256 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
3857 023264 113777 002412 157004 MOVB MLA2,@IDRHX ;LOAD LISTENER ADDRESS OF CHANNEL 1
3858 023272 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3859 023276 017737 156746 002402 MOV @IIRX,RSAVE ;GET IIR1 CONTENTS
3860 023304 022737 000020 002402 CMP #20,RSAVE ;IS BO BIT OF IIR1 SET
3861 023312 001413 BEQ 10$ ;BRANCH IF YES
3862 023314 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGES
3863 023322 013737 002402 002502 MOV RSAVE,BAD ;...
    
```


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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

```

3858 023330           ERRSOF T 701,E501,ERR501           ;ERROR HANDLER
      023330 104457           TRAP C$ERSOF T
      023332 001275           .WORD 701
      023334 005406           .WORD E501
      023336 003702           .WORD ERR501
3859 023340           CKLOOP           ;BRANCH TO BGNSEG WHEN ERROR LOOP IS SET
      023340 104406           TRAP C$CLP1
3860 023342           10$:
3861 023342 017737 156710 002402   MOV @ISRX,RSAVE           ;GET ISR1 CONTENTS
3862 023350 022737 120040 002402   CMP #120040,RSAVE        ;ATN,ATN,NDAC BIT OF ISR1 SHOULD BE SET
3863 023356 001413           BEQ 20$                 ;BRANCH IF YES
3864 023360 012737 120040 002500   MOV #120040,GOOD        ;SET UP DATA FOR ERROR MESSAGES
3865 023366 013737 002402 002502   MOV RSAVE,BAD
3866 023374           ERRSOF T 702,E502,ERR501   ;ERROR HANDLER
      023374 104457           TRAP C$ERSOF T
      023376 001276           .WORD 702
      023400 005447           .WORD E502
      023402 003702           .WORD ERR501
3867 023404           CKLOOP           ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      023404 104406           TRAP C$CLP1
3868 023406 052777 000010 156664 20$:
3869 023414 012737 000002 002374   BIS #10,@CSRX           ;SELECT CHANNEL 2
3870 023422 017737 156622 002402   MOV #2,CHAN             ;LOAD CHANNEL NUMBER
3871 023430 022737 002401 002402   MOV @IIRX,RSAVE        ;GET IIR2 CONTENTS
3872 023436 001413           CMP #2401,RSAVE        ;MA,MAC,IFC BIT IN IIR2 SHOULD BE SET
3873 023440 012737 002401 002500   BEQ 30$                 ;BRANCH IF YES
3874 023446 013737 002402 002502   MOV #2401,GOOD        ;SET UP DATA FOR ERROR MESSAGES
3875 023454           ERRSOF T 703,E501,ERR501   ;ERROR HANDLER
      023454 104457           TRAP C$ERSOF T
      023456 001277           .WORD 703
      023460 005406           .WORD E501
      023462 003702           .WORD ERR501
3876 023464           CKLOOP           ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      023464 104406           TRAP C$CLP1
3877 023466 017737 156564 002402 30$:
3878 023474 023737 002444 002402   MOV @ISRX,RSAVE        ;GET ISP2 CONTENTS
3879 023502 001413           CMP CDATS,RSAVE        ;ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
3880 023504 013737 002444 002500   BEQ 40$                 ;BRANCH IF YES
3881 023512 013737 002402 002502   MOV CDATS,GOOD        ;SET UP DATA FOR ERROR MESSAGES
3882 023520           ERRSOF T 704,E502,ERR501   ;ERROR HANDLER
      023520 104457           TRAP C$ERSOF T
      023522 001300           .WORD 704
      023524 005447           .WORD E502
      023526 003702           .WORD ERR501
3883 023530           CKLOOP           ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      023530 104406           TRAP C$CLP1
3884 023532 042777 000010 156540 40$:
3885 023540 012737 000001 002374   BIC #10,@CSRX          ;SELECT CHANNEL 1
3886 023546 112777 000077 156522   MOV #1,CHAN            ;LOAD CHANNEL NUMBER
3887 023554 004737 011060           MOVB #77,@IDRHX        ;LOAD UNL INTO DOR
3888 023560 017737 156464 002402   JSR PC,LOOP            ;WAIT A LITTLE
3889 023566 022737 000020 002402   MOV @IIRX,RSAVE        ;GET IIR1 CONTENTS
3890 023574 001413           CMP #20,RSAVE          ;CHECK BO BIT IN IIR1
3891 023576 012737 000020 002500   BEQ 50$                 ;BRANCH IF YES
3892 023604 013737 002402 002502   MOV #20,GOOD          ;SET UP DATA FOR ERROR MESSAGES
3893 023612           ERRSOF T 705,E501,ERR501   ;ERROR HANDLER
      023612 104457           TRAP C$ERSOF T

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

	023614	001301								.WORD	705
	023616	005406								.WORD	E501
	023620	003702								.WORD	ERR501
3894	023622					CKLOOP				:BRANCH TO BGNSEG WHEN ERRLOOP IS SET	
	023622	104406								TRAP	C\$CLP1
3895	023624	017737	156426	002402	50\$:	MOV	@ISRX,RSAVE			:GET ISR1 CONTENTS	
3896	023632	022737	120040	002402		CMP	#120040,RSAVE			:ATN,ATN,NDAC BIT IN ISR1 SHOULD BE SET	
3897	023640	001413				BEQ	60\$			:BRANCH IF YES	
3898	023642	012737	120040	002500		MOV	#120040,GOOD			:SET UP DATA FOR ERROR MESSAGES	
3899	023650	013737	002402	002502		MOV	RSAVE,BAD			:...	
3900	023656					ERRSOFT	706,E502,ERR501			:ERROR HANDLER	
	023656	104457								TRAP	C\$ERSOFT
	023660	001302								.WORD	706
	023662	005447								.WORD	E502
	023664	003702								.WORD	ERR501
3901	023666					CKLOOP				:BRANCH TO BGNSEG WHEN ERRLOOP IS SET	
	023666	104406								TRAP	C\$CLP1
3902	023670	052777	000010	156402	60\$:	BIS	#10,@CSRX			:SELECT CHANNEL 2	
3903	023676	012737	000002	002374		MOV	#2,CHAN			:LOAD CHANNEL NUMBER	
3904	023704	017737	156340	002402		MOV	@IIRX,RSAVE			:GET IIR2 CONTENTS	
3905	023712	022737	000001	002402		CMP	#1,RSAVE			:MAC BIT IN IIR2 SHOULD BE SET	
3906	023720	001413				BEQ	11\$			:BRANCH IF YES	
3907	023722	012737	000001	002500		MOV	#1,GOOD			:SET UP DATA FOR ERROR MESSAGES	
3908	023730	013737	002402	002502		MOV	RSAVE,BAD			:...	
3909	023736					ERRSOFT	707,E501,ERR501			:ERROR HANDLER	
	023736	104457								TRAP	C\$ERSOFT
	023740	001303								.WORD	707
	023742	005406								.WORD	E501
	023744	003702								.WORD	ERR501
3910	023746					CKLOOP				:BRANCH TO BGNSEG WHEN ERRLOOP IS SET	
	023746	104406								TRAP	C\$CLP1
3911	023750	017737	156302	002402	11\$:	MOV	@ISRX,RSAVE			:GET ISR2 CONTENTS	
3912	023756	023737	002434	002402		CMP	CDAT1,RSAVE			:ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET	
3913	023764	001412				BEQ	12\$			:BRANCH IF YES	
3914	023766	013737	002434	002500		MOV	CDAT1,GOOD			:SET UP DATA FOR ERROR MESSAGES	
3915	023774	017737	002402	002502		MOV	RSAVE,BAD			:...	
3916	024002					ERRSOFT	708,E502,ERR501			:ERROR HANDLER	
	024002	104457								TRAP	C\$ERSOFT
	024004	001304								.WORD	708
	024006	005447								.WORD	E502
	024010	003702								.WORD	ERR501
3917	024012				12\$:	ENDSEG					
	024012									10000\$:	
	024012	104405								TRAP	C\$ESEG
3918	024014					BGNSEG					
	024014	104404								TRAP	C\$BSEG
3919	024016	042777	000010	156254		BIC	#10,@CSRX			:SELECT CHANNEL 1	
3920	024024	012737	000001	002374		MOV	#1,CHAN			:LOAD CHANNEL NUMBER	
3921	024032	013701	002314			MOV	DPA2,R1			:LOAD DPA2 IN R1	
3922	024036	062701	000100			ADD	#100,R1			:CREATE MY TALKER ADDRESS (MTA)	
3923	024042	010137	002416			MOV	R1,MTA2			:SAVE MTA	
3924	024046					ENDSEG					
	024046									10001\$:	
	024046	104405								TRAP	C\$ESEG
3925	024050					BGNSEG					
	024050	104404								TRAP	C\$BSEG
3926	024052	113777	002416	156216		MOV	MTA2,@IDRX			:LOAD TALKER ADDR. INTO DOR	

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

3927	024060	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
3928	024064	017737	156160	002402		MOV	@IIRX,RSAVE		:GET IIR1 CONTENTS
3929	024072	022737	000020	002402		CMP	#20,RSAVE		:BO BIT IN IIR1 SHOULD BE SET
3930	024100	001413				BEQ	13\$		:BRANCH IF YES
3931	024102	012737	000020	002500		MOV	#20,GOOD		:SET UP DATA FOR ERROR MESSAGES
3932	024110	013737	002402	002502		MOV	RSAVE,BAD		:
3933	024116					ERRSOFT	709,E501,ERR501		:ERROR HANDLER
	024116	104457							TRAP CSERSOFT
	024120	001305							.WORD 709
	024122	005406							.WORD E501
	024124	003702							.WORD ERR501
3934	024126					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	024126	104406							TRAP C\$CLP1
3935	024130	017737	156122	002402	13\$:	MOV	@ISRX,RSAVE		:GET ISR1 CONTENTS
3936	024136	022737	120040	002402		CMP	#120040,RSAVE		:ATN,ATN,NDAC BIT IN ISR1 SHOULD BE SET
3937	024144	001413				BEQ	14\$		:BRANCH IF YES
3938	024146	012737	120040	002500		MOV	#120040,GOOD		:SET UP DATA FOR ERROR MESSAGES
3939	024154	013737	002402	002502		MOV	RSAVE,BAD		:
3940	024162					ERRSOFT	710,E502,ERR501		:ERROR HANDLER
	024162	104457							TRAP CSERSOFT
	024164	001306							.WORD 710
	024166	005447							.WORD E502
	024170	003702							.WORD ERR501
3941	024172					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	024172	104406							TRAP C\$CLP1
3942	024174	052777	000010	156076	14\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2
3943	024202	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
3944	024210	017737	156034	002402		MOV	@IIRX,RSAVE		:GET IIR2 CONTENTS
3945	024216	022737	002001	002402		CMP	#2001,RSAVE		:MA,MAC BIT IN IIR2 SHOULD BE SET
3946	024224	001413				BEQ	15\$		:BRANCH IF YES
3947	024226	012737	002001	002500		MOV	#2001,GOOD		:SET UP DATA FOR ERROR MESSAGES
3948	024234	013737	002402	002502		MOV	RSAVE,BAD		:
3949	024242					ERRSOFT	711,E501,ERR501		:ERROR HANDLER
	024242	104457							TRAP CSERSOFT
	024244	001307							.WORD 711
	024246	005406							.WORD E501
	024250	003702							.WORD ERR501
3950	024252					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	024252	104406							TRAP C\$CLP1
3951	024254	017737	155776	002402	15\$:	MOV	@ISRX,RSAVE		:GET ISR2 CONTENTS
3952	024262	023737	002440	002402		CMP	(DAT3,RSAVE		:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
3953	024270	001413				BEQ	16\$		:BRANCH IF YES
3954	024272	013737	002402	002502		MOV	RSAVE,BAD		:SET UP DATA FOR ERROR MESSAGES
3955	024300	013737	002440	002500		MOV	(DAT3,GOOD		:
3956	024306					ERRSOFT	712,E502,ERR501		:ERROR HANDLER
	024306	104457							TRAP CSERSOFT
	024310	001310							.WORD 712
	024312	005447							.WORD E502
	024314	003702							.WORD ERR501
3957	024316					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	024316	104406							TRAP C\$CLP1
3958	024320	042777	000010	155752	16\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1
3959	024326	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
3960	024334	112777	000137	155734		MOVB	#137,@IDRHX		:LOAD UNT INTO DOR
3961	024342	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
3962	024346	017737	155676	002402		MOV	@IIRX,RSAVE		:GET IIR1 CONTENTS
3963	024354	022737	000020	002402		CMP	#20,RSAVE		:BO BIT IN IIR1 SHOULD BE SET

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

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3964 024362 001413          BEQ      21$          ;BRANCH IF YES
3965 024364 012737 000020 002500  MOV      #20,GOOD    ;SET UP DATA FOR ERROR MESSAGES
3966 024372 013737 002402 002502  MOV      RSAVE,BAD   ;
3967 024400          ERRSOFT 713,E501,ERR501 ;ERROR HANDLER
          024400 104457          TRAP      C$ERSOFT
          024402 001311          .WORD    713
          024404 005406          .WORD    E501
          024406 003702          .WORD    ERR501
3968 024410          CKLOOP          ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
          024410 104406          TRAP      C$CLP1
3969 024412 017737 155640 002402 21$:  MOV      @ISRX,RSAVE  ;GET ISR1 CONTENTS
3970 024420 022737 120040 002402  CMP      #120040,RSAVE ;ATN,ATN,NDAC IN ISR1 SHOULD BE SET
3971 024426 001413          BEQ      22$          ;BRANCH IF YES
3972 024430 012737 120040 002500  MOV      #120040,GOOD ;SET UP DATA FOR ERROR MESSAGES
3973 024436 013737 002402 002502  MOV      RSAVE,BAD   ;
3974 024444          ERRSOFT 714,E502,ERR501 ;ERROR HANDLER
          024444 104457          TRAP      C$ERSOFT
          024446 001312          .WORD    714
          024450 005447          .WORD    E502
          024452 003702          .WORD    ERR501
3975 024454          CKLOOP          ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
          024454 104406          TRAP      C$CLP1
3976 024456 052777 000010 155614 22$:  BIS      #10,@CSRX   ;SELECT CHANNEL 2
3977 024464 012737 000002 002374  MOV      #2,CHAN     ;LOAD CHANNEL NUMBER
3978 024472 017737 155552 002402  MOV      @IIRX,RSAVE ;GET IIR2 CONTENTS
3979 024500 022737 000001 002402  CMP      #1,RSAVE    ;MAC BIT IN IIR2 SHOULD BE SET
3980 024506 001413          BEQ      23$          ;BRANCH IF YES
3981 024510 012737 000001 002500  MOV      #1,GOOD     ;SET UP DATA FOR ERROR MESSAGES
3982 024516 013737 002402 002502  MOV      RSAVE,BAD   ;
3983 024524          ERRSOFT 715,E501,ERR501 ;ERROR HANDLER
          024524 104457          TRAP      C$ERSOFT
          024526 001313          .WORD    715
          024530 005406          .WORD    E501
          024532 003702          .WORD    ERR501
3984 024534          CKLOOP          ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
          024534 104406          TRAP      C$CLP1
3985 024536 017737 155514 002402 23$:  MOV      @ISRX,RSAVE  ;GET ISR2 CONTENTS
3986 024544 023737 002434 002402  CMP      CDAT1,RSAVE ;ATN,ATN,NDAC,(ULPA)BIT SHOULD BE SET
3987 024552 001412          BEQ      24$          ;BRANCH IF YES
3988 024554 013737 002434 002500  MOV      CDAT1,GOOD  ;SET UP DATA FOR ERROR MESSAGES
3989 024562 013737 002402 002502  MOV      RSAVE,BAD   ;
3990 024570          ERRSOFT 716,E502,ERR501 ;ERROR HANDLER
          024570 104457          TRAP      C$ERSOFT
          024572 001314          .WORD    716
          024574 005447          .WORD    E502
          024576 003702          .WORD    ERR501
3991 024600          24$:  ENDSEG          10002$:
          024600          TRAP      C$ESEG
          024600 104405
3992          ;-----
3993          ;PART 2 OF THE ADDRESS REGISTER TEST.
3994          ;THIS PART CHECKS THE "DAL","DAT","EDPA" BITS IN THE ADDRESS REGISTER.
3995          ;-----
3996 024602 013701 002314  MOV      DPA2,R1     ;GET DEVICE PRIM. ADDR. 2
3997 024606 052701 000040  BIS      #40,R1      ;ADD DAT BIT TO DAP2-
3998 024612 110177 155436  MOVB     R1,@IIRHX   ;LOAD DEVICE PRIM. ADDR.2 + DAT BIT
3999 024616          BGNSEG
    
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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

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4000 024616 104404                                TRAP    C$BSEG
4001 024620 042777 000010 155452 COPA2: BIC    #10,@CSRX      ;SELECT CHANNEL 1
4002 024626 113777 002412 155442      MOVB   MTA2,@IDRMX    ;---LOAD MTA IN DOR1 REGISTER-----
4003 024634 004737 011060                    JSR    PC,LOOP       ;WAIT A LITTLE
4004 024640 052777 000010 155432      BIS    #10,@CSRX     ;SELECT CHANNEL 2
4005 024646 012737 000002 002374      MOV    #2,CHAN       ;LOAD CHANNEL NUMBER
4006 024654 017737 155376 002402      MOV    @ISRX,RSAVE   ;GET ISR2 CONTENTS
4007 024662 023737 002444 002402      CMP    CDAT5,RSAVE   ;ATN,ATN,LADS,NDAC,(ULPA) BIT SET
4008 024670 001413                    BEQ    40$           ;BRANCH IF YES
4009 024700 013737 002444 002500      MOV    CDAT5,GOOD    ;SET UP DATA FOR ERROR MESSAGES
4010 024706 013737 002402 002502      MOV    RSAVE,BAD     ;
4010 024706 104457                                ;:ERROR HANDLER
4010 024710 001315                                TRAP    C$ERSOFT
4010 024712 005447                                .WORD  717
4010 024714 003702                                .WORD  E502
4011 024716 104406                                .WORD  ERR501
4011 024716 104406                                ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
4012 024720 042777 000010 155352 40$: BIC    #10,@CSRX      ;SELECT CHANNEL 1
4013 024726 012737 000001 002374      MOV    #1,CHAN       ;LOAD CHANNEL NUMBER
4014 024734 112777 000077 155334      MOVB   #77,@IDRMX    ;---LOAD UNL INTO DOR-----
4015 024742 004737 011060                    JSR    PC,LOOP       ;WAIT A LITTLE
4016 024746 052777 000010 155324      BIS    #10,@CSRX     ;SELECT CHANNEL 2
4017 024754 012737 000002 002374      MOV    #2,CHAN       ;LOAD CHANNEL NUMBER
4018 024762 017737 155270 002402      MOV    @ISRX,RSAVE   ;GET ISR2 CONTENTS
4019 024770 023737 002434 002402      CMP    CDAT1,RSAVE   ;ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
4020 024776 001412                    BEQ    12$          ;BRANCH IF YES
4021 025000 013737 002434 002500      MOV    CDAT1,GOOD    ;SET UP DATA FOR ERROR MESSAGES
4022 025006 013737 002402 002502      MOV    RSAVE,BAD     ;
4023 025014 104457                                ;:ERROR HANDLER
4023 025014 104457                                TRAP    C$ERSOFT
4023 025016 001316                                .WORD  718
4023 025020 005447                                .WORD  E502
4023 025022 003702                                .WORD  ERR501
4024 025024 104405                                ;
4024 025024 104405                                ;
4025 025026 104405                                ;
4025 025026 104405                                ;
4026 025030 042777 000010 155242      BIC    #10,@CSRX     ;SELECT CHANNEL 1
4027 025036 012737 000001 002374      MOV    #1,CHAN       ;LOAD CHANNEL NUMBER
4028 025044 113777 002416 155224      MOVB   MTA2,@IDRMX    ;---LOAD MTA2 IN DOR1 REGISTER (IDR1)-
4029 025052 004737 011060                    JSR    PC,LOOP       ;WAIT A LITTLE
4030 025056 052777 000010 155214      BIS    #10,@CSRX     ;SELECT CHANNEL 2
4031 025064 012737 000002 002374      MOV    #2,CHAN       ;LOAD CHANNEL NUMBER
4032 025072 017737 155160 002402      MOV    @ISRX,RSAVE   ;GET ISR2 CONTENTS
4033 025100 023737 002436 002402      CMP    CDAT2,RSAVE   ;ATN,ATN,NDAC,TPAS,(ULPA) SHOULD SET
4034 025106 001412                    BEQ    33$          ;BRANCH IF YES
4035 025110 013737 002402 002502      MOV    RSAVE,BAD     ;SET UP DATA FOR ERROR MESSAGES
4036 025116 013737 002436 002500      MOV    CDAT2,GOOD    ;
4037 025124 104457                                ;:ERROR HANDLER
4037 025124 104457                                TRAP    C$ERSOFT
4037 025126 001317                                .WORD  719
4037 025130 005447                                .WORD  E502
4037 025132 003702                                .WORD  ERR501
4038 025134 10003$: TRAP    C$ESEG
4038 025134 10003$: TRAP    C$BSEG
4038 025134 10003$: TRAP    C$BSEG
4038 025134 10003$: ;SELECT CHANNEL 1
4038 025134 10003$: ;LOAD CHANNEL NUMBER
4038 025134 10003$: ;---LOAD MTA2 IN DOR1 REGISTER (IDR1)-
4038 025134 10003$: ;WAIT A LITTLE
4038 025134 10003$: ;SELECT CHANNEL 2
4038 025134 10003$: ;LOAD CHANNEL NUMBER
4038 025134 10003$: ;GET ISR2 CONTENTS
4038 025134 10003$: ;ATN,ATN,NDAC,TPAS,(ULPA) SHOULD SET
4038 025134 10003$: ;BRANCH IF YES
4038 025134 10003$: ;SET UP DATA FOR ERROR MESSAGES
4038 025134 10003$: ;
4038 025134 10003$: ;:ERROR HANDLER
4038 025134 10003$: TRAP    C$ERSOFT
4038 025134 10003$: .WORD  719
4038 025134 10003$: .WORD  E502
4038 025134 10003$: .WORD  ERR501
4038 025134 10004$:

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4039	025134	104405		
4040	025136	013701	002314	
4041	025142	052701	000100	
4042	025146	110177	155102	
4043	025152	104404		
4044	025154	042777	000010	155116
4045	025162	012737	000001	002374
4046	025170	113777	002412	155100
4047	025176	004737	011060	
4048	025202	052777	000010	155070
4049	025210	012737	000002	002374
4050	025216	017737	155034	002402
4051	025224	023737	002442	002402
4052	025232	001412		
4053	025234	013737	002402	002502
4054	025242	013737	002442	002500
	025250			
	025250	104457		
	025252	001320		
	025254	005447		
	025256	003702		
4055	025260		368:	ENDSEG
	025260			
	025260	104405		
4056	025262			BGNSEG
	025262	104404		
4057	025264	042777	000010	155006
4058	025272	012737	000001	002374
4059	025300	113777	002416	154770
4060	025306	004737	011060	
4061	025312	052777	000010	154760
4062	025320	012737	000002	002374
4063	025326	017737	154724	002402
4064	025334	023737	002440	002402
4065	025342	001413		
4066	025344	013737	002402	002502
4067	025352	013737	002440	002500
4068	025360			
	025360	104457		
	025362	001321		
	025364	005447		
	025366	003702		
4069	025370			CKLOOP
	025370	104406		
4070	025372	042777	000010	154700
4071	025400	012737	000001	002374
4072	025406	112777	000137	154662
4073	025414	004737	011060	
4074	025420	052777	000010	154652
4075	025426	012737	000002	002374
4076	025434	017737	154616	002402
4077	025442	023737	002434	002402
4078	025450	001412		
4079	025452	013737	002434	002500
4080	025460	013737	002402	002502
4081	025466			

```

MOV DPA2,R1
BIS #100,R1
MOVB R1,@DIRMX
BGNSEG

BIC #10,@CSRX
MOV #1,CHAN
MOVB MTA2,@IDRMX
JSR PC,LOOP
BIS #10,@CSRX
MOV #2,CHAN
MOV @ISR2,RSAVE
CMP CDAT4,RSAVE
BEQ 368
MOV RSAVE,BAD
MOV CDAT4,GOOD
ERRSOFT 720,E502,ERR501

ENDSEG

BGNSEG

BIC #10,@CSRX
MOV #1,CHAN
MOVB MTA2,@IDRMX
JSR PC,LOOP
BIS #10,@CSRX
MOV #2,CHAN
MOV @ISR2,RSAVE
CMP CDAT3,RSAVE
BEQ 168
MOV RSAVE,BAD
MOV CDAT3,GOOD
ERRSOFT 721,E502,ERR501

CKLOOP

BIC #10,@CSRX
MOV #1,CHAN
MOVB #137,@IDRMX
JSR PC,LOOP
BIS #10,@CSRX
MOV #2,CHAN
MOV @ISR2,RSAVE
CMP CDAT1,RSAVE
BEQ 248
MOV CDAT1,GOOD
MOV RSAVE,BAD
ERRSOFT 722,E502,ERR501

```

```

TRAP CSESEG
:GET DEVICE PRIM. ADDR. 2
:SET DAL BIT
:---LOAD DPA2 PLUS DAL BIT IN ADDR. 2-

TRAP C8BSEG
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:----LOAD MLA IN DOR1-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:ATN,ATN,NDAC,LPAS,(ULPA) BITS SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
TRAP C8ERSOFT
.WORD 720
.WORD E502
.WORD ERR501

100058: TRAP CSESEG

TRAP C8BSEG
:SELECT CHANNEL 1
:GET CHANNEL NUMBER
:----LOAD MTA2 IN DOR1 REGISTER----
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
TRAP C8ERSOFT
.WORD 721
.WORD E502
.WORD ERR501

:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C8LLP1

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:----LOAD UNIT INTO DOR-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:ATN,ATN,NDAC,(ULPA) SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER

```

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

	025466	104457							TRAP	C\$ERSOFT
	025470	001322							.WORD	722
	025472	005447							.WORD	E502
	025474	003702							.WORD	ERR501
4082	025476			24\$:	ENDSEG					
	025476									10006\$:
	025476	104405							TRAP	C\$ESEG
4083	025500	022737	000036	002314	CMP	#36,DPA2			:	IS LAST DPA ADDRESS SELECTED
4084	025506	001002			BNE	25\$			:	BRANCH IF NO
4085	025510	000137	027172		JMP	TQVP?			:	
4086	025514	052777	000010	154556	25\$:	BIS	#10,@CSRX		:	SELECT CHANNEL 2
4087	025522	013701	002314		MOV	DPA2,R1			:	GET DPA2
4088	025526	052701	000200		BIS	#200,R1			:	-----SET EDPA BIT-----
4089	025532	110177	154516		MOVB	R1,@IIRHX			:	LOAD DPA2 & EDPA BIT INTO ADDR.
4090	025536				BGNSEG					
	025536	104404							TRAP	C\$BSEG
4091	025540	042777	000010	154532	BIC	#10,@CSRX			:	SELECT CHANNEL 1
4092	025546	012737	000001	002374	MOV	#1,CHAN			:	LOAD CHANNEL NUMBER
4093	025554	113777	002412	154514	MOVB	MLA2,@IDRHX			:	---LOAD MLA2 INTO DOR1 REGISTER---
4094	025562	004737	011060		JSR	PC,LOOP			:	WAIT A LITTLE
4095	025566	052777	000010	154504	BIS	#10,@CSRX			:	SELECT CHANNEL 2
4096	025574	012737	000002	002374	MOV	#2,CHAN			:	LOAD CHANNEL NUMBER
4097	025602	017737	154450	002402	MOV	@ISR2,RSAVE			:	GET ISR2 CONTENTS
4098	025610	023737	002444	002402	CMP	CDAT5,RSAVE			:	ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
4099	025616	001413			BEQ	40\$			:	BRANCH IF YES
4100	025620	013737	002444	002500	MOV	CDAT5,GOOD			:	SET UP DATA FOR ERROR MESSAGES
4101	025626	013737	002402	002502	MOV	RSAVE,BAD			:	
4102	025634				ERRSOFT	723,E502,ERR501			:	ERROR HANDLER
	025634	104457							TRAP	C\$ERSOFT
	025636	001323							.WORD	723
	025640	005447							.WORD	E502
	025642	003702							.WORD	ERR501
4103	025644				CKLOOP				:	BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	025644	104406							TRAP	C\$CLP1
4104	025646	042777	000010	154424	40\$:	BIC	#10,@CSRX		:	SELECT CHANNEL 1
4105	025654	012737	000001	002374	MOV	#1,CHAN			:	LOAD CHANNEL NUMBER
4106	025662	112777	000077	154406	MOVB	#77,@IDRHX			:	---LOAD UNL INTO DOR-----
4107	025670	004737	011060		JSR	PC,LOOP			:	WAIT A LITTLE
4108	025674	052777	000010	154376	BIS	#10,@CSRX			:	SELECT CHANNEL 2
4109	025702	012737	000002	002374	MOV	#2,CHAN			:	LOAD CHANNEL NUMBER
4110	025710	017737	154342	002402	MOV	@ISR2,RSAVE			:	GET ISR2 CONTENTS
4111	025716	023737	002434	002402	CMP	CDAT1,RSAVE			:	ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
4112	025724	001412			BEQ	12\$			:	BRANCH IF YES
4113	025726	013737	002434	002500	MOV	CDAT1,GOOD			:	SET UP DATA FOR ERROR MESSAGES
4114	025734	013737	002402	002502	MOV	RSAVE,BAD			:	
4115	025742				ERRSOFT	724,E502,ERR501			:	ERROR HANDLER
	025742	104457							TRAP	C\$ERSOFT
	025744	001324							.WORD	724
	025746	005447							.WORD	E502
	025750	003702							.WORD	ERR501
4116	025752				12\$:	ENDSEG				
	025752									10007\$:
	025752	104405							TRAP	C\$ESEG
4117	025754	042777	000010	154316	BIC	#10,@CSRX			:	SELECT CHANNEL 1
4118	025762	012737	000001	002374	MOV	#1,CHAN			:	LOAD CHANNEL NUMBER
4119	025770	113701	002412		MOVB	MLA2,R1			:	GET MY LISTENER ADDRESS
4120	025774	032737	000001	002314	BIT	#1,DPA2			:	IS DPA EVEN

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4121	026002	001021			BNE	3\$:BRANCH IF YES
4122	026004	105201			INCB	R1			:CHANGE MLA2 TO ODD
4123	026006	052737	000001	002434	BIS	#1,CDAT1			:SET ULPA BIT IN COMPARE DATA FOR ISR
4124	026014	052737	000001	002436	BIS	#1,CDAT2			:...
4125	026022	052737	000001	002440	BIS	#1,CDAT3			:...
4126	026030	052737	000001	002442	BIS	#1,CDAT4			:...
4127	026036	052737	000001	002444	BIS	#1,CDAT5			:...
4128	026044	000420			BR	+42			:BRANCH TO BGNSEG
4129	026046	105301			DECB	R1	3\$:		:CHANGE MLA2 TO EVEN
4130	026050	042737	000001	002434	BIC	#1,CDAT1			:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4131	026056	042737	000001	002436	BIC	#1,CDAT2			:...
4132	026064	042737	000001	002440	BIC	#1,CDAT3			:...
4133	026072	042737	000001	002442	BIC	#1,CDAT4			:...
4134	026100	042737	000001	002444	BIC	#1,CDAT5			:...
4135	026106				BGNSEG				
	026106	104404							TRAP C\$BSEG
4136	026110	042777	000010	154162	BIC	#10,@CSRX			:SELECT CHANNEL 1
4137	026116	110177	154154		MOVB	R1,@IDRHX			:-----LOAD NEW MLA1 INTO DOR-----
4138	026122	004737	011060		JSR	PC,LOOP	COPC2:		:WAIT A LITTLE
4139	026126	052777	000010	154144	BIS	#10,@CSRX			:SELECT CHANNEL 2
4140	026134	012737	000002	002374	MOV	#2,CHAN			:LOAD CHANNEL NUMBER
4141	026142	017737	154110	002402	MOV	@ISR,X,RSV			:GET ISR2 CONTENTS
4142	026150	023737	002444	002402	CMP	CDAT5,RSV			:ATN,ATN,LADS,NDAC,(ULPA),LPAS BIT SET
4143	026156	001413			BEQ	40\$			:BRANCH IF YES
4144	026160	013737	002444	002500	MOV	CDAT5,GOOD			:SET UP DATA FOR ERROR MESSAGES
4145	026166	013737	002402	002502	MOV	RSV,BAD			:...
4146	026174				ERRSOFT	725,E502,ERR501			:ERROR HANDLER
	026174	104457							TRAP C\$ERSOFT
	026176	001325							.WORD 725
	026200	005447							.WORD E502
	026202	003702							.WORD ERR501
4147	026204				CKLOOP				:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	026204	104406							TRAP C\$CLP1
4148	026206	042777	000010	154064	BIC	#10,@CSRX	40\$:		:SELECT CHANNEL 1
4149	026214	012737	000001	002374	MOV	#1,CHAN			:LOAD CHANNEL NUMBER
4150	026222	112777	000077	154046	MOVB	#77,@IDRHX			:-----LOAD UNL INTO DOR-----
4151	026230	004737	011060		JSR	PC,LOOP			:WAIT A LITTLE
4152	026234	052777	000010	154036	BIS	#10,@CSRX			:SELECT CHANNEL 2
4153	026242	012737	000002	002374	MOV	#2,CHAN			:LOAD CHANNEL NUMBER
4154	026250	017737	154002	002402	MOV	@ISR,X,RSV			:GET ISR2 CONTENTS
4155	026256	023737	002434	002402	CMP	CDAT1,RSV			:ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
4156	026264	001412			BEQ	12\$			:BRANCH IF YES
4157	026266	013737	002434	002500	MOV	CDAT1,GOOD			:SET UP DATA FOR ERROR MESSAGES
4158	026274	013737	002402	002502	MOV	RSV,BAD			:...
4159	026302				ERRSOFT	726,E502,ERR501			:ERROR HANDLER
	026302	104457							TRAP C\$ERSOFT
	026304	001326							.WORD 726
	026306	005447							.WORD E502
	026310	003702							.WORD ERR501
4160	026312				12\$:	ENDSEG			
	026312	104405							10010\$:
	026312	104405							TRAP C\$ESEG
4161	026314	032737	000001	002314	BIT	#1,DPA2			:IS DPA EVEN
4162	026322	001420			BEQ	3\$			:BRANCH IF YES
4163	026324	052737	000001	002434	BIS	#1,CDAT1			:SET ULPA BIT IN COMPARE DATA FOR ISR
4164	026332	052737	000001	002436	BIS	#1,CDAT2			:...
4165	026340	052737	000001	002440	BIS	#1,CDAT3			:...

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4166	026346	052737	000001	002442	BIS	#1,CDAT4		
4167	026354	052737	000001	002444	BIS	#1,CDAT5	....	
4168	026362	000417			BR	+40	:BRANCH TO BGNSEG		
4169	026364	042737	000001	002434	BIC	#1,CDAT1	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR		
4170	026372	042737	000001	002436	BIC	#1,CDAT2	....	
4171	026400	042737	000001	002440	BIC	#1,CDAT3	....	
4172	026406	042737	000001	002442	BIC	#1,CDAT4	....	
4173	026414	042737	000001	002444	BIC	#1,CDAT5	....	
4174	026422				BGNSEG				
	026422	104404					TRAP	C\$BSEG	
4175	026424	042777	000010	153646	BIC	#10,@CSRX	:SELECT CHANNEL 1		
4176	026432	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER		
4177	026440	113777	002416	153630	MOVB	MTA2,@IDRHX	:----LOAD MTA INTO DOR1 REGISTER-----		
4178	026446	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE		
4179	026452	052777	000010	153620	BIS	#10,@CSRX	:SELECT CHANNEL 2		
4180	026460	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER		
4181	026466	017737	153564	002402	MOV	@ISRX,RSAVE	:GET ISR2 CONTENTS		
4182	026474	023737	002440	002402	CMP	CDAT3,RSAVE	:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET		
4183	026502	001413			BEQ	16\$	:BRANCH IF YES		
4184	026504	013737	002402	002502	MOV	RSAVE,BAD	:SET UP DATA FOR ERROR MESSAGES		
4185	026512	013737	002440	002500	MOV	CDAT3,GOOD			
4186	026520				ERRSOFT	727,E502,ERR501	:ERROR HANDLER		
	026520	104457					TRAP	C\$ERSOFT	
	026522	001327					.WORD	727	
	026524	005447					.WORD	E502	
	026526	003702					.WORD	ERR501	
4187	026530				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET		
	026530	104406					TRAP	C\$CLP1	
4188	026532	042777	000010	153540	BIC	#10,@CSRX	:SELECT CHANNEL 1		
4189	026540	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER		
4190	026546	112777	000137	153522	MOVB	#137,@IDRHX	:----LOAD UNIT INTO DOR-----		
4191	026554	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE		
4192	026560	052777	000010	153512	BIS	#10,@CSRX	:SELECT CHANNEL 2		
4193	026566	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER		
4194	026574	017737	153456	002402	MOV	@ISRX,RSAVE	:GET ISR2 CONTENTS		
4195	026602	023737	002434	002402	CMP	CDAT1,RSAVE	:ATN,ATN,NDAC,(ULPA) SHOULD BE SET		
4196	026610	001412			BEQ	24\$	:BRANCH IF YES		
4197	026612	013737	002434	002500	MOV	CDAT1,GOOD	:SET UP DATA FOR ERROR MESSAGES		
4198	026620	013737	002402	002502	MOV	RSAVE,BAD			
4199	026626				ERRSOFT	728,E502,ERR501	:ERROR HANDLER		
	026626	104457					TRAP	C\$ERSOFT	
	026630	001330					.WORD	728	
	026632	005447					.WORD	E502	
	026634	003702					.WORD	ERR501	
4200	026636				24\$:	ENDSEG			
	026636						10011\$:		
4201	026640					BGNSEG	TRAP	C\$ESEG	
	026640	104405					TRAP	C\$BSEG	
4202	026642	042777	000010	153430	BIC	#10,@CSRX	:SELECT CHANNEL 1		
4203	026650	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER		
4204	026656	013701	002416		MOV	MTA2,R1	:GET TALKER ADDRESS		
4205	026662	032737	000001	002314	BIT	#1,DPA2	:IS DPA ODD		
4206	026670	001021			BNE	25\$	:BRANCH IF YES		
4207	026672	105201			INCB	R1	:CHANGE MTA2 TO ODD		
4208	026674	052737	000001	002434	BIS	#1,CDAT1	:SET ULPA BIT IN COMPARE DATA FOR ISR		
4209	026702	052737	000001	002436	BIS	#1,CDAT2		

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4210	026710	052737	000001	002440		BIS	#1,CDAT3		:...
4211	026716	052737	000001	002442		BIS	#1,CDAT4		:...
4212	026724	052737	000001	002444		BIS	#1,CDAT5		:...
4213	026732	000420				BR	+42		:BRANCH TO LOAD NEW MTA
4214	026734	105301			25\$:	DECB	R1		:CHANGE MTA2 TO EVEN
4215	026736	042737	000001	002434		BIC	#1,CDAT1		:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4216	026744	042737	000001	002436		BIC	#1,CDAT2		:...
4217	026752	042737	000001	002440		BIC	#1,CDAT3		:...
4218	026760	042737	000001	002442		BIC	#1,CDAT4		:...
4219	026766	042737	000001	002444		BIC	#1,CDAT5		:...
4220	026774	110177	153276			MOVB	R1,@IDRHX		:---LOAD NEW MTA INTO DOR REGISTER---
4221	027000	004737	011060		COPD2:	JSR	PC,LOOP		:WAIT A LITTLE
4222	027004	052777	000010	153266		BIS	#10,@CSRX		:SELECT CHANNEL 2
4223	027012	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4224	027020	017737	153232	002402		MOV	@ISRX,RSAVE		:GET ISR2 CONTENTS
4225	027026	023737	002440	002402		MOV	@ISRX,RSAVE		:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
4226	027034	001413				BEQ	16\$		:BRANCH IF YES
4227	027036	013737	002402	002502		MOV	RSAVE,BAD		:SET UP DATA FOR ERROR MESSAGES
4228	027044	013737	002440	002500		MOV	CDAT3,GOOD		:...
4229	027052					ERRSOFT	729,E502,ERR501		:ERROR HANDLER
	027052	104457							TRAP C\$ERSOFT
	027054	001331							.WORD 729
	027056	005447							.WORD E502
	027060	003702							.WORD ERR501
4230	027062					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	027062	104406							TRAP C\$CLP1
4231	027064	042777	000010	153206	16\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1
4232	027072	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4233	027100	112777	000137	153170		MOVB	#137,@IDRHX		:---LOAD UNT INTO DOR---
4234	027106	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
4235	027112	052777	000010	153160		BIS	#10,@CSRX		:SELECT CHANNEL 2
4236	027120	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4237	027126	017737	153124	002402		MOV	@ISRX,RSAVE		:GET ISR2 CONTENTS
4238	027134	023737	002434	002402		MOV	@ISRX,RSAVE		:ATN,ATN,NDAC,(ULPA) SHOULD BE SET
4239	027142	001412				BEQ	24\$		:BRANCH IF YES
4240	027144	013737	002434	002500		MOV	CDAT1,GOOD		:SET UP DATA FOR ERROR MESSAGES
4241	027152	013737	002402	002502		MOV	RSAVE,BAD		:...
4242	027160					ERRSOFT	730,E502,ERR501		:ERROR HANDLER
	027160	104457							TRAP C\$ERSOFT
	027162	001332							.WORD 730
	027164	005447							.WORD E502
	027166	003702							.WORD ERR501
4243	027170				24\$:	ENDSEG			
	027170								10012\$:
	027170	104405							TRAP C\$ESEG
4244	027172	005737	002234		QVP7:	TST	QVP		:IS QUICK VERIFY PASS SELECTED
4245	027176	001054				BNE	EXQV7		:IF YES EXIT TEST
4246	027200	005737	002322			TST	IIRCNT		:IS THIS THE FIRST TIME THRU THE TEST
4247	027204	001007				BNE	1\$		:BRANCH IF NO
4248	027206	013737	002314	002406		MOV	DPA2,SDPA		:SAVE ENTERED DPA2
4249	027214	005037	002314			CLR	DPA2		:CLR DPA2
4250	027220	005237	002322			INC	IIRCNT		:SET FLAG TO SEE FIRST TIME PASS
4251	027224	005237	002314		1\$:	INC	DPA2		:GET NEW DPA2
4252	027230	023737	002314	002312		CMP	DPA2,DPA1		:IS DPA2 = DPA1
4253	027236	001002				BNE	2\$		:BRANCH IF NO
4254	027240	005237	002314			INC	DPA2		:INCREMENT DPA2
4255	027244	022737	000037	002314	2\$:	CMP	#37,DPA2		:ALL DONE


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4290 027416
      027416
4291 027416 005737 002324
4292 027422 001410
4293 027424
      027424 012746 031730
      027430 012746 000001
      027434 010600
      027436 104417
      027440 062706 000004
4294 027444 005037 002322
4295 027450 004737 010220
4296 027454 004737 010534
4297 027460
      027460 104404
4298 027462 112777 000212 152600
4299 027470 017737 152562 002502
4300 027476 022737 120042 002502
4301 027504 001407
4302 027506 012737 120042 002500
4303 027514
      027514 104457
      027516 001441
      027520 005447
      027522 003702
4304 027524
      027524
      027524 104405
4305 027526 013701 002314
4306 027532 062701 000040
4307 027536 010137 002412
4308 027542 032737 000001 002314
4309 027550 001412
4310 027552 052737 000001 002434
4311 027560 052737 000001 002450
4312 027566 052737 000001 002444
4313 027574 000411
4314 027576 042737 000001 002434
4315 027604 042737 000001 002450
4316 027612 042737 000001 002444

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.SBTTL TEST 8: DATA TRANSFER TEST
.....
      IEX - TEST 8
:THIS TEST IS DIVIDED INTO TWO PARTS
:IT CHECKS THE DATA OUT (DOR) AND DATA IN (DIR) REGISTERS
:PART 1 CHECKS THE DOR AND DIR REGISTER BY LOADING THE DOR1 WITH A
      DATA BYTE AND READING IT FROM THE DIR2
      (PROGRAMMED DATA TRANSFER FROM CHAN.1 TO CHAN.2).
:PART 2 CHECKS THE DOR AND DIR REGISTER BY LOADING THE DOR2 WITH A
      DATA BYTE AND READING IT FROM THE DIR1
      (PROGRAMMED DATA TRANSFER FROM CHAN.2 TO CHAN.1).
:IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION IS
:CARRIED OUT WITH A DIFFERENT DATA PATTERN
.....
      BGN1ST
.....
      T8::
      TST      PNTF      ;IS THE PNT FLAG SET
      BEQ      7$        ;IF YES, PRINT THE TEST HEADER
      PRINTF   #TSHDB    ;...
.....
      MOV      #TSHDB,-(SP)
      MOV      #1,-(SP)
      MOV      SP,R0
      TRAP    C$PNTF
      ADD      #4,SP
7$:   CLR      ITRCNT    ;CLEAR COUNTER
      JSR      PC,CULPA  ;CLEAR ULPA BIT IN ISR 1 AND 2
      JSR      PC,BGIN1  ;SET UP PARAMETER
      BGNSEG
.....
      TRAP    C$BSEG
4298: MOVB     #212,@ICRHX ;----LOAD TON IN ACR 1 (ICR1)-----
      MOV     @ISRX,BAD   ;GET ISR1 CONTENTS
      CMP     #120042,BAD ;ATN,NDAC,ATN,TADS SHOULD BE SET
      BEQ     4$          ;BRANCH IF YES
      MOV     #120042,GOOD ;SET UP DATA FOR ERROR MESSAGE
      ERRSOFT 801,E502,ERR501 ;ERROR HANDLER
.....
      TRAP    C$ERRSOFT
      .WORD   801
      .WORD   E502
      .WORD   ERR501
4304: 4$:     ENDSEG
.....
      10000$:
      TRAP    C$ESEG
4305: MOV     DPA2,R1     ;GET DPA2 ADDRESS
      ADD     #40,R1     ;CREATE MY LISTENER ADDRESS (MLA)
      MOV     R1,MLA2    ;STORE MLA
      BIT     #1,DPA2    ;IS DPA EVEN
      BEQ     3$        ;BRANCH IF YES
      BIS     #1,CDAT1   ;SET ULPA BIT IN COMPARE DATA FOR ISR
      .....
      .....
      BR      +24       ;BRANCH TO BGNSEG
4314: 3$:   BIC     #1,CDAT1 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
      BIC     #1,CDAT7
      .....
      .....

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TEST 8: DATA TRANSFER TEST

4317	027620				BGNSEG			TRAP C\$BSEG
4318	027622	104404	000010	152450	BIC	#10,@CSRX		:SELECT CHANNEL 1
4319	027630	042777	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4320	027636	012737	002412	152432	MOVB	MLA2,@IDRHX		:----LOAD LISTENER ADDRESS OF CHANNEL 1
4321	027644	113777	0011060		JSR	PC,LOOP		:WAIT A LITTLE
4322	027650	004737	000010	152422	BIS	#10,@CSRX		:SELECT CHANNEL 2
4323	027656	052777	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4324	027664	012737	152350	002502	MOV	@ISR,BAD		:GET ISR CONTENTS
4325	027672	017737	002401	002502	CMP	#2401,BAD		:MA,MAC,IFC BIT IN IIR2 SHOULD BE SET
4326	027700	022737			BEQ	20\$		:BRANCH IF YES
4327	027702	001410	002401	002500	MOV	#2401,GOOD		:SET UP DATA FOR ERROR MESSAGES
4328	027710	012737			ERRSOFT	802,E501,ERR501		:ERROR HANDLER
	027710	104457						TRAP C\$ERSOFT
	027712	001442						.WORD 802
	027714	005406						.WORD E501
	027716	003702						.WORD ERR501
4329	027720				CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	027720	104406						TRAP C\$CLP1
4330	027722	017737	152330	002502	20\$:	MOV @ISR,BAD		:GET ISR CONTENTS
4331	027730	023737	002444	002502	CMP	CDAT5,BAD		:ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
4332	027736	001410			BEQ	30\$		:BRANCH IF YES
4333	027740	013737	002444	002500	MOV	CDAT5,GOOD		:SET UP DATA FOR ERROR MESSAGES
4334	027746				ERRSOFT	803,E502,ERR501		:ERROR HANDLER
	027746	104457						TRAP C\$ERSOFT
	027750	001443						.WORD 803
	027752	005447						.WORD E502
	027754	003702						.WORD ERR501
4335	027756				CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	027756	104406						TRAP C\$CLP1
4336	027760	042777	000010	152312	30\$:	BIC	#10,@CSRX	:SELECT CHANNEL 1
4337	027766	012737	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4338	027774	112777	000013	152266	MOVB	#13,@ICRHX		:----LOAD GTS INTO ACR1 (ICR1)-----
4339	030002	052777	000010	152270	40\$:	BIS	#10,@CSRX	:SELECT CHANNEL 2
4340	030010	012737	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4341	030016	017737	152234	002502	MOV	@ISR,BAD		:GET ISR CONTENTS
4342	030024	023737	002450	002502	CMP	CDAT7,BAD		:NDAC,LADS,LPAS,(ULPA) SHOULD BE SET
4343	030032	001407			BEQ	41\$		:BRANCH IF YES
4344	030034	013737	002450	002500	MOV	CDAT7,GOOD		:SET UP DATA FOR ERROR MESSAGE
4345	030042				ERRSOFT	804,E502,ERR501		:ERROR HANDLER
	030042	104457						TRAP C\$ERSOFT
	030044	001444						.WORD 804
	030046	005447						.WORD E502
	030050	003702						.WORD ERR501
4346	030052				41\$:	ENDSEG		
	030052	104405						10001\$:
4347	030054	012705	000252		AB1:	MOV #252,R5		:-----GET DATA PATTERN-----
4348	030060				BGNSEG			TRAP C\$BSEG
	030060	104404						
4349	030062	042777	000010	152210	BIC	#10,@CSRX		:SELECT CHANNEL 1
4350	030070	012737	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4351	030076	110577	152174		MOVB	R5,@IDPHX		:LOAD DATA PATTERN INTO DOR1
4352	030102	004737	011060		JSR	PC,LOOP		:WAIT A LITTLE
4353	030106	017737	152136	002402	MOV	@IIR,RSAVE		:GET IIR1 CONTENTS
4354	030114	022737	000020	002402	CMP	#20,RSAVE		:BO BIT IN IIR1 SHOULD BE SET
4355	030122	001413			BEQ	42\$:BRANCH IF YES

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 TEST 8: DATA TRANSFER TEST

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4356 030124 012737 000020 002500      MOV      #20,GOOD      ;SET UP DATA FOR ERROR MESSAGE
4357 030132 013737 002402 002502      MOV      RSAVE,BAD    ;
4358 030140      ERRSOF T 805,E501,ERR501 ;:ERROR HANDLER
      030140 104457      TRAP      C$ERSOF T
      030142 001445      .WORD      805
      030144 005406      .WORD      E501
      030146 003702      .WORD      ERR501
4359 030150      CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP WAS SET
      030150 104406      TRAP      C$CLP1
4360 030152 052777 000010 152120 42$:  BIS      #10,@CSR X    ;SELECT CHANNEL 2
4361 030160 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
4362 030166 017737 152056 002402      MOV      @IIRX,RSAVE  ;GET IIR2 CONTENTS
4363 030174 022737 000040 002402      CMP      #40,RSAVE    ;BI BIT IN IIR2 SHOULD BE SET
4364 030202 001413      BEQ      43$         ;BRANCH IF YES
4365 030204 012737 000040 002500      MOV      #40,GOOD     ;SET UP DATA FOR ERROR MESSAGE
4366 030212 013737 002402 002502      MOV      RSAVE,BAD    ;
4367 030220      ERRSOF T 806,E501,ERR501 ;:ERROR HANDLER
      030220 104457      TRAP      C$ERSOF T
      030222 001446      .WORD      806
      030224 005406      .WORD      E501
      030226 003702      .WORD      ERR501
4368 030230      CKLOOP      ;
      030230 104406      TRAP      C$CLP1
4369 030232 017737 152034 002402 43$:  MOV      @IDRX,RSAVE  ;READ DATA FROM DIR REGISTER
4370 030240 105037 002402      CLRB     RSAVE        ;CLEAR LOW BYTE OF IDR
4371 030244 000337 002402      SWAB    RSAVE        ;SWAB DATA FOR COMPARE
4372 030250 120537 002402      CMPB    R5,RSAVE     ;CORRECT DATA RECEIVED
4373 030254 001414      BEQ      44$         ;BRANCH IF YES
4374 030256 000305      SWAB    R5           ;SWAB HIGH AND LOW BYTE
4375 030260 105005      CLRB    R5           ;CLEAR HIGH BYTE OF R5
4376 030262 000305      SWAB    R5           ;SWAB HIGH AND LOW BYTE
4377 030264 010537 002500      MOV      R5,GOOD     ;SET UP DATA FOR ERROR MESSAGE
4378 030270 013737 002402 002502      MOV      RSAVE,BAD    ;
4379 030276      ERRSOF T 807,E801,ERR501 ;:ERROR HANDLER
      030276 104457      TRAP      C$ERSOF T
      030300 001447      .WORD      807
      030302 005510      .WORD      E801
      030304 003702      .WORD      ERR501
4380 030306      ENDSEG      ;
      030306      10002$: TRAP      C$ESEG
      030306 104405
4381 030310 005737 002234      TST     QVP          ;IS QUICK VERIFY PASS SELECTED
4382 030314 001010      BNE     50$         ;BRANCH IF YES
4383 030316 062705 000021      ADD     #21,R5       ;CREATE NEW TRANSMIT DATA
4384 030322 005237 002322      INC     ITRCNT      ;INCREMENT ITERATION COUNTERB
4385 030326 023737 002320 002322      CMP     ITRDEF,ITRCNT ;ALL DONE
4386 030334 001251      BNE     A81        ;BRANCH IF NO
4387 030336      50$:  BGNSEG      ;
      030336 104404      TRAP      C$BSEG
4388 030340 042777 000010 151732      BIC     #10,@CSR X    ;SELECT CHANNEL 1
4389 030346 012737 000001 002374      MOV     #1,CHAN      ;LOAD CHANNEL NUMBER
4390 030354 112777 000014 151706      MOVB    #14,@ICRH X  ;-----LOAD ICA BIT INTO ACR1-----
4391 030362 004737 011060      JSR     PC,LOOP      ;WAIT A LITTLE FOR THE BO BIT
4392 030366 017737 151656 002502      MOV     @IIRX,BAD    ;GET IIR1 CONTENTS
4393 030374 022737 000020 002502      CMP     #20,BAD     ;BO IN IIR1 SHOULD BE SET
4394 030402 001410      BEQ     51$         ;BRANCH IF YES
4395 030404 012737 000020 002500      MOV     #20,GOOD     ;SET UP DATA FOR ERROR MESSAGE

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TEST 8: DATA TRANSFER TEST

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4396 030412          ERRSOFT 808,E501,ERR501          ;ERROR HANDLER
      030412 104457          TRAP C$ERRSOFT
      030414 001450          .WORD 808
      030416 005406          .WORD E501
      030420 003702          .WORD ERR501
4397 030422          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      030422 104406          TRAP C$CLP1
4398 030424 112777 000012 151636 518:  MOVB #12,@ICRMX          ;----LOAD NOT TON INTO ACR1 ----
4399 030432 112777 000077 151636          MOVB #77,@IDRMX          ;----LOAD UNL INTO DOR1----
4400 030440 004737 011060          JSR PC,LOOP          ;WAIT A LITTLE
4401 030444 017737 151606 002502          MOV @ISR1,BAD          ;GET ISR1 CONTENTS
4402 030452 022737 120040 002502          CMP #120040,BAD          ;ATN,NDAC,ATN, SHOULD BE SET
4403 030460 001410          BEQ 538          ;BRANCH IF YES
4404 030462 012737 120040 002500          MOV #120040,GOOD          ;SET UP DATA FOR ERROR MESSAGE
4405 030470          ERRSOFT 809,E502,ERR501          ;....
      030470 104457          TRAP C$ERRSOFT
      030472 001451          .WORD 809
      030474 005447          .WORD E502
      030476 003702          .WORD ERR501
4406 030500          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      030500 104406          TRAP C$CLP1
4407 030502 052777 000010 151570 538:  BIS #10,@CSRX          ;SELECT CHANNEL 2
4408 030510 012737 000002 002374          MOV #2,CHAN          ;LOAD CHANNEL NUMBER
4409 030516 017737 151534 002502          MOV @ISR2,BAD          ;GET ISR2 CONTENTS
4410 030524 023737 002434 002502          CMP CDAT1,BAD          ;ATN,NDAC,ATN,(ULPA) SHOULD BE SET
4411 030532 001410          BEQ 558          ;BRANCH IF YES
4412 030534 013737 002434 002500          MOV CDAT1,GOOD          ;SET UP DATA FOR ERROR MESSAGE
4413 030542          ERRSOFT 810,E502,ERR501          ;ERROR HANDLER
      030542 104457          TRAP C$ERRSOFT
      030544 001452          .WORD 810
      030546 005447          .WORD E502
      030550 003702          .WORD ERR501
4414 030552          CKLOOP          ;BRANCH TO BGNSEG IF ERROR LOOP IS SET
      030552 104406          TRAP C$CLP1
4415 030554          558:  ENDSEG          ;
      030554          ;
      030554 104405          ;
      ;-----
      ;PART 2 OF DATA TRANSFER TEST
      ;THIS PART CHECKS THE DATA TRANSFER FROM CHANNEL 2 TO CHANNEL 1
      ;-----
4421 030556 004737 010220          JSR PC,CULPA          ;CLEAR ULPA BIT IN ISR 1 AND 2
4422 030562 004737 010710          JSR PC,BGIN2          ;SET UP PARAMETER
4423 030566 005037 002322          CLR ITRCNT          ;CLEAR COUNTER
4424 030572 112777 000010 151500          MOVB #10,@CSRX          ;SELECT CHANNEL 2
4425 030600 012737 000002 002374          MOV #2,CHAN          ;LOAD CHANNEL NUMBER
4426 030606 052777 000002 151464          BIS #2,@CSRX          ;SELECT CHANNEL 2 AS SYSTEM CONTROLLER
4427 030614 112777 000217 151446          MOVB #217,@ICRMX          ;----LOAD SIC IN ACR 2----
4428 030622 004737 011072          JSR PC,WAIT          ;WAIT 100 US
4429 030626 112777 000017 151434          MOVB #17,@ICRMX          ;----LOAD NOT SIC IN ACR 2----
4430 030634          BGNSEG          ;
      030634 104404          TRAP C$BSEG
4431 030636 112777 000212 151424          MOVB #212,@ICRMX          ;----LOAD TON IN ACR 2 (ICR2)----
4432 030644 017737 151406 002402          MOV @ISR2,RSAVE          ;GET ISR2 CONTENTS
4433 030652 022737 120042 002402          CMP #120042,RSAVE          ;ATN,NDAC,ATN,TADS, SHOULD BE SET
4434 030660 001412          BEQ 48          ;BRANCH IF YES

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 TEST 8: DATA TRANSFER TEST

4435	030662	012737	120042	002500		MOV	#120042,GOOD	:SET UP DATA FOR ERROR MESSAGE
4436	030670	013737	002402	002502		MOV	RSAVE,BAD	:...
4437	030676					ERRSOFT	811,E502,ERR501	:ERROR HANDLER
	030676	104457						TRAP
	030700	001453						.WORD
	030702	005447						.WORD
	030704	003702						.WORD
4438	030706				48:	ENDSEG		
	030706							100048:
	030706	104405						TRAP
4439	030710	013701	002312			MOV	DPA1,R1	:GET DPA1 ADDRESS
4440	030714	062701	000040			ADD	#40,R1	:CREATE MY LISTENER ADDRESS (MLA)
4441	030720	010137	002410			MOV	R1,MLA1	:STORE MLA
4442	030724	032737	000001	002312		BIT	#1,DPA1	:IS DPA EVEN
4443	030732	001412				BEQ	38	:BRANCH IF YES
4444	030734	052737	000001	002434		BIS	#1,CDAT1	:SET ULPA BIT IN COMPARE DATA FOR ISR
4445	030742	052737	000001	002450		BIS	#1,CDAT7	:...
4446	030750	052737	000001	002444		BIS	#1,CDAT5	:...
4447	030756	000411				BR	.+24	:BRANCH TO BGNSEG
4448	030760	042737	000001	002434	38:	BIC	#1,CDAT1	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4449	030766	042737	000001	002450		BIC	#1,CDAT7	:...
4450	030774	042737	000001	002444		BIC	#1,CDAT5	:...
4451	031002					BGNSEG		
	031002	104404						TRAP
4452	031004	052777	000010	151266		BIS	#10,@CSRX	:SELECT CHANNEL 2
4453	031012	012737	000002	002374		MOV	#2,CHAN	:LOAD CHANNEL NUMBER
4454	031020	113777	002410	151250		MOV	MLA1,@IDRMX	:-----LOAD LISTENER ADDRESS OF CHANNEL 2
4455	031026	004737	011060			JSR	PC,LOOP	:WAIT A LITTLE
4456	031032	042777	000010	151240		BIC	#10,@CSRX	:SELECT CHANNEL 1
4457	031040	012737	000001	002374		MOV	#1,CHAN	:LOAD CHANNEL NUMBER
4458	031046	017737	151176	002502		MOV	@IIRX,BAD	:GET IIR1 CONTENTS
4459	031054	022737	002401	002502		CMP	#2401,BAD	:MA,MAC,IFC BIT IN IIR1 SHOULD BE SET
4460	031062	001410				BEQ	208	:BRANCH IF YES
4461	031064	012737	002401	002500		MOV	#2401,GOOD	:SET UP DATA FOR ERROR MESSAGES
4462	031072					ERRSOFT	812,E501,ERR501	:ERROR HANDLER
	031072	104457						TRAP
	031074	001454						.WORD
	031076	005406						.WORD
	031100	003702						.WORD
4463	031102					CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	031102	104406						TRAP
4464	031104	017737	151146	002502	208:	MOV	@ISRX,BAD	:GET ISR1 CONTENTS
4465	031112	023737	002444	002502		CMP	CDAT5,BAD	:ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
4466	031120	001410				BEQ	308	:BRANCH IF YES
4467	031122	013737	002444	002500		MOV	CDAT5,GOOD	:SET UP DATA FOR ERROR MESSAGES
4468	031130					ERRSOFT	813,E502,ERR501	:ERROR HANDLER
	031130	104457						TRAP
	031132	001455						.WORD
	031134	005447						.WORD
	031136	003702						.WORD
4469	031140					CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	031140	104406						TRAP
4470	031142	052777	000010	151130	308:	BIS	#10,@CSRX	:SELECT CHANNEL 2
4471	031150	012737	000002	002374		MOV	#2,CHAN	:LOAD CHANNEL NUMBER
4472	031156	112777	000013	151104		MOV	#13,@ICRMX	:-----LOAD GTS INTO ACR2 (ICR2)-----
4473	031164	042777	000010	151106	408:	BIC	#10,@CSRX	:SELECT CHANNEL 1
4474	031172	012737	000001	002374		MOV	#1,CHAN	:LOAD CHANNEL NUMBER

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 TEST 8: DATA TRANSFER TEST

```

4512 031452 003702                                .WORD  ERR501
                                448:  ENDSEG
                                100068: TRAP  C8ESEG
4513 031454 005737 002234                        TST    QVP      ;IS QUICK VERIFY PASS SELECTED
4514 031454 001010                        BNE    508     ;BRANCH IF YES
4515 031464 062705 000021                        ADD    #21,R5  ;CREATE NEW TRANSMIT DATA
4516 031470 005237 002322                        INC    ITRCNT  ;INCREMENT ITERATION COUNTER
4517 031474 023737 002320 002322                CMP    ITRDEF,ITRCNT ;ALL DONE
4518 031502 001257                        BNE    AB2     ;BRANCH IF NO
4519 031504                                508:  BGNSEG
                                TRAP  C8BSEG
4520 031504 104404                                TRAP  C8BSEG
4520 031506 052777 000010 150564                BIS    #10,@CSRX ;SELECT CHANNEL 2
4521 031514 012737 000002 002374                MOV    #2,CHAN  ;LOAD CHANNEL NUMBER
4522 031522 112777 000014 150540                MOVB  #14,@ICRHX ;-----LOAD TCA BIT INTO ACR2-----
4523 031530 004737 011060                        JSR    PC,LOOP  ;WAIT A LITTLE FOR THE BO BIT
4524 031534 017737 150510 002502                MOV    @IIRX,BAD ;GET IIR2 CONTENTS
4525 031542 022737 000020 002502                CMP    #20,BAD  ;BO BIT SHOULD BE SET
4526 031550 001410                        BEQ    518     ;BRANCH IF YES
4527 031552 012737 000020 002500                MOV    #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
4528 031560 ERRSOFT 818,E501,ERR501                ;ERROR HANDLER
                                TRAP  C8ERSOFT
                                .WORD  818
                                .WORD  E501
                                .WORD  ERR501
4529 031566 003702                                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP  C8CLP1
4529 031570 CKLOOP
4530 031570 104406                                ;-----LOAD NOT TON INTO ACR2 -----
4530 031572 112777 000012 150470 518:  MOVB  #12,@ICRHX ;-----LOAD UNL INTO DOR2-----
4531 031600 112777 000077 150470                MOVB  #77,@IDRHX
4532 031606 004737 011060                        JSR    PC,LOOP  ;WAIT A LITTLE
4533 031612 017737 150440 002502                MOV    @ISR2,BAD ;GET ISR2 CONTENTS
4534 031620 022737 120040 002502                CMP    #120040,BAD ;ATN,NDAC,ATN SHOULD BE SET
4535 031626 001410                        BEQ    538     ;BRANCH IF YES
4536 031630 012737 120040 002500                MOV    #120040,GOOD ;SET UP DATA FOR ERROR MESSAGE
4537 031636 ERRSOFT 819,E502,ERR501                ;...
                                TRAP  C8ERSOFT
                                .WORD  819
                                .WORD  E502
                                .WORD  ERR501
4538 031642 005447                                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
4538 031644 003702                                TRAP  C8CLP1
4538 031646 CKLOOP
4539 031646 104406                                ;SELECT CHANNEL 1
4539 031650 042777 000010 150422 538:  BIC    #10,@CSRX ;LOAD CHANNEL NUMBER
4540 031656 012737 000001 002374                MOV    #1,CHAN  ;GET ISR1 CONTENTS
4541 031664 017737 150366 002502                MOV    @ISR1,BAD ;ATN,NDAC,ATN,(ULPA) SHOULD BE SET
4542 031672 023737 002434 002502                CMP    CDAT1,BAD ;BRANCH IF YES
4543 031700 001410                        BEQ    558     ;SET UP DATA FOR ERROR MESSAGE
4544 031702 013737 002434 002500                MOV    CDAT1,GOOD ;ERROR HANDLER
4545 031710 ERRSOFT 820,E502,ERR501
                                TRAP  C8ERSOFT
                                .WORD  820
                                .WORD  E502
                                .WORD  ERR501
4546 031710 104457                                ;BRANCH TO BGNSEG IF ERRORLOOP IS SET
4546 031712 001464                                TRAP  C8CLP1
4546 031714 005447
4546 031716 003702
4546 031720 CKLOOP
4547 031720 104406                                ;BRANCH TO BGNSEG IF ERRORLOOP IS SET
4547 031722 558:  ENDSEG                                TRAP  C8CLP1
4547 031722
                                100078: TRAP  C8ESEG
4547 031722 104405
    
```

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TEST 8: DATA TRANSFER TEST

4548 031724
031724 104432
031726 000034

EXIT TST

TRAP CSEXT
.WORD L10035-

4549

4550

4551 031730 045

123

062

TSMDB:

.NL:ST

BEX

.ASCIZ

/ZS2ZADATA TRANSFER TESTZNI/

.LIST

BEX

4552

4553

4554 031762

031762

031762 104401

ENDTST

L10075:
TRAP CSEXT

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 TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

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4556 .SBTTL TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)
4557 :.....
4558 : IEX - TEST 9
4559 : THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
4560 :
4561 : PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
4562 : FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AS AN INVALID
4563 : MY SECONDARY ADDRESS (MSA1).
4564 :.....
4565 031764 BGNST
      031764
4566 031764 005737 002324 TST PNTF ; IS THE PNT FLAG SET
4567 031770 001410 BEQ 7$ ; IF YES, PRINT THE TEST HEADER
4568 031772 PRINTF #TSHD9 ;...
      031772 012746 033454 MOV #TSHD9,-(SP)
      031776 012746 000001 MOV #1,-(SP)
      032002 010600 MOV SP,R0
      032004 104417 TRAP C$PNTF
      032006 062706 000004 ADD #4,SP
4569 032012 005037 002322 7$: CLR ITRCNT ; CLEAR COUNTER
4570 032016 004737 010220 JSR PC,CULPA ; CLEAR ULPA BIT IN ISR 1 AND 2
4571 032022 004737 010710 JSR PC,BGIN2 ; SET UP PARAMETER
4572 032026 042777 000010 150244 A9: BIC #10,@CSRX ; SELECT CHANNEL 1
4573 032034 112777 000223 150226 MCVB #223,@ICRHX ; -----LOAD DAI INTO ACR1-----
4574 032042 112777 000020 150212 MOVB #20,@ISRHX ; -----LOAD APT BIT INTO ISR1-----
4575 032050 013701 002312 MOV DPA1,R1 ; GET DPA1 ADDRESS
4576 032054 062701 000040 ADD #40,R1 ; CREATE MY LISTENER ADDRESS (MLA)
4577 032060 010137 002410 MOV R1,MLA1 ; STORE MLA
4578 032064 032737 000001 002312 BIT #1,DPA1 ; IS DPA EVEN
4579 032072 001412 BEQ 3$ ; BRANCH IF YES
4580 032074 052737 000001 002446 BIS #1,CDAT6 ; SET ULPA BIT IN COMPARE DATA FOR ISR
4581 032102 052737 000001 002442 BIS #1,CDAT4 ;...
4582 032110 052737 000001 002444 BIS #1,CDAT5 ;...
4583 032116 000411 BR .+24 ; BRANCH TO BGNSEG
4584 032120 042737 000001 002446 3$: BIC #1,CDAT6 ; CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4585 032126 042737 000001 002442 BIC #1,CDAT4 ;...
4586 032134 042737 000001 002444 BIC #1,CDAT5 ;...
4587 032142 BGNSEG
      032142 104404 TRAP C$BSEG
4588 032144 052777 000010 150126 BIS #10,@CSRX ; SELECT CHANNEL 2
4589 032152 012737 000002 002374 MOV #2,CHAN ; LOAD CHANNEL NUMBER
4590 032160 113777 002410 150110 MOVB MLA1,@IDRHX ; ----LOAD LISTENER ADDRESS OF CHAN. 1
4591 032166 004737 011060 JSR PC,LOOP ; WAIT A LITTLE
4592 032172 042777 000010 150100 BIC #10,@CSRX ; SELECT CHANNEL 1
4593 032200 012737 000001 002374 MOV #1,CHAN ; LOAD CHANNEL NUMBER
4594 032206 017737 150036 002502 MOV @IIRX,BAD ; GET IIR1 CONTENTS
4595 032214 022737 000400 002502 CMP #400,BAD ; IFC,BIT IN IIR1 SHOULD BE SET
4596 032222 001410 BEQ 30$ ; BRANCH IF YES
4597 032224 012737 000400 002500 MOV #400,GOOD ; SET UP DATA FOR ERROR MESSAGES
4598 032232 ERRSOFT 901,ERR501,ERR501 ; ERROR HANDLER
      032232 104457 TRAP C$ERRSOFT
      032234 001605 .WORD 901
      032236 005406 .WORD ERR501
      032240 003702 .WORD ERR501
4599 032242 CKLOOP ; BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      032242 104406 TRAP C$CLP1
4600 032244 017737 150006 002502 30$: MOV @ISRX,BAD ; GET ISR1 CONTENTS
    
```

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 TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

4601	032252	023737	002442	002502		CMP	CDAT4,BAD		:ATN,ATN,NDAC LPAS,(ULPA) BIT SET
4602	032260	001410				BEQ	40\$		:BRANCH IF YES
4603	032262	013737	002442	002500		MOV	CDAT4,GOOD		:SET UP DATA FOR ERROR MESSAGES
4604	032270					ERRSOFT	902,E502,ERR501		:ERROR HANDLER
	032270	104457							TRAP C\$ERSOFT
	032272	001606							.WORD 902
	032274	005447							.WORD E502
	032276	003702							.WORD ERR501
4605	032300					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	032300	104406							TRAP C\$CLP1
4606	032302	052777	000010	147770	40\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2
4607	032310	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4608	032316	013701	002410			MOV	MLA1,R1		:GET MLA1
4609	032322	062701	000100			ADD	#100,R1		:CREATE MSA1
4610	032326	010137	002420			MOV	R1,MSA1		:STORE MSA1 TO LOCATION MSA1
4611	032332	113777	002420	147736		MOVB	MSA1,@IDRHX		:-----LOAD MSA1 INTO DOR2-----
4612	032340	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
4613	032344	017737	147700	002502		MOV	@IIRX,BAD		:GET IIR2 CONTENTS
4614	032352	022737	000000	002502		CMP	#0,BAD		:IIR2 SHOULD BE ZERO
4615	032360	001407				BEQ	41\$		:BRANCH IF YES
4616	032362	005037	002500			CLR	GOOD		:SET UP DATA FOR ERROR MESSAGE
4617	032366					ERRSOFT	903,E501,ERR501		:ERROR HANDLER
	032366	104457							TRAP C\$ERSOFT
	032370	001607							.WORD 903
	032372	005406							.WORD E501
	032374	003702							.WORD ERR501
4618	032376					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	032376	104406							TRAP C\$CLP1
4619	032400	042777	000010	147672	41\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1
4620	032406	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4621	032414	017737	147630	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
4622	032422	022737	010100	002502		CMP	#10100,BAD		:APT,INT1 BIT IN IIR1 SHOULD BE SET
4623	032430	001410				BEQ	42\$		:BRANCH IF YES
4624	032432	012737	010100	002500		MOV	#10100,GOOD		:SET UP DATA FOR ERROR MESSAGE
4625	032440					ERRSOFT	904,E501,ERR501		:ERROR HANDLER
	032440	104457							TRAP C\$ERSOFT
	032442	001610							.WORD 904
	032444	005406							.WORD E501
	032446	003702							.WORD ERR501
4626	032450					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	032450	104406							TRAP C\$CLP1
4627	032452	017737	147600	002502	42\$:	MOV	@ISRX,BAD		:GET ISR1 CONTENTS
4628	032460	023737	002446	002502		CMP	CDAT6,BAD		:ATN,DAV,NDAC,NRFD,ATN,LPAS(ULPA) IS SET
4629	032466	001410				BEQ	43\$		:BRANCH IF YES
4630	032470	013737	002446	002500		MOV	CDAT6,GOOD		:SET UP DATA FOR ERROR MESSAGE
4631	032476					ERRSOFT	905,E502,ERR501		:ERROR HANDLER
	032476	104457							TRAP C\$ERSOFT
	032500	001611							.WORD 905
	032502	005447							.WORD E502
	032504	003702							.WORD ERR501
4632	032506					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	032506	104406							TRAP C\$CLP1
4633	032510	017737	147550	002502	43\$:	MOV	@ICRX,BAD		:GET ICR1 CONTENTS
4634	032516	123737	002420	002502		CMPB	MSA1,BAD		:MSA1 ADDRESS SHOULD BE SET
4635	032524	001410				BEQ	44\$		:BRANCH IF YES
4636	032526	013737	002420	002500		MOV	MSA1,GOOD		:SET UP DATA FOR ERROR MESSAGE
4637	032534					ERRSOFT	906,E901,ERR501		:ERROR HANDLER

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TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

032534	104457								TRAP	C\$ERSOFT
032536	001612								.WORD	906
032540	005644								.WORD	E901
032542	003702								.WORD	ERR501
4638	032544			CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
	032544	104406								
4639	032546	052777	000010	147524	44\$:	BIS	#10,@CSRX		;SELECT CHANNEL 2	
4640	032554	012737	000002	002374		MOV	#2,CHAN		;LOAD CHANNEL NUMBER	
4641	032562	017737	147470	002502		MOV	@ISRX,BAD		;GET ISR2 CONTENTS	
4642	032570	022737	170040	002502		CMF	#170040,BAD		;ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET	
4643	032576	001410				BEQ	45\$		;BRANCH IF YES	
4644	032600	012737	170040	002500		MOV	#170040,GOOD		;SET UP DATA FOR ERROR MESSAGE	
4645	032606					ERRSOFT	907,E502,ERR501		;ERROR HANDLER	
	032606	104457							TRAP	C\$ERSOFT
	032610	001613							.WORD	907
	032612	005447							.WORD	E502
	032614	003702							.WORD	ERR501
4646	032616			CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
	032616	104406								
4647	032620	042777	000010	147452	45\$:	BIC	#10,@CSRX		;SELECT CHANNEL 1	
4648	032626	012737	000001	002374		MOV	#1,CHAN		;LOAD CHANNEL NUMBER	
4649	032634	112777	000201	147426		MOVB	#201,@ICRHX		;-----LOAD DACR INTO ACR1-----	
4650	032642	017737	147410	002402		MOV	@ISRX,RSAVE		;GET ISR1 CONTENTS	
4651	032650	023737	002444	002402		CMF	CDAT5,RSAVE		;ATN,NDAC,ATN,LADS,LPAS (ULPA) IS SET	
4652	032656	001413				BEQ	46\$		;BRANCH IF YES	
4653	032660	013737	002444	002500		MOV	CDAT5,GOOD		;SET UP DATA FOR ERROR MESSAGE	
4654	032666	013737	002402	002502		MOV	RSAVE,BAD			
4655	032674					ERRSOFT	908,E502,ERR501		;ERROR HANDLER	
	032674	104457							TRAP	C\$ERSOFT
	032676	001614							.WORD	908
	032700	005447							.WORD	E502
	032702	003702							.WORD	ERR501
4656	032704			CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
	032704	104406								
4657	032706	052777	000010	147364	46\$:	BIS	#10,@CSRX		;SELECT CHANNEL 2	
4658	032714	012737	000002	002374		MOV	#2,CHAN		;LOAD CHANNEL NUMBER	
4659	032722	017737	147322	002402		MOV	@IIRX,RSAVE		;GET IIR2 CONTENTS	
4660	032730	022737	000020	002402		CMF	#20,RSAVE		;BO BIT SHOULD BE SET	
4661	032736	001413				BEQ	50\$		;BRANCH IF YES	
4662	032740	012737	000020	002500		MOV	#20,GOOD		;SET UP DATA FOR ERROR MESSAGE	
4663	032746	013737	002402	002502		MOV	RSAVE,BAD			
4664	032754					ERRSOFT	909,E501,ERR501		;ERROR HANDLER	
	032754	104457							TRAP	C\$ERSOFT
	032756	001615							.WORD	909
	032760	005406							.WORD	E501
	032762	003702							.WORD	ERR501
4665	032764			CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
	032764	104406								
4666	032766	112777	000077	147302	50\$:	MOVB	#77,@IDRHX		;---LOAD UNL INTO DOR2-----	
4667	032774					ENDSEG				
	032774									
	032774	104405							10000\$:	
4668	032776			COPA9:		BGNSEG			TRAP	C\$ESEG
	032776	104404							TRAP	C\$BSEG
4669	033000	052777	000010	147272		BIS	#10,@CSRX		;SELECT CHANNEL 2	
4670	033006	012737	000002	002374		MOV	#2,CHAN		;LOAD CHANNEL NUMBER	
4671	033014	113777	002410	147254		MOVB	MLA1,@IDRHX		;---LOAD LISTENER ADDRESS OF CHANNEL 2---	

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TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

4672	033022	004737	011060		JSR	PC,LOOP					:WAIT A LITTLE
4673	033026	042777	000010	147244	BIC	#10,@CSRX					:SELECT CHANNEL 1
4674	033034	012737	000001	002374	MOV	#1,CHAN					:LOAD CHANNEL NUMBER
4675	033042	017737	147202	002502	MOV	@IIRX,BAD					:GET IIR1 CONTENTS
4676	033050	022737	000001	002502	CMP	#1,BAD					:MAC BIT IN IIR1 SHOULD BE SET
4677	033056	001410			BEQ	30\$					:BRANCH IF YES
4678	033060	012737	000001	002500	MOV	#1,GOOD					:SET UP DATA FOR ERROR MESSAGES
4679	033066				ERRSOFT	910,E501,ERR501					:ERROR HANDLER
	033066	104457									TRAP C\$ERSOFT
	033070	001616									.WORD 910
	033072	005406									.WORD E501
	033074	003702									.WORD ERR501
4680	033076				CKLOOP						:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	033076	104406									TRAP C\$CLP1
4681	033100	052777	000010	147172	30\$:	BIS	#10,@CSRX				:SELECT CHANNEL 2
4682	033106	012737	000002	002374	MOV	#2,CHAN					:LOAD CHANNEL NUMBER
4683	033114	013701	002410		MOV	MLA1,R1					:GET MLA1
4684	033120	062701	000100		ADD	#100,R1					:CREATE MSA1
4685	033124	010137	002420		MOV	R1,MSA1					:STORE MSA1 TO LOCATION MSA1
4686	033130	113777	002420	147140	MOVB	MSA1,@IDRH					:-----LOAD MSA1 INTO DOR2-----
4687	033136	004737	011060		JSR	PC,LOOP					:WAIT A LITTLE
4688	033142	042777	000010	147130	BIC	#10,@CSRX					:SELECT CHANNEL 1
4689	033150	012737	000001	002374	MOV	#1,CHAN					:LOAD CHANNEL NUMBER
4690	033156	112777	000001	147104	MOVB	#1,@ICRH					:-----LOAD NOT DACR INTO ACR1-----
4691	033164	017737	147060	002502	MOV	@IIRX,BAD					:READ IIR1 FOR CLEAR THE BITS
4692	033172	017737	147060	002502	MOV	@ISRX,BAD					:GET ISR1 CONTENTS
4693	033200	023737	002442	002502	CMP	CDAT4,BAD					:ATN,NDAC,ATN,LPAS (ULPA) IS SET
4694	033206	001410			BEQ	46\$					:BRANCH IF YES
4695	033210	013737	002442	002500	MOV	CDAT4,GOOD					:SET UP DATA FOR ERROR MESSAGE
4696	033216				ERRSOFT	911,E502,ERR501					:ERROR HANDLER
	033216	104457									TRAP C\$ERSOFT
	033220	001617									.WORD 911
	033222	005447									.WORD E502
	033224	003702									.WORD ERR501
4697	033226				CKLOOP						:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	033226	104406									TRAP C\$CLP1
4698	033230	052777	000010	147042	46\$:	BIS	#10,@CSRX				:SELECT CHANNEL 2
4699	033236	012737	000002	002374	MOV	#2,CHAN					:LOAD CHANNEL NUMBER
4700	033244	017737	147000	002502	MOV	@IIRX,BAD					:GET IIR2 CONTENTS
4701	033252	022737	000020	002502	CMP	#20,BAD					:BO BIT SHOULD BE SET
4702	033260	001410			BEQ	50\$					:BRANCH IF YES
4703	033262	012737	000020	002500	MOV	#20,GOOD					:SET UP DATA FOR ERROR MESSAGE
4704	033270				ERRSOFT	912,E501,ERR501					:ERROR HANDLER
	033270	104457									TRAP C\$ERSOFT
	033272	001620									.WORD 912
	033274	005406									.WORD E501
	033276	003702									.WORD ERR501
4705	033300				CKLOOP						:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	033300	104406									TRAP C\$CLP1
4706	033302	112777	000077	146766	50\$:	MOVB	#77,@IDRH				:---LOAD UNL INTO DOR2-----
4707	033310				ENDSEG						
	033310										10001\$:
	033310	104405									TRAP C\$ESEG
4708	033312	005737	002234		TST	QVP					:IS QUICK VERIFY PASS SELECTED
4709	033316	001054			BNE	EXQV9					:IF YES EXIT TEST
4710	033320	005737	002322		TST	IIRCNT					:IS THIS THE FIRST TIME THROUGH THE TEST
4711	033324	001007			BNE	1\$:BRANCH IF NO

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TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

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4712 033326 013737 002312 002406      MOV    DPA1,SDPA      :SAVE ENTERED DPA1
4713 033334 005037 002312              CLR    DPA1          :CLR DPA1
4714 033340 005237 002322              INC    ITRCNT        :SET FLAG TO SEE FIRST TIME PASS
4715 033344 005237 002312 1$:         INC    DPA1          :GET NEW DPA1
4716 033350 023737 002312 002314      CMP    DPA1,DPA2     :IS DPA1 = DPA2
4717 033356 001002              BNE    2$            :BRANCH IF NO
4718 033360 005237 002312              INC    DPA1          :INCREMENT DPA1
4719 033364 022737 000037 002312 2$:   CMP    #37,DPA1     :ALL DONE
4720 033372 001423              BEQ    3$            :BRANCH IF YES
4721 033374 052777 000010 146676      BIS    #10,@CSRX    :SELECT CHANNEL 2
4722 033402 112777 000217 146660      MOVB  #217,@ICRHX   :----LOAD SIC INTO ACR 2-----
4723 033410 004737 011072              JSR    PC,WAIT       :WAIT A LITTLE
4724 033414 112777 000017 146646      MOVB  #17,@ICRHX    :----LOAD NOT SIC INTO ACR 2----
4725 033422 042777 000010 146650      BIC    #10,@CSRX    :SELECT CHANNEL 1
4726 033430 113777 002312 146616      MOVB  DPA1,@IIRHX   :LOAD NEW DPA1 INTO ADR1
4727 033436 000137 032026              JMP    A9            :REPET THE TEST WITH THE NEW DPA1
4728 033442 013737 002406 002312 3$:   MOV    SDPA,DPA1    :RESTORE ENTERED DPA1
4729 033450              EXQV9: EXIT TST
      033450 104432
      033452 000074
      TRAP    C$EXIT
      .WORD  L10036-.

4730
4731
4732 033454      045      123      062  TSHD9: .NLIST BEX
      .ASCIZ /%S2%ASECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)%N/
4733      .LIST BEX
4734      .EVEN
4735 033546      .ENDTST
      033546
      033546 104401
      L10036: TRAP    C$ETST

```


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TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

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4745
4746 033550
033550
4747 033550 005737 002324
4748 033554 001410
4749 033556
033556 012746 035224
033562 012746 000001
033566 010600
033570 104417
033572 062706 000004
4750 033576 005037 002322
4751 033602 004737 010220
4752 033606 004737 010710
4753 033612 042777 000010 146460
4754 033620 112777 000223 146442
4755 033626 112777 000020 146426
4756 033634 013701 002312
4757 033640 062701 000100
4758 033644 010137 002414
4759 033650 032737 000001 002312
4760 033656 001412
4761 033660 052737 000001 002452
4762 033666 052737 000001 002436
4763 033674 052737 000001 002440
4764 033702 000411
4765 033704 042737 000001 002452 3\$:
4766 033712 042737 000001 002436
4767 033720 042737 000001 002440
4768 033726
033726 104404
4769 033730 052777 000010 146342
4770 033736 012737 000002 002374
4771 033744 113777 002414 146324
4772 033752 004737 011060
4773 033756 042777 000010 146314
4774 033764 012737 000001 002374
4775 033772 017737 146252 002502
4776 034000 022737 000400 002502
4777 034006 001410
4778 034010 012737 000400 002500
4779 034016
034016 104457
034020 001751
034022 005406
034024 003702
4780 034026
034026 104406
4781 034030 017737 146222 002502 30\$:

.SBTTL TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)
:.....
: IEX - TEST 10
: THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION .
: PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
: FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AS AN INVALID
: MY SECONDARY ADDRESS (MSA1).
:.....

BGNTST
T10::
TST PNTF ; IS THE PNT FLAG SET
BEQ 7\$; IF YES, PRINT THE TEST HEADER
PRINTF #TSHD10 ;....
MOV #TSHD10,-(SP)
MOV #1,-(SP)
MOV SP,RO
TRAP C\$PNTF
ADD #4,SP
7\$: CLR ITRCNT ; CLEAR ITERATION COUNTER
JSR PC,CULPA ; CLEAR ULPA BIT IN ISR 1 AND 2
JSR PC,BGIN2 ; SET UP PARAMETER
A10: BIC #10,@CSRX ; SELECT CHANNEL 1
MOVB #223,@ICRHX ; ----LOAD DAI INTO ACR1-----
MOVB #20,@ISRHX ; ----LOAD APT BIT INTO ISR1-----
MOV DPA1,R1 ; GET DPA1 ADDRESS
ADD #100,R1 ; (CREATE MY TALKER ADDRESS (MTA)
MOV R1,MTA1 ; STORE MTA
BIT #1,DPA1 ; IS DPA EVEN
BEQ 3\$; BRANCH IF YES
BIS #1,CDAT8 ; SET ULPA BIT IN COMPARE DATA FOR ISR
BIS #1,CDAT2
BIS #1,CDAT3
BR +24 ; BRANCH TO BGNSEG
3\$: BIC #1,CDAT8 ; CLEAR ULPA BIT IN COMPARE DATA FOR ISR
BIC #1,CDAT2
BIC #1,CDAT3
BGNSEG
TRAP C\$BSEG
BIS #10,@CSRX ; SELECT CHANNEL 2
MOV #2,CHAN ; LOAD CHANNEL NUMBER
MOVB MTA1,@IDRHX ; ----LOAD TALKER ADDRESS OF CHANNEL 2---
JSR PC,LOOP ; WAIT A LITTLE
BIC #10,@CSRX ; SELECT CHANNEL 1
MOV #1,CHAN ; LOAD CHANNEL NUMBER
MOV @IIRX,BAD ; GET IIR1 CONTENTS
CMP #400,BAD ; IFC,BIT IN IIR1 SHOULD BE SET
BEQ 30\$; BRANCH IF YES
MOV #400,GOOD ; SET UP DATA FOR ERROR MESSAGES
ERRSOFT 1001,E501,ERR501 ; ERROR HANDLER
TRAP C\$ERRSOFT
.WORD 1001
.WORD E501
.WORD ERR501
CKLOOP ; BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C\$CLP1
30\$: MOV @ISRX,BAD ; GET ISR1 CONTENTS

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 TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

4782	034036	023737	002436	002502		CMP	CDAT2,BAD		:ATN,ATN,NDAC,TPAS,(ULPA) BIT SET
4783	034044	001410				BEQ	40\$		:BRANCH IF YES
4784	034046	013737	002436	002500		MOV	CDAT2,GOOD		:SET UP DATA FOR ERROR MESSAGES
4785	034054					ERRSOFT	1002,E502,ERR501		:ERROR HANDLER
	034054	104457							TRAP
	034056	001752							.WORD
	034060	005447							.WORD
	034062	003702							.WORD
4786	034064					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	034064	104406							TRAP
4787	034066	052777	000010	146204	40\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2
4788	034074	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4789	034102	013701	002414			MOV	MTA1,R1		:GET MTA1
4790	034106	062701	000040			ADD	#40,R1		:CREATE MSA1
4791	034112	010137	002420			MOV	R1,MSA1		:STORE MSA1 TO LOCATION MSA1
4792	034116	113777	002420	146152		MOVB	MSA1,@IDRHX		:-----LOAD MSA1 INTO DOR2-----
4793	034124	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
4794	034130	017737	146114	002502		MOV	@IIRX,BAD		:GET IIR2 CONTENTS
4795	034136	022737	000000	002502		CMP	#0,BAD		:IIR2 SHOULD BE ZERO
4796	034144	001407				BEQ	41\$		:BRANCH IF YES
4797	034146	005037	002500			CLR	GOOD		:SET UP DATA FOR ERROR MESSAGE
4798	034152					ERRSOFT	1003,E501,ERR501		:ERROR HANDLER
	034152	104457							TRAP
	034154	001753							.WORD
	034156	005406							.WORD
	034160	003702							.WORD
4799	034162					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	034162	104406							TRAP
4800	034164	042777	000010	146106	41\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1
4801	034172	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4802	034200	017737	146044	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
4803	034206	022737	010100	002502		CMP	#10100,BAD		:APT,INT1 BIT IN IIR1 SHOULD BE SET
4804	034214	001410				BEQ	42\$		:BRANCH IF YES
4805	034216	012737	010100	002500		MOV	#10100,GOOD		:SET UP DATA FOR ERROR MESSAGE
4806	034224					ERRSOFT	1004,E501,ERR501		:ERROR HANDLER
	034224	104457							TRAP
	034226	001754							.WORD
	034230	005406							.WORD
	034232	003702							.WORD
4807	034234					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	034234	104406							TRAP
4808	034236	017737	146014	002502	42\$:	MOV	@ISRX,BAD		:GET ISR1 CONTENTS
4809	034244	023737	002452	002502		CMP	CDAT8,BAD		:ATN,DAV,NDAC,NRFD,ATN,TPAS(ULPA) IS SET
4810	034252	001410				BEQ	43\$		:BRANCH IF YES
4811	034254	013737	002452	002500		MOV	CDAT8,GOOD		:SET UP DATA FOR ERROR MESSAGE
4812	034262					ERRSOFT	1005,E502,ERR501		:ERROR HANDLER
	034262	104457							TRAP
	034264	001755							.WORD
	034266	005447							.WORD
	034270	003702							.WORD
4813	034272					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	034272	104406							TRAP
4814	034274	017737	145764	002502	43\$:	MOV	@ICRX,BAD		:GET ICR1 CONTENTS
4815	034302	123737	002420	002502		CMPB	MSA1,BAD		:MSA1 ADDRESS SHOULD BE SET
4816	034310	001410				BEQ	44\$		:BRANCH IF YES
4817	034312	013737	002420	002500		MOV	MSA1,GOOD		:SET UP DATA FOR ERROR MESSAGE
4818	034320					ERRSOFT	1006,E901,ERR501		:ERROR HANDLER

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 TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

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034320 104157
034322 001156
034324 005644
034326 003702
4819 034330 CKLOOP :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
034330 104406 TRAP C$ERSOFT
034332 052777 000010 145740 44$: BIS #10,@CSRX :SELECT CHANNEL 2
034340 012737 000002 002374 MOV #2,CHAN :LOAD CHANNEL NUMBER
034346 017737 145704 002502 MOV @ISRX,BAD :GET ISR2 CONTENTS
034354 022737 170040 002502 CMP #170040,BAD :ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET
034362 001410 BEQ 45$ :BRANCH IF YES
034364 012737 170040 002500 MOV #170040,GOOD :SET UP DATA FOR ERROR MESSAGE
034372 ERRSOFT 1007,E502,ERR501 :ERROR HANDLER
034372 104457 TRAP C$ERSOFT
034374 001757 .WORD 1007
034376 005447 .WORD E502
034400 003702 .WORD ERR501
4827 034402 CKLOOP :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
034402 104406 TRAP C$CLP1
034404 042777 000010 145666 45$: BIC #10,@CSRX :SELECT CHANNEL 1
034412 012737 000001 002374 MOV #1,CHAN :LOAD CHANNEL NUMBER
034420 112777 000201 145642 MOVB #201,@ICRHX :-----LOAD DACR INTO ACR1-----
034426 017737 145624 002502 MOV @ISRX,BAD :GET ISR1 CONTENTS
034434 023737 002440 002502 CMP CDAT3,BAD :ATN,NDAC,ATN,TADS,TPAS (ULPA) IS SET
034442 001410 BEQ 46$ :BRANCH IF YES
034444 013737 002440 002500 MOV CDAT3,GOOD :SET UP DATA FOR ERROR MESSAGE
034452 ERRSOFT 1008,E502,ERR501 :ERROR HANDLER
034452 104457 TRAP C$ERSOFT
034454 001750 .WORD 1008
034456 005447 .WORD E502
034460 003702 .WORD ERR501
4836 034462 CKLOOP :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
034462 104406 TRAP C$CLP1
034464 052777 000010 145606 46$: BIS #10,@CSRX :SELECT CHANNEL 2
034472 012737 000002 002374 MOV #2,CHAN :LOAD CHANNEL NUMBER
034500 017737 145544 002502 MOV @ISRX,BAD :GET IIR2 CONTENTS
034506 022737 000020 002502 CMP #20,BAD :BO BIT SHOULD BE SET
034514 001410 BEQ 50$ :BRANCH IF YES
034516 012737 000020 002500 MOV #20,GOOD :SET UP DATA FOR ERROR MESSAGE
034524 ERRSOFT 1009,E501,ERR501 :ERROR HANDLER
034524 104457 TRAP C$ERSOFT
034526 001761 .WORD 1009
034530 005406 .WORD E501
034532 003702 .WORD ERR501
4844 034534 CKLOOP :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
034534 104406 TRAP C$CLP1
034536 112777 000137 145532 50$: MOVB #137,@IDRHX :---LOAD UNT INTO DOR2-----
4846 034544 ENDSEG
034544 104405 10000$:
4847 034546 COPA10: BGNSEG TRAP C$ESEG
034546 104404 TRAP C$BSEG
034550 052777 000010 145522 BIS #10,@CSRX :SELECT CHANNEL 2
034556 012737 000002 002374 MOV #2,CHAN :LOAD CHANNEL NUMBER
034564 113777 002414 145504 MOVB MTA1,@IDRHX :---LOAD TALKER ADDRESS OF CHANNEL 2---
034572 004737 011060 JSR PC_LOOP :WAIT A LITTLE
034576 042777 000010 145474 BIC #10,@CSRX :SELECT CHANNEL 1

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 TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

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4916          .SBTTL TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)
4917          :.....
4918          :               iex = TEST 11
4919          : THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
4920          :
4921          : PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
4922          : FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AS
4923          : AN INVALID MY SECONDARY ADDRESS (MSA2).
4924          :.....
4925          BGNTST
4926          035316 005737 002324          TST      PNTF          T11::          : IS THE PNT FLAG SET
4927          035322 001410          BEQ      7$          : IF YES, PRINT THE TEST HEADER
4928          035324          PRINTF   #TSHD11          : ...
          035324 012746 036772          MOV      #TSHD11,-(SP)
          035330 012746 000001          MOV      #1,-(SP)
          035334 010600          MOV      SP,R0
          035336 104417          TRAP    C$PNTF
          035340 062706 000004          ADD     #4,SP
4929          035344 005037 002322          7$:     CLR      ITRCNT          : CLEAR COUNTER
4930          035350 004737 010220          JSR     PC,CULPA          : CLEAR ULPA IN ISR 1 AND 2
4931          035354 004737 010534          JSR     PC,BGIN1         : SET UP PARAMETER
4932          035360 052777 000010 144712          A11:    BIS     #10,@CSRX          : SELECT CHANNEL 2
4933          035366 112777 000223 144674          MOV     #223,@ICRHX      : ----LOAD DAI INTO ACR2-----
4934          035374 112777 000020 144660          MOV     #20,@ISRHX      : ----LOAD APT BIT INTO ISR2-----
4935          035402 013701 002314          MOV     DPA2,R1          : GET DPA2 ADDRESS
4936          035406 062701 000040          ADD     #40,R1          : CREATE MY LISTENER ADDRESS (MLA)
4937          035412 010137 002412          MOV     R1,MLA2         : STORE MLA
4938          035416 032737 000001 002314          BIT     #1,DPA2         : IS DPA EVEN
4939          035424 001412          BEQ     3$              : BRANCH IF YES
4940          035426 052737 000001 002446          BIS     #1,CDAT6        : SET ULPA BIT IN COMPARE DATA FOR ISR
4941          035434 052737 000001 002442          BIS     #1,CDAT4
4942          035442 052737 000001 002444          BIS     #1,CDAT5
4943          035450 000411          BR      .+24            : BRANCH TO BGNSEF
4944          035452 042737 000001 002446          3$:     BIC     #1,CDAT6        : CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4945          035460 042737 000001 002442          BIC     #1,CDAT4
4946          035466 042737 000001 002444          BIC     #1,CDAT5
4947          035474          BGNSEF
          035474 104404          TRAP    C$BSEG
4948          035476 042777 000010 144574          BIC     #10,@CSRX       : SELECT CHANNEL 1
4949          035504 012737 000001 002374          MOV     #1,CHAN         : LOAD CHANNEL NUMBER
4950          035512 113777 002412 144556          MOV     MLA2,@IDRHX     : ----LOAD LISTENER ADDRESS OF CHANNEL 1--
4951          035520 004737 011060          JSR     PC,LOOP         : WAIT A LITTLE
4952          035524 052777 000010 144546          BIS     #10,@CSRX       : SELECT CHANNEL 2
4953          035532 012737 000002 002374          MOV     #2,CHAN         : LOAD CHANNEL NUMBER
4954          035540 017737 144504 002502          MOV     @IIRX,BAD       : GET IIR2 CONTENTS
4955          035546 022737 000400 002502          CMP     #400,BAD        : IFC,BIT IN IIR2 SHOULD BE SET
4956          035554 001410          BEQ     30$            : BRANCH IF YES
4957          035556 012737 000400 002500          MOV     #400,GOOD       : SET UP DATA FOR ERROR MESSAGES
4958          035564          ERRSOF1 1101,E501,ERR501 : ERROR HANDLER
          035564 104457          TRAP    C$ERRSOF1
          035566 002115          .WORD   1101
          035570 005406          .WORD   E501
          035572 003702          .WORD   ERR501
4959          035574          CKLOOP          : BRANCH TO BGNSEG WHEN ERRLOOP IS SET
          035574 104406          TRAP    C$CLP1
4960          035576 017737 144454 002502 30$:     MOV     @ISRX,BAD       : GET ISR2 CONTENTS
    
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 TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

4961	035604	023737	002442	002502		(MP	CDAT4,BAD				;ATN,ATN,NDAC,LPAS,(ULPA) BIT SET
4962	035612	001410				BEQ	40\$				;BRANCH IF YES
4963	035614	013737	002442	002500		MOV	CDAT4,GOOD				;SET UP DATA FOR ERROR MESSAGES
4964	035622					ERRSOFT	1102,E502,ERR501				;ERROR HANDLER
	035622	104457									TRAP C\$ERSOFT
	035624	002116									.WORD 1102
	035626	005447									.WORD E502
	035630	003702									.WORD ERR501
4965	035632					CKLOOP					;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	035632	104406									TRAP C\$CLP1
4966	035634	042777	000010	144436	40\$:	BIC	#10,@CSRX				;SELECT CHANNEL 1
4967	035642	012737	000001	002374		MOV	#1,CHAN				;LOAD CHANNEL NUMBER
4968	035650	013701	002412			MOV	MLA2,R1				;GET MLA2
4969	035654	062701	000100			ADD	#100,R1				;CREATE MSA2
4970	035660	010137	002420			MOV	R1,MSA1				;STORE MSA1 TO LOCATION MSA1
4971	035664	113777	002420	144404		MOVB	MSA1,@IDRHX				;-----LOAD MSA1 INTO DOR1-----
4972	035672	004737	011060			JSR	PC,LOOP				;WAIT A LITTLE
4973	035676	017737	144346	002502		MOV	@IIRX,BAD				;GET IIR1 CONTENTS
4974	035704	022737	000000	002502		CMF	#0,BAD				;IIR1 SHOULD BE ZERO
4975	035712	001407				BEQ	41\$				;BRANCH IF YES
4976	035714	005037	002500			CLR	GOOD				;SET UP DATA FOR ERROR MESSAGE
4977	035720					ERRSOFT	1103,E501,ERR501				;ERROR HANDLER
	035720	104457									TRAP C\$ERSOFT
	035722	002117									.WORD 1103
	035724	005406									.WORD E501
	035726	003702									.WORD ERR501
4978	035730					CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	035730	104406									TRAP C\$CLP1
4979	035732	052777	000010	144340	41\$:	BIS	#10,@CSRX				;SELECT CHANNEL 2
4980	035740	012737	000002	002374		MOV	#2,CHAN				;LOAD CHANNEL NUMBER
4981	035746	017737	144276	002502		MOV	@IIRX,BAD				;GET IIR2 CONTENTS
4982	035754	022737	010100	002502		CMF	#10100,BAD				;APT,INT1 BIT IN IIR2 SHOULD BE SET
4983	035762	001410				BEQ	42\$				;BRANCH IF YES
4984	035764	012737	010100	002500		MOV	#10100,GOOD				;SET UP DATA FOR ERROR MESSAGE
4985	035772					ERRSOFT	1104,E501,ERR501				;ERROR HANDLER
	035772	104457									TRAP C\$ERSOFT
	035774	002120									.WORD 1104
	035776	005406									.WORD E501
	036000	003702									.WORD ERR501
4986	036002					CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	036002	104406									TRAP C\$CLP1
4987	036004	017737	144246	002502	42\$:	MOV	@ISRX,BAD				;GET ISR2 CONTENTS
4988	036012	023737	002446	002502		CMF	CDAT6,BAD				;ATN,DAV,NDAC,NRFD,ATN,LPAS(ULPA) IS SET
4989	036020	001410				BEQ	43\$				;BRANCH IF YES
4990	036022	013737	002446	002500		MOV	CDAT6,GOOD				;SET UP DATA FOR ERROR MESSAGE
4991	036030					ERRSOFT	1105,E502,ERR501				;ERROR HANDLER
	036030	104457									TRAP C\$ERSOFT
	036032	002121									.WORD 1105
	036034	005447									.WORD E502
	036036	003702									.WORD ERR501
4992	036040					CKLOOP					;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	036040	104406									TRAP C\$CLP1
4993	036042	017737	144216	002502	43\$:	MOV	@ICRX,BAD				;GET ICR2 CONTENTS
4994	036050	123737	002420	002502		CMFB	MSA1,BAD				;MSA1 ADDRESS SHOULD BE SET
4995	036056	001410				BEQ	44\$				;BRANCH IF YES
4996	036060	013737	002420	002500		MOV	MSA1,GOOD				;SET UP DATA FOR ERROR MESSAGE
4997	036066					ERRSOFT	1106,E901,ERR501				;ERROR HANDLER

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TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

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036066 104457                                TRAP      C$ERSOFT
036070 002122                                .WORD    1106
036072 005644                                .WORD    E901
036074 003702                                .WORD    ERR501
4998 036076 104406 000010 144172 44$: CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
036076 104406                                TRAP      C$CLP1
4999 036100 042777 000010 144172 44$: BIC      #10,@CSRX ;SELECT CHANNEL 1
5000 036106 012737 000001 002374 44$: MOV      #1,CHAN ;LOAD CHANNEL NUMBER
5001 036114 017737 144136 002502 44$: MOV      @ISRX,BAD ;GET ISR1 CONTENTS
5002 036122 022737 170040 002502 44$: CMP      #170040,BAD ;ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET
5003 036130 001410 000000 000000 44$: BEQ      45$ ;BRANCH IF YES
5004 036132 012737 170040 002500 44$: MOV      #170040,GOOD ;SET UP DATA FOR ERROR MESSAGE
5005 036140 000000 000000 000000 44$: ERRSOFT 1107,E502,ERR501 ;ERROR HANDLER
036140 104457                                TRAP      C$ERSOFT
036142 002123                                .WORD    1107
036144 005447                                .WORD    E502
036146 003702                                .WORD    ERR501
5006 036150 104406 000010 144120 45$: CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
036150 104406                                TRAP      C$CLP1
5007 036152 052777 000010 144120 45$: BIS      #10,@CSRX ;SELECT CHANNEL 2
5008 036160 012737 000002 002374 45$: MOV      #2,CHAN ;LOAD CHANNEL NUMBER
5009 036166 112777 000201 144074 45$: MOVB     #201,@ICRH ;-----LOAD DACR INTO ACR2-----
5010 036174 017737 144056 002502 45$: MOV      @ISR2,BAD ;GET ISR2 CONTENTS
5011 036202 023737 002444 002502 45$: CMP      CDAT5,BAD ;ATN,NDAC,ATN,LADS,LPAS (ULPA) IS SET
5012 036210 001410 000000 000000 45$: BEQ      46$ ;BRANCH IF YES
5013 036212 013737 002444 002500 45$: MOV      CDAT5,GOOD ;SET UP DATA FOR ERROR MESSAGE
5014 036220 000000 000000 000000 45$: ERRSOFT 1108,E502,ERR501 ;ERROR HANDLER
036220 104457                                TRAP      C$ERSOFT
036222 002124                                .WORD    1108
036224 005447                                .WORD    E502
036226 003702                                .WORD    ERR501
5015 036230 104406 000010 144040 46$: CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
036230 104406                                TRAP      C$CLP1
5016 036232 042777 000010 144040 46$: BIC      #10,@CSRX ;SELECT CHANNEL 1
5017 036240 012737 000001 002374 46$: MOV      #1,CHAN ;LOAD CHANNEL NUMBER
5018 036246 017737 143776 002502 46$: MOV      @IIRX,BAD ;GET IIR1 CONTENTS
5019 036254 022737 000020 002502 46$: CMP      #20,BAD ;BO BIT SHOULD BE SET
5020 036262 001410 000000 000000 46$: BEQ      50$ ;BRANCH IF YES
5021 036264 012737 000020 002500 46$: MOV      #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
5022 036272 000000 000000 000000 46$: ERRSOFT 1109,E501,ERR501 ;ERROR HANDLER
036272 104457                                TRAP      C$ERSOFT
036274 002125                                .WORD    1109
036276 005406                                .WORD    E501
036300 003702                                .WORD    ERR501
5023 036302 104406 000077 143764 50$: CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
036302 104406                                TRAP      C$CLP1
5024 036304 112777 000077 143764 50$: MOVE     #77,@IDRH ;---LOAD UNL INTO DOR1-----
5025 036312 000000 000000 000000 50$: ENDSEG
036312 104405                                10000$: TRAP      C$ESEG
036312 104405                                COPA11: BGNSEG TRAP      C$BSEG
036314 104404
5026 036314 042777 000010 143754 50$: BIC      #10,@CSRX ;SELECT CHANNEL 1
5027 036316 012737 000001 002374 50$: MOV      #1,CHAN ;LOAD CHANNEL NUMBER
5028 036324 113777 002412 143736 50$: MOVB     MLA2,@IDRH ;---LOAD LISTENER ADDRESS OF CHANNEL 1-
5029 036332 004737 011060 000000 50$: JSR      PC,LOOP ;WAIT A LITTLE
5030 036340 052777 000010 143726 50$: BIS      #10,@CSRX ;SELECT CHANNEL 2
5031 036344

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 TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

5032	036352	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
5033	036360	017737	143664	002502	MOV	@IIRX,BAD	:GET IIR2 CONTENTS
5034	036366	022737	000001	002502	CMP	#1,BAD	:MAC BIT IN IIR2 SHOULD BE SET
5035	036374	001410			BEQ	30\$	:BRANCH IF YES
5036	036376	012737	000001	002500	MOV	#1,GOOD	:SET UP DATA FOR ERROR MESSAGES
5037	036404				ERRSOFT	1110,E501,ERR501	:ERROR HANDLER
	036404	104457					TRAP C\$ERSOFT
	036406	002126					.WORD 1110
	036410	005406					.WORD E501
	036412	003702					.WORD ERR501
5038	036414				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	036414	104406					TRAP C\$CLP1
5039	036416	042777	000010	143654	30\$: BIC	#10,@CSRX	:SELECT CHANNEL 1
5040	036424	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
5041	036432	013701	002412		MOV	MLA2,R1	:GET MLA2
5042	036436	062701	000100		ADD	#100,R1	:CREATE MSA1
5043	036442	010137	002420		MOV	R1,MSA1	:STORE MSA1 TO LOCATION MSA1
5044	036446	113777	002420	143622	MOVB	MSA1,@IDRHX	:-----LOAD MSA1 INTO DOR1-----
5045	036454	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
5046	036460	052777	000010	143612	BIS	#10,@CSRX	:SELECT CHANNEL 2
5047	036466	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
5048	036474	112777	000001	143566	MOVB	#1,@ICRX	:-----LOAD NOT DACR INTO ACR2-----
5049	036502	017737	143542	002502	MOV	@IIRX,BAD	:READ IIR2 FOR CLEAR THE BITS
5050	036510	017737	143542	002502	MOV	@ISRX,BAD	:GET ISR2 CONTENTS
5051	036516	023737	002442	002502	CMP	CDAT4,BAD	:ATN,NDAC,ATN,LPAS (ULPA) IS SET
5052	036524	001410			BEQ	46\$	:BRANCH IF YES
5053	036526	013737	002442	002500	MOV	CDAT4,GOOD	:SET UP DATA FOR ERROR MESSAGE
5054	036534				ERRSOFT	1111,E502,ERR501	:ERROR HANDLER
	036534	104457					TRAP C\$ERSOFT
	036536	002127					.WORD 1111
	036540	005447					.WORD E502
	036542	003702					.WORD ERR501
5055	036544				CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	036544	104406					TRAP C\$CLP1
5056	036546	042777	000010	143524	46\$: BIC	#10,@CSRX	:SELECT CHANNEL 1
5057	036554	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
5058	036562	017737	143462	002502	MOV	@IIRX,BAD	:GET IIR1 CONTENTS
5059	036570	022737	000020	002502	CMP	#20,BAD	:BO BIT SHOULD BE SET
5060	036576	001410			BEQ	50\$	:BRANCH IF YES
5061	036600	012737	000020	002500	MOV	#20,GOOD	:SET UP DATA FOR ERROR MESSAGE
5062	036606				ERRSOFT	1112,E501,ERR501	:ERROR HANDLER
	036606	104457					TRAP C\$ERSOFT
	036610	002130					.WORD 1112
	036612	005406					.WORD E501
	036614	003702					.WORD ERR501
5063	036616				CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	036616	104406					TRAP C\$CLP1
5064	036620	112777	000077	143450	50\$: MOVB	#77,@IDRHX	:---LOAD UNL INTO DOR1-----
5065	036626				ENDSEG		
	036626						10001\$:
	036626	104405					TRAP C\$ESEG
5066	036630	005737	002234		TST	QVP	:IS QUICK VERIFY PASS SELECTED
5067	036634	001054			BNE	EXQV11	:IF YES EXIT TEST
5068	036636	005737	002322		TST	IIRCNT	:IS THIS THE FIRST TIME THROUGH THE TEST
5069	036642	001007			BNE	1\$	:BRANCH IF NO
5070	036644	013737	002314	002406	MOV	DPA2,SDPA	:SAVE ENTERED DPA2
5071	036652	005037	002314		CLR	DPA2	:CLEAR DPA2

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 TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

5072	036656	005237	002322			INC	I TRCNT	:SET FLAG TO SEE FIRST TIME PASS
5073	036662	005237	002314		1\$:	INC	DPA2	:GET NEW DPA2
5074	036666	023737	002314	002312		CMP	DPA2,DPA1	:IS DPA1 = DPA2
5075	036674	001002				BNE	2\$	:BRANCH IF NO
5076	036676	005237	002314			INC	DPA2	:INCREMENT DPA1
5077	036702	022737	000037	002314	2\$:	CMP	#37,DPA2	:ALL DONE
5078	036710	001423				BEQ	3\$	:BRANCH IF YES
5079	036712	042777	000010	143360		BIC	#10,@CSRX	:SELECT CHANNEL 1
5080	036720	112777	000217	143342		MOVB	#217,@ICRHX	:----LOAD SIC INTO ACR 1
5081	036726	004737	011072			JSR	PC,WAIT	:WAIT A LITTLE
5082	036732	112777	000017	143330		MOVB	#17,@ICRHX	:----LOAD NOT SIC INTO ACR 1
5083	036740	052777	000010	143332		BIS	#10,@CSRX	:SELECT CHANNEL 2
5084	036746	113777	002314	143300		MOVB	DPA2,@IIRHX	:LOAD NEW DPA2 INTO ADR2
5085	036754	000137	035360			JMP	A11	:REPEAT THE TEST WITH THE NEW DPA1
5086	036760	013737	002406	002314	3\$:	MOV	SDPA,DPA2	:RESTORE ENTERED DPA2
5087	036766				EXQV11:	EXIT TST		
	036766	104432						TRAP C\$EXIT
	036770	000074						.WORD L10040-
5088								
5089								
5090	036772	045	123	062	TSHD11:	.NLIST BEX		
5091						.ASCIZ	/S2%ASECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)%N/	
5092						.LIST	BEX	
5093						.EVEN		
	037064					ENDTS1		
	037064							L10040:
	037064	104401						TRAP C\$ETST

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TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

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5095 .SBTTL TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)
5096 :*****
5097 : IEX - TEST 12
5098 : THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION .
5099 :
5100 : PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
5101 : FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AS
5102 : AN INVALID MY SECONDARY ADDRESS (MSA2).
5103 :*****
5104 037066 BGNTST
5105 037066 005737 002324 TST PNTF ;IS THE PNT FLAG SET
5106 037072 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5107 037074 PRINTF #TSHD12 ;...
037074 012746 040652 ;...
037100 012746 000001 ;...
037104 010600 ;...
037106 104417 ;...
037110 062706 000004 ;...
5108 037114 005037 002322 7$: CLR ITRCNT ;CLEAR COUNTER
5109 037120 004737 010220 JSR PC,CULPA ;CLEAR ULPA IN ISR 1 AND 2
5110 037124 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
5111 037130 052777 000010 143142 A12: BIS #10,@CSRX ;SELECT CHANNEL 2
5112 037136 112777 000223 143124 MOVB #223,@ICRHX ;-----LOAD DAI INTO ACR2-----
5113 037144 112777 000020 143110 MOVB #20,@ISRHX ;-----LOAD APT BIT INTO ISR2-----
5114 037152 013701 002314 MOV DPA2,R1 ;GET DPA2 ADDRESS
5115 037156 062701 000100 ADD #100,R1 ;CREATE MY TALKER ADDRESS (MTA)
5116 037162 010137 002416 MOV R1,MTA2 ;STORE MTA
5117 037166 032737 000001 002314 BIT #1,DPA2 ;IS DPA EVEN
5118 037174 001412 BEQ 3$ ;BRANCH IF YES
5119 037176 052737 000001 002452 BIS #1,CDAT8 ;SET ULPA BIT IN COMPARE DATA FOR ISR
5120 037204 052737 000001 002436 BIS #1,CDAT2 ;...
5121 037212 052737 000001 002440 BIS #1,CDAT3 ;...
5122 037220 000411 BR +24 ;BRANCH TO BGNSEG
5123 037222 042737 000001 002452 3$: BIC #1,CDAT8 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5124 037230 042737 000001 002436 BIC #1,CDAT2 ;...
5125 037236 042737 000001 002440 BIC #1,CDAT3 ;...
5126 037244 BGNSEG ;...
037244 104404 TRAP C$BSEG
5127 037246 042777 000010 143024 BIC #10,@CSRX ;SELECT CHANNEL 1
5128 037254 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5129 037262 113777 002416 143006 MOVB MTA2,@IDRHX ;----LOAD TALKER ADDRESS OF CHANNEL 1---
5130 037270 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5131 037274 052777 000010 142776 BIS #10,@CSRX ;SELECT CHANNEL 2
5132 037302 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5133 037310 017737 142734 002402 MOV @IIRX,RSAVE ;GET IIR2 CONTENTS
5134 037316 022737 000400 002402 CMP #400,RSAVE ;IFC,BIT IN IIR2 SHOULD BE SET
5135 037324 001413 BEQ 30$ ;BRANCH IF YES
5136 037326 012737 000400 002500 MOV #400,GOOD ;SET UP DATA FOR ERROR MESSAGES
5137 037334 013737 002402 002502 MOV RSAVE,BAD ;...
5138 037342 ERRSOFT 1201,E501,ERR501 ;ERROR HANDLER
037342 104457 TRAP C$ERRSOFT
037344 002261 .WORD 1201
037346 005406 .WORD E501
037350 003702 .WORD ERR501
5139 037352 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
037352 104406 TRAP C$CLP1

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 TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

5140	037354	017737	142676	002402	30\$:	MOV @ISR2,RSAVE	:GET ISR2 CONTENTS
5141	037362	023737	002436	002402		CMP CDAT2,RSAVE	:ATN,ATN,NDAC,TPAS,(ULPA) BIT SET
5142	037370	001413				BEQ 40\$	:BRANCH IF YES
5143	037372	013737	002436	002500		MOV CDAT2,GOOD	:SET UP DATA FOR ERROR MESSAGES
5144	037400	013737	002402	002502		MOV RSAVE,BAD	:
5145	037406					ERRSOFT 1202,E502,ERR501	:ERROR HANDLER
	037406	104457					TRAP C\$ERSOFT
	037410	002262					.WORD 1202
	037412	005447					.WORD E502
	037414	003702					.WORD ERR501
5146	037416					CKLOOP	:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	037416	104406					TRAP C\$CLP1
5147	037420	042777	000010	142652	40\$:	BIC #10,@CSR2	:SELECT CHANNEL 1
5148	037426	012737	000001	002374		MOV #1,CHAN	:LOAD CHANNEL NUMBER
5149	037434	013701	002416			MOV MTA2,R1	:GET MTA2
5150	037440	062701	000040			ADD #40,R1	:CREATE MSA1
5151	037444	010137	002420			MOV R1,MSA1	:STORE MSA1 TO LOCATION MSA1
5152	037450	113777	002420	142620		MOVB MSA1,@IDRHX	:-----LOAD MSA1 INTO DOR1-----
5153	037456	004737	011060			JSR PC,LOOP	:WAIT A LITTLE
5154	037462	017737	142562	002402		MOV @IIR1,RSAVE	:GET IIR1 CONTENTS
5155	037470	022737	000000	002402		CMP #0,RSAVE	:IIR1 SHOULD BE ZERO
5156	037476	001412				BEQ 41\$	:BRANCH IF YES
5157	037500	005037	002500			CLR GOOD	:SET UP DATA FOR ERROR MESSAGE
5158	037504	013737	002402	002502		MOV RSAVE,BAD	:
5159	037512					ERRSOFT 1203,E501,ERR501	:ERROR HANDLER
	037512	104457					TRAP C\$ERSOFT
	037514	002263					.WORD 1203
	037516	005406					.WORD E501
	037520	003702					.WORD ERR501
5160	037522					CKLOOP	:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	037522	104406					TRAP C\$CLP1
5161	037524	052777	000010	142546	41\$:	BIS #10,@CSR2	:SELECT CHANNEL 2
5162	037532	012737	000002	002374		MOV #2,CHAN	:LOAD CHANNEL NUMBER
5163	037540	017737	142504	002402		MOV @IIR2,RSAVE	:GET IIR2 CONTENTS
5164	037546	022737	010100	002402		CMP #10100,RSAVE	:APT,INT1 BIT IN IIR2 SHOULD BE SET
5165	037554	001413				BEQ 42\$	:BRANCH IF YES
5166	037556	012737	010100	002500		MOV #10100,GOOD	:SET UP DATA FOR ERROR MESSAGE
5167	037564	013737	002402	002502		MOV RSAVE,BAD	:
5168	037572					ERRSOFT 1204,E501,ERR501	:ERROR HANDLER
	037572	104457					TRAP C\$ERSOFT
	037574	002264					.WORD 1204
	037576	005406					.WORD E501
	037600	003702					.WORD ERR501
5169	037602					CKLOOP	:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	037602	104406					TRAP C\$CLP1
5170	037604	017737	142446	002402	42\$:	MOV @ISR2,RSAVE	:GET ISR2 CONTENTS
5171	037612	023737	002452	002402		CMP CDAT8,RSAVE	:ATN,DAV,NDAC,NRFD,ATN,TPAS(ULPA) IS SET
5172	037620	001413				BEQ 43\$	:BRANCH IF YES
5173	037622	013737	002452	002500		MOV CDAT8,GOOD	:SET UP DATA FOR ERROR MESSAGE
5174	037630	013737	002402	002502		MOV RSAVE,BAD	:
5175	037636					ERRSOFT 1205,E502,ERR501	:ERROR HANDLER
	037636	104457					TRAP C\$ERSOFT
	037640	002265					.WORD 1205
	037642	005447					.WORD E502
	037644	003702					.WORD ERR501
5176	037646					CKLOOP	:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	037646	104406					TRAP C\$CLP1

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 TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

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5177 037650 017737 142410 002402 43$: MOV @ICRX,RSAVE ;GET ICR2 CONTENTS
5178 037656 123737 002420 002402 CMPB MSA1,RSAVE ;MSA1 ADDRESS SHOULD BE SET
5179 037664 001413 BEQ 44$ ;BRANCH IF YES
5180 037666 013737 002420 002500 MOV MSA1,GOOD ;SET UP DATA FOR ERROR MESSAGE
5181 037674 013737 002402 002502 MOV RSAVE,BAD ;
5182 037702 ERRSOF T 1206,E901,ERR501 ;ERROR HANDLER
    037702 104457 TRAP C$ERSOF T
    037704 002266 .WORD 1206
    037706 005644 .WORD E901
    037710 003702 .WORD ERR501
5183 037712 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
    037712 104406 TRAP C$CLP1
5184 037714 042777 000010 142356 44$: BIC #10,@CSRX ;SELECT CHANNEL 1
5185 037722 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5186 037730 017737 142322 002402 MOV @ISRX,RSAVE ;GET ISR1 CONTENTS
5187 037736 022737 170040 002402 CMP #170040,RSAVE ;ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET
5188 037744 001413 BEQ 45$ ;BRANCH IF YES
5189 037746 012737 170040 002500 MOV #170040,GOOD ;SET UP DATA FOR ERROR MESSAGE
5190 037754 013737 002402 002502 MOV RSAVE,BAD ;
5191 037762 ERRSOF T 1207,E502,ERR501 ;ERROR HANDLER
    037762 104457 TRAP C$ERSOF T
    037764 002267 .WORD 1207
    037766 005447 .WORD E502
    037770 003702 .WORD ERR501
5192 037772 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
    037772 104406 TRAP C$CLP1
5193 037774 052777 000010 142276 45$: BIS #10,@CSRX ;SELECT CHANNEL 2
5194 040002 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5195 040010 112777 000201 142252 MOVB #201,@ICRHX ;-----LOAD DACR INTO ACR2-----
5196 040016 017737 142234 002402 MOV @ISRX,RSAVE ;GET ISR2 CONTENTS
5197 040024 023737 002440 002402 CMP CDAT3,RSAVE ;ATN,NDAC,ATN,TADS,TPAS (ULPA) IS SET
5198 040032 001413 BEQ 46$ ;BRANCH IF YES
5199 040034 013737 002440 002500 MOV CDAT3,GOOD ;SET UP DATA FOR ERROR MESSAGE
5200 040042 013737 002402 002502 MOV RSAVE,BAD ;
5201 040050 ERRSOF T 1208,E502,ERR501 ;ERROR HANDLER
    040050 104457 TRAP C$ERSOF T
    040052 002270 .WORD 1208
    040054 005447 .WORD E502
    040056 003702 .WORD ERR501
5202 040060 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
    040060 104406 TRAP C$CLP1
5203 040062 042777 000010 142210 46$: BIC #10,@CSRX ;SELECT CHANNEL 1
5204 040070 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5205 040076 017737 142146 002402 MOV @IIRX,RSAVE ;GET IIR1 CONTENTS
5206 040104 022737 000020 002402 CMP #20,RSAVE ;BO BIT SHOULD BE SET
5207 040112 001413 BEQ 50$ ;BRANCH IF YES
5208 040114 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
5209 040122 013737 002402 002502 MOV RSAVE,BAD ;
5210 040130 ERRSOF T 1209,E501,ERR501 ;ERROR HANDLER
    040130 104457 TRAP C$ERSOF T
    040132 002271 .WORD 1209
    040134 005406 .WORD E501
    040136 003702 .WORD ERR501
5211 040140 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
    040140 104406 TRAP C$CLP1
5212 040142 112777 000137 142126 50$: MOVB #137,@IDRHX ;---LOAD UNT INTO DOR1-----
5213 040150 ENDSEG
    
```

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 TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

100008:

040150	104405								TRAP	C\$ESEG
5214 040152									TRAP	C\$BSEG
040152	104404									
5215 040154	042777	000010	142116		BIC	#10,@CSRX				
5216 040162	012737	000001	002374		MOV	#1,CHAN				
5217 040170	117777	002416	142100		MOVB	MTA2,@IDRHX				
5218 040176	004737	011060			JSR	PC,LOOP				
5219 040202	052777	000010	142070		BIS	#10,@CSRX				
5220 040210	012737	000002	002374		MOV	#2,CHAN				
5221 040216	017737	142026	002402		MOV	@IIRX,RSAVE				
5222 040224	022737	000001	002402		CMP	#1,RSAVE				
5223 040232	001413				BEQ	30\$				
5224 040234	012737	000001	002500		MOV	#1,GOOD				
5225 040242	013737	002402	002502		MOV	RSAVE,BAD				
5226 040250					ERRSOFT	1210,E501,ERR501				
040250	104457								TRAP	C\$ERSOFT
040252	002272								.WORD	1210
040254	005406								.WORD	E501
040256	003702								.WORD	ERR501
5227 040260					CKLOOP					
040260	104406									
5228 040262	042777	000010	142010	30\$:	BIC	#10,@CSRX				
5229 040270	012737	000001	002374		MOV	#1,CHAN				
5230 040276	013701	002416			MOV	MTA2,R1				
5231 040302	062701	000040			ADD	#40,R1				
5232 040306	010137	002420			MOV	R1,MSA1				
5233 040312	113777	002420	141756		MOVB	MSA1,@IDRHX				
5234 040320	004737	011060			JSR	PC,LOOP				
5235 040324	052777	000010	141746	45\$:	BIS	#10,@CSRX				
5236 040332	012737	000002	002374		MOV	#2,CHAN				
5237 040340	112777	000001	141722		MOVB	#1,@ICRHX				
5238 040346	017737	141676	002502		MOV	@IIRX,BAD				
5239 040354	017737	141676	002402		MOV	@ISRX,RSAVE				
5240 040362	023737	002436	002402		CMP	CDAT2,RSAVE				
5241 040370	001413				BEQ	46\$				
5242 040372	013737	002436	002500		MOV	CDAT2,GOOD				
5243 040400	013737	002402	002502		MOV	RSAVE,BAD				
5244 040406					ERRSOFT	1211,E502,ERR501				
040406	104457								TRAP	C\$ERSOFT
040410	002273								.WORD	1211
040412	005447								.WORD	E502
040414	003702								.WORD	ERR501
5245 040416					CKLOOP					
040416	104406									
5246 040420	042777	000010	141652	46\$:	BIC	#10,@CSRX				
5247 040426	012737	000001	002374		MOV	#1,CHAN				
5248 040434	017737	141610	002402		MOV	@IIRX,RSAVE				
5249 040442	022737	000020	002402		CMP	#20,RSAVE				
5250 040450	001413				BEQ	50\$				
5251 040452	012737	000020	002500		MOV	#20,GOOD				
5252 040460	013737	002402	002502		MOV	RSAVE,BAD				
5253 040466					ERRSOFT	1212,E501,ERR501				
040466	104457								TRAP	C\$ERSOFT
040470	002274								.WORD	1212
040472	005406								.WORD	E501
040474	003702								.WORD	ERR501

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TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

```

5254 040476          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      040476 104406          TRAP      C$CLPT
5255 040500 112777 000137 141570 50$: MOVB  #137,@IDRMX      ;---LOAD UNT INTO DOR1-----
5256 040506          ENDSEG
      040506          10001$:          TRAP      C$ESEG
      040506 104405          ;IS QUICK VERIFY PASS SELECTED
5257 040510 005737 002234          TST  QVP          ;IF YES EXIT TEST
5258 040514 001054          BNE  EXQV12        ;IS THIS THE FIRST TIME THROUGH THE TEST
5259 040516 005737 002322          TST  ITRCNT        ;BRANCH IF NO
5260 040522 001007          BNE  1$          ;SAVE ENTERED DPA2
5261 040524 013737 002314 002406  MOV  DPA2,SDPA
5262 040532 005037 002314          CLR  DPA2
5263 040536 005237 002322          INC  ITRCNT        ;SET FLAG TO SEE FIRST TIME PASS
5264 040542 005237 002314 1$:      INC  DPA2          ;GET NEW DPA2
5265 040546 023737 002314 002312  CMP  DPA2,DPA1      ;IS DPA1 = DPA2
5266 040554 001002          BNE  2$          ;BRANCH IF NO
5267 040556 005237 002314          INC  DPA2          ;INCREMENT DPA2
5268 040562 022737 000037 002314 2$:  CMP  #37,DPA2      ;ALL DONE
5269 040570 001423          BEQ  3$          ;BRANCH IF YES
5270 040572 042777 000010 141500  BIC  #10,@CSRX    ;SELECT CHANNEL 1
5271 040600 112777 000217 141462  MOVB #217,@ICRHX  ;---LOAD SIC INTO ACR 1-----
5272 040606 004737 011072          JSR  PC,WAIT      ;WAIT A LITTLE
5273 040612 112777 000017 141450  MOVB #17,@ICRHX  ;---LOAD NOT SIC INTO ACR 1-----
5274 040620 052777 000010 141452  BIS  #10,@CSRX    ;SELECT CHANNEL 2
5275 040626 113777 002314 141420  MOVB DPA2,@IIRHX ;LOAD NEW DPA2 INTO ADR2
5276 040634 000137 037130          JMP  A12
5277 040640 013737 002406 002314 3$:  MOV  SDPA,DPA2    ;REPEAT THE TEST WITH THE NEW DPA1
5278 040646          EXQV12: EXIT TST ;RESTORE ENTERED DPA2
      040646          TRAP      C$EXIT
      040650 000072          .WORD  L10041-.

5279
5280
5281 040652 045 123 062 TSHD12: .NLIST BEX
      .ASCIZ  /%S2%ASECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)%N/
5282      .LIST  BEX
5283      .EVEN
5284 040742          .ENDTST
      040742
      040742 104401          L10041:          TRAP      C$E1ST

```

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 TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5286 .SBTTL TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST
5287 .....
5288 IEX - TEST 13
5289 :PART 1 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 2 BY MEANS
5290 :OF RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS
5291 :COMMAND (SDC).
5292 .....
5293 :PART 2 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 1 BY MEANS
5294 :OF RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS
5295 :COMMAND (SDC).
5296 .....
5297 040744 BGNSTST
5298 040744 005737 002324 TST PNTF ;IS THE PNT FLAG SET
5299 040750 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5300 040752 PRINTF #TSHD13 ;....
5301 040752 012746 043040 MOV #TSHD13,-(SP)
5302 040756 012746 000001 MOV #1,-(SP)
5303 040762 010600 MOV SP,R0
5304 040764 104417 TRAP C$PNTF
5305 040766 062706 000004 ADD #4,SP
5306 040772 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
5307 040776 004737 010220 JSR PC,CULPA ;CLEAR ULPA IN ISR 1 AND 2
5308 041002 004737 010534 ITAC13: JSR PC,BGIN1
5309 041006 032737 000001 002314 BIT #1,DPA2
5310 041014 001404 BEQ 3$ ;IS DPA EVEN
5311 041016 052737 000001 002454 BIS #1,CDAT9 ;BRANCH IF YES
5312 041024 000403 BR +10 ;SET ULPA BIT IN COMPARE DATA FOR ISR
5313 041026 042737 000001 002454 3$: BIC #1,CDAT9 ;BRANCH TO BGNSEG
5314 041034 BGNSEG ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5315 041034 104404 TRAP C$BSEG
5316 041036 052777 000010 141234 BIS #10,@CSRX ;SELECT CHANNEL 2
5317 041044 112777 000223 141216 MOVB #22,@ICRHX ;----LOAD DAI INTO ACR 2-----
5318 041052 112777 000010 141202 MOVB #10,@ISRHX ;---LOAD DCAS BIT INTO ISR2 REGISTER
5319 041060 042777 000010 141212 BIC #10,@CSRX ;SELECT CHANNEL 1
5320 041066 112777 000024 141202 MOVB #24,@IDRHX ;----LOAD DCL INTO DOR 1-----
5321 041074 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5322 041100 052777 000010 141172 BIS #10,@CSRX ;SELECT CHANNEL 2
5323 041106 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5324 041114 017737 141130 002402 MOV @IIRX,RSAVE ;GET IIR2 CONTENTS
5325 041122 022737 004500 002402 CMP #4500,RSAVE ;DCAS_INT1,IFC BIT SHOULD BE SET
5326 041130 001413 BEQ 10$ ;BRANCH IF YES
5327 041132 012737 004500 002500 MOV #4500,GOOD ;SET UP DATA FOR ERROR MESSAGE
5328 041140 013737 002402 002502 MOV RSAVE,BAD
5329 041146 ERRSOFT 1301,E501,ERR501 ;ERROR HANDLER
5330 041146 104457 TRAP C$ERRSOFT
5331 041150 002425 .WORD 1301
5332 041152 005406 .WORD E501
5333 041154 003702 .WORD ERR501
5334 041156 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
5335 041156 104406 TRAP C$CLP1
5336 041160 017737 141100 002402 10$: MOV @ICRX,RSAVE ;GET ICR2 CONTENTS
5337 041166 122737 000024 002402 CMPR #24,RSAVE ;ICR2 CONTENTS SHOULD BE 24
5338 041174 001413 BEQ 20$ ;BRANCH IF YES
5339 041176 012737 000024 002500 MOV #24,GOOD ;SET UP DATA FOR ERROR MESSAGE
5340 041204 013737 002402 002502 MOV RSAVE,BAD
5341 041212 ERRSOFT 1302,E901,ERR501 ;ERROR HANDLER

```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 55-1
 TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

041212 104457                                TRAP  CSERSOFT
041214 002426                                .WORD 1302
041216 005644                                .WORD E901
041220 003702                                .WORD ERR501
5331 041222                                CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
041222 104406                                TRAP  CSCLP1
5332 041224 112777 000001 141036 20$: MOVB #1,@ICRX ;----LOAD NOT DACR INTO ACR2-----
5333 041232 017737 141012 002402 MOV @IIRX,RSAVE ;GET IIR2 CONTENTS
5334 041240 005737 002402 TST RSAVE ;IIR2 CONTENTS SHOULD BE ZERO
5335 041244 001412 BEQ 21$ ;BRANCH IF YES
5336 041246 005037 002500 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
5337 041252 013737 002402 002502 MOV RSAVE,BAD
5338 041260 ERRSOFT 1303,E501,ERR501 ;ERROR HANDLER
041260 104457                                TRAP  CSERSOFT
041262 002427                                .WORD 1303
041264 005406                                .WORD E501
041266 003702                                .WORD ERR501
5339 041270                                CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
041270 104406                                TRAP  CSCLP1
5340 041272 013701 002314 21$: MOV DPA2,R1 ;CREATE MLA2
5341 041276 062701 000040 ADD #40,R1 ;
5342 041302 010137 002412 MOV R1,MLA2 ;STORE MLA2
5343 041306 042777 000010 140764 BIC #10,@CSRX ;SELECT CHANNEL 1
5344 041314 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5345 041322 113777 002412 140746 MOVB MLA2,@IDRHX ;----LOAD MLA2 INTO DOR 1-----
5346 041330 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5347 041334 017737 140710 002402 MOV @IIRX,RSAVE ;GET IIR1 CONTENTS
5348 041342 022737 000020 002402 CMP #20,RSAVE ;BO BIT SHOULD BE SET
5349 041350 001413 BEQ 22$ ;BRANCH IF YES
5350 041352 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
5351 041360 013737 002402 002502 MOV RSAVE,BAD
5352 041366 ERRSOFT 1304,E501,ERR501 ;ERROR HANDLER
041366 104457                                TRAP  CSERSOFT
041370 002430                                .WORD 1304
041372 005406                                .WORD E501
041374 003702                                .WORD ERR501
5353 041376                                CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
041376 104406                                TRAP  CSCLP1
5354 041400 112777 000004 140670 22$: MOVB #4,@IDRHX ;----LOAD SDC INTO DOR 1-----
5355 041406 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5356 041412 052777 000010 140660 BIS #10,@CSRX ;SELECT CHANNEL 2
5357 041420 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5358 041426 017737 140616 002402 MOV @IIRX,RSAVE ;GET IIR2 CONTENTS
5359 041434 022737 006101 002402 CMP #6101,RSAVE ;DCAS,MA,MAC,INT1 BIT SHOULD BE SET
5360 041442 001413 BEQ 23$ ;BRANCH IF YES
5361 041444 012737 006101 002500 MOV #6101,GOOD ;SET UP DATA FOR ERROR MESSAGES
5362 041452 013737 002402 002502 MOV RSAVE,BAD
5363 041460 ERRSOFT 1305,E501,ERR501 ;ERROR HANDLER
041460 104457                                TRAP  CSERSOFT
041462 002431                                .WORD 1305
041464 005406                                .WORD E501
041466 003702                                .WORD ERR501
5364 041470                                CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
041470 104406                                TRAP  CSCLP1
5365 041472 017737 140560 002402 23$: MOV @ISRX,RSAVE ;GET ISR2 CONTENTS
5366 041500 023737 002454 002402 CMP (DAT9),RSAVE ;ATN,DAV,NDAC,NRFD,ATN,LADS IS SET
5367 041506 001413 BEQ 24$ ;BRANCH IF YES

```

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 TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5368 041510 013737 002454 002500      MOV      CDAT9,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5369 041516 013737 002402 002502      MOV      RSAVE,BAD      ;
5370 041524      ERRSOF T 1306,E502,ERR50'    ;ERROR HANDLER
      041524 104457      TRAP      C$ERSOF T
      041526 002432      .WORD    1306
      041530 005447      .WORD    E502
      041532 003702      .WORD    ERR501
5371 041534      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      041534 104406      TRAP      C$CLP1
5372 041536 017737 140522 002402 24$:  MOV      @ICRX,RSAVE      ;GET ICR2 CONTENTS
5373 041544 122737 000004 002402      CMPB     #4,RSAVE        ;CONTENTS SHOULD BE 4
5374 041552 001413      BEQ      25$            ;BRANCH IF YES
5375 041554 012737 000004 002500      MOV      #4,GOOD        ;SET UP DATA FOR ERROR MESSAGES
5376 041562 013737 002402 002502      MOV      RSAVE,BAD      ;
5377 041570      ERRSOF T 1307,E901,ERR501    ;ERROR HANDLER
      041570 104457      TRAP      C$ERSOF T
      041572 002433      .WORD    1307
      041574 005644      .WORD    E901
      041576 003702      .WORD    ERR501
5378 041600      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      041600 104406      TRAP      C$CLP1
5379 041602 112777 000001 140460 25$:  MOVB     #1,@ICRH X      ;----LOAD NOT DACR INTO ACR2-----
5380 041610 042777 000010 140462      BIC     #10,@CSR X      ;SELECT CHANNEL 1
5381 041616 012737 000001 002374      MOV      #1,CHAN        ;LOAD CHANNEL NUMBER
5382 041624 112777 000077 140444      MOVB     #77,@IDRH X    ;----LOAD UNL INTO DOR 1-----
5383 041632 004737 011060      JSR     PC,LOOP         ;WAIT A LITTLE
5384 041636 017737 140406 002402      MOV      @IIRX,RSAVE    ;GET IIR1 CONTENTS
5385 041644 022737 000020 002402      CMP     #20,RSAVE       ;BO BIT SHOULD BE SET
5386 041652 001413      BEQ     26$            ;BRANCH IF YES
5387 041654 012737 000020 002500      MOV      #20,GOOD       ;SET UP DATA FOR ERROR MESSAGE
5388 041662 013737 002402 002502      MOV      RSAVE,BAD      ;
5389 041670      ERRSOF T 1308,E501,ERR501    ;ERROR HANDLER
      041670 104457      TRAP      C$ERSOF T
      041672 002434      .WORD    1308
      041674 005406      .WORD    E501
      041676 003702      .WORD    ERR501
5390 041700      CKLOOP      ;BRANCH BACK TO BGNSEG IS ERRLOOP IS SET
      041700 104406      TRAP      C$CLP1
5391 041702 052777 000010 140370 26$:  BIS     #10,@CSR X      ;SELECT CHANNEL 2
5392 041710 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL NUMBER
5393 041716 017737 140326 002402      MOV      @IIRX,RSAVE    ;GET IIR2 CONTENTS
5394 041724 022737 000001 002402      CMP     #1,RSAVE        ;MAC BIT SHOULD BE SET
5395 041732 001413      BEQ     27$            ;BRANCH IF YES
5396 041734 012737 000001 002500      MOV      #1,GOOD        ;SET UP DATA FOR ERROR MESSAGE
5397 041742 013737 002402 002502      MOV      RSAVE,BAD      ;
5398 041750      ERRSOF T 1309,E501,ERR501    ;ERROR HANDLER
      041750 104457      TRAP      C$ERSOF T
      041752 002435      .WORD    1309
      041754 005406      .WORD    E501
      041756 003702      .WORD    ERR501
5399 041760      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      041760 104406      TRAP      C$CLP1
5400 041762      27$:  ENDSEG
      041762      10000$:  TRAP      C$ESEG
      041762 104405
5401
5402
:-----
:PART 2 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 2

```

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 TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5403 ;-----
5404 041764 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
5405 041770 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
5406 041774 032737 000001 002312 BIT #1,DPA1 ;IS DPA EVEN
5407 042002 001404 BEQ 4$ ;BRANCH IF YES
5408 042004 052737 000001 002454 BIS #1,CDAT9 ;SET ULPA BIT IN COMPARE DATA FOR ISR
5409 042012 000403 BR +10 ;
5410 042014 042737 000001 002454 4$: BIC #1,CDAT9 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5411 042022 PSEUT: BGNSEG ;
                    TRAP C$BSEG
5412 042024 104404 052777 000010 140246 BIS #10,@CSRX ;SELECT CHANNEL 2
5413 042032 112777 000217 140230 MOVB #217,@ICRHX ;LOAD SIC INTO ACR 2
5414 042040 004737 011072 JSR PC,WAIT ;WAIT A LITTLE
5415 042044 112777 000017 140216 MOVB #17,@ICRHX ;LOAD NOT SIC IN ACR 2
5416 042052 042777 000010 140220 BIC #10,@CSRX ;SELECT CHANNEL 1
5417 042060 112777 000223 140202 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 1-----
5418 042066 112777 000010 140166 MOVB #10,@ISRHX ;---LOAD DCAS BIT INTO ISR1 REGISTER
5419 042074 052777 000010 140176 BIS #10,@CSRX ;SELECT CHANNEL 2
5420 042102 112777 000024 140166 MOVB #24,@IDRHX ;----LOAD DCL INTO DOR 2-----
5421 042110 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5422 042114 042777 000010 140156 BIC #10,@CSRX ;SELECT CHANNEL 1
5423 042122 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5424 042130 017737 140114 002402 MOV @IIRX,RSAVE ;GET IIR1 CONTENTS
5425 042136 022737 004500 002402 CMP #4500,RSAVE ;DCAS,IFC,INTI BIT SHOULD BE SET
5426 042144 001413 BEQ 10$ ;BRANCH IF YES
5427 042146 012737 004500 002500 MOV #4500,GOOD ;SET UP DATA FOR ERROR MESSAGE
5428 042154 013737 002402 002502 MOV RSAVE,BAD ;
5429 042162 ERRSOF T 1310,E501,ERR501 ;ERROR HANDLER
                    TRAP C$ERSOF T
                    .WORD 1310
                    .WORD E501
                    .WORD ERR501
5430 042172 LKLOOP ;BRANCH TO BGNSEG IF ERLOOP IS SET
                    TRAP C$CLP1
5431 042174 017737 140064 002402 10$: MOV @ICRX,RSAVE ;GET ICR1 CONTENTS
5432 042202 122737 000024 002402 CMPB #24,RSAVE ;ICR1 CONTENTS SHOULD BE 24
5433 042210 001413 BEQ 20$ ;BRANCH IF YES
5434 042212 012737 000024 002500 MOV #24,GOOD ;SET UP DATA FOR ERROR MESSAGE
5435 042220 013737 002402 002502 MOV RSAVE,BAD ;
5436 042226 ERRSOF T 1312,E901,ERR501 ;ERROR HANDLER
                    TRAP C$ERSOF T
                    .WORD 1312
                    .WORD E901
                    .WORD ERR501
5437 042236 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                    TRAP C$CLP1
5438 042240 112777 000001 140022 20$: MOVB #1,@ICRHX ;----LOAD NOT DACR INTO ACR1-----
5439 042246 017737 137776 002402 MOV @IIRX,RSAVE ;GET IIR1 CONTENTS
5440 042254 005737 002402 TST RSAVE ;IIR1 CONTENTS SHOULD BE ZERO
5441 042260 001412 BEQ 21$ ;BRANCH IF YES
5442 042262 005037 002500 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
5443 042266 013737 002402 002502 MOV RSAVE,BAD ;
5444 042274 ERRSOF T 1313,E501,ERR501 ;ERROR HANDLER
                    TRAP C$ERSOF T
                    .WORD 1313
                    .WORD E501
                    .WORD ERR501
                    042274 104457
                    042276 002441
                    042300 005406
                    042302 003702
    
```

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 TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5445 042304          CKLOOP          :BRANCH TO BGNSEG IF ERRLOOP IS SET
      042304 104406          TRAP      C$CLP1
5446 042306 013701 002312 21$: MOV     DPA1,R1          :CREATE MLA1
5447 042312 062701 000040      ADD     #40,R1          :
5448 042316 010137 002410      MOV     R1,MLA1          :STORE MLA1
5449 042322 052777 000010 137750  BIS     #10,@CSRX        :SELECT CHANNEL 2
5450 042330 012737 000002 002374  MOV     #2,CHAN          :LOAD CHANNEL NUMBER
5451 042336 113777 002410 137732  MOVVB  MLA1,@IDRHX       :-----LOAD MLA1 INTO DOR 2-----
5452 042344 004737 011060      JSR     PC,LOOP          :WAIT A LITTLE
5453 042350 017737 137674 002402  MOV     @IIRX,RSAVE      :GET IIR2 CONTENTS
5454 042356 022737 000020 002402  CMP     #20,RSAVE        :BO BIT SHOULD BE SET
5455 042364 001413          BEQ     22$              :BRANCH IF YES
5456 042366 012737 000020 002500  MOV     #20,GOOD         :SET UP DATA FOR ERROR MESSAGE
5457 042374 013737 002402 002502  MOV     RSAVE,BAD        :
5458 042402          ERRSOFT 1314,E501,ERR501 :ERROR HANDLER
      042402 104457          TRAP      C$ERSOFT
      042404 002442          .WORD    1314
      042406 005406          .WORD    E501
      042410 003702          .WORD    ERR501
5459 042412          CKLOOP          :BRANCH TO BGNSEG IF ERRLOOP IS SET
      042412 104406          TRAP      C$CLP1
5460 042414 112777 000004 137654 22$: MOVVB  #4,@IDRHX        :-----LOAD SDC INTO DOR 2-----
5461 042422 004737 011060      JSR     PC,LOOP          :WAIT A LITTLE
5462 042426 042777 000010 137644  BIC     #10,@CSRX        :SELECT CHANNEL 1
5463 042434 012737 000001 002374  MOV     #1,CHAN          :LOAD CHANNEL NUMBER
5464 042442 017737 137602 002402  MOV     @IIRX,RSAVE      :GET IIR1 CONTENTS
5465 042450 022737 006101 002402  CMP     #6101,RSAVE      :DCAS,INT1,MA,MAC BIT SHOULD BE SET
5466 042456 001413          BEQ     23$              :BRANCH IF YES
5467 042460 012737 006101 002500  MOV     #6101,GOOD       :SET UP DATA FOR ERROR MESSAGES
5468 042466 013737 002402 002502  MOV     RSAVE,BAD        :
5469 042474          ERRSOFT 1315,E501,ERR501 :ERROR HANDLER
      042474 104457          TRAP      C$ERSOFT
      042476 002443          .WORD    1315
      042500 005406          .WORD    E501
      042502 003702          .WORD    ERR501
5470 042504          CKLOOP          :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      042504 104406          TRAP      C$CLP1
5471 042506 017737 137544 002402 23$: MOV     @ISRX,RSAVE      :GET ISR1 CONTENTS
5472 042514 023737 002454 002402  CMP     CDAT9,RSAVE      :ATN,DAV,NDAC,NRFD,ATN,LADS IS SET
5473 042522 001413          BEQ     24$              :BRANCH IF YES
5474 042524 013737 002454 002500  MOV     CDAT9,GOOD       :SET UP DATA FOR ERROR MESSAGE
5475 042532 013737 002402 002502  MOV     RSAVE,BAD        :
5476 042540          ERRSOFT 1316,E502,ERR501 :ERROR HANDLER
      042540 104457          TRAP      C$ERSOFT
      042542 002444          .WORD    1316
      042544 005447          .WORD    E502
      042546 003702          .WORD    ERR501
5477 042550          CKLOOP          :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      042550 104406          TRAP      C$CLP1
5478 042552 017737 137506 002402 24$: MOV     @ICRX,RSAVE      :GET ICR1 CONTENTS
5479 042560 122737 000004 002402  CMPB   #4,RSAVE          :CONTENTS SHOULD BE 4
5480 042566 001413          BEQ     25$              :BRANCH IF YES
5481 042570 012737 000004 002500  MOV     #4,GOOD          :SET UP DATA FOR ERROR MESSAGES
5482 042576 013737 002402 002502  MOV     RSAVE,BAD        :
5483 042604          ERRSOFT 1317,E901,ERR501 :ERROR HANDLER
      042604 104457          TRAP      C$ERSOFT
      042606 002445          .WORD    1317

```

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TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

042610 005644
042612 003702
5484 042614 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                .WORD E901
                                .WORD ERR501
                                TRAP C$CLP1
042614 104406 ;----LOAD NOT DACR IN 0 ACR1-----
5485 042616 112777 000001 137444 25$: MOVB #1,@ICRHX ;SELECT CHANNEL 2
5486 042624 052777 000010 137446 BIS #10,@CSRX ;LOAD CHANNEL NUMBER
5487 042632 012737 000002 002374 MOV #2,CHAN ;----LOAD UNL INTO DOR 2-----
5488 042640 112777 000077 137430 MOVB #77,@IDRHX ;WAIT A LITTLE
5439 042646 004737 011060 JSR PC,LOOP ;GET IIR2 CONTENTS
5490 042652 017737 137372 002502 MOV @IIRX,BAD ;BO BIT SHOULD BE SET
5491 042660 017737 000020 002502 CMP #20,BAD ;BRANCH IF YES
5492 042666 001410 BEQ 26$ ;SET UP DATA FOR ERROR MESSAGE
5493 042670 012737 000020 002500 MOV #20,GOOD ;ERROR HANDLER
5494 042676 104457 ERRSOFT 1318,E501,ERR501 TRAP C$ERSOFT
                                .WORD 1318
                                .WORD E501
                                .WORD ERR501
                                TRAP C$CLP1
042676 104457
042700 002446
042702 005406
042704 003702
5495 042706 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
042706 104406 ;SELECT CHANNEL 1
5496 042710 042777 000010 137362 26$: BIC #10,@CSRX ;LOAD CHANNEL NUMBER
5497 042716 012737 000001 002374 MCV #1,CHAN ;GET IIR1 CONTENTS
5498 042724 017737 137320 002502 MOV @IIRX,BAD ;MAC BIT SHOULD BE SET
5499 042732 022737 000001 002502 CMP #1,BAD ;BRANCH IF YES
5500 042740 001410 BEQ 27$ ;SET UP DATA FOR ERROR MESSAGE
5501 042742 012737 000001 002500 MOV #1,GOOD ;ERROR HANDLER
5502 042750 104457 ERRSOFT 1319,E501,ERR501 TRAP C$ERSOFT
                                .WORD 1319
                                .WORD E501
                                .WORD ERR501
                                TRAP C$CLP1
042750 104457
042752 002447
042754 005406
042756 003702
5503 042760 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
042760 104406 ;SELECT CHANNEL 1
5504 042762 27$: ENDSEG ;LOAD SWRST INTO ACR2
                                .WORD E501
                                .WORD ERR501
                                TRAP C$CLP1
042762 104405 ;LOAD NOT SWRST INTO ACR2
042762 052777 000010 137306 BIS #10,@CSRX ;IS QUICK VERIFY PASS SELECTED
5505 042764 112777 000200 137270 MOVB #200,@ICRHX ;IF YES EXIT TEST
5506 042772 112777 000000 137262 MOVB #0,@ICRHX ;ITERATION COUNTER + 1
5507 043000 112777 000000 137262 TST QVP ;DEFAULT ITERATION EXECUTED
5508 043006 005737 002234 ;IF YES EXIT TEST
5509 043012 001010 BNE EXQV13 ;IF NO TEST ITERATION
5510 043014 005237 002322 002320 INC ITRCNT ;
5511 043020 023737 002322 002320 CMP ITRCNT,ITRDEF ;
5512 043026 001402 BEQ EXQV13 ;
5513 043030 000137 041002 JMP ITAC13 ;
5514 043034 000056 EXQV13: EXIT TST ;
                                TRAP C$EXIT
                                .WORD L10042-
5515
5516
5517 043040 045 123 062 TSHD13: .NLIST BEX
                                .ASCIZ /%S2%ADEVICE CLEAR INTERFACE FUNCTION TEST%/
                                .LIST BEX
5518
5519
5520 043114
043114
043114 104401 .EVEN
                                .ENDTST
                                L10042: TRAP C$EIST

```

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TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST

```

5522 .SBTTL TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST
5523 :*****
5524 : IEX - TEST 14
5525 : PART 1 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 2 BY MEANS OF
5526 : RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY COMMAND
5527 : NOT FGET.
5528 : PART 2 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 1 BY MEANS OF
5529 : RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY COMMAND
5530 : NOT FGET.
5531 :*****
5532 043116 BGNST
5533 043116 005737 002324 TST PNTF ;IS THE PNT FLAG SET
5534 043122 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5535 043124 PRINTF #TSHD14 ;...
043124 012746 043742 MOV #TSHD14,-(SP)
043130 012746 000001 MOV #1,-(SP)
043134 010600 MOV SP,R0
043136 104417 TRAP C$PNTF
043140 062706 000004 ADD #4,SP
5536 043144 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
5537 043150 004737 010534 ITAC14: JSR PC,BGIN1 ;SET UP PARAMETER
5538 043154 BGNSEG TRAP C$BSEG
043154 104404
5539 043156 052777 000010 137114 BIS #10,@CSRX ;SELECT CHANNEL 2
5540 043164 112777 000223 137076 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
5541 043172 112777 000200 137062 MOVB #200,@ISRHX ;----LOAD GET BIT INTO ISR2-----
5542 043200 042777 000010 137072 BIC #10,@CSRX ;SELECT CHANNEL 1
5543 043206 013701 002314 MOV DPA2,R1 ;CREATE MLA2
5544 043212 062701 000040 ADD #40,R1
5545 043216 010137 002412 MOV R1,MLA2 ;STORE MLA2
5546 043222 113777 002412 137046 MOVB MLA2,@IDRHX ;----LOAD MLA2 INTO DOR 1-----
5547 043230 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5548 043234 112777 000010 137034 MOVB #10,@IDRHX ;----LOAD GET INTO DOR 1-----
5549 043242 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5550 043246 052777 000010 137024 BIS #10,@CSRX ;SELECT CHANNEL 2
5551 043254 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5552 043262 017737 136762 002402 MOV @IIRX,RSAVE ;GET IIR 2 CONTENTS
5553 043270 022737 102501 002402 CMP #102501,RSAVE ;GET,MA,INT!,IFC,MAC BIT SHOULD BE SET
5554 043276 001413 BEQ 10$ ;BRANCH IF YES
5555 043300 012737 102501 002500 MOV #102501,GOOD ;SET UP DATA FOR ERROR MESSAGE
5556 043306 013737 002402 002502 MOV RSAVE,BAD
5557 043314 ERRSOFT 1401,E501,ERR501 ;ERROR HANDLER
043314 104457 TRAP C$ERRSOFT
043316 002571 .WORD 1401
043320 005406 .WORD E501
043322 003702 .WORD ERR501
5558 043324 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043324 104406 TRAP C$CLP1
5559 043326 017737 136732 002402 10$: MOV @ICRX,RSAVE ;GET ICR2 CONTENTS
5560 043334 122737 000010 002402 CMPB #10,RSAVE ;ICR2 CONTENTS SHOULD BE 10
5561 043342 001413 BEQ 20$ ;BRANCH IF YES
5562 043344 012737 000010 002500 MOV #10,GOOD ;SET UP DATA FOR ERROR MESSAGE
5563 043352 013737 002402 002502 MOV RSAVE,BAD
5564 043360 ERRSOFT 1402,E901,ERR501 ;ERROR HANDLER
043360 104457 TRAP C$ERRSOFT
043362 002572 .WORD 1402

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 56-1
 TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST

```

043364 005644                                .WORD  E901
043366 003702                                .WORD  ERR501
5565 043370                                CKLOOP  :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043370 104406                                TRAP   C$CLP1
5566 043372 112777 000006 136670 20$:  MOVB  #6,@ICRHX  :-----LOAD NOT FGET INTO ACR 2-----
5567 043400 112777 000001 136662      MOVB  #1,@ICRHX  :-----LOAD NOT DACR INTO ACR2-----
5568 043406 042777 000010 136664      BIC   #10,@CSRX  :SELECT CHANNEL 1
5569 043414 112777 000077 136654      MOVB  #77,@IDRHX :-----LOAD UNL INTO DOR 1-----
5570 043422 004737 011060      JSR   PC,LOOP    :WAIT A LITTLE
5571 043426                                ENDSEG
043426 104405                                10000$: TRAP   C$ESEG
5572
5573
5574 :PART 2 OF THE TEST
5575 :THIS PART CHECKS THE DEVICE TRIGGER INTERFACE FUNTION OF CHANNEL 2
5576 043430 004737 010710      JSR   PC,BGIN2   :SET UP PARAMETER
5577 043434                                BGNSEG
043434 104404                                TRAP   C$BSEG
5578 043436 042777 000010 136634      BIC   #10,@CSRX  :SELECT CHANNEL 1
5579 043444 112777 000223 136616      MOVB  #223,@ICRHX :----LOAD DAI INTO ACR 1-----
5580 043452 112777 000200 136602      MOVB  #200,@ISRHX :----LOAD GET BIT INTO ISR1-----
5581 043460 052777 000010 136612      BIS   #10,@CSRX  :SELECT CHANNEL 2
5582 043466 013701 002312      MOV   DPA1,R1    :CREATE MLA1
5583 043472 062701 000040      ADD   #40,R1
5584 043476 010137 002410      MOV   R1,MLA1
5585 043502 113777 002410 136566      MOVB  MLA1,@IDRHX :----LOAD MLA1 INTO DOR 2-----
5586 043510 004737 011060      JSR   PC,LOOP    :WAIT A LITTLE
5587 043514 112777 000010 136554      MOVB  #10,@IDP4X  :----LOAD GET INTO DOR 2-----
5588 043522 004737 011060      JSR   PC,LOOP    :WAIT A LITTLE
5589 043526 042777 000010 136544      BIC   #10,@CSRX  :SELECT CHANNEL 1
5590 043534 012737 000001 002374      MOV   #1,CHAN    :LOAD CHANNEL NUMBER
5591 043542 017737 136502 002402      MOV   @IIRX,RSAVE :GET IIR 1 CONTENTS
5592 043550 022737 102501 002402      CMP   #102501,RSAVE :GET,MA,INT1,IFC,MAC BIT SHUOLD BE SET
5593 043556 001413      BEQ   30$
5594 043560 012737 102501 002500      MOV   #102501,GOOD :BRANCH IF YES
5595 043566 013737 002402 002502      MOV   RSAVE,BAD  :SET UP DATA FOR ERROR MESSAGE
5596 043574                                ERRSOFT 1403,E501,ERR501 :ERROR HANDLER
043574 104457                                TRAP   C$ERSOFT
043576 002573                                .WORD  1403
043600 005406                                .WORD  E501
043602 003702                                .WORD  ERR501
5597 043604                                CKLOOP  :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043604 104406                                TRAP   C$CLP1
5598 043606 017737 136452 002402 30$:  MOV   @ICRX,RSAVE :GET ICR1 CONTENTS
5599 043614 122737 000010 002402      CMPB  #10,RSAVE  :ICR1 CONTENTS SHOULD BE 10
5600 043622 001413      BEQ   40$
5601 043624 012737 000010 002500      MOV   #10,GOOD   :BRANCH IF YES
5602 043632 013737 002402 002502      MOV   RSAVE,BAD  :SET UP DATA FOR ERROR MESSAGE
5603 043640                                ERRSOFT 1404,E901,ERR501 :ERROR HANDLER
043640 104457                                TRAP   C$ERSOFT
043642 002574                                .WORD  1404
043644 005644                                .WORD  E901
043646 003702                                .WORD  ERR501
5604 043650                                CKLOOP  :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043650 104406                                TRAP   C$CLP1
5605 043652 112777 000006 136410 40$:  MOVB  #6,@ICRHX  :-----LOAD NOT FGET INTO ACR 1-----

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TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST

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5606 043660 112777 000001 136402      MOVB   #1,@ICRHX      :-----LOAD NOT DACR INTO ACR 1-----
5607 043666 052777 000010 136404      BIS    #10,@CSRX     :SELECT CHANNEL 2
5608 043674 112777 000077 136374      MOVB   #77,@IDRMX    :-----LOAD UNL INTO DOR 2-----
5609 043702 004737 011060              JSR    PC,LOOP       :WAIT A LITTLE
5610 043706              ENDSEG
                    10001$:
                    TRAP   C$ESEG
5611 043710 005737 002234              TST    QVP           :IS QUICK VERIFY PASS SELECTED
5612 043714 001010              BNE    EXQV14        :IF YES EXIT TEST
5613 043716 005237 002322              INC    ITRCNT        :ITERATION COUNTER +1
5614 043722 023737 002322 002320      CMP    ITRCNT,ITRDEF :DEFAULT ITERATION EXECUTED
5615 043730 001402              BEQ    EXQV14        :IF YES EXIT TEST
5616 043732 000137 043150              JMP    ITAC14        :IF NO TEST ITERATION
5617 043736              EXQV14: EXIT      TST
                    TRAP   C$EXIT
                    .WORD  L10043-
5618
5619
5620 043742      045      123      062  TSHD14: .NLIST  BEX
                    .ASCIZ  /%S2%ADEVICE TRIGGER INTERFACE FUNCTION TEST%N/
5621              .LIST  BEX
5622              .EVEN
5623 044020              ENDTST
                    L10043:
                    TRAP   C$ETST
044020 104401

```


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TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST

```

5625          .SBTTL TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST
5626          :*****
5627          :               IEX - TEST 15
5628          :PART 1 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 1. SOURCE HANDSHAKE
5629          :DOES NOT OCCUR DURING THE DATA TRANSFER, BECAUSE CHANNEL 2 IS NOT
5630          :SELECTED AS LISTENER.
5631          :PART 2 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 2. SOURCE HANDSHAKE
5632          :DOES NOT OCCUR DURING THE DATA TRANSFER, BECAUSE CHANNEL 1 IS NOT
5633          :SELECTED AS LISTENER.
5634          :*****
5635          BGNTST
                    T15::
5636          044022 005737 002324          TST      PNTF          ;IS THE PNT FLAG SET
5637          044026 001410          BEQ      7$          ;IF YES, PRINT THE TEST HEADER
5638          044030          PRINTF  #TSHD15          ;....
                    MOV      #TSHD15,-(SP)
                    MOV      #1,-(SP)
                    MOV      SP,RO
                    TRAP    C$PNTF
                    ADD      #4,SP
5639          044050 005037 002322          7$: CLR      ITRCNT          ;CLEAR ITERATION COUNTER
5640          044054 004737 010220          ITAC15: JSR     PC,CULPA          ;CLEAR ULPA BIT IN ISR 1 AND 2
5641          044060 004737 010534          JSR     PC,BGIN1          ;SET UP PARAMETER
5642          044064          BGNSEG          TRAP    C$BSEG
5643          044066 042777 000010 136204          BIC     #10,@CSRX          ;SELECT CHANNEL 1
5644          044074 012737 000001 002374          MOV     #1,CHAN          ;LOAD CHANNEL NUMBER
5645          044102 112777 000212 136160          MOV     #212,@ICRHX          ;----LOAD TON INTO ACR 1-----
5646          044110 012703 000002          MOV     #2,R3          ;GET A NONE EXISTENTS MLA
5647          044114 020337 002314          11$: CMP     R3,DPA2          ;....
5648          044120 001410          BEQ     10$          ;....
5649          044122 020337 002312          CMP     R3,DPA1          ;....
5650          044126 001405          BEQ     10$          ;....
5651          044130 062703 000040          ADD     #40,R3          ;CREATE MLA
5652          044134 010337 002412          MOV     R3,MLA2          ;
5653          044140 000402          BR      20$          ;
5654          044142 005203          10$: INC     R3          ;
5655          044144 000763          BR      11$          ;
5656          044146 113777 002412 136122          20$: MOV     MLA2,@IDRHX          ;----LOAD MLA2 INTO DOR1-----
5657          044154 004737 011060          JSR     PC,LOOP          ;WAIT A LITTLE
5658          044160 112777 000013 136102          MOV     #13,@ICRHX          ;----LOAD GTS INTO ACR 1-----
5659          044166 112777 000125 136102          MOV     #125,@IDRHX          ;----LOAD DATA PATTERN INTO DOR 1----
5660          044174 004737 011060          JSR     PC,LOOP          ;WAIT A LITTLE
5661          044200 017737 136044 002402          MOV     @IIRX,RSAVE          ;GET IIR1 CONTENTS
5662          044206 022737 040000 002402          CMP     #40000,RSAVE          ;ERR BIT IN IIR REGISTER SHOULD BE SET
5663          044214 001413          BEQ     30$          ;BRANCH IF YES
5664          044216 012737 040000 002500          MOV     #40000,GOOD          ;SET UP DATA FOR ERROR MESSAGE
5665          044224 013737 002402 002502          MOV     RSAVE,BAD          ;
5666          044232          ERRSOFT 1501,E501,ERR501          ;ERROR HANDLER
                    TRAP    C$ERRSOFT
                    .WORD   1501
                    .WORD   E501
                    .WORD   ERR501
5667          044242          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                    TRAP    C$CLP1
5668          044244 017737 136006 002402          30$: MOV     @ISR1,RSAVE          ;GET ISR1 CONTENTS
5669          044252 022737 000002 002402          CMP     #2,RSAVE          ;TADS BIT SHOULD BE SET

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 TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST

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5670 044260 001413          BEQ      40$          ;BRANCH IF YES
5671 044262 012737 000002 002500  MOV      #2,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5672 044270 013737 002402 002502  MOV      RSAVE,BAD    ;
5673 044276          ERRSOFT 1502,E502,ERR501 ;ERROR HANDLER
          044276 104457          TRAP      C$ERSOFT
          044300 002736          .WORD    1502
          044302 005447          .WORD    E502
          044304 003702          .WORD    ERR501
5674 044306          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
          044306 104406          TRAP      C$CLP1
5675 044310 052777 000010 135762 40$:  BIS      #10,@CSRX     ;SELECT CHANNEL 2
5676 044316 012737 000002 002374  MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
5677 044324 017737 135726 002402  MOV      @ISR,RSAVE   ;GET ISR2 CONTENTS
5678 044332 005737 002402  TST      RSAVE        ;ISR REGISTER SHOULD BE ZERO
5679 044336 001412          BEQ      50$          ;BRANCH IF YES
5680 044340 005037 002500          CLR      GOOD         ;SET UP DATA FOR ERROR MESSAGE
5681 044344 013737 002402 002502  MOV      RSAVE,BAD    ;
5682 044352          ERRSOFT 1503,E502,ERR501 ;ERROR HANDLER
          044352 104457          TRAP      C$ERSOFT
          044354 002737          .WORD    1503
          044356 005447          .WORD    E502
          044360 003702          .WORD    ERR501
5683 044362          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
          044362 104406          TRAP      C$CLP1
5684 044364          50$:  ENDSEG          10000$: TRAP      C$ESEG
          044364          104405
5685          ;-----
5686          ;PART 2 OF THE TEST
5687          ;THIS PART CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 2
5688          ;-----
5689 044366 004737 010220          JSR      PC,CULPA     ;CLEAR ULPA BIT IN ISR 1 AND 2
5690 044372 004737 010710          JSR      PC,BGIN2    ;SET UP PARAMETER
5691 044376          PSEU5: BGNSEG          TRAP      C$BSEG
          044376 104404
5692 044400 052777 000010 135672  BIS      #10,@CSRX     ;SELECT CHANNEL 2
5693 044406 112777 000212 135654  MOVB     #212,@ICRHX  ;----LOAD TON INTO ACR 2-----
5694 044414 012703 000002          MOV      #2,R3       ;GET A NONE EXISTENTS MLA
5695 044420 020337 002314 11$:  CMP      R3,DPA2      ;
5696 044424 001410          BEQ      10$         ;
5697 044426 020337 002312          CMP      R3,DPA1      ;
5698 044432 001405          BEQ      10$         ;
5699 044434 062703 000040          ADD      #40,R3      ;CREATE MLA
5700 044440 010337 002410          MOV      R3,MLA1     ;
5701 044444 000402          BR       20$         ;
5702 044446 005203          10$:  INC      R3      ;
5703 044450 000763          BR       11$         ;
5704 044452 113777 002410 135616 20$:  MOVB     MLA1,@IDRHX  ;----LOAD MLA1 INTO DOR2-----
5705 044460 004737 011060          JSR      PC,LOOP     ;WAIT A LITTLE
5706 044464 112777 000013 135576  MOVB     #13,@ICRHX  ;----LOAD GIS INTO ACR 2-----
5707 044472 112777 000125 135576  MOVB     #125,@IDRHX ;----LOAD DATA PATTERN INTO DOR 2----
5708 044500 004737 011060          JSR      PC,LOOP     ;WAIT A LITTLE
5709 044504 017737 135540 002402  MOV      @IIR,RSAVE   ;GET IIR2 CONTENTS
5710 044512 022737 040000 002402  CMP      #40000,RSAVE ;ERR BIT IN IIR REGISTER SHOULD BE SET
5711 044520 001413          BEQ      30$         ;BRANCH IF YES
5712 044522 012737 040000 002500  MOV      #40000,GOOD  ;SET UP DATA FOR ERROR MESSAGE
5713 044530 013737 002402 002502  MOV      RSAVE,BAD    ;
          ;....
    
```

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 TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST

```

5714 044536          ERRSOFT 1504,E501,ERR501      ;ERROR HANDLER
      044536 104457          TRAP C$ERSOFT
      044540 002740          .WORD 1504
      044542 005406          .WORD E501
      044544 003702          .WORD ERR501
5715 044546          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044546 104406          TRAP C$CLP1
5716 044550 017737 135502 002402 30$: MOV @ISRX,RSAVE ;GET ISR2 CONTENTS
5717 044556 022737 000002 002402 CMP #2,RSAVE ;TADS BIT SHOULD BE SET
5718 044564 001413 BEQ 40$ ;BRANCH IF YES
5719 044566 012737 000002 002500 MOV #2,GOOD ;SET UP DATA FOR ERROR MESSAGE
5720 044574 013737 002402 002502 MOV RSAVE,BAD
5721 044602          ERRSOFT 1505,E502,ERR501      ;ERROR HANDLER
      044602 104457          TRAP C$ERSOFT
      044604 002741          .WORD 1505
      044606 005447          .WORD E502
      044610 003702          .WORD ERR501
5722 044612          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044612 104406          TRAP C$CLP1
5723 044614 042777 000010 135456 40$: BIC #10,@CSRX ;SELECT CHANNEL 1
5724 044622 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5725 044630 017737 135422 002402 MOV @ISRX,RSAVE ;GET ISR1 CONTENTS
5726 044636 005737 002402 TST RSAVE ;ISR REGISTER SHOULD BE ZERO
5727 044642 001412 BEQ 50$ ;BRANCH IF YES
5728 044644 005037 002500 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
5729 044650 013737 002402 002502 MOV RSAVE,BAD
5730 044656          ERRSOFT 1506,E502,ERR501      ;ERROR HANDLER
      044656 104457          TRAP C$ERSOFT
      044660 002742          .WORD 1506
      044662 005447          .WORD E502
      044664 003702          .WORD ERR501
5731 044666          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044666 104406          TRAP C$CLP1
5732 044670          50$: ENDSEG
      044670          10001$: TRAP C$ESEG
5733 044672 005737 002234 TST QVP ;IS QUICK VERIFY PASS SELECTED
5734 044676 001010 BNE EXQV15 ;IF YES EXIT TEST
5735 044700 005237 002322 INC ITRCNT ;ITERATION COUNTER +1
5736 044704 023737 002322 002320 CMP ITRCNT,ITRDEF ;DEFAULT ITERATION EXECUTED
5737 044712 001402 BEQ EXQV15 ;IF YES EXIT TEST
5738 044714 000137 044054 JMP ITAC15 ;IF NO TEST ITERATION
5739 044720          EXQV15: EXIT TST
      044720 104432          TRAP C$EXIT
      044722 000052          .WORD L10044-.
5740
5741
5742 044724 045 123 062 TSHD15: .NLIST BEX /%S2%AINCOMPLETE SOURCE HANDSHAKE TEST%/
5743 .ASCIZ BEX
5744 .LIST
5745 044774 .EVEN
      044774 .ENDTST
      044774 104401          L10044: TRAP C$ETST
    
```

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TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

```

5747 .SBTTL TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION
5748 .....
5749 IEX - TEST 16
5750 :PART 1 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 1 TO 2
5751 BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.
5752 :PART 2 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 2 TO 1
5753 BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.
5754 .....
5755 BGNSTST
5756 044776 005737 002324 TST PNTF ;IS THE PNT FLAG SET
5757 045002 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5758 045004 PRINTF #TSHD16 ;....
045004 012746 046262 MOV #TSHD16,-(SP)
045010 012746 000001 MOV #1,-(SP)
045014 010600 MOV SP,R0
045016 104417 TRAP C$PNTF
045020 062706 000004 ADD #4,SP
5759 045024 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
5760 045030 ITAC16: BGNSEG TRAP C$BSEG
045030 104404 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
5761 045032 004737 010220 JSR PC,BGIN1 ;SET UP PARAMETER
5762 045036 004737 010534 BIT #1,DPA2 ;IS DPA EVEN
5763 045042 032737 000001 002314 BEQ 3$ ;BRANCH IF YES
5764 045050 001404 BIS #1,CDAT10 ;SET ULPA BIT IN COMPARE DATA FOR ISR
5765 045052 052737 000001 002456 BR .+10 ;BRANCH OVER NEXT INSTRUCTION
5766 045060 000403 3$: BIC #1,CDAT10 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5767 045062 042737 000001 002456 MOV #23,@ICRHX ;SELECT CHANNEL 2
5768 045070 052777 000010 135202 MOV #40,@ISRHX ;-----LOAD DAI INTO ACR 2 -----
5769 045076 112777 000223 135164 MOV #10,@CSRX ;-----SET UCG BIT IN ISR 2-----
5770 045104 112777 000040 135150 BIC #10,@CSRX ;SELECT CHANNEL 1
5771 045112 042777 000010 135160 MOV DPA2,R1 ;CREATE MTA2
5772 045120 013701 002314 ADD #100,R1 ;...
5773 045124 062701 000100 MOV R1,MTA2 ;STORE MTA2
5774 045130 010137 002416 MOV MTA2,@IDRHX ;-----LOAD MTA2 INTO DOR 1-----
5775 045134 113777 002416 135134 JSR PC,LOOP ;WAIT A LITTLE
5776 045142 004737 011060 MOV #11,@IDRHX ;-----LOAD ICT INTO DOR 1-----
5777 045146 112777 000011 135122 JSR PC,LOOP ;WAIT A LITTLE
5778 045154 004737 011060 BIS #10,@CSRX ;SELECT CHANNEL 2
5779 045160 052777 000010 135112 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5780 045166 012737 000002 002374 MOV @IIRX,RSAVE ;GET IIR2 CONTENTS
5781 045174 017737 135050 002402 CMP #22501,RSAVE ;UCG,MA,IFC,INT1,MAC BIT SHOULD BE SET
5782 045202 022737 022501 002402 BEQ 10$ ;BRANCH IF YES
5783 045210 001413 MOV RSAVE,BAD ;SET UP DATA FOR ERROR MESSAGE
5784 045212 013737 002402 002502 MOV #22501,GOOD ;...
5785 045220 012737 022501 002500 ERRSOFT 1601,E501,ERR501 ;ERROR HANDLER
5786 045226 104457 TRAP C$ERRSOFT
045226 003101 .WORD 1601
045230 005406 .WORD E501
045232 003702 .WORD ERR501
5787 045236 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
045236 104406 TRAP C$CLP1
5788 045240 017737 135012 002502 10$: MOV @ISRX,BAD ;GET ISR2 CONTENTS
5789 045246 023737 002456 002502 CMP CDAT10,BAD ;ATN,NDAC,DAV,NRFD,ATN,TADS,(ULPA) IS SET
5790 045254 001410 BEQ 20$ ;BRANCH IF YES
5791 045256 013737 002456 002500 MOV CDAT10,GOOD ;SET UP DATA FOR ERROR MESSAGE

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 58-1
 TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

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5792 045264          ERRSOF 602,E502,ERR501      :ERROR HANDLER
      045264 104457
      045266 003102
      045270 005447
      045272 003702
5793 045274          CKLOOP                    :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      045274 104406
      045276 017737 134762 002502 20$:  MOV    @ICRX,BAD      :GET ICR2 CONTENTS
5794 045276 017737 134762 002502 20$:  CMPB   #11,BAD      :ICR CONTENTS SHOULD BE 11
5795 045304 122737 000011 002502        BEQ    30$          :BRANCH IF YES
5796 045312 001407
5797 045314 012737 000011 002500        MOV    #11,GOOD    :SET UP DATA FOR ERROR MESSAGE
5798 045322          ERRSOF 1603,E901,ERR501      :ERROR HANDLER
      045322 104457
      045324 003103
      045326 005644
      045330 003702
5799 045332 112777 000021 134730 30$:  MOVB   #21,@ICRHX  :----LOAD RGC INTO ACR 2-----
5800 045340 112777 000001 134722        MOVB   #1,@ICRHX  :----LOAD NOT DACR INTO ACR 2-----
5801 045346 042777 000010 134724        BIC    #10,@CSRX  :SELECT CHANNEL 1
5802 045354 112777 000022 134706        MOVB   #22,@ICRHX  :----LOAD RLC INTO ACR 1-----
5803 045362 052777 000010 134710        BIS    #10,@CSRX  :SELECT CHANNEL 2
5804 045370 012737 000002 002374        MOV    #2,CHAN    :LOAD CHANNEL NUMBER
5805 045376 017737 134646 002502        MOV    @IIRX,BAD  :GET IIR2 CONTENTS
5806 045404 022737 000020 002502        CMP    #20,BAD    :BO BIT SHOULD BE SET
5807 045412 001410
5808 045414 012737 000020 002500        BEQ    33$        :BRANCH IF YES
5809 045422          ERRSOF 1604,E501,ERR501      :SET UP DATA FOR ERROR MESSAGE
      045422 104457
      045424 003104
      045426 005406
      045430 003702
5810 045432          CKLOOP                    :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      045432 104406
      045434 042777 000010 134636 33$:  BIC    #10,@CSRX  :SELECT CHANNEL 1
5811 045434 042777 000010 134636 33$:  MOV    #1,CHAN    :LOAD CHANNEL NUMBER
5812 045442 012737 000001 002374        MOV    @IIRX,BAD  :GET IIR1 CONTENTS
5813 045450 017737 134574 002502        CMP    #20,BAD    :BO BIT SHOULD BE SET
5814 045456 022737 000020 002502        BEQ    40$        :BRANCH IF YES
5815 045464 001410
5816 045466 012737 000020 002500        MOV    #20,GOOD   :SET UP DATA FOR ERROR MESSAGE
5817 045474          ERRSOF 1605,E501,ERR501      :ERROR HANDLER
      045474 104457
      045476 003105
      045500 005406
      045502 003702
5818 045504          CKLOOP                    :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      045504 104406
      045506 052777 000010 134564 40$:  BIS    #10,@CSRX  :SELECT CHANNEL 2
5819 045506 052777 000010 134564 40$:  MOVB   #137,@IDRHX :----LOAD UNT INTO DOR 2-----
5820 045514 112777 000137 134554        JSR    PC,LOOP    :WAIT A LITTLE
5821 045522 004737 011060
5822 045526          ENDSEG
      045526
      045526 104405
5823
5824
5825
5826 045530          PSEU16: BGNSEG
      045530 104404

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 TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

5827	045532	004737	010220			JSR	PC,CULPA		:CLEAR ULPA BIT IN ISR 1 AND 2
5828	045536	004737	010710			JSR	PC,BGIN2		:SET UP PARAMETER
5829	045542	032737	000001	002312		BIT	#1,DPA1		:IS DPA EVEN
5830	045550	001404				BEQ	3%		:BRANCH IF YES
5831	045552	052737	000001	002456		BIS	#1,CDAT10		:SET ULPA BIT IN COMPARE DATA FOR ISR
5832	045560	000403				BR	.+10		:BRANCH OVER NEXT INSTRUCTION
5833	045562	042737	000001	002456	3%:	BIC	#1,CDAT10		:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5834	045570	042777	000010	134502		BIC	#10,@CSRX		:SELECT CHANNEL 1
5835	045576	112777	000223	134464		MOVB	#223,@ICRHX		:-----LOAD DAI INTO ACR 1-----
5836	045604	112777	000040	134450		MOVB	#40,@ISRHX		:-----SET UCG BIT IN ISR 1-----
5837	045612	013701	002312			MOV	DPA1,R1		:CREATE MTA1
5838	045616	062701	000100			ADD	#100,R1		
5839	045622	010137	002414			MOV	R1,MTA1		:STORE MTA1
5840	045626	052777	000010	134444		BIS	#10,@CSRX		:SELECT CHANNEL 2
5841	045634	113777	002414	134434		MOVB	MTA1,@IDRHX		:-----LOAD MTA1 INTO DOR 2-----
5842	045642	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
5843	045646	112777	000011	134422		MOVB	#11,@IDRHX		:-----LOAD TCT INTO DOR 2-----
5844	045654	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
5845	045660	042777	000010	134412		BIC	#10,@CSRX		:SELECT CHANNEL 1
5846	045666	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
5847	045674	017737	134350	002402		MOV	@IRX,RSAVE		:GET IIR1 CONTENTS
5848	045702	022737	022501	002402		CMP	#22501,RSAVE		:UCG,MA,IFC,INT1,MAC BIT SHOULD BE SET
5849	045710	001413				BEQ	10%		:BRANCH IF YES
5850	045712	013737	002402	002502		MOV	RSAVE,BAD		:SET UP DATA FOR ERROR MESSAGE
5851	045720	012737	022501	002500		MOV	#22501,GOOD		
5852	045726					ERRSOFT	1606,E501,ERR501		:ERROR HANDLER
	045726	104457							TRAP C\$ERRSOFT
	045730	003106							.WORD 1606
	045732	005406							.WORD E501
	045734	003702							.WORD ERR501
5853	045736					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	045736	104406							TRAP C\$CLP1
5854	045740	017737	134312	002502	10%:	MOV	@ISRX,BAD		:GET ISR1 CONTENTS
5855	045746	023737	002456	002502		CMP	CDAT10,BAD		:ATN,NDAC,DAV,NRFD,ATN,TADS,(ULPA) IS SET
5856	045754	001410				BEQ	20%		:BRANCH IF YES
5857	045756	013737	002456	002500		MOV	CDAT10,GOOD		:SET UP DATA FOR ERROR MESSAGE
5858	045764					ERRSOFT	1607,E502,ERR501		:ERROR HANDLER
	045764	104457							TRAP C\$ERRSOFT
	045766	003107							.WORD 1607
	045770	005447							.WORD E502
	045772	003702							.WORD ERR501
5859	045774					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	045774	104406							TRAP C\$CLP1
5860	045776	017737	134262	002502	20%:	MOV	@ICRX,BAD		:GET ICR1 CONTENTS
5861	046004	122737	000011	002502		MPB	#11,BAD		:ICR CONTENTS SHOULD BE 11
5862	046012	001407				BEQ	30%		:BRANCH IF YES
5863	046014	012737	000011	002500		MOV	#11,GOOD		:SET UP DATA FOR ERROR MESSAGE
5864	046022					ERRSOFT	1608,E901,ERR501		:ERROR HANDLER
	046022	104457							TRAP C\$ERRSOFT
	046024	003110							.WORD 1608
	046026	005644							.WORD E901
	046030	003702							.WORD ERR501
5865	046032	112777	000021	134230	30%:	MOVB	#21,@ICRHX		:-----LOAD RGC INTO ACR 1-----
5866	046040	112777	000001	134222		MOVB	#1,@ICRHX		:-----LOAD NOT DACR INTO ACR 1-----
5867	046046	052777	000010	134224		BIS	#10,@CSRX		:SELECT CHANNEL 2
5868	046054	112777	000022	134206		MOVB	#22,@ICRHX		:-----LOAD RLC INTO ACR 2-----
5869	046062	042777	000010	134210		BIC	#10,@CSRX		:SELECT CHANNEL 1

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 TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

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5870 046070 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
5871 046076 017737 134146 002502      MOV      @1RX,BAD    ;GET IIR1 CONTENTS
5872 046104 022737 000020 002502      CMP      #20,BAD     ;BO BIT SHOULD BE SET
5873 046112 001410                BFC      33$         ;BRANCH IF YES
5874 046114 012737 000020 002500      MOV      #20,GOOD    ;SET UP DATA FOR ERROR MESSAGE
5875 046122                ERRSOFT 1609,E501,ERR501 ;ERROR HANDLER
                    046122 104457                TRAP     C$ERSOFT
                    046124 003111                .WORD   1609
                    046126 005406                .WORD   E501
                    046130 003702                .WORD   ERR501
5876 046132                CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                    046132 10440.                TRAP     C$CLP1
5877 046134 052777 000010 134136 33$:   BIS      #10,@CSRX   ;SELECT CHANNEL 2
5878 046142 012737 000002 002374      MOV      #2,CHAN     ;LOAD CHANNEL NUMBER
5879 046150 017737 134074 002502      MOV      @1RX,BAD    ;GET IIR2 CONTENTS
5880 046156 022737 000020 002502      CMP      #20,BAD     ;BO BIT SHOULD BE SET
5881 046164 001410                BEQ      40$         ;BRANCH IF YES
5882 046166 012737 000020 002500      MOV      #20,GOOD    ;SET UP DATA FOR ERROR MESSAGE
5883 046174                ERRSOFT 16010,E501,ERR501 ;ERROR HANDLER
                    046174 104457                TRAP     C$ERSOFT
                    046176 037212                .WORD   16010
                    046200 005406                .WORD   E501
                    046202 003702                .WORD   ERR501
5884 046204                CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                    046204 104406                TRAP     C$CLP1
5885 046206 042777 000010 134064 40$:   BIC      #10,@CSRX   ;SELECT CHANNEL 1
5886 046214 112777 000137 134054      MOV      #137,@IDRMX ;-----LOAD UNIT INTO DOR 1-----
5887 046222 004737 011060                JSR      PC,LOOP     ;WAIT A LITTLE
5888 046226                ENDSEG
                    046226 104405                10001$: TRAP     C$ESEG
5889 046230 005737 002234                TST      QVP         ;IS QUICK VERIFY PASS SELECTED
5890 046234 001010                BNE      EXQV16      ;IF YES EXIT TEST
5891 046236 005237 002322                INC      ITRCNT      ;ITERATION COUNTER +1
5892 046242 023737 002322 002320      CMP      ITRCNT,ITRDEF ;DEFAULT ITERATION EXECUTED
5893 046250 001402                BEQ      EXQV16      ;IF YES EXIT TEST
5894 046252 000137 045030                JMP      ITAC16      ;IF NO TEST ITERATION
5895 046256                EXQV16: EXIT      TST
                    046256 104432                TRAP     C$EXIT
                    046260 000062                .WORD   L10045-
5896
5897
5898 046262 045 123 062 TSHD16: .NLIST BEX
5899 .ASCIZ /%S2%CHANGING OF THE CONTROLLER CONFIGURATION%/
5900 .LIST BEX
5901 046342                .EVE"
                    046342                ENI
                    046342 104401                L10045: TRAP     C$EXIT

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TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

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5903          .SBTTL TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST
5904          :.....
5905          :               IEX - TEST 17
5906          :PART 1 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 2 USING THE FOLLOWING
5907          :      COMMANDS GTL, LLO, NOT RTL.
5908          :PART 2 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 1 USING THE FOLLOWING
5909          :      COMMANDS GTL, LLO, NOT RTL.
5910          :.....
5911          BGN1ST
5912          046344 005737 002324          TST      PNTF          ;IS THE PNT FLAG SET
5913          046350 001410          BEQ      7$          ;IF YES, PRINT THE TEST HEADER
5914          046352          PRINTF  #TSHD17          ;....
5915          046352 012746 050644          MOV      #TSHD17,-(SP)
5916          046356 012746 000001          MOV      #1,-(SP)
5917          046362 010600          MOV      SP,RO
5918          046364 104417          TRAP    C$PNTF
5919          046366 062706 000004          ADD      #4,SP
5920          046372 005037 002322          7$:      CLR      ITRCNT          ;CLEAR ITERATION COUNTER
5921          046376          ITAC17: BGNSEG
5922          046376 104404          TRAP    C$BSEG
5923          046400 004737 010220          JSR      PC,CULPA          ;CLEAR ULPA BIT IN ISR 1 AND 2
5924          046404 004737 010534          JSR      PC,BGIN1          ;SET UP PARAMETER
5925          046410 112777 000220 133652          MOVB     #220,@ICRMX          ;-----LOAD SRE INTO ACR 1-----
5926          046416 004737 011072          JSR      PC,WAIT          ;WAIT 100 US
5927          046422 013701 002314          MOV      DPA2,R1          ;CREATE MLA2
5928          046426 062701 000040          ADD      #40,R1
5929          046432 010137 002412          MOV      R1,MLA2          ;STORE MLA2
5930          046436 032737 000001 002314          BIT      #1,DPA2          ;IS DPA EVEN
5931          046444 001415          BEQ      3$          ;BRANCH IF YES
5932          046446 052737 000001 002460          BIS      #1,CDAT11          ;SET ULPA BIT IN COMPARE DATA FOR ISR
5933          046454 052737 000001 002462          BIS      #1,CDAT12
5934          046462 052737 000001 002464          BIS      #1,CDAT13
5935          046470 052737 000001 002466          BIS      #1,CDAT14
5936          046476 000414          BR      .+32
5937          046500 042737 000001 002460 3$:      BIC      #1,CDAT11          ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5938          046506 042737 000001 002462          BIC      #1,CDAT12
5939          046514 042737 000001 002464          BIC      #1,CDAT13
5940          046522 042737 000001 002466          BIC      #1,CDAT14
5941          046530 113777 002412 133540          MOVB     MLA2,@IDRMX          ;-----LOAD MLA2 INTO DOR 1-----
5942          046536 004737 011060          JSR      PC,LOOP          ;WAIT A LITTLE
5943          046542 052777 000010 133530          BIS      #10,@CSRX          ;SELECT CHANNEL 2
5944          046550 012737 000002 002374          MOV      #2,CHAN          ;LOAD CHANNEL NUMBER
5945          046556 017737 133466 002502          MOV      @IIRX,BAD          ;GET IIR2 CONTENTS
5946          046564 022737 002403 002502          CMP      #2403,BAD          ;MA,IFC,RLC,MAC BIT SHOULD BE SET
5947          046572 001410          BEQ      10$          ;BRANCH IF YES
5948          046574 012737 002403 002500          MOV      #2403,GOOD          ;SET UP DATA FOR ERROR MESSAGE
5949          046602          ERRSOFT 1701,E501,ERR501          ;ERROR HANDLER
5950          046602 104457          TRAP    C$ERRSOFT
5951          046604 003245          .WORD   1701
5952          046606 005406          .WORD   E501
5953          046610 003702          .WORD   ERR501
5954          046612          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
5955          046612 104406          TRAP    C$CLPT
5956          046614 017737 133436 002502 10$:      MOV      @ISR2,BAD          ;GET ISR2 CONTENTS
5957          046622 023737 002460 002502          CMP      CDAT11,BAD          ;ATN,NDAC,REM,ATN,LAPS,LADS,(ULPA) IS SET
5958          046630 001410          BEQ      20$          ;BRANCH IF YES

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 TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

5985	047130	042777	000010	133142	40\$:	BIC	#10,@CSRX	:SELECT CHANNEL 1
5986	047136	113777	002412	133132		MOVB	MLA2,@IDRHX	:-----LOAD MLA2 INTO DOR 1-----
5987	047144	004737	011060			JSR	PC,LOOP	:WAIT A LITTLE
5988	047150	052777	000010	133122		BIS	#10,@CSRX	:SELECT CHANNEL 2
5989	047156	017737	133066	002502		MOV	@IIRX,BAD	:GET IIR2 CONTENTS
5990	047164	022737	002002	002502		CMP	#2002,BAD	:MA,RLC BIT SHOULD BE SET
5991	047172	001410				BEQ	43\$	:BRANCH IF YES
5992	047174	012737	002002	002500		MOV	#2002,GOOD	:SET UP DATA FOR ERROR MESSAGE
5993	047202					ERRSOFT	1706,E501,ERR501	:ERROR HANDLER
	047202	104457						TRAP C\$ERSOFT
	047204	003252						.WORD 1706
	047206	005406						.WORD E501
	047210	003702						.WORD ERR501
5994	047212					CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	047212	104406						TRAP C\$CLP1
5995	047214	017737	133036	002502	43\$:	MOV	@ISRX,BAD	:GET ISR2 CONTENTS
5996	047222	023737	002460	002502		CMP	CDAT11,BAD	:ATN,NDAC,REN,REM,ATN,LPAS,LADS(ULPA)SET
5997	047230	001410				BEQ	50\$	:BRANCH IF YES
5998	047232	013737	002460	002500		MOV	CDAT11,GOOD	:SET UP DATA FOR ERROR MESSAGE
5999	047240					ERRSOFT	1707,E502,ERR501	:ERROR HANDLER
	047240	104457						TRAP C\$ERSOFT
	047242	003253						.WORD 1707
	047244	005447						.WORD E502
	047246	003702						.WORD ERR501
6000	047250					CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	047250	104406						TRAP C\$CLP1
6001	047252	042777	000010	133020	50\$:	BIC	#10,@CSRX	:SELECT CHANNEL 1
6002	047260	112777	000021	133010		MOVB	#21,@IDRHX	:-----LOAD LLO INTO DOR 1-----
6003	047266	004737	011060			JSR	PC,LOOP	:WAIT A LITTLE
6004	047272	052777	000010	133000		BIS	#10,@CSRX	:SELECT CHANNEL 2
6005	047300	017737	132744	002502		MOV	@IIRX,BAD	:GET IIR2 CONTENTS
6006	047306	005737	002502			TST	BAD	:CONTENTS SHOULD BE ZERO
6007	047312	001407				BEQ	53\$	:BRANCH IF YES
6008	047314	005037	002500			CLR	GOOD	:SET UP DATA FOR ERROR MESSAGE
6009	047320					ERRSOFT	1708,E501,ERR501	:ERROR HANDLER
	047320	104457						TRAP C\$ERSOFT
	047322	003254						.WORD 1708
	047324	005406						.WORD E501
	047326	003702						.WORD ERR501
6010	047330					CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	047330	104406						TRAP C\$CLP1
6011	047332	017737	132720	002502	53\$:	MOV	@ISRX,BAD	:GET ISR2 CONTENTS
6012	047340	023737	002464	002502		CMP	CDAT13,BAD	:ATN,NDAC,REN,REM,LLO,ATN,LADS(ULPA) SET
6013	047346	001410				BEQ	60\$	:BRANCH IF YES
6014	047350	013737	002464	002500		MOV	CDAT13,GOOD	:SET UP DATA FOR ERROR MESSAGE
6015	047356					ERRSOFT	1709,E502,ERR501	:ERROR HANDLER
	047356	104457						TRAP C\$ERSOFT
	047360	003255						.WORD 1709
	047362	005447						.WORD E502
	047364	003702						.WORD ERR501
6016	047366					CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	047366	104406						TRAP C\$CLP1
6017	047370	042777	000010	132702	60\$:	BIC	#10,@CSRX	:SELECT CHANNEL 1
6018	047376	112777	000001	132672		MOVB	#1,@IDRHX	:-----LOAD GTL INTO DOR 1-----
6019	047404	004737	011060			JSR	PC,LOOP	:WAIT A LITTLE
6020	047410	112777	000077	132660		MOVB	#77,@IDRHX	:-----LOAD UNL INTO DOR 1-----
6021	047416	004737	011060			JSR	PC,LOOP	:WAIT A LITTLE

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 TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

```

6022 047422 052777 000010 132650      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6023 047430 017737 132622 002502      MOV      @ISRX,BAD     ;GET ISR2 CONTENTS
6024 047436 023737 002466 002502      CMP      CDAT14,BAD    ;ATN,NDAC,REN,LLO,ATN,(ULPA) IS SET
6025 047444 001410                BEQ      63$           ;BRANCH IF YES
6026 047446 013737 002406 002500      MOV      CDAT14,GOOD   ;SET UP DATA FOR ERROR MESSAGE
6027 047454                ERRSOFT 1710,E502,ERR501 ;ERROR HANDLER
        047454 104457                TRAP    C$ERSOFT
        047456 003256                .WORD  1710
        047460 005447                .WORD  E502
        047462 003702                .WORD  ERR501
6028 047464                CKLOOP                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        047466 104406                TRAP    C$CLP1
6029 047466 042777 000010 132604 63$:  BIS      #10,@CSRX      ;SELECT CHANNEL 1
6030 047474 112777 000020 132550      MOVB    #20,@IIRLX    ;----LOAD NOT SRE INTO ACR 1-----
6031 047502                ENDSEG
        10000$:
        047502 104405                TRAP    C$ESEG
6032                ;+-----+
6033                ;PART 2 CHECKS REMOTE/LOCAL INTERFACE FUNCTION OF CHANNEL 1
6034                ;+-----+
6035 047504                PSEU17: BGNSEG
        047504 104404                TRAP    C$BSEG
6036 047506 004737 010220      JSR      PC,CULPA      ;CLEAR ULPA BIT IN ISR 1 AND 2
6037 047512 004737 010710      JSR      PC,BGIN2     ;SET UP PARAMETER
6038 047516 112777 000220 132544      MOVB    #220,@ICRHX   ;----LOAD SRE INTO ACR 2-----
6039 047524 004737 011072      JSR      PC,WAIT      ;WAIT 100 US
6040 047530 032737 000001 002312      BIT      #1,DPA1      ;IS DPA EVEN
6041 047536 001415                BEQ      3$           ;BRANCH IF YES
6042 047540 052737 000001 002460      BIS      #1,CDAT11    ;SET ULPA BIT IN COMPARE DATA FOR ISR
6043 047546 052737 000001 002462      BIS      #1,CDAT12    ;...
6044 047554 052737 000001 002464      BIS      #1,CDAT13    ;...
6045 047562 052737 000001 002466      BIS      #1,CDAT14    ;...
6046 047570 000414                BR      .+32
6047 047572 042737 000001 002460 3$:  BIC      #1,CDAT11    ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
6048 047600 042737 000001 002462      BIC      #1,CDAT12    ;...
6049 047606 042737 000001 002464      BIC      #1,CDAT13    ;...
6050 047614 042737 000001 002466      BIC      #1,CDAT14    ;...
6051 047622 013701 002312      MOV      DPA1,R1      ;CREATE MLA1
6052 047626 062701 000040      ADD     #40,R1
6053 047632 010137 002410      MOV     R1,MLA1
6054 047636 113777 002410 132432      MOVB    MLA1,@IDRHX   ;----LOAD MLA1 INTO DOR 2-----
6055 047644 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
6056 047650 042777 000010 132422      BIC     #10,@CSRX     ;SELECT CHANNEL 1
6057 047656 012737 000001 002374      MOV     #1,CHAN
6058 047664 017737 132360 002502      MOV     @IIRX,BAD
6059 047672 022737 002403 002502      CMP     #2403,BAD
6060 047700 001410                BEQ     10$          ;MA,IFC,RLC,MAC BIT SHOULD BE SET
6061 047702 012737 002403 002500      MOV     #2403,GOOD
6062 047710                ERRSOFT 1711,E501,ERR501 ;ERROR HANDLER
        047710 104457                TRAP    C$ERSOFT
        047712 003257                .WORD  1711
        047714 005406                .WORD  E501
        047716 003702                .WORD  ERR501
6063 047720                CKLOOP                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        047720 104406                TRAP    C$CLP1
6064 047722 017737 132330 002502 10$:  MOV     @ISRX,BAD
6065 047730 023737 002460 002502      CMP     CDAT11,BAD
        ;ATN,NDAC,REN,ATN,LAPS,LADS,(ULPA) IS SET
    
```

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 TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

6066	047736	001410				BEQ	20\$:BRANCH IF YES
6067	047740	013737	002460	002500		MOV	CDAT11,GOOD				:SET UP DATA FOR ERROR MESSAGE
6068	047746					ERRSOFT	1712,E502,ERR501				:ERROR HANDLER
	047746	104457									TRAP C\$ERSOFT
	047750	003260									.WORD 1712
	047752	005447									.WORD E502
	047754	003702									.WORD ERR501
6069	047756					CKLOOP					:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	047756	104406									TRAP C\$CLP1
6070	047760	052777	000010	132312	20\$:	BIS	#10,@CSRX				:SELECT CHANNEL 2
6071	047766	112777	000001	132302		MOVB	#1,@IDRHX				:-----LOAD GTL INTO DOR 2-----
6072	047774	004737	011060			JSR	PC,LOOP				:WAIT A LITTLE
6073	050000	112777	000077	132270		MOVB	#77,@IDRHX				:-----LOAD UNL INTO DOR 2-----
6074	050006	004737	011060			JSR	PC,LOOP				:WAIT A LITTLE
6075	050012	042777	000010	132260		BIC	#10,@CSRX				:SELECT CHANNEL 1
6076	050020	012737	000001	002374		MOV	#1,CHAN				:LOAD CHANNEL NUMBER
6077	050026	017737	132216	002502		MOV	@IIRX,BAD				:GET IIR1 CONTENTS
6078	050034	022737	000003	002502		CMP	#3,BAD				:RLC,MAC BIT SHOULD BE SET
6079	050042	001410				BEQ	30\$				:BRANCH IF YES
6080	050044	012737	000003	002500		MOV	#3,GOOD				:SET UP DATA FOR ERROR MESSAGE
6081	050052					ERRSOFT	1713,E501,ERR501				:ERROR HANDLER
	050052	104457									TRAP C\$ERSOFT
	050054	003261									.WORD 1713
	050056	005406									.WORD E501
	050060	003702									.WORD ERR501
6082	050062					CKLOOP					:BRANCH TO BGNSEG IF ERRLOOP IS SET
	050062	104406									TRAP C\$CLP1
6083	050064	052777	000010	132206	30\$:	BIS	#10,@CSRX				:SELECT CHANNEL 2
6084	050072	013701	002312			MOV	DPA1,R1				:CREATE MLA1
6085	050076	062701	000040			ADD	#40,R1				:-----
6086	050102	010137	002410			MOV	R1,MLA1				:STORE MLA1
6087	050106	113777	002410	132162		MOVB	MLA1,@IDRHX				:----LOAD MLA1 INTO DOR 2-----
6088	050114	004737	011060			JSR	PC,LOOP				:WAIT A LITTLE
6089	050120	042777	000010	132152		BIC	#10,@CSRX				:SELECT CHANNEL 1
6090	050126	012737	000001	002374		MOV	#1,CHAN				:LOAD CHANNEL NUMBER
6091	050134	112777	000007	132126		MOVB	#7,@ICRHX				:----LOAD NOT RTL INTO DOR 1-----
6092	050142	017737	132102	002502		MOV	@IIRX,BAD				:GET IIR1 CONTENTS
6093	050150	022737	002003	002502		CMP	#2003,BAD				:MA,RLC,MAC BIT SHOULD BE SET
6094	050156	001410				BEQ	33\$				:BRANCH IF YES
6095	050160	012737	002003	002500		MOV	#2003,GOOD				:SET UP DATA FOR ERROR MESSAGE
6096	050166					ERRSOFT	1744,E501,ERR501				:ERROR HANDLER
	050166	104457									TRAP C\$ERSOFT
	050170	003320									.WORD 1744
	050172	005406									.WORD E501
	050174	003702									.WORD ERR501
6097	050176					CKLOOP					:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	050176	104406									TRAP C\$CLP1
6098	050200	017737	132052	002502	33\$:	MOV	@ISRX,BAD				:GET ISR1 CONTENTS
6099	050206	023737	002462	002502		CMP	CDAT12,BAD				:ATN,NDAC,REN,ATN,LPAS,LADS(ULPA) IS SET
6100	050214	001410				BEQ	40\$				:BRANCH IF YES
6101	050216	013737	002462	002500		MOV	CDAT12,GOOD				:SET UP DATA FOR ERROR MESSAGE
6102	050224					ERRSOFT	1715,E502,ERR501				:ERROR HANDLER
	050224	104457									TRAP C\$ERSOFT
	050226	003263									.WORD 1715
	050230	005447									.WORD E502
	050232	003702									.WORD ERR501
6103	050234					CKLOOP					:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

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 TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

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6104 050234 104406
6104 050236 052777 000010 132034 40$: BIS #10,@CSRX ;SELECT CHANNEL 2 TRAP C$CLP1
6105 050244 113777 002410 132024 MOVB MLA1,@IDRHX ;-----LOAD MLA1 INTO DOR 2-----
6106 050252 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6107 050256 042777 000010 132014 BIC #10,@CSRX ;SELECT CHANNEL 1
6108 050264 017737 131760 002502 MOV @IIRX,BAD ;GET IIR1 CONTENTS
6109 050272 022737 002002 002502 CMP #2002,BAD ;MA,RLC, BIT SHOULD BE SET
6110 050300 001410 BEQ 43$ ;BRANCH IF YES
6111 050302 012737 002002 002500 MOV #2002,GOOD ;SET UP DATA FOR ERROR MESSAGE
6112 050310 ERRSOFT 1716,E501,ERR501 ;ERROR HANDLER
        TRAP C$ERSOFT
        .WORD 1716
        .WORD E501
        .WORD ERR501
6113 050310 104457
        TRAP C$ERSOFT
        .WORD 1716
        .WORD E501
        .WORD ERR501
6113 050312 003264
        TRAP C$CLP1
6113 050314 005406
        TRAP C$CLP1
6113 050316 003702
        TRAP C$CLP1
6113 050320 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6114 050322 017737 131730 002502 43$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
6115 050330 023737 002460 002502 CMP CDAT11,BAD ;ATN,NDAC,REN,REM,ATN,LPAS,LADS(ULPA) SET
6116 050336 001410 BEQ 50$ ;BRANCH IF YES
6117 050340 013737 002460 002500 MOV CDAT11,GOOD ;SET UP DATA FOR ERROR MESSAGE
6118 050346 ERRSOFT 1717,E502,ERR501 ;ERROR HANDLER
        TRAP C$ERSOFT
        .WORD 1717
        .WORD E502
        .WORD ERR501
6119 050346 104457
        TRAP C$ERSOFT
        .WORD 1717
        .WORD E502
        .WORD ERR501
6119 050350 003265
        TRAP C$CLP1
6119 050352 005447
        TRAP C$CLP1
6119 050354 003702
        TRAP C$CLP1
6119 050356 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
6120 050356 104406
        TRAP C$CLP1
6120 050360 052777 000010 131712 50$: BIS #10,@CSRX ;SELECT CHANNEL 2
6121 050366 112777 000021 131702 MOVB #21,@IDRHX ;-----LOAD LLO INTO DOR 2-----
6122 050374 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6123 050400 042777 000010 131672 BIC #10,@CSRX ;SELECT CHANNEL 1
6124 050406 017737 131636 002502 MOV @IIRX,BAD ;GET IIR1 CONTENTS
6125 050414 005737 002502 TST BAD ;CONTENTS SHOULD BE ZERO
6126 050420 001407 BEQ 53$ ;BRANCH IF YES
6127 050422 005037 002500 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
6128 050426 ERRSOFT 1718,E501,ERR501 ;ERROR HANDLER
        TRAP C$ERSOFT
        .WORD 1718
        .WORD E501
        .WORD ERR501
6129 050426 104457
        TRAP C$ERSOFT
        .WORD 1718
        .WORD E501
        .WORD ERR501
6129 050430 003266
        TRAP C$CLP1
6129 050432 005406
        TRAP C$CLP1
6129 050434 003702
        TRAP C$CLP1
6129 050436 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6130 050436 104406
        TRAP C$CLP1
6130 050440 017737 131612 002502 53$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
6131 050446 023737 002464 002502 CMP CDAT13,BAD ;ATN,NDAC,REN,REM,LLO,ATN,LADS(ULPA) SET
6132 050454 001410 BEQ 60$ ;BRANCH IF YES
6133 050456 013737 002464 002500 MOV CDAT13,GOOD ;SET UP DATA FOR ERROR MESSAGE
6134 050464 ERRSOFT 1719,E502,ERR501 ;ERROR HANDLER
        TRAP C$ERSOFT
        .WORD 1719
        .WORD E502
        .WORD ERR501
6135 050464 104457
        TRAP C$ERSOFT
        .WORD 1719
        .WORD E502
        .WORD ERR501
6135 050466 003267
        TRAP C$CLP1
6135 050470 005447
        TRAP C$CLP1
6135 050472 003702
        TRAP C$CLP1
6135 050474 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6136 050474 104406
        TRAP C$CLP1
6136 050476 052777 000010 131574 60$: BIS #10,@CSRX ;SELECT CHANNEL 2
6137 050504 112777 000001 131564 MOVB #1,@IDRHX ;-----LOAD GTL INTO DOR 2-----
6138 050512 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6139 050516 112777 000077 131552 MOVB #77,@IDRHX ;-----LOAD UNL INTO DOR 2-----

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 TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

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6140 050524 004737 011060          JSR      PC_LOOP          ;WAIT A LITTLE
6141 050530 042777 000010 131542    BIC      #10,@CSRX        ;SELECT CHANNEL 1
6142 050536 017737 131514 002502    MOV      @ISR1,BAD        ;GET ISR1 CONTENTS
6143 050544 023737 002466 002502    CMP      CDAT14,BAD       ;ATN,NDAC,REN,LLO,ATN,(ULPA) IS SET
6144 050552 001410          BEQ      63$              ;BRANCH IF YES
6145 050554 013737 002466 002500    MOV      CDAT14,GOOD      ;SET UP DATA FOR ERJOR MESSAGE
6146 050562          ERRSOFT 1720,E502,ERR501 ;ERROR HANDLER
        050562 104457          TRAP     C$ERSOFT
        050564 003270          .WORD   1720
        050566 005447          .WORD   E502
        050570 003702          .WORD   ERR501
6147 050572          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        050572 104406          TRAP     C$CLP1
6148 050574 052777 000010 131470 63$:  BIS      #10,@CSRX        ;SELECT CHANNEL 2
6149 050602 112777 000020 131442    MOV      #20,@IIRLX      ;----LOAD NOT SRE INTO ACR 2-----
6150 050610          ENDSEG
        050610          10001$:
        050610 104405          TRAP     C$ESEG
6151 050612 005737 002234          ;IS QUICK VERIFY PASS SELECTED
6152 050616 001010          BNE      EXQV17          ;IF YES EXIT TEST
6153 050620 005237 002322          INC      ITRCNT          ;ITERATION COUNTER +1
6154 050624 023737 002322 002320    CMP      ITRCNT,ITRDEF   ;DEFAULT ITERATION EXECUTED
6155 050632 001402          BEQ      EXQV17          ;IF YES EXIT TEST
6156 050634 000137 046376          JMP      ITAC17          ;IF NO TEST ITERATION
6157 050640          EXQV17: EXIT      TST
        050640 104432          TRAP     C$EXIT
        050642 000056          .WORD   L10046-
6158
6159
6160 050644 045 123 062 TSHD17: .NLIST  BEX
        .ASCIZ  /%S2%AREMOTE-LOCAL INTERFACE FUNCTION TEST%/
6161 .LIST  BEX
6162 .EVEN
6163 050720          ENDTST
        050720          L10046:
        050720 104401          TRAP     C$ETST
    
```

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TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

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6165 .SBTTL TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1
6166 .....
6167 IEX - TEST 18
6168 THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 1.
6169 PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 1
6170 AND CHECKS THE SRQ BIT IN ISR2.
6171
6172 PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 1.
6173
6174 IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
6175 OUT WITH DIFFERENT DATA.
6176 .....
6177 BGNTST
6178 050722 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6179 050726 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6180 050730 PRINTF #TSHD18 ;....
        MOV #TSHD18,-(SP)
        MOV #1,-(SP)
        MOV SP,RO
        TRAP C$PNTF
        ADD #4,SP
6181 050750 012737 000101 002402 7$: MOV #101,RSAVE ;DATA STORE FOR SERIAL POLL SEQUENCE
6182 050756 104404 ITAC18: BGNSEG ;
        TRAP C$BSEG
6183 050760 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6184 050764 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
6185 050770 032737 000001 002312 BIT #1,DPA1 ;IS DPA EVEN
6186 050776 001404 BEQ 3$ ;BRANCH IF YES
6187 051000 052737 000001 002470 BIS #1,CDAT15 ;SET ULPA BIT IN COMPARE DATA FOR ISR
6188 051006 000403 BR +10 ;
6189 051010 042737 000001 002470 3$: BIC #1,CDAT15 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
6190 051016 042777 000010 131254 BIC #10,@CSRX ;SELECT CHANNEL 1
6191 051024 112777 000100 131234 MOVB #100,@ICRLX ;-----SET RSV BIT IN SPR 1-----
6192 051032 052777 000010 131240 BIS #10,@CSRX ;SELECT CHANNEL 2
6193 051040 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
6194 051046 017737 131176 002502 MOV @IIRX,BAD ;GET IIR2 CONTENTS
6195 051054 022737 001020 002502 CMP #1020,BAD ;SRQ,BO BIT SHOULD BE SET
6196 051062 001410 BEQ 10$ ;BRANCH IF YES
6197 051064 012737 001020 002500 MOV #1020,GOOD ;SET UP DATA FOR ERROR MESSAGE
6198 051072 ERRSOFT 1801,E501,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 1801
        .WORD E501
        .WORD ERR501
6199 051102 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6200 051104 017737 131146 002502 10$: MOV @ISR2,BAD ;GET ISR2 CONTENTS
6201 051112 032737 002000 002502 BIT #2000,BAD ;IS SRQ BIT SET ALSO ATN,NDAC,ATN(ULPA)
6202 051120 001010 BNE 13$ ;BRANCH IF YES
6203 051122 012737 122040 002500 MOV #122040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6204 051130 ERRSOFT 1802,E502,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 1802
        .WORD E502
        .WORD ERR501
6205 051140 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

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 TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

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6206 051140 104406                                TRAP  C$CLP1
6207 051142 042777 000010 131130 13$:  BIC    #10,@CSRX      ;SELECT CHANNEL 1
6208 051150 112777 000000 131110      MOVB   #0,@ICRLX    ;----CLEAR SPR 1 REGISTER-----
6209 051156 052777 000010 131114      BIS    #10,@CSRX    ;SELECT CHANNEL 2
6210 051164 017737 131066 002502      MOV    @ISR1,BAD    ;GET ISR1 CONTENTS
6211 051172 032737 002000 002502      BIT    #2000,BAD    ;SR0 BIT SHOULD BE CLEARED
6212 051200 001410      BEQ    20$          ;BRANCH IF YES
6213 051202 012737 120040 002500      MOV    #120040,GOOD ;SET UP DATA FOR COMPARE
6213 051210      ERRSOFT 1803,E502,ERR501 ;ERROR HANDLER
                                TRAP  C$ERSOFT
                                .WORD 1803
                                .WORD  E502
                                .WORD  ERR501
6214 051210 104457                                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6214 051212 003413                                TRAP  C$CLP1
6214 051214 005447
6214 051216 003702
6215 051220      CKLOOP
6215 051222 104406                                10000$: TRAP  C$ESEG
6215 051222 20$:  ENDSEG
6216 051222 104405
6216
6217 :+-----+
6218 :PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 1
6219 :+-----+
6219 051224      BGNSEG                                TRAP  C$BSEG
6220 051224 104404
6220 051226 042777 000010 131044      BIC    #10,@CSRX    ;SELECT CHANNEL 1
6221 051234 113777 002402 131024      MOVB   RSAVE,@ICRLX ;----LOAD DATA INTO SPR 1-----
6222 051242 052777 000010 131030      BIS    #10,@CSRX    ;SELECT CHANNEL 2
6223 051250 112777 000077 131020      MOVB   #77,@IDRHX   ;----LOAD UNL INTO DOR 2-----
6224 051256 004737 011060      JSR    PC,LOOP      ;WAIT A LITTLE
6225 051262 112777 000211 131000      MOVB   #211,@ICRHX  ;----LOAD LON INTO ACR 2-----
6226 051270 112777 000030 131000      MOVB   #30,@IDRHX   ;----LOAD SPE INTO DOR 2-----
6227 051276 004737 011060      JSR    PC,LOOP      ;WAIT A LITTLE
6228 051302 013701 002312      MOV    DPA1,R1      ;CREATE MTA1
6229 051306 062701 000100      ADD    #100,R1
6230 051312 010137 002414      MOV    R1,MTA1
6231 051316 113777 002414 130752      MOVB   MTA1,@IDRHX  ;STORE MTA1
6232 051324 004737 011060      JSR    PC,LOOP      ;----LOAD MTA1 INTO DOR 2-----
6233 051330 112777 000013 130732      MOVB   #13,@ICRHX  ;WAIT A LITTLE
6234 051336 042777 000010 130734      BIC    #10,@CSRX    ;----LOAD GTS INTO ACR 2-----
6235 051344 012737 000001 002374      MOV    #1,CHAN      ;SELECT CHANNEL 1
6236 051352 017737 130672 002502      MOV    @IIR1,BAD    ;LOAD CHANNEL NUMBER
6237 051360 022737 000405 002502      CMP    #405,BAD     ;GET IIR1 CONTENTS
6238 051366 001410      BEQ    30$          ;IFC,SPAS,MAC SHOULD BE SET
6239 051370 012737 000405 002500      MOV    #405,GOOD    ;BRANCH IF YES
6240 051376      ERRSOFT 1804,E501,ERR501 ;SET UP DATA FOR ERROR MESSAGE
6240 051376 104457                                ;ERROR HANDLER
                                TRAP  C$ERSOFT
                                .WORD 1804
                                .WORD  E501
                                .WORD  ERR501
6241 051400 003414                                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6241 051402 005406                                TRAP  C$CLP1
6241 051404 003702
6241 051406      CKLOOP
6242 051406 104406
6242 051410 017737 130642 002502 30$:  MOV    @ISR1,BAD    ;GET ISR1 CONTENTS
6243 051416 023737 002470 002502      CMP    CDAT15,BAD   ;NDAC,NRFD,TADS,(ULPA) SHOULD BE SET
6244 051424 001410      BEQ    33$          ;BRANCH IF YES
6245 051426 013737 002470 002500      MOV    CDAT15,GOOD  ;SET UP DATA FOR ERROR MESSAGE
6246 051434      ERRSOFT 1805,E502,ERR501 ;ERROR HANDLER
6246 051434 104457                                TRAP  C$ERSOFT
6246 051436 003415                                .WORD 1805
    
```


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 TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

```

051440 005447
051442 003702
6247 051444 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
051444 104406 ;TRAP C$CLP1
6248 051446 052777 000010 130624 33$: BIS #10,@CSRX ;SELECT CHANNEL 2
6249 051454 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
6250 051462 017737 130562 002502 MOV @IIRX,BAD ;GET IIR2 CONTENTS
6251 051470 022737 001060 002502 CMP #1060,BAD ;SRQ,BI,BO BIT SHOULD BE SET
6252 051476 001410 BEQ 40$ ;BRANCH IF YES
6253 051500 012737 001060 002500 MOV #1060,GOOD ;SET UP DATA FOR ERROR MESSAGE
6254 051506 ERRSOFT 1806,E501,ERR501 ;ERROR HANDLER
051506 104457 TRAP C$ERSOFT
051510 003416 .WORD 1806
051512 005406 .WORD E501
051514 003702 .WORD ERR501
6255 051516 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
051516 104406 ;TRAP C$CLP1
6256 051520 112777 000015 130542 40$: MOVB #15,@ICRHX ;----LOAD TCS INTO ACR 2-----
6257 051526 017737 130540 002502 MOV @IDRX,BAD ;READ DATA FROM DIR2 REGISTER
6258 051534 105037 002502 CLRB BAD ;CLEAR LOW BYTE OF BAD CONTENTS
6259 051540 000337 002502 SWAB BAD ;SWAB BAD
6260 051544 023737 002402 002502 CMP RSAVE,BAD ;COMPARE TRANSMITTED WITH RECEIVED DATA
6261 051552 001410 BEQ 43$ ;BRANCH IF EQUAL
6262 051554 013737 002402 002500 MOV RSAVE,GOOD ;SET UP DATA FOR ERROR MESSAGE
6263 051562 ERRSOFT 1807,E801,ERR501 ;ERROR HANDLER
051562 104457 TRAP C$ERSOFT
051564 003417 .WORD 1807
051566 005510 .WORD E801
051570 003702 .WORD ERR501
6264 051572 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
051572 104406 ;TRAP C$CLP1
6265 051574 017737 130450 002502 43$: MOV @IIRX,BAD ;GET IIR2 CONTENTS
6266 051602 022737 000020 002502 CMP #20,BAD ;BO BIT SHOULD BE SET
6267 051610 001410 BEQ 50$ ;BRANCH IF YES
6268 051612 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
6269 051620 ERRSOFT 1808,E501,ERR501 ;ERROR HANDLER
051620 104457 TRAP C$ERSOFT
051622 003420 .WORD 1808
051624 005406 .WORD E501
051626 003702 .WORD ERR501
6270 051630 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
051630 104406 ;TRAP C$CLP1
6271 051632 112777 000011 130430 50$: MOVB #11,@ICRHX ;----LOAD NOT LON INTO ACR 2-----
6272 051640 112777 000031 130430 MOVB #31,@IDRX ;----LOAD SPD INTO DOR 2-----
6273 051646 004737 011060 JSR PC LOOP ;WAIT A LITTLE
6274 051652 112777 000137 130416 MOVB #137,@IDRX ;----LOAD UNT INTO DOR 2-----
6275 051660 004737 011060 JSR PC LOOP ;WAIT A LITTLE
6276 051664 042777 000010 130406 BIC #10,@CSRX ;SELECT CHANNEL 1
6277 051672 112777 000000 130366 MOVB #0,@ICRLX ;----CLEAR SPR 1 REGISTER-----
6278 051700 ENDSEG
051700 10001$: TRAP C$ESEG
6279 051702 005737 002234 TST QVP ;IS QUICK VERIFY PASS SELECTED
6280 051706 001010 BNE EXQV18 ;IF YES EXIT TEST
6281 051710 005237 002402 INC RSAVE ;CREATE NEW DATA PATTERN
6282 051714 022737 000176 002402 CMP #176,RSAVE ;ALL DATA PATTERN DONE
6283 051722 001402 BEQ EXQV18 ;IF YES EXIT TEST

```

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TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

```

6284 051724 000137 050756          JMP      ITAC18          ;IF NO TEST ITERATION
6285 051730          EXQV18: EXIT      TST          ;EXIT TEST
        051730 104432          TRAP      C$EXIT
        051732 000076          .WORD     L10047-.
6286
6287
6288 051734      045      123      062  TSHD18: .NLIST  BEX
        .ASCIZ  /%S2%ASERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1%/
6289        .LIST  BEX
6290        .EVEN
6291 052030          ENDTST
        052030          L10047:
        052030 104401          TRAP      C$ETST

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 61
 TEST 19: SERVICE REQUEST INTERFACE FUNTION TEST OF CHANNEL 2

```

6293 .SBTTL TEST 19: SERVICE REQUEST INTERFACE FUNTION TEST OF CHANNEL 2
6294 .....
6295 IEX - TEST 19
6296 :THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 2.
6297 :PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 2 AND
6298 :CHECKS THE SRQ BIT IN ISR1.
6299 :
6300 :PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 2.
6301 :
6302 :IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
6303 :OUT WITH DIFFERENT DATA.
6304 .....
6305 BGNTST
6306 052032 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6307 052036 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6308 052040 PRINTF #TSHD19 ;...
        MOV #TSHD19,-(SP)
        MOV #1,-(SP)
        MOV SP,RO
        TRAP C$PNTF
        ADD #4,SP
6309 052060 012746 053044 002402 7$: MOV #101,RSAVE ;DATA STORE FOR SERIAL POLL SEQUENCE
6310 052066 001010 000101 ITAC19: BGNSEG
        TRAP C$BSEG
6311 052070 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6312 052074 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
6313 052100 032737 000001 002314 BIT #1,DPA2 ;IS DPA EVEN
6314 052106 001404 BEQ 3$ ;BRANCH IF YES
6315 052110 052737 000001 002470 BIS #1,CDAT15 ;SET ULPA BIT IN COMPARE DATA FOR ISR
6316 052116 000403 BR +10 ;
6317 052120 042737 000001 002470 3$: BIC #1,CDAT15 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
6318 052126 052777 000010 130144 BIS #10,@CSRX ;SELECT CHANNEL 2
6319 052134 112777 000100 130124 MOVB #100,@ICRLX ;-----SET RSV BIT IN SPR 2-----
6320 052142 042777 000010 130130 BIC #10,@CSRX ;SELECT CHANNEL 1
6321 052150 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
6322 052156 017737 130066 002502 MOV @IRX,BAD ;GET IIR1 CONTENTS
6323 052164 022737 001020 002502 CMP #1020,BAD ;SRQ,BO BIT SHOULD BE SET
6324 052172 001410 BEQ 10$ ;BRANCH IF YES
6325 052174 012737 001020 002500 MOV #1020,GOOD ;SET UP DATA FOR ERROR MESSAGE
6326 052202 ERRSOFT 1901,E501,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 1901
        .WORD E501
        .WORD ERR501
6327 052212 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6328 052214 017737 130036 002502 10$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
6329 052222 032737 002000 002502 BIT #2000,BAD ;IS SRQ BIT SET ALSO ATN,NDAC,ATN(ULPA)
6330 052230 001010 BNE 13$ ;BRANCH IF YES
6331 052232 012737 122040 002500 MOV #122040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6332 052240 ERRSOFT 1902,E502,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 1902
        .WORD E502
        .WORD ERR501
6333 052250 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
    
```

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 TEST 19: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2

```

052250 104406
6334 052252 052777 000010 130020 13$: BIS #10,@CSRX ;SELECT CHANNEL 2 TRAP C$CLP1
6335 052260 112777 000000 130000 MOVB #0,@ICRLX ;-----CLEAR SPR 2 REGISTER-----
6336 052266 042777 000010 130004 BIC #10,@CSRX ;SELECT CHANNEL 1
6337 052274 017737 127756 002502 MOV @ISR2,BAD ;GET ISR2 CONTENTS
6338 052302 032737 002000 002502 BIT #2000,BAD ;SRQ BIT SHOULD BE CLEARED
6339 052310 001410 BEQ 20$ ;BRANCH IF YES
6340 052312 012737 120040 002500 MOV #120040,GOOD ;SET UP DATA FOR COMPARE
6341 052320 ERRSOFT 1903,E502,ERR501 ;ERROR HANDLER
052320 104457 TRAP C$ERSOFT
052322 003557 .WORD 1903
052324 005447 .WORD E502
052326 003702 .WORD ERR501
6342 052330 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
052330 104406 TRAP C$CLP1
6343 052332 20$: ENDSEG
052332 104405 10000$: TRAP C$ESEG
6344 :-----
6345 :PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 2
6346 :-----
6347 052334 BGNSEG
052334 104404 TRAP C$BSEG
6348 052336 052777 000010 127734 BIS #10,@CSRX ;SELECT CHANNEL 2
6349 052344 113777 002402 127714 MOVB RSAVE,@ICRLX ;-----LOAD DATA INTO SPR 2-----
6350 052352 042777 000010 127720 BIC #10,@CSRX ;SELECT CHANNEL 1
6351 052360 112777 000077 127710 MOVB #77,@IDRH ;-----LOAD UNL INTO DOR 1-----
6352 052366 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6353 052372 112777 000211 127670 MOVB #211,@ICRH ;-----LOAD LON IN ACR 1-----
6354 052400 112777 000030 127670 MOVB #30,@IDRH ;-----LOAD SPE INTO DOR 1-----
6355 052406 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6356 052412 013701 002314 MOV DPA2,R1 ;CREATE MTA2
6357 052416 062701 000100 ADD #100,R1
6358 052422 010137 002416 MOV R1,MTA2 ;STORE MTA2
6359 052426 113777 002416 127642 MOVB MTA2,@IDRH ;-----LOAD MTA1 INTO DOR 1-----
6360 052434 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6361 052440 112777 000013 127622 MOVB #13,@ICRH ;-----LOAD GTS INTO ACR 1-----
6362 052446 052777 000010 127624 BIS #10,@CSRX ;SELECT CHANNEL 2
6363 052454 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
6364 052462 017737 127562 002502 MOV @ISR2,BAD ;GET ISR2 CONTENTS
6365 052470 022737 000405 002502 CMP #405,BAD ;IFC,SPAS,MAC SHOULD BE SET
6366 052476 001410 BEQ 30$ ;BRANCH IF YES
6367 052500 012737 000405 002500 MOV #405,GOOD ;SET UP DATA FOR ERROR MESSAGE
6368 052506 ERRSOFT 1904,E501,ERR501 ;ERROR HANDLER
052506 104457 TRAP C$ERSOFT
052510 003560 .WORD 1904
052512 005406 .WORD E501
052514 003702 .WORD ERR501
6369 052516 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
052516 104406 TRAP C$CLP1
6370 052520 017737 127532 002502 30$: MOV @ISR2,BAD ;GET ISR2 CONTENTS
6371 052526 023737 002470 002502 CMP CDAT15,BAD ;NDAC,NRFD,TADS,(ULPA) SHOULD BE SET
6372 052534 001410 BEQ 33$ ;BRANCH IF YES
6373 052536 013737 002470 002500 MOV CDAT15,GOOD ;SET UP DATA FOR ERROR MESSAGE
6374 052544 ERRSOFT 1905,E502,ERR501 ;ERROR HANDLER
052544 104457 TRAP C$ERSOFT
052546 003561 .WORD 1905

```

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TEST 19: SERVICE REQUEST INTERFACE FUNTION TEST OF CHANNEL 2

```

        052550 005447
        052552 003702
6375 052554 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        052554 104406 ;TRAP C$CLP1
        052556 042777 000010 127514 33$: BIC #10,@CSRX ;SELECT CHANNEL 1
6376 052556 042777 000010 127514 33$: MOV #1,CHAN ;LOAD CHANNEL NUMBER
6377 052564 012737 000001 002374 MOV @IIRX,BAD ;GET IIR1 CONTENTS
6378 052572 017737 127452 002502 CMP #1060,BAD ;SRQ,BI,BO BIT SHOULD BE SET
6379 052600 022737 001060 002502 BEQ 40$ ;BRANCH IF YES
6380 052606 001410 BEQ 40$ ;SET UP DATA FOR ERROR MESSAGE
6381 052610 012737 001060 002500 MOV #1060,GOOD ;ERROR HANDLER
6382 052616 ERRSOF1 1906,E501,ERR501
        052616 104457 TRAP C$ERSOFT
        052620 003562 .WORD 1906
        052622 005406 .WORD E501
        052624 003702 .WORD ERR501
6383 052626 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        052626 104406 ;TRAP C$CLP1
6384 052630 112777 000015 127432 40$: MOV #15,@ICRHX ;----LOAD TCS INTO ACR 1-----
6385 052636 017737 127430 002502 MOV @IDRX,BAD ;READ DATA FROM DIR1 REGISTER
6386 052644 105037 002502 CLRB BAD ;CLEAR LOW BYTE OF BAD CONTENTS
6387 052650 000337 002502 SWAB BAD ;SWAB BAD
6388 052654 023737 002402 002502 CMP RSAVE,BAD ;COMPARE TRANSMITTED WITH RECEIVED DATA
6389 052662 001410 BEQ 43$ ;BRANCH IF EQUAL
6390 052664 013737 002402 002500 MOV RSAVE,GOOD ;SET UP DATA FOR ERROR MESSAGE
6391 052672 ERRSOF1 1907,E802,ERR501 ;ERROR HANDLER
        052672 104457 TRAP C$ERSOFT
        052674 003563 .WORD 1907
        052676 005566 .WORD E802
        052700 003702 .WORD ERR501
6392 052702 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        052702 104406 ;TRAP C$CLP1
6393 052704 017737 127340 002502 43$: MOV @IIRX,BAD ;GET IIR1 CONTENTS
6394 052712 022737 000020 002502 CMP #20,BAD ;BO BIT SHOULD BE SET
6395 052720 001410 BEQ 50$ ;BRANCH IF YES
6396 052722 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
6397 052730 ERRSOF1 1908,E501,ERR501 ;ERROR HANDLER
        052730 104457 TRAP C$ERSOFT
        052732 003564 .WORD 1908
        052734 005406 .WORD E501
        052736 003702 .WORD ERR501
6398 052740 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        052740 104406 ;TRAP C$CLP1
6399 052742 112777 000011 127320 50$: MOV #11,@ICRHX ;----LOAD NOT LON INTO ACR 1-----
6400 052750 112777 000031 127320 MOV #31,@IDRX ;----LOAD SPD INTO DOR 1-----
6401 052756 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6402 052762 112777 000137 127306 MOV #137,@IDRX ;----LOAD UNT INTO DOR 1-----
6403 052770 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6404 052774 052777 000010 127276 BIS #10,@CSRX ;SELECT CHANNEL 2
6405 053002 112777 000000 127256 MOV #0,@ICRLX ;----CLEAR SPR 2 REGISTER-----
6406 053010 ENDSEG
        053010 104405 10001$: TRAP C$ESEG
6407 053012 005737 002234 TST QVP ;IS QUICK VERIFY PASS SELECTED
6408 053016 001010 BNE EXQV19 ;IF YES EXIT TEST
6409 053020 005237 002402 INC RSAVE ;CREATE NEW DATA PATTERN
6410 053024 022737 000176 002402 CMP #176,RSAVE ;ALL DATA PATTERN DONE
6411 053032 001402 BEQ EXQV19 ;IF YES EXIT TEST

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 61-3
TEST 19: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2

```

6412 053034 000137 052066          JMP      ITAC19          ;IF NO TEST ITERATION
6413 053040          EXQV19: EXIT      TST          ;EXIT TEST
      053040 104432
      053042 000076          TRAP      C$EXIT
                                   .WORD      L10050-.
6414
6415
6416 053044      045      123      062  TSHD19: .NLIST  BEX
6417          .ASCIZ  /%S2%ASERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2%/
6418          .LIST   BEX
6419          .EVEN
      053140          ENDTST
      053140          L10050:
      053140 104401          TRAP      C$ETST

```

HARDWARE TESTS MACRO M1113 06-SFO-82 16:46 PAGE 62
TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

```

6421 .SBTTL TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1
6422 :*****
6423 : IEX - TEST 20
6424 : PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
6425 :
6426 : PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).
6427 :*****
6428 053142 BGNTST
        053142
6429 053142 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6430 053146 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6431 053150 PRINTF #TSHD20 ;....
        053150 012746 054116 MOV #TSHD20,-(SP)
        053154 012746 000001 MOV #1,-(SP)
        053160 010600 MOV SP,R0
        053162 104417 TRAP C$PNTF
        053164 062706 000004 ADD #4,SP
6432 053170 012737 000001 002420 7$: MOV #1,MSA1 ;LOAD DATA FOR PPR
6433 053176 012737 000140 002402 MOV #140,RSVAE ;LOAD FIRST PPE
6434 053204 004737 010220 ITAC20: JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6435 053210 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
6436 053214 042777 000010 127056 BIC #10,@CSRX ;SELECT CHANNEL 1
6437 053222 112777 000223 127040 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 1-----
6438 053230 112777 000040 127024 MOVB #40,@ISRHX ;----SET UCG BIT IN ISR 1-----
6439 053236 BGNSEG
        053236 104404 TRAP C$BSEG
6440 053240 042777 000010 127032 BIC #10,@CSRX ;SELECT CHANNEL 1
6441 053246 112777 000020 127020 MOVB #20,@IDRLX ;----LOAD PP5 INTO PPR 1-----
6442 053254 052777 000010 127016 BIS #10,@CSRX ;SELECT CHANNEL 2
6443 053262 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
6444 053270 112777 000216 126772 MOVB #216,@ICRHX ;----LOAD RPP INTO ACR 2-----
6445 053276 017737 126762 002502 MOV @ICRX,BAD ;GET ICR2 CONTENTS
6446 053304 122737 000020 002502 CMPB #20,BAD ;ICR CONTENTS SHOULD BE 20
6447 053312 001410 BEQ 10$ ;BRANCH IF YES
6448 053314 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
6449 053322 ERRSOFT 2001,E901,ERR501 ;ERROR HANDLER
        053322 104457 TRAP C$ERRSOFT
        053324 003721 .WORD 2001
        053326 005644 .WORD E901
        053330 003702 .WORD ERR501
6450 053332 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        053332 104406 TRAP C$CLP1
6451 053334 017737 126716 002502 10$: MOV @ISRX,BAD ;GET ISR2 CONTENTS
6452 053342 022737 104040 002502 CMP #104040,BAD ;ATN,E01,ATN SHOULD BE SET
6453 053350 001410 BEQ 20$ ;BRANCH IF YES
6454 053352 012737 104040 002500 MOV #104040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6455 053360 ERRSOFT 2002,E502,ERR501 ;ERROR HANDLER
        053360 104457 TRAP C$ERRSOFT
        053362 003722 .WORD 2002
        053364 005447 .WORD E502
        053366 003702 .WORD ERR501
6456 053370 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        053370 104406 TRAP C$CLP1
6457 053372 112777 000016 126670 20$: MOVB #16,@ICRHX ;----LOAD NOT RPP INTO ACR 2-----
6458 053400 ENDSEG
        053400
        053400 104405 10000$: TRAP C$ESEG

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 62-1
 TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

```

6459
6460
6461
6462 053402
        053402 104404
6463 053404 052777 000010 126666      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6464 053412 112777 000025 126656      MOV      #25,@IDRHX   ;----LOAD PPU INTO DOR 2-----
6465 053420 004737 011060      JSR      PC,LOOP     ;WAIT A LITTLE
6466 053424 042777 000010 126646      BIC      #10,@CSRX   ;SELECT CHANNEL 1
6467 053432 012737 000001 002374      MOV      #1,CHAN     ;LOAD CHANNEL NUMBER
6468 053440 017737 126620 002502      MOV      @ICRX,BAD   ;GET ICR1 CONTENTS
6469 053446 122737 000025 002502      CMP      #25,BAD     ;ICR CONTENTS SHOULD BE 25
6470 053454 001410      BEQ      23$         ;BRANCH IF YES
6471 053456 012737 000025 002500      MOV      #25,GOOD    ;SET UP DATA FOR ERROR MESSAGE
6472 053464      ERRSOFT 2003,E901,ERR501 ;ERROR HANDLER
        053464 104457
        053466 003723
        053470 005644
        053472 003702
6473 053474      CKLOOP
        053474 104406
6474 053476 112777 000000 126570 23$: MOV      #0,@IDRLX   ;----CLEAR PPR REGISTER-----
6475 053504 112777 000001 126556      MOV      #1,@ICRHX   ;----LOAD NOT DACR INTO ACR 1-----
6476 053512 013701 002312      MOV      DPA1,R1     ;CREATE MLA1
6477 053516 062701 000040      ADD      #40,R1
6478 053522 010137 002410      MOV      R1,MLA1     ;STORE MLA1
6479 053526 052777 000010 126544      BIS      #10,@CSRX   ;SELECT CHANNEL 2
6480 053534 113777 002410 126534      MOV      MLA1,@IDRHX ;----LOAD MLA1 INTO DOR 2-----
6481 053542 004737 011060      JSR      PC,LOOP     ;WAIT A LITTLE
6482 053546      ENDSEG
        053546
        053546 104405
6483 053550      BGNSEG
        053550 104404
6484 053552 052777 000010 126520      BIS      #10,@CSRX   ;SELECT CHANNEL 2
6485 053560 112777 000005 126510      MOV      #5,@IDRHX   ;----LOAD PPC INTO DOR 2-----
6486 053566 004737 011060      JSR      PC,LOOP     ;WAIT A LITTLE
6487 053572 042777 000010 126500      BIC      #10,@CSRX   ;SELECT CHANNEL 1
6488 053600 017737 126460 002502      MOV      @ICRX,BAD   ;GET ICR1 CONTENTS
6489 053606 122737 000005 002502      CMP      #5,BAD     ;ICR CONTENTS SHOULD BE 5
6490 053614 001410      BEQ      30$         ;BRANCH IF YES
6491 053616 012737 000005 002500      MOV      #5,GOOD    ;SET UP DATA FOR ERROR MESSAGE
6492 053624      ERRSOFT 2004,E901,ERR501 ;ERROR HANDLER
        053624 104457
        053626 003724
        053630 005644
        053632 003702
6493 053634      CKLOOP
        053634 104406
6494 053636 112777 000024 126424 30$: MOV      #24,@ICRHX   ;----LOAD PTS INTO ACR 1-----
6495 053644 112777 000001 126416      MOV      #1,@ICRHX   ;----LOAD NOT DACR INTO ACR 1-----
6496 053652      ENDSEG
        053652
        053652 104405
6497 053654      BGNSEG
        053654 104404
6498 053656 052777 000010 126414      BIS      #10,@CSRX   ;SELECT CHANNEL 2
    
```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 63
 TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

```

6538 .SBTTL TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2
6539 .....
6540 IEX - TEST 21
6541 :PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
6542 :
6543 :PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).
6544 .....
6545 054212 BGNTST
        054212
6546 054212 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6547 054216 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6548 054220 PRINTF #TSHD21 ;....
        054220 012746 055166 MOV #TSHD21,-(SP)
        054224 012746 000001 MOV #1,-(SP)
        054230 010600 MOV SP,R0
        054232 104417 TRAP C$PNTF
        054234 062706 000004 ADD #4,SP
6549 054240 012737 000001 002420 7$: MOV #1,MSA1 ;LOAD DATA FOR PPR
6550 054246 012737 000140 002402 MOV #140,RSAVE ;LOAD FIRST PPE
6551 054254 004737 010220 ITAC21: JSR PC,C'ILPA ;CLEAR ULPA BIT ISR 1 AND 2
6552 054260 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
6553 054264 052777 000010 126006 BIS #10,@CSRX ;SELECT CHANNEL 2
6554 054272 112777 000223 125770 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
6555 054300 112777 000040 125754 MOVB #40,@ISRHX ;----SET UCG BIT IN ISR 2-----
6556 054306 BGNSEG TRAP C$BSEG
        054306 104404
6557 054310 052777 000010 125762 BIS #10,@CSRX ;SELECT CHANNEL 2
6558 054316 112777 000020 125750 MOVB #20,@IDRLX ;----LOAD PPS INTO PPR 2-----
6559 054324 042777 000010 125746 BIC #10,@CSRX ;SELECT CHANNEL 1
6560 054332 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
6561 054340 112777 000216 125722 MOVB #216,@ICRHX ;----LOAD RPP INTO ACR 1-----
6562 054346 017737 125712 002502 MOV @ICRX,BAD ;GET ICR1 CONTENTS
6563 054354 122737 000020 002502 CMPB #20,BAD ;ICR CONTENTS SHOULD BE 20
6564 054362 001410 BEQ 10$ ;BRANCH IF YES
6565 054364 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
6566 054372 ERRSOFT 2101,E901,ERR501 ;ERROR HANDLER
        054372 104457 TRAP C$ERRSOFT
        054374 004065 .WORD 2101
        054376 005644 .WORD E901
        054400 003702 .WORD ERR501
6567 054402 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        054402 104406 TRAP C$CLP1
6568 054404 017737 125646 002502 10$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
6569 054412 022737 104040 002502 CMP #104040,BAD ;ATN,EOI,ATN SHOULD BE SET
6570 054420 001410 BEQ 20$ ;BRANCH IF YES
6571 054422 012737 104040 002500 MOV #104040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6572 054430 ERRSOFT 2102,E502,ERR501 ;ERROR HANDLER
        054430 104457 TRAP C$ERRSOFT
        054432 004066 .WORD 2102
        054434 005447 .WORD E502
        054436 003702 .WORD ERR501
6573 054440 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        054440 104406 TRAP C$CLP1
6574 054442 112777 000016 125620 20$: MOVB #16,@ICRHX ;----LOAD NOT RPP INTO ACR 1-----
6575 054450 ENDSEG
        054450 104405 10000$: TRAP C$ESEG
    
```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 63-1
 TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

```

6576
6577
6578
6579 054452
      054452 104404
6580 054454 042777 000010 125616
6581 054462 112777 000025 125606
6582 054470 004737 011060
6583 054474 052777 000010 125576
6584 054502 012737 000002 002374
6585 054510 017737 125550 002502
6586 054516 122737 000025 002502
6587 054524 001410
6588 054526 012737 000025 002500
6589 054534
      054534 104457
      054536 004067
      054540 005644
      054542 003702
6590 054544
      054544 104406
6591 054546 112777 000000 125520 23$:
6592 054554 112777 000001 125506
6593 054562 013701 002314
6594 054566 062701 000040
6595 054572 010137 002412
6596 054576 042777 000010 125474
6597 054604 113777 002412 125464
6598 054612 004737 011060
6599 054616
      054616 104405
6600 054620
      054620 104404
6601 054622 042777 000010 125450
6602 054630 112777 000005 125440
6603 054636 004737 011060
6604 054642 052777 000010 125430
6605 054650 017737 125410 002502
6606 054656 122737 000005 002502
6607 054664 001410
6608 054666 012737 000005 002500
6609 054674
      054674 104457
      054676 004070
      054700 005644
      054702 003702
6610 054704
      054704 104406
6611 054706 112777 000024 125354 30$:
6612 054714 112777 000001 125346
6613 054722
      054722 104405
6614 054724
      054724 104404
6615 054726 042777 000010 125344

:PART 2 CHECKS THE PARALLEL POLL SEQUENCE (REMOTE CONFIGURED)
-----
BGNSEG
TRAP C$BSEG
:SELECT CHANNEL 1
:----LOAD PPU INTO DOR 1-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ICR2 CONTENTS
:ICR CONTENTS SHOULD BE 25
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 2103
.WORD E901
.WORD ERR501
:BRANCH TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1
:----CLEAR PPR REGISTER-----
:----LOAD NOT DACR INTO ACR 2-----
:CREATE MLA2
:..
:STORE MLA2
:SELECT CHANNEL 1
:----LOAD MLA2 INTO DOR 1-----
:WAIT A LITTLE
10001$:
TRAP C$ESEG
TRAP C$BSEG
:SELECT CHANNEL 1
:----LOAD PPC INTO DOR 1-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:GET ICR2 CONTENTS
:ICR CONTENTS SHOULD BE 5
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 2104
.WORD E901
.WORD ERR501
:BRANCH TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1
:----LOAD PTS INTO ACR 2-----
:----LOAD NOT DACR INTO ACR 2-----
10002$:
TRAP C$ESEG
TRAP C$BSEG
:SELECT CHANNEL 1
    
```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64
TEST 22: END OF A MESSAGE BLOCK TEST

```

6655      .SBTTL TEST 22: END OF A MESSAGE BLOCK TEST
6656      :.....
6657      :               IEX - TEST 22
6658      :PART 1 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 1. CHANNEL 2 SENDS THE
6659      :               EOI MESSAGE VIA THE IEC/IEEE BUS.
6660      :PART 2 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 2. CHANNEL 1 SENDS THE
6661      :               EOI MESSAGE VIA THE IEC/IEEE BUS.
6662      :.....
6663      BGNSTST
6664      055262 005737 002324      TST      PNTF      ;IS THE PNT FLAG SET
6665      055266 001410      BEQ      7$      ;IF YES, PRINT THE TEST HEADER
6666      055270      PRINTF  #TSHD22 ;....
6667      055270 012746 057202      MOV      #TSHD22,-(SP)
6668      055274 012746 000001      MOV      #1,-(SP)
6669      055300 010600      MOV      SP,R0
6670      055302 104417      TRAP    C$PNTF
6671      055304 062706 000004      ADD      #4,SP
6672      055310 005037 002322      7$:      CLR      ITRCNT ;CLEAR ITERATION COUNTER
6673      055314 004737 010220      JSR      PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6674      055320 004737 010534      ITAC22: JSR      PC,BGIN1 ;SET UP PARAMETER
6675      055324      BGNSEG
6676      055324 104404      TRAP    C$BSEG
6677      055326 112777 000223 124734      MOVB    #223,@ICRHX ;----LOAD DAI INTO ACR 1-----
6678      055334 052777 000010 124736      BIS     #10,@CSRX ;SELECT CHANNEL 2
6679      055342 112777 000223 124720      MOVB    #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
6680      055350 042777 000010 124722      BIC     #10,@CSRX ;SELECT CHANNEL 1
6681      055356 112777 000203 124704      MOVB    #203,@ICRHX ;----LOAD HDFA INTO ACR 1-----
6682      055364 112777 000211 124676      MOVB    #211,@ICRHX ;----LOAD LON INTO ACR 1-----
6683      055372 013701 002314      MOV     DPA2,R1 ;CREATE MTA2
6684      055376 062701 000100      ADD     #100,R1
6685      055402 010137 002416      MOV     R1,MTA2 ;STORE MTA2
6686      055406 113777 002416 124662      MOVB    MTA2,@IDRHX ;----LOAD MTA2 INTO DOR 1-----
6687      055414 004737 011060      JSR     PC,LOOP ;WAIT A LITTLE
6688      055420 112777 000013 124642      MOVB    #13,@ICRHX ;----LOAD GTS INTO ACR 1-----
6689      055426      ENDSEG
6690      055426      10000$:
6691      055426 104405      TRAP    C$ESEG
6692      055430      BGNSEG
6693      055430 104404      TRAP    C$BSEG
6694      055432 052777 000010 124640      BIS     #10,@CSRX ;SELECT CHANNEL 2
6695      055440 112777 000125 124630      MOVB    #125,@IDRHX ;----LOAD DATA INTO DOR 2-----
6696      055446 042777 000010 124624      BIC     #10,@CSRX ;SELECT CHANNEL 1
6697      055454 012737 000001 002374      MOV     #1,CHAN ;LOAD CHANNEL NUMBER
6698      055462 017737 124562 002502      MOV     @IIRX,BAD ;GET IIR1 CONTENTS
6699      055470 022737 000060 002502      CMP     #60,BAD ;BI,BO BIT SHOULD BE SET
6700      055476 001410      BEQ     10$ ;BRANCH IF YES
6701      055500 012737 000060 002500      MOV     #60,GOOD ;SET UP DATA FOR ERROR MESSAGE
6702      055506      ERRSOFT 2201,E501,ERR501 ;ERROR HANDLER
6703      055506 104457      TRAP    C$ERRSOFT
6704      055510 004231      .WORD  2201
6705      055512 005406      .WORD  E501
6706      055514 003702      .WORD  ERR501
6707      055516      CKLOOP
6708      055516 104406      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6709      055520 017737 124532 002502      10$:   MOV     @ISRX,BAD ;GET ISR1 CONTENTS
6710      055526 022737 030004 002502      CMP     #30004,BAD ;NDAC,NRFD,LADS SHOULD BE SET

```


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 TEST 22: END OF A MESSAGE BLOCK TEST

```

6733 056006 017737 124236 002502      MOV      @IIRX,BAD      ;GET IIR1 CONTENTS
6734 056014 022737 000050 002502      CMP      #50,BAD      ;BI,END BIT SHOULD BE SET
6735 056022 001410 000050 002500      BEQ      33$          ;BRANCH IF YES
6736 056024 012737 000050 002500      MOV      #50,GOOD     ;SET UP DATA FOR ERROR MESSAGE
6737 056032 104457 000050 002500      ERRSOFT 2205,E501,ERR501 ;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD    2205
                                .WORD    E501
                                .WORD    ERR501
6738 056042 104406 000050 002500      CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
6739 056044 017737 124206 002502 33$:  MOV      @ISRX,BAD     ;GET ISR1 CONTENTS
6740 056052 022737 034004 002502      CMP      #34004,BAD   ;NDAC,NRFD,EOI,LADS, IS SET
6741 056060 001410 000050 002500      BEQ      40$          ;BRANCH IF YES
6742 056062 013737 034004 002500      MOV      34004,GOOD   ;SET UP DATA FOR ERROR MESSAGE
6743 056070 104457 000050 002500      ERRSOFT 2206,E502,ERR501 ;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD    2206
                                .WORD    E502
                                .WORD    ERR501
6744 056100 104406 000050 002500      CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
6745 056102 017737 124164 002502 40$:  MOV      @IDRX,BAD     ;READ DATA FROM DIR1
6746 056110 105037 002502 002502      CLRB     BAD          ;CLEAR LOW BYTE
6747 056114 000337 002502 002502      SWAB    BAD          ;SWAB HIGH WITH LOW BYTE
6748 056120 122737 000127 002502      CMPB    #127,BAD     ;COMPARE LOADED DATA WITH DIR CONTENTS
6749 056126 001410 000127 002500      BEQ      43$          ;BRANCH IF EQUAL
6750 056130 012737 000127 002500      MOV      #127,GOOD   ;SET UP DATA FOR ERROR MESSAGE
6751 056136 104457 000127 002500      ERRSOFT 2207,E222,ERR501 ;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD    2207
                                .WORD    E222
                                .WORD    ERR501
6752 056146 104406 000127 002500      CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
6753 056150 104405 000127 002500 43$:  ENDSEG          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
                                10003$:
6754 056152 112777 000002 124110      MOVB    #2,@ICRHX    ;----LOAD RHDF INTO ACR 1-----
6755 056160 112777 000015 124102      MOVB    #15,@ICRHX   ;----LOAD TCS INTO ACR 1-----
6756 056166 112777 000011 124074      MOVB    #11,@ICRHX   ;----LOAD NOT LON INTO ACR 1-----
6757 056174 112777 000137 124074      MOVB    #137,@IDRHX  ;----LOAD UNT INTO DOR 1-----
6758 056202 004737 011060 124054      JSR     PC,LOOP      ;WAIT A LITTLE
6759 056206 112777 000200 124054      MOVB    #200,@ICRHX  ;----LOAD SWRST INTO ACR 1-----
6760 056214 112777 000000 124046      MOVB    #0,@ICRHX    ;----LOAD NOT SWRST INTO ACR 1-----
6761
6762
6763
:+++:-----
:PART 2 CHECKS THE 'END OF A MESSAGE BLOCK' OF CHANNEL 2
:+++:-----
PSEU18: JSR     FC,CULPA ;CLEAR ULPA BIT IN ISR 1AND 2
        JSR     PC,BGIN2 ;SET UP PARAMETER
6764 056222 004737 010220 124036      BGNSEG
6765 056226 004737 010710 124020      BIS     #10,@CSRX    ;SELECT CHANNEL 2
6766 056232 104404 000010 124020      MOVB    #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
6767 056234 052777 000010 124022      BIC     #10,@CSRX    ;SELECT CHANNEL 1
6768 056242 112777 000223 124004      MOVB    #223,@ICRHX ;----LOAD DAI INTO ACR 1-----
6769 056250 042777 000010 124006      BIS     #10,@CSRX    ;SELECT CHANNEL 2
6770 056256 112777 000223 124006
6771 056264 052777 000010 124006

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 TEST 22: END OF A MESSAGE BLOCK TEST

6772	056272	112777	000203	123770		MOVB	#203,@ICRHX		:-----LOAD HDFA INTO ACR 2-----
6773	056300	112777	000211	123762		MOVB	#211,@ICRHX		:-----LOAD LON INTO ACR 2-----
6774	056306	013701	002312			MOV	DPA1,R1		:CREATE MTA1
6775	056312	062701	000100			ADD	#100,R1		:STORE MTA1
6776	056316	010137	002414			MOV	R1,MTA1		:-----LOAD MTA1 INTO DOR 2-----
6777	056322	113777	002414	123746		MOVB	MTA1,@IDRHX		:WAIT A LITTLE
6778	056330	004737	011060			JSR	PC,LOOP		:-----LOAD GTS INTO ACR 2-----
6779	056334	112777	000013	123726		MOVB	#13,@ICRHX		
6780	056342					ENDSEG			
	056342								10004\$:
6781	056344	104405				BGNSEG			TRAP C\$ESEG
	056344	104404							TRAP C\$BSEG
6782	056346	042777	000010	123724		BIC	#10,@CSRX		:SELECT CHANNEL 1
6783	056354	112777	000125	123714		MOVB	#125,@IDRHX		:-----LOAD DATA INTO DOR 1-----
6784	056362	052777	000010	123710		BIS	#10,@CSRX		:SELECT CHANNEL 2
6785	056370	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
6786	056376	017737	123646	002502		MOV	@IRX,BAD		:GET IIR2 CONTENTS
6787	056404	022737	000060	002502		CMP	#60,BAD		:BO,BI BIT SHOULD BE SET
6788	056412	001410				BEQ	10\$		:BRANCH IF YES
6789	056414	012737	000060	002500		MOV	#60,GOOD		:SET UP DATA FOR ERROR MESSAGE
6790	056422					ERRSOFT	2208,E501,ERR501		:ERROR HANDLER
	056422	104457							TRAP C\$ERSOFT
	056424	004240							.WORD 2208
	056426	005406							.WORD E501
	056430	003702							.WORD ERR501
6791	056432					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	056432	104406							TRAP C\$CLP1
6792	056434	017737	123616	002502	10\$:	MOV	@ISRX,BAD		:GET ISR2 CONTENTS
6793	056442	022737	030004	002502		CMP	#30004,BAD		:NDAC,NRFD,LADS SHOULD BE SET
6794	056450	001410				BEQ	20\$		:BRANCH IF YES
6795	056452	012737	030004	002500		MOV	#30004,GOOD		:SET UP DATA FOR ERROR MESSAGE
6796	056460					ERRSOFT	2209,E502,ERR501		:ERROR HANDLER
	056460	104457							TRAP C\$ERSOFT
	056462	004241							.WORD 2209
	056464	005447							.WORD E502
	056466	003702							.WORD ERR501
6797	056470					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	056470	104406							TRAP C\$CLP1
6798	056472	017737	123574	002502	20\$:	MOV	@IDRX,BAD		:GET DIR2 CONTENTS
6799	056500	105037	002502			CLRB	BAD		:
6800	056504	000337	002502			SWAB	BAD		:SWAB HIGH AND LOW BYTE
6801	056510	122737	000125	002502		CMPB	#125,BAD		:COMPARE WITH LOADED DATA
6802	056516	001410				BEQ	23\$		:BRANCH IF OK
6803	056520	012737	000125	002500		MOV	#125,GOOD		:SET UP DATA FOR ERROR MESSAGE
6804	056526					ERRSOFT	2210,E222,ERR501		:ERROR HANDLER
	056526	104457							TRAP C\$ERSOFT
	056530	004242							.WORD 2210
	056532	005675							.WORD E222
	056534	003702							.WORD ERR501
6805	056536					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	056536	104406							TRAP C\$CLP1
6806	056540				23\$:	ENDSEG			
	056540								10005\$:
	056540	104405							TRAP C\$ESEG
6807	056542	112777	000002	123520		MOVB	#2,@ICRHX		:-----LOAD RHDF INTO ACR 2-----
6808	056550	112777	000003	123512		MOVB	#3,@ICRHX		:-----LOAD NOT HDFA INTO ACR 2-----

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64-4
 TEST 22: END OF A MESSAGE BLOCK TEST

```

6809 056556 112777 000204 123504      MOVB    #204,@ICRHX      ;----LOAD HDPE INTO ACR 2-----
6810 056564      BGNSEG                                     TRAP    C$BSEG
      056564 104404
6811 056566 042777 000010 123504      BIC     #10,@CSRX      ;SELECT CHANNEL 1
6812 056574 112777 000126 123474      MOVB    #126,@IDRHX    ;----LOAD DATA INTO DOR 1-----
6813 056602 004737 011060      JSR     PC,LOOP        ;WAIT A LITTLE
6814 056606 052777 000010 123464      BIS     #10,@CSRX      ;SELECT CHANNEL 2
6815 056614 017737 123452 002502      MOV     @IDRX,BAD      ;READ DATA FROM DIR2
6816 056622 105037 002502      CLRB   BAD            ;CLEAR LOW BYTE OF IDR REGISTER
6817 056626 000337 002502      SWAB   BAD            ;SWAB HIGH WITH LOW BYTE
6818 056632 122737 000126 002502      CMPB   #126,BAD       ;COMPARE DIR CONTENTS WITH LOADED DATA
6819 056640 001410      BEQ    30$           ;BRANCH IF EQUAL
6820 056642 012737 000126 002500      MOV     #126,GOOD     ;SET UP DATA FOR ERROR MESSAGE
6821 056650      ERRSOFT 2211,E222,E501 ;ERROR HANDLER
      056650 104457                                     TRAP    C$ERRSOFT
      056652 004243                                     .WORD  2211
      056654 005675                                     .WORD  E222
      056656 005406                                     .WORD  E501
6822 056660      CKLOOP                                     ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      056660 104406                                     TRAP    C$CLP1
6823 056662      30$: ENDSEG                                     10006$:
      056662      TRAP    C$ESEG
      056662 104405
6824 056664 042777 000010 123406      BIC     #10,@CSRX      ;SELECT CHANNEL 1
6825 056672 112777 000010 123370      MOVB    #10,@ICRHX    ;----LOAD FE0I INTO ACR 1-----
6826 056700      BGNSEG                                     TRAP    C$BSEG
      056700 104404
6827 056702 112777 000127 123366      MOVB    #127,@IDRHX    ;----LOAD DATA INTO DOR 1-----
6828 056710 004737 011060      JSR     PC,LOOP        ;WAIT A LITTLE
6829 056714 052777 000010 123356      BIS     #10,@CSRX      ;SELECT CHANNEL 2
6830 056722 017737 123322 002502      MOV     @IIRX,BAD     ;GET IIR2 CONTENTS
6831 056730 022737 000050 002502      CMP     #50,BAD       ;BI,END BIT SHOULD BE SET
6832 056736 001410      BEQ    33$           ;BRANCH IF YES
6833 056740 012737 000050 002500      MOV     #50,GOOD     ;SET UP DATA FOR ERROR MESSAGE
6834 056746      ERRSOFT 2212,E501,ERR501 ;ERROR HANDLER
      056746 104457                                     TRAP    C$ERRSOFT
      056750 004244                                     .WORD  2212
      056752 005406                                     .WORD  E501
      056754 003702                                     .WORD  ERR501
6835 056756      CKLOOP                                     ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      056756 104406                                     TRAP    C$CLP1
6836 056760 017737 123272 002502 33$: MOV     @ISRX,BAD      ;GET ISR2 CONTENTS
6837 056766 022737 034004 002502      CMP     #34004,BAD    ;NDAC,NRFD,E0I,LADS IS SET
6838 056774 001410      BEQ    40$           ;BRANCH IF YES
6839 056776 012737 034004 002500      MOV     #34004,GOOD   ;SET UP DATA FOR ERROR MESSAGE
6840 057004      ERRSOFT 2212,E502,ERR501 ;ERROR HANDLER
      057004 104457                                     TRAP    C$ERRSOFT
      057006 004244                                     .WORD  2212
      057010 005447                                     .WORD  E502
      057012 003702                                     .WORD  ERR501
6841 057014      CKLOOP                                     ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      057014 104406                                     TRAP    C$CLP1
6842 057016 017737 123250 002502 40$: MOV     @IDRX,BAD      ;READ DATA FROM DIR2
6843 057024 105037 002502      CLRB   BAD            ;CLEAR LOW BYTE
6844 057030 000337 002502      SWAB   BAD            ;SWAB HIGH WITH LOW BYTE
6845 057034 122737 000127 002502      CMPB   #127,BAD       ;COMPARE LOADED DATA WITH DIR CONTENTS
6846 057042 001410      BEQ    43$           ;BRANCH IF EQUAL

```

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 TEST 22: END OF A MESSAGE BLOCK TEST

```

6847 057044 012737 000127 002500      MOV      #127,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6848 057052      ERRSOFT 2213,E222,ERR501 ;ERROR HANDLER
      057052 104457      TRAP      C$ERSOFT
      057054 004245      .WORD    2213
      057056 005675      .WORD    E222
      057060 003702      .WORD    ERR501
6849 057062      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      057062 104406      TRAP      C$CLP1
6850 057064      43$:      ENDSEG
      057064      10007$:
      057064 104405      TRAP      C$ESEG
6851 057066 112777 000002 123174      MOV      #2,@ICRHX      ;----LOAD RHDF INTO ACR 2-----
6852 057074 112777 000015 123166      MOV      #15,@ICRHX     ;----LOAD TCS INTO ACR 2-----
6853 057102 112777 000011 123160      MOV      #11,@ICRHX     ;----LOAD NOT LON INTO ACR 2-----
6854 057110 112777 000137 123160      MOV      #137,@IDRHX    ;----LOAD UNT INTO DOR 2-----
6855 057116 004737 011060      JSR      PC,LOOP        ;WAIT A LITTLE
6856 057122 005737 002234      TST      QVP            ;IS QUICK VERIFY PASS SELECTED
6857 057126 001023      BNE      EXQV22         ;IF YES EXIT TEST
6858 057130 005237 002322      INC      ITRCNT         ;INCREMENT COUNTER
6859 057134 023737 002322 002320      CMP      ITRCNT,ITRDEF ;ALL DONE
6860 057142 001415      BEQ      EXQV22         ;IF YES, EXIT TEST
6861 057144 042777 000010 123126      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6862 057152 112777 000217 123110      MOV      #217,@ICRHX    ;----LOAD SIC INTO ACR 1-----
6863 057160 004737 011072      JSR      PC,WAIT        ;WAIT A LITTLE
6864 057164 112777 000017 123076      MOV      #17,@ICRHX     ;----LOAD NOT SIC INTO ACR 1-----
6865 057172 000137 055320      JMP      ITAC22         ;IF NO TEST ITERATION
6866 057176      EXQV22: EXIT      TST      ;EXIT TEST
      057176 104432      TRAP      C$EXIT
      057200 000046      .WORD    L10053-.
6867
6868
6869 057202      045      123      062      TSHD22: .NLIST BEX
6870      .ASCIZ /%S2%AEND OF A MESSAGE BLOCK TEST%N/
6871      .LIST BEX
6872 057246      .EVEN
      057246      .ENDTST
      057246 104401      L10053: TRAP      C$ETST
    
```

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

```

6874 .SBTTL TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2
6875 .....
6876 IEX - TEST 23
6877 :PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 1 TO 2 BY MEANS OF A DMA
6878 I.E. CHAN. 1 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE,
6879 WHEREAS CHANNEL 2 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB
6880 CYCLE. THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS
6881 2K BYTES AND THE HIGHEST BUS ADDRESS IS BELOW 32K.
6882 :PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1
6883 THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS SELECTED
6884 IN THE BUS ADDRESS REGISTER OF CHAN. 1 (DATI CYCLE).
6885 :PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
6886 OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
6887 :PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
6888 OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).
6889 .....
6890 BGNTST
6891 057250 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6892 057254 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6893 057256 PRINTF #TSHD23 ;....
6894 057256 012746 063204 MOV #TSHD23,-(SP)
6895 057262 012746 000001 MOV #1,-(SP)
6896 057266 010600 MOV SP,R0
6897 057270 104417 TRAP C$PNTF
6898 057272 062706 000004 ADD #4,SP
6899 057276 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
6900 057302 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
6901 057306 MEMORY R0 ;GET THE FIRST FREE MEMORY LOCATION
6902 057306 104431 TRAP C$MEM
6903 057310 062700 000002 ADD #2,R0 ;USE THE SEC.FREE LOCATION FOR BUFFER
6904 057314 010037 002356 MOV R0,BUFAB ;LOAD START ADDRESS OF BUFFER A
6905 057320 012701 010000 MOV #10000,R1 ;BUILD 2K BUFFER SIZE
6906 057324 005003 CLR R3 ;R3 CONTAINS THE LOADED DATA
6907 057326 110320 1$: MOV R3,(R0)+ ;LOAD DATA INTO BUFFER A
6908 057330 005203 INC R3 ;CREATE NEW DATA
6909 057332 005301 DEC R1 ;2K LOADED
6910 057334 001374 BNE 1$ ;IF NO, LOAD NEXT DATA BYTE
6911 057336 010037 002360 MOV R0,BUFBB ;LOAD START ADDRESS OF BUFFER B
6912 057342 SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
6913 057342 012746 000340 MOV #PRI07,-(SP)
6914 057346 012746 010152 MOV #INTSC2,-(SP)
6915 057352 013746 002246 MOV VECC2,-(SP)
6916 057356 012746 000003 MOV #3,-(SP)
6917 057362 104437 TRAP C$SVEC
6918 057364 062706 000010 ADD #10,SP
6919 057370 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
6920 057370 012746 000340 MOV #PRI07,-(SP)
6921 057374 012746 010142 MOV #INTSC1,-(SP)
6922 057400 013746 002244 MOV VECC1,-(SP)
6923 057404 012746 000003 MOV #3,-(SP)
6924 057410 104437 TRAP C$SVEC
6925 057412 062706 000010 ADD #10,SP
6926 057416 112777 000212 122644 MOVB #212,@ICRMX ;----LOAD TON INTO ACR 1-----
6927 057424 013701 002314 MOV DPA2,R1 ;CREATE MLA2
6928 057430 062701 000040 ADD #40,R1 ;
6929 057434 010137 002412 MOV R1,MLA2 ;STORE MLA2
    
```

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

6912	057440	113777	002412	122630	MOVB	MLA2,@IDRMX	:----LOAD MLA2 INTO DOR 1-----
6913	057446	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
6914	057452				BGNSEG		
	057452	104404					TRAP C\$BSEG
6915	057454	005037	002400		CLR	INTFC2	:CLEAR INTERRUPT FLAG
6916	057460	005037	002376		CLR	INTFC1	:CLEAR INTERRUPT FLAG
6917	057464	042777	000010	122606	BIC	#10,@CSRX	:SELECT CHANNEL 1
6918	057472	013700	002360		MOV	BUFBB,R0	
6919	057476	012701	010000		MOV	#10000,R1	:BUILD 2K BUFFER SIZE
6920	057502	105020			CLRB	(R0)+	:FILL BUFFER B WITH ZERO
6921	057504	005301			DEC	R1	:2K LOADED
6922	057506	001375			BNE	2\$	:IF NO, CLEAR NEXT BUFFER LOCATION
6923	057510	013777	002356	122564	MOV	BUFAB,@BARX	:---LOAD START ADDRESS OF TABLE A ---
6924	057516	013737	002240	002402	MOV	BCINP,RSAVE	:STORE BYTE COUNT INPUT
6925	057524	005437	002402		NEG	RSAVE	:BILD 2'COMPL FOR BCR
6926	057530	013777	002402	122546	MOV	RSAVE,@BCRX	:----LOAD INPUT INTO BCR 1-----
6927	057536	012777	000107	122534	MOV	#107,@CSRX	:----DMA ENB,DMA DIR,INT ENB,SYS CON.
6928	057544	052777	000010	122526	BIS	#10,@CSRX	:SELECT CHANNEL 2
6929	057552	013777	002360	122522	MOV	BUFBB,@BARX	:----LOAD START ADDRESS OF TABLE B----
6930	057560	013777	002402	122516	MOV	RSAVE,@BCRX	:----LOAD INPUT INTO BCR 2---
6931	057566	012777	000101	122504	MOV	#101,@CSRX	:---SET DMA ENB,INT ENB IN CSR2-----
6932	057574				SETPRI	#PRI00	:SET PRIORITY TO ZERO
	057574	012700	000000				MOV #PRI00,R0
	057600	104441					TRAP C\$SPRI
6933	057602	042777	000010	122470	BIC	#10,@CSRX	:SELECT CHANNEL 1
6934	057610	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
6935	057616	112777	000013	122444	MOVB	#13,@ICRMX	:----LOAD GTS INTO ACR 1-----
6936	057624	012701	077777		MOV	#77777,R1	:LOAD LOOP COUNTER
6937	057630	005737	002376		TST	INTFC1	:HAS INTERRUPT IN CHANNEL 1 OCCERRED
6938	057634	001015			BNE	10\$	:BRANCH IF YES
6939	057636	005301			DEC	R1	:DECREMENT COUNTER
6940	057640	001373			BNE	13\$	:IF MORE,TEST AGAIN
6941	057642	017737	122432	002502	MOV	@CSRX,BAD	:GET CSR1 CONTENTS
6942	057650	012737	100006	002500	MOV	#100006,GOOD	:BC OF,DMA DIR,SYS CONT SHOULD BE SET
6943	057656				ERRSOFT	2301,E232,ERR201	:ERROR HANDLER
	057656	104457					TRAP C\$ERSOFT
	057660	004375					.WORD 2301
	057662	006072					.WORD E232
	057664	003500					.WORD ERR201
6944	057666				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	057666	104406					TRAP C\$CLP1
6945	057670	052777	000010	122402	BIS	#10,@CSRX	:SELECT CHANNEL 2
6946	057676	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
6947	057704	005737	002400		TST	INTFC2	:HAS INTERRUPT IN CHANNEL 2 OCCURRED
6948	057710	001013			BNE	11\$	:BRANCH IF YES
6949	057712	017737	122362	002502	MOV	@CSRX,BAD	:GET CSR2 CONTENTS
6950	057720	012737	100010	002500	MOV	#100010,GOOD	:BC OF,MUX SHOULD BE SET
6951	057726				ERRSOFT	2302,E232,ERR201	:ERROR HANDLER
	057726	104457					TRAP C\$ERSOFT
	057730	004376					.WORD 2302
	057732	006072					.WORD E232
	057734	003500					.WORD ERR201
6952	057736				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	057736	104406					TRAP C\$CLP1
6953	057740				SETPRI	#PRI07	:NO FURTHER INTERRUPT ALLOWED
	057740	012700	000340				MOV #PRI07,R0
	057744	104441					TRAP C\$SPRI

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

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6991 060224 005037 002502          CLR      BAD          ;CLEAR BAD
6992 060230 005037 002426          CLR      TXADRH       ;SET UP DATA FOR ERROR MESSAGE
6993 060234 010137 002430          MOV      R1,TXADRL    ;...
6994 060240 005337 002430          DEC      TXADRL       ;...
6995 060244 005037 002422          CLR      RXADRH       ;...
6996 060250 010237 002424          MOV      R2,RXADRL    ;...
6997 060254 005337 002424          DEC      RXADRL       ;...
6998 060260 116137 177777 002500    MOV      -1(R1),GOOD  ;...
6999 060266 116237 177777 002502    MOV      -1(R2),BAD   ;...
7000 060274          ERRSOFT 2307,E231,ERR231 ;ERROR HANDLER
          060274 104457          TRAP      C$ERSOFT
          060276 004403          .WORD    2307
          060300 006010          .WORD    E231
          060302 003744          .WORD    ERR231
7001 060304          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
          060304 104406          TRAP      C$CLP1
7002 060306 023737 002404 002240 46$:  CMP      CNT1,BCINP   ;ALL BYTES COMPARED ?
7003 060314 001335          BNE      44$         ;IF NO, GET NEXT ONE
7004 060316          ENDSEG
          060316          10000$:
7005 060320 005077 121754          CLR      @CSRX        ;CLEAR CSR2, SELECT CHANNEL 1
7006 060324 112777 000014 121736    MOV      #14,@ICRHX   ;---LOAD TCA INTO ACR 1---
7007 060332 017737 121734 002502    MOV      @IDRX,BAD    ;READ DIR1 FOR CLEAR BO BIT IN IIR
7008 060340 005077 121734          CLR      @CSRX        ;CLEAR CSR1
7009
7010          ;PART 2 CHECK THE NON EXISTENT MEMORY BIT OF CHAN. 1 (THE I/O PAGE IS USED
7011          ;FOR NON EXISTENT MEMORY
7012          ;---
7013 060344 012701 002624          PSEU23: MOV      #TABE,R1 ;CLEAR TWO WORD IN TABEL E
7014 060350 012737 000001 002374    MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
7015 060356 005021          CLR      (R1)+        ;...
7016 060360 005011          CLR      (R1)         ;...
7017 060362          SETVEC  #4,#NXM,#PRI07 ;SET UP VECTOR FOR TRAP TO 4
          060362 012746 000340          MOV      #PRI07,-(SP)
          060366 012746 010132          MOV      #NXM,-(SP)
          060372 012746 000004          MOV      #4,-(SP)
          060376 012746 000003          MOV      #3,-(SP)
          060402 104437          TRAP      C$SVEC
          060404 062706 000010          ADD      #10,SP
7018 060410 005037 002326          CLR      NXMFLG      ;CLEAR FLAG
7019 060414 012701 160000          MOV      #160000,R1  ;LOAD FIRST ADDRESS OF I/O PAGE
7020 060420 005711          TST      (R1)         ;FIND A NON EXISTEND LOCATION
7021 060422 005737 002326          TST      NXMFLG      ;...
7022 060426 062701 000002          ADD      #2,R1        ;NEXT I/O PAGE ADD.(NO AUTO INCR.11/44!)
7023 060432 001772          BEQ      1$          ;...
7024 060434          CLRVEC  #4          ;SET VECTOR 4 TO NORMAL STATE
          060434 012700 000004          MOV      #4,R0
          060440 104436          TRAP      C$CVEC
7025 060442 162701 000002          SUB      #2,R1        ;...
7026 060446          BGNSEG
          060446          TRAP      C$BSEG
7027 060450 005037 002376          CLR      INTFC1      ;CLEAR INTERRUPT FLAG
7028 060454 005037 002400          CLR      INTFC2      ;CLEAR INTERRUPT FLAG
7029 060460 042777 000010 121612    BIC      #10,@CSRX    ;SELECT CHANNEL 1
7030 060466 010177 121610          MOV      R1,@BARX    ;LOAD BAR1 WITH A NON EXISTS I/O ADDR.
7031 060472 012737 000002 002402    MOV      #2,RSAVE    ;LOAD NUMBER OF BYTE COUNTS

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

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7032 060500 005437 002402          NEG      RSAVE          ;BILD 2'COMPLEMENT
7033 060504 013777 002402 121572  MOV      RSAVE,@BCRX   ;LOAD BCR1
7034 060512 012777 017167 121560  MOV      #17167,@CSRX  ;DMA ENB,DMA DIR,INT ENB,BA16-21,SYS
7035 060520 052777 000010 121552  BIS      #10,@CSRX     ;SELECT CHANNEL 2
7036 060526 012777 002624 121546  MOV      #TABE,@BARX   ;LOAD BAR2 WITH STAR ADDRESS OF TABE
7037 060534 013777 002402 121542  MOV      RSAVE,@BCRX   ;LOAD BCR2
7038 060542 012777 000101 121530  MOV      #101,@CSRX    ;---SET DMA ENB,INT ENB CSR2-----
7039 060550 042777 000010 121522  BIC      #10,@CSRX     ;SELECT CHANNEL 1
7040 060556 012737 000001 002374  MOV      #1,CHAN       ;LOAD CHANNEL NUMBER
7041 060564          SETPRI  #PRI00         ;SET PRIORITY TO ZERO
      060564 012700 000000          MOV      #PRI00,RO
      060570 104441          TRAP    C$SPRI
7042 060572 112777 000013 121470  MOVB     #13,@ICRHX    ;---LOAD GTS INTO ACR 1-----
7043 060600 012702 077777          MOV      #77777,R2    ;LOAD LOOP COUNTER
7044 060604 005737 002376          3$:  TST     INTFC1       ;IS INTERRUPT IN CHANNEL 1 OCCER
7045 060610 091015          BNE     6$           ;BRANCH IF YES
7046 060612 005302          DEC     R2           ;DECREMENT COUNTER
7047 060614 001373          BNE     3$           ;IF NO,TEST AGIN
7048 060616 017737 121456 002502  MOV      @CSRX,BAD    ;GET CSR1 CONTENTS
7049 060624 012737 040066 002500  MOV      #40066,GOOD  ;NXM,BA 16+17,DMA DIR,SYS CONT
7050 060632          ERRSOFT 2308,E233,ERR201 ;ERROR HANDLER
      060632 104457          TRAP    C$ERSOFT
      060634 004404          .WORD  2308
      060636 006123          .WORD  E233
      060640 003500          .WORD  ERR201
7051 060642          CKLOOP          ;BRANCH TO BGNS.G IF ERRLOOP IS SET
      060642 104406          TRAP    C$CLP1
7052 060644          6$:  SETPRI  #PRI07       ;NO FURTHER INTERRUPT ALLOWED
      060644 012700 000340          MOV      #PRI07,RO
      060650 104441          TRAP    C$SPRI
7053 060652 112777 000014 121410  MOVB     #14,@ICRHX    ;---LOAD TCA INTO ACR 1-----
7054 060660 052777 000010 121412 10$:  BIS      #10,@CSRX    ;SELECT CHANNEL 2
7055 060666 012737 000002 002374  MOV      #2,CHAN       ;LOAD CHANNEL NUMBER
7056 060674 017737 121400 002502  MOV      @CSRX,BAD    ;GET CSR2 CONTENTS
7057 060702 042737 017000 002502  BIC      #17000,BAD    ;IGNORE BIT 9-12
7058 060710 022737 000111 002502  CMP      #111,BAD     ;INT ENB,MUX,DMA ENB SHOULD BE SET
7059 060716 001410          BEQ     12$          ;BRANCH IF YES
7060 060720 012737 000111 002500  MOV      #111,GOOD    ;SET UP DATA FOR ERROR MESSAGE
7061 060726          ERRSOFT 2309,E401,ERR501 ;ERROR HANDLER
      060726 104457          TRAP    C$ERSOFT
      060730 004405          .WORD  2309
      060732 005265          .WORD  E401
      060734 003702          .WORD  ERR501
7062 060736          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      060736 104406          TRAP    C$CLP1
7063 060740          12$:  ENDSEG
      060740          10001$:  TRAP    C$ESEG
      060740 104405          ;CLEAR CSR2,SELECT CHANNEL 1
7064 060742 005077 121332          CLR      @CSRX        ;READ DIR1 FOR CLEAR BO BIT IN IIR
7065 060746 017737 121320 002502  MOV      @IDRX,BAD    ;CLEAR CSR1
7066 060754 005077 121320          CLR      @CSRX
7067          ;+ + +-----
7068          ;PART 3 DMA OVER 32K
7069          ;+ + +-----
7070 060760 005037 002376          CLR      INTFC1       ;CLEAR INTERRUPT FLAG
7071 060764 005037 002400          CLR      INTFC2       ;CLEAR INTERRUPT FLAG
7072 060770 023727 002342 000001  CMP      PHHSIZ,#1    ;IS THERE MORE THAN 32K

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7073	060776	002404			BLT	11\$: IF NO SKIP TEST
7074	061000	003005			BGT	13\$:
7075	061002	005737	002344		TST	PHLS1Z			:
7076	061006	001002			BNE	13\$:
7077	061010	000137	063200	11\$:	JMP	EXQV23			: JUMP TO TEST END
7078	061014	005037	002336	13\$:	CLR	PHLOW			: LOAD INPUT FOR CONVERSION ROUTINE
7079	061020	012737	000001	002334	MOV	#1,PHHIGH			:
7080	061026	004737	007724		JSR	PC,PVCON			: CREATE VIRTUAL ADDRESS
7081	061032	013700	002340		MOV	VIADD,R0			: GET START ADDRESS OF BUFFER A
7082	061036	010037	002356		MOV	R0,BUFAB			: LOAD START ADDRESS OF BUFFER A
7083	061042	012701	010000		MOV	#10000,R1			: LOAD COUNTER FOR 2K
7084	061046	005003			CLR	R3			: R3 CONTAINS
7085	061050	012737	000001	177572	MOV	#1,SRO			: **ENABLE MEMORY MANAGEMENT**
7086	061056	110320		16\$:	MOVB	R3,(R0)+			: LOAD BUFFER WITH DATA
7087	061060	005203			INC	R3			: CREAT NEXT DATA
7088	061062	005301			DEC	R1			:
7089	061064	001374			BNE	16\$:
7090	061066	012701	010000		MOV	#10000,R1			: LOAD 2K
7091	061072	010037	002360		MOV	R0,BUFB			: LOAD START ADDRESS OF BUFFER B
7092	061076	105020		20\$:	CLRB	(R0)+			: CLEAR BUFFER B
7093	061100	005301			DEC	R1			: 2K CLEARED
7094	061102	001375			BNE	20\$			: IF YES,DO THE TEST
7095	061104	005037	177572		CLR	SRO			: **DISABLE MEMORY MANAGEMENT**
7096	061110	112777	000212	121152	MOVB	#212,@ICRH			: ----LOAD TON INTO ACR 1-----
7097	061116	013701	002314		MOV	DPA2,R1			: CREATE MLA2
7098	061122	062701	000040		ADD	#40,R1			:
7099	061126	010137	002412		MOV	R1,MLA2			: STORE MLA2
7100	061132	113777	002412	121136	MOVB	MLA2,@IDRH			: ----LOAD MLA2 INTO DOR 1-----
7101	061140	004737	011060		JSR	PC,LOOP			: WAIT A LITTLE
7102	061144	005077	121132		CLR	@BARX			: ----LOAD START ADDRESS OF BUFFER A----
7103	061150	013737	002240	002402	MOV	BCINP,RSAYE			: STORE BYTE COUNT INPUT
7104	061156	005437	002402		NEG	RSAYE			: BILD 2'COMPL FOR BCR
7105	061162	013777	002402	121114	MOV	RSAYE,@BCRX			: ----LOAD INPUT INTO BCR 1-----
7106	061170	012777	000127	121102	MOV	#127,@CSRX			: -DMA ENB,DMA DIR,INT ENB,BIT 16,SYS C
7107	061176	052777	000010	121074	BIS	#10,@CSRX			: SELECT CHANNEL 2
7108	061204	012777	010000	121070	MOV	#10000,@BARX			: ----LOAD START ADDRESS OF BUFFER B---
7109	061212	013777	002402	121064	MOV	RSAYE,@BCRX			: ----LOAD INPUT INTO BCR 2---
7110	061220	012777	000121	121052	MOV	#121,@CSRX			: ----SET DMA ENB,INT ENB,BIT16 IN CSR2
7111	061226				SETPRI	#PRI00			: SET PRIORITY TO ZERO
	061226	012700	000000						MOV #PRI00,R0
	061232	104441							TRAP C\$SPRI
7112	061234	042777	000010	121036	BIC	#10,@CSRX			: SELECT CHANNEL 1
7113	061242	012737	000001	002374	MOV	#1,CHAN			: LOAD CHANNEL NUMBER
7114	061250	112777	000013	121012	MOVB	#13,@ICRH			: ----LOAD GTS INTO ACR 1-----
7115	061256	012701	077777		MOV	#77777,R1			: LOAD LOOP COUNTER
7116	061262	005737	002376	23\$:	TST	INTFC1			: IS INTERRUPT IN CHANNEL 1 OCCER
7117	061266	001014			BNE	24\$			: BRANCH IF YES
7118	061270	005301			DEC	R1			: DECREMENT COUNTER
7119	061272	001373			BNE	23\$			: IF NO,TEST AGIN
7120	061274	017737	121000	002502	MOV	@CSRX,BAD			: GET CSR1 CONTENTS
7121	061302	012737	100026	002500	MOV	#100026,GOOD			: BC OF,DMA DIR,BA 16,SYS CONT
7122	061310				ERRSOFT	2310,E232,ERR201			: ERROR HANDLER
	061310	104457							TRAP C\$ERSOFT
	061312	004406							.WORD 2310
	061314	006072							.WORD E232
	061316	003500							.WORD ERR201
7123	061320	052777	000010	120752	24\$:	BIS	#10,@CSRX		: SELECT CHANNEL 2

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

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7159 061626 012737 000001 177572 43$: MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7160 061634 013701 002356 MOV BUFAB,R1 ;PROVIDE FIRST BYTE OF BUFFER A
7161 061640 013702 002360 MOV BUFBB,R2 ;PROVIDE FIRST BYTE OF BUFFER B
7162 061644 005037 002404 CLR CNT1 ;CLEAR BUFFER COUNTER
7163 061650 005237 002404 44$: INC CNT1 ;
7164 061654 122122 (MPB (R1)+,(R2)+ ;BUFFER A EQUAL BUFFER B
7165 061656 001446 BEQ 46$ ;IF YES CONTINUE
7166 061660 005037 002500 CLR GOOD ;CLEAR GOOD
7167 061664 005037 002502 CLR BAD ;CLEAR BAD
7168 061670 012737 000001 002426 MOV #1, TXADRH ;TX ADDRESS IS OVER 32K
7169 061676 012737 000001 002422 MOV #1, RXADRH ;RX ADDRESS IS OVER 32K
7170 061704 010137 002430 MOV R1, TXADRL ;GET ADDRESS OVER 32K
7171 061710 005337 002430 DEC TXADRL ;
7172 061714 042737 160000 002430 BIC #160000, TXADRL ;CLEAR PAR INFORMATION
7173 061722 013737 002430 002424 MOV TXADRL, RXADRL ;GENERATE RX ADDRESS FROM TX ADDRESS
7174 061730 052737 010000 002424 BIS #10000, RXADRL ;RX ADDR IS TX ADDRESS +2K
7175 061736 116137 177777 002500 MOVB -1(R1), GOOD ;
7176 061744 116237 177777 002502 MOVB -1(R2), BAD ;
7177 061752 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7178 061756 ERRSOFT 2316,E231,ERR231 ;ERROR HANDLER
                                TRAP CSERSOFT
                                .WORD 2316
                                .WORD E231
                                .WORD ERR231
7179 061766 012737 000001 177572 MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7180 061774 023737 002404 002240 46$: CMP CNT1,BCINP ;ALL BYTES COMPARED ?
7181 062002 001322 BNE 44$ ;IF NO, GET NEXT ONE
7182 062004 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7183 062010 005077 120264 CLR @CSRX ;CLEAR CSR2, SELECT CHANNEL 1
7184 062014 017737 120252 002502 MOV @IDRX, BAD ;READ DIR1 FOR CLEAR BO BIT IN IIR
7185 062022 005077 120252 CLR @CSRX ;CLEAR CSR1
7186 -----
7187 ;PART 4 DMA OVER 64K
7188 -----
7189 062026 005037 002376 PSEU33: CLR INTFC1 ;CLEAR INTERRUPT FLAG
7190 062032 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG
7191 062036 023727 002342 000002 CMP PHHSIZ,#2 ;IS THERE MORE THAN 64K
7192 062044 002404 BLT 11$ ;IF NO SKIP TEST
7193 062046 003005 BGT 13$ ;
7194 062050 005737 002344 TST PHLSIZ ;
7195 062054 001002 BNE 13$ ;
7196 062056 000137 063200 11$: JMP EXQV23 ;JUMP TO TEST END
7197 062062 005037 002336 13$: CLR PHLOW ;LOAD INPUT FOR CONVERSION ROUTINE
7198 062066 012737 000002 002334 MOV #2,PHHIGH ;
7199 062074 004737 007724 JSR PC,PVCON ;CREATE VIRTUAL ADDRESS
7200 062100 013700 002340 MOV VIADD,R0 ;GET START ADDRESS OF BUFFER A
7201 062104 010037 002356 MOV R0,BUFAB ;LOAD START ADDRESS OF BUFFER A
7202 062110 012701 010000 MOV #10000,R1 ;LOAD COUNTER FOR 2K
7203 062114 005003 CLR R3 ;R3 CONTAINS
7204 062116 012737 000001 177572 16$: MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7205 062124 110320 MOVB R3,(R0)+ ;LOAD BUFFER WITH DATA
7206 062126 005203 INC R3 ;CREAT NEXT DATA
7207 062130 005301 DEC R1 ;
7208 062132 001374 BNE 16$ ;
7209 062134 012701 010000 MOV #10000,R1 ;LOAD 2K
7210 062140 010037 002360 MOV R0,BUFBB ;LOAD START ADDRESS OF BUFFER B
7211 062144 105020 20$: CLRB (R0)+ ;CLEAR BUFFER B

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7212	062146	005301			DEC	R1		:2K CLEARED
7213	062150	001375			BNE	20\$		:IF YES,DO THE TEST
7214	062152	005037	177572		CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
7215	062156	112777	000212	120104	MOVB	#212,@ICRHX		:----LOAD TON INTO ACR 1-----
7216	062164	013701	002314		MOV	DPA2,R1		:CREATE MLA2
7217	062170	062701	000040		ADD	#40,R1		:::
7218	062174	010137	002412		MOV	R1,MLA2		:STORE MLA2
7219	062200	113777	002412	120070	MOVB	MLA2,@IDRHX		:----LOAD MLA2 INTO DOR 1-----
7220	062206	004737	011060		JSR	PC,LOOP		:WAIT A LITTLE
7221	062212	005077	120064		CLR	@BARX		:---LOAD START ADDRESS OF BUFFER A---
7222	062216	013737	002240	002402	MOV	BCINP,RSAVE		:STORE BYTE COUNT INPUT
7223	062224	005437	002402		NEG	RSAVE		:BILD 2'COMPL FOR BCR
7224	062230	013777	002402	120046	MOV	RSAVE,@BCRX		:----LOAD INPUT INTO BCR 1-----
7225	062236	012777	000147	120034	MOV	#147,@CSRX		:DMA ENB,DMA DIR,INT ENB,BA 17,SYS C
7226	062244	052777	000010	120026	BIS	#10,@CSRX		:SELECT CHANNEL 2
7227	062252	012777	010000	120022	MOV	#10000,@BARX		:---LOAD START ADDRESS OF BUFFER B---
7228	062260	013777	002402	120016	MOV	RSAVE,@BCRX		:----LOAD INPUT INTO BCR 1---
7229	062266	012777	000141	120004	MOV	#141,@CSRX		:---SET DMA ENB,INT ENB,BIT17 IN CSR2
7230	062274				SETPRI	#PRI00		:SET PRIORITY TO ZERO
	062274	012700	000000					MOV #PRI00,RO
	062300	104441						TRAP C\$SPRI
7231	062302	042777	000010	117770	BIC	#10,@CSRX		:SELECT CHANNEL 1
7232	062310	012737	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
7233	062316	112777	000013	117744	MOVB	#13,@ICRHX		:----LOAD GTS INTO ACR 1-----
7234	062324	012701	077777		MOV	#77777,R1		:LOAD LOOP COUNTER
7235	062330	005737	002376	23\$:	TST	INTFC1		:IS INTERRUPT IN CHANNEL 1 OCCER
7236	062334	001014			BNE	24\$		:BRANCH IF YES
7237	062336	005301			DEC	R1		:DECREMENT COUNTER
7238	062340	001373			BNE	23\$		:IF NO,TEST AGIN
7239	062342	017737	117732	002502	MOV	@CSRX,BAD		:GET CSR1 CONTENTS
7240	062350	012737	100046	002500	MOV	#100046,GOOD		:BC OF,DMA DIR,BA 17,SYS CONT
7241	062356				ERRSOFT	2317,E232,ERR201		:ERROR HANDLER
	062356	104457						TRAP C\$ERSOFT
	062360	004415						.WORD 2317
	062362	006072						.WORD E232
	062364	003500						.WORD ERR201
7242	062366	052777	000010	117704	24\$:	BIS	#10,@CSRX	:SELECT CHANNEL 2
7243	062374	017737	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
7244	062402	005737	002400		TST	INTFC2		:IS AN INTERRUPT IN CHANNEL 2 OCCURED
7245	062406	001012			BNE	25\$		:BRANCH IF YES
7246	062410	017737	117664	002502	MOV	@CSRX,BAD		:GET CSR2 CONTENTS
7247	062416	012737	100050	002500	MOV	#100050,GOOD		:BC OF,BA 17,MUX SHOULD BE SET
7248	062424				ERRSOFT	2318,E232,ERR201		:ERROR HANDLER
	062424	104457						TRAP C\$ERSOFT
	062426	004416						.WORD 2318
	062430	006072						.WORD E232
	062432	003500						.WORD ERR201
7249	062434				25\$:	SETPRI	#PRI07	:NO FURTHER INTERRUPT ALLOWED
	062434	012700	000340					MOV #PRI07,RO
	062440	104441						TRAP C\$SPRI
7250	062442	042777	000010	117630	BIC	#10,@CSRX		:SELECT CHANNEL 1
7251	062450	012737	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
7252	062456	112777	000014	117604	MOVB	#14,@ICRHX		:----LOAD TCA INTO ACR 1-----
7253	062464	013737	002336	002500	MOV	PHLOW,GOOD		:SET UP COMPARE VALUE
7254	062472	063737	002240	002500	ADD	BCINP,GOOD		:::
7255	062500	017737	117576	002502	MOV	@BARX,BAD		:GET BARI CONTENTS
7256	062506	023737	002502	002500	CMP	BAD,GOOD		:HAS BARI THE CORRECT ADDRESS

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7257	062514	001404				BEQ	30\$:BRANCH IF YES		
7258	062516					ERRSOFT	2319,E234,ERR501			:ERROR HANDLER		
	062516	104457									TRAP	C\$ERSOFT
	062520	004417									.WORD	2319
	062522	006200									.WORD	E234
	062524	003702									.WORD	ERR501
7259	062526	017737	117552	002502	30\$:	MOV	@BCRX,BAD			:GET BCR1 CONTENTS		
7260	062534	005037	002500			CLR	GOOD					
7261	062540	023737	002502	002500		CMP	BAD,GOOD			:IS BCR1 ZERO		
7262	062546	001404				BEQ	31\$			:BRANCH IF YES		
7263	062550					ERRSOFT	2320,E235,ERR501			:ERROR HANDLER		
	062550	104457									TRAP	C\$ERSOFT
	062552	004420									.WORD	2320
	062554	006231									.WORD	E235
	062556	003702									.WORD	ERR501
7264	062560	052777	000010	117512	31\$:	BIS	#10,@CSRX			:SELECT CHANNEL 2		
7265	062566	012737	000002	002374		MOV	#2,CHAN			:LOAD CHANNEL NUMBER		
7266	062574	013737	002360	002500		MOV	BUFBB,GOOD			:SET UP COMPARE VALUE		
7267	062602	042737	160000	002500		BIC	#160000,GOOD			:CLEAR BIT 13+14+15		
7268	062610	063737	002240	002500		ADD	BCINP,GOOD					
7269	062616	017737	117460	002502		MOV	@BARX,BAD			:GET BAR2 CONTENTS		
7270	062624	023737	002500	002502		CMP	GOOD,BAD			:HAS BAR2 THE CORRECT ADDRESS		
7271	062632	001404				BEQ	40\$			:BRANCH IF YES		
7272	062634					ERRSOFT	2321,E234,ERR501			:ERROR HANDLER		
	062634	104457									TRAP	C\$ERSOFT
	062636	004421									.WORD	2321
	062640	006200									.WORD	E234
	062642	003702									.WORD	ERR501
7273	062644	017737	117434	002502	40\$:	MOV	@BCRX,BAD			:GET BCR2 CONTENTS		
7274	062652	005737	002502			TST	BAD			:BCR2 CONTENTS SHOULD BE ZERO		
7275	062656	001406				BEQ	43\$			:BRANCH IF YES		
7276	062660	005037	002500			CLR	GOOD			:SET UP DATA FOR ERROR MESSAGE		
7277	062664					ERRSOFT	2322,E235,ERR501			:ERROR HANDLER		
	062664	104457									TRAP	C\$ERSOFT
	062666	004422									.WORD	2322
	062670	006231									.WORD	E235
	062672	003702									.WORD	ERR501
7278	062674	012737	000001	177572	43\$:	MOV	#1,SRO			:**ENABLE MEMORY MANAGEMENT**		
7279	062702	013701	002356			MOV	BUFAB,R1			:PROVIDE FIRST BYTE OF BUFFER A		
7280	062706	013702	002360			MOV	BUFBB,R2			:PROVIDE FIRST BYTE OF BUFFER B		
7281	062712	005037	002404			CLR	CNT1			:CLEAR BUFFER COUNTER		
7282	062716	005237	002404		44\$:	INC	CNT1					
7283	062722	122122				CMPB	(R1)+,(R2)+			:BUFFER A EQUAL BUFFER B		
7284	062724	001446				BEQ	46\$			:IF YES CONTINUE		
7285	062726	005037	002500			CLR	GOOD			:CLEAR GOOD		
7286	062732	005037	002502			CLR	BAD			:CLEAR BAD		
7287	062736	012737	000002	002426		MOV	#2,TXADRH			:TX ADDRESS IS OVER 64K		
7288	062744	012737	000002	002422		MOV	#2,RXADRH			:RX ADDRESS IS OVER 64K		
7289	062752	010137	002430			MOV	R1,TXADRL			:GET ADDRESS OVER 64K		
7290	062756	005337	002430			DEC	TXADRL					
7291	062762	042737	160000	002430		BIC	#160000,TXADRL			:CLEAR PAR INFORMATION		
7292	062770	013737	002430	002424		MOV	TXADRL,RXADRL			:GENERATE RX ADDRESS FROM TX ADDRESS		
7293	062776	057137	010000	002424		BIS	#10000,RXADRL			:RX ADDRESS IS TX ADDRESS +2K		
7294	063004	116137	177777	002500		MOVB	-1(R1),GOOD			:SET UP DATA FOR ERROR MESSAGE		
7295	063012	116237	177777	002502		MOVB	-1(R2),BAD					
7296	063020	005037	177572			CLR	SRO			:**DISABLE MEMORY MANAGEMENT**		
7297	063024					ERRSOFT	2323,E231,ERR231			:ERROR HANDLER		

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 TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

063024	104457										TRAP	C\$ERSOFT	
063026	004423										.WORD	2323	
063030	006010										.WORD	E231	
063032	003744										.WORD	ERR231	
7298	063034	012737	000001	177572		MOV	#1,SRO						
7299	063042	023737	002404	002240	46\$:	CMP	CNT1,BCINP						
7300	063050	001322				BNE	44\$						
7301	063052	005037	177572			CLR	SRO						
7302	063056	042777	000010	117214		BIC	#10,@CSRX						
7303	063064	112777	000077	117204		MOVB	#77,@IDRHX						
7304	063072	004737	011060			JSR	PC,LOOP						
7305	063076	112777	000200	117164		MOVB	#200,@ICRHX						
7306	063104	112777	000000	117156		MOVB	#0,@ICRHX						
7307	063112	005737	002234			TST	QVP						
7308	063116	001030				BNE	EXQV23						
7309	063120	005237	002322			INC	ITRCNT						
7310	063124	023737	002322	002320		CMP	ITRCNT,ITRDEF						
7311	063132	001422				BEQ	EXQV23						
7312	063134	112777	000217	117126		MOVB	#217,@ICRHX						
7313	063142	004737	011072			JSR	PC,WAIT						
7314	063146	112777	000017	117114		MOVB	#17,@ICRHX						
7315	063154	012777	000010	117116		MOV	#10,@CSRX						
7316	063162	005077	117112			CLR	@CSRX						
7317	063166	017737	117100	002502		MOV	@IDRX,BAD						
7318	063174	000137	057306			JMP	ITAC23						
7319	063200					EXQV23: EXIT	TST						
	063200	104432									TRAP	C\$EXIT	
	063202	000064									.WORD	L10054-	
7320													
7321						.NLIST	BEX						
7322	063204	045	123	062	1SHD23:	.ASCIZ	/%S2%ADMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2%N/						
7323						.LIST	BEX						
7324						.EVEN							
7325	063266					ENDTST							
	063266												
	063266	104401									L10054:	TRAP	C\$ETST

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TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

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7327 .SBTTL TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1
7328 :*****
7329 : IEX - TEST 24
7330 :PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 2 TO 1 BY MEANS OF A DMA
7331 : I.E. CHANNEL 2 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE,
7332 : WHEREAS CHANNEL 1 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB
7333 : CYCLE. THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS
7334 : IS 2K BYTES AND THE HIGHEST BUS ADDRESS IS BELOW 32K.
7335 :PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1.
7336 : THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS SELECTED
7337 : IN THE BUS ADDRESS REGISTER OF CHANNEL 2 (DATOB CYCLE).
7338 :PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
7339 : OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
7340 :PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
7341 : OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).
7342 :*****
7343 BGNSTST
7344 063270 005737 002324 TST PNTF ;IS THE PNT FLAG SET
7345 063274 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
7346 063276 012746 067204 PRINTF #TSHD24 ;...
7347 063316 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
7348 063322 004737 010710 ITAC24: JSR PC,BGIN2 ;SET UP PARAMETER
7349 063326 104431 MEMORY R0 ;GET THE FIRST FREE MEMORY LOCATION
7350 063330 062700 000002 ADD #2,R0 ;USE THE SEC.FREE LOCATION FOR BUFFER
7351 063334 010037 002356 MOV R0,BUFAB ;LOAD START ADDRESS OF BUFFER A
7352 063340 012701 010000 MOV #10000,R1 ;BUILD 2K BUFFER SIZE
7353 063344 005003 CLR R3 ;R3 CONTAINS THE LOADED DATA
7354 063346 110320 1$: MOVB R3,(R0)+ ;LOAD DATA INTO BUFFER A
7355 063350 005203 INC R3 ;CREATE NEW DATA
7356 063352 005301 DEC R1 ;2K LOADED
7357 063354 001374 BNE 1$ ;IF NO, LOAD NEXT DATA BYTE
7358 063356 010037 002360 MOV R0,BUFBB ;LOAD START ADDRESS OF BUFFER B
7359 063362 012746 000340 SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
7360 063366 012746 010152 MOV #PRI07,-(SP)
7361 063372 013746 002246 MOV #INTSC2,-(SP)
7362 063376 012746 000003 MOV VECC2,-(SP)
7363 063402 104437 TRAP C$SVEC
7364 063404 062706 000010 ADD #10,SP
7365 063410 012746 000340 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
7366 063414 012746 010142 MOV #PRI07,-(SP)
7367 063420 013746 002244 MOV #INTSC1,-(SP)
7368 063424 012746 000003 MOV VECC1,-(SP)
7369 063430 104437 TRAP C$SVEC
7370 063432 062706 000010 ADD #10,SP
7371 063436 112777 000212 116624 MOVB #212,@ICRHX ;----LOAD TON INTO ACR 2-----
7372 063444 013701 002312 MOV DPA1,R1 ;CREATE MLA1
7373 063450 062701 000040 ADD #40,R1
7374 063454 010137 002410 MOV R1,MLA1 ;STORE MLA1

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7365	063460	113777	002410	116610	MOVB	MLA1,@IDRHX	:-----LOAD MLA1 INTO DOR 2-----
7366	063466	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
7367	063472				BGNSEG		
	063472	104404					TRAP C\$BSEG
7368	063474	005037	002400		CLR	INTFC2	:CLEAR INTERRUPT FLAG
7369	063500	005037	002376		CLR	INTFC1	:CLEAR INTERRUPT FLAG
7370	063504	052777	000010	116566	BIS	#10,@CSRX	:SELECT CHANNEL 2
7371	063512	013777	002356	116562	MOV	BUFAB,@BARX	:---LOAD START ADDRESS OF TABLE A ---
7372	063520	013737	002240	002402	MOV	BCINP,RSAVE	:STORE BYTE COUNT INPUT
7373	063526	005437	002402		NEG	RSAVE	:BILD 2'COMPL FOR BCR
7374	063532	013777	002402	116544	MOV	RSAVE,@BCRX	:---LOAD INPUT INTO BCR 2-----
7375	063540	012777	000107	116532	MOV	#107,@CSRX	:---DMA ENB,DMA DIR,INT ENB,SYS CON.
7376	063546	042777	000010	116524	BIC	#10,@CSRX	:SELECT CHANNEL 1
7377	063554	013700	002360		MOV	BUFBB,R0	:LOAD START ADDRESS OF BUFFER B
7378	063560	012701	010000		MOV	#10C00,R1	:BUILD 2K BUFFER SIZE
7379	063564	105020			CLRB	(R0)+	:FILL BUFFER B WITH ZERO
7380	063566	005301			DEC	R1	:2K LOADED
7381	063570	001375			BNE	2\$	:IF NO, CLEAR NEXT BUFFER LOCATION
7382	063572	013777	002360	116502	MOV	BUFBB,@BARX	:---LOAD START ADDRESS OF TABLE B---
7383	063600	013777	002402	116476	MOV	RSAVE,@BCRX	:---LOAD INPUT INTO BCR 1---
7384	063606	012777	000101	116464	MOV	#101,@CSRX	:---SET DMA ENB,INT ENB IN CSR1-----
7385	063614				SETPRI	#PRI00	:SET PRIORITY TO ZERO
	063614	012700	000000				MOV #PRI00,R0
	063620	104441					TRAP C\$SPRI
7386	063622	052777	000010	116450	BIS	#10,@CSRX	:SELECT CHANNEL 2
7387	063630	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
7388	063636	112777	000013	116424	MOVB	#13,@ICRHX	:---LOAD GTS INTO ACR 2-----
7389	063644	012701	077777		MOV	#77777,R1	:LOAD LOOP COUNTER
7390	063650	005737	002400		TST	INTFC2	:IS INTERRUPT IN CHANNEL 2 OCCER
7391	063654	001015			BNE	10\$	:BRANCH IF YES
7392	063656	005301			DEC	R1	:DECREMENT COUNTER
7393	063660	001373			BNE	13\$	:IF MORE, TEST AGAIN
7394	063662	017737	116412	002502	MOV	@CSRX,BAD	:GET CSR2 CONTENTS
7395	063670	012737	100016	002500	MOV	#100016,GOOD	:BC OF ,MUX,DMA DTR,SYS CONT SHOULD SET
7396	063676				ERRSOFT	2401,E232,ERR201	:ERROR HANDLER
	063676	104457					TRAP C\$ERSOFT
	063700	004541					.WORD 2401
	063702	006072					.WORD E232
	063704	003500					.WORD ERR201
7397	063706				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	063706	104406					TRAP C\$CLP1
7398	063710	042777	000010	116362	BIC	#10,@CSRX	:SELECT CHANNEL 2
7399	063716	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
7400	063724	005737	002376		TST	INTFC1	:IS AN INTERRUPT IN CHANNEL 1 OCCURED
7401	063730	001013			BNE	11\$	:BRANCH IF YES
7402	063732	017737	116342	002502	MOV	@CSRX,BAD	:GET CSR1 CONTENTS
7403	063740	012737	100000	002500	MOV	#100000,GOOD	:BC OF SHUOLD BE SET
7404	063746				ERRSOFT	2402,E232,ERR201	:ERROR HANDLER
	063746	104457					TRAP C\$ERSOFT
	063750	004542					.WORD 2402
	063752	006072					.WORD E232
	063754	003500					.WORD ERR201
7405	063756				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	063756	104406					TRAP C\$CLP1
7406	063760	052777	000010	116312	BIS	#10,@CSRX	:SELECT CHANNEL 2
7407	063766	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
7408	063774				SETPRI	#PRI07	:NO FURTHER INTERRUPT ALLOWED

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7444 064246 005037 002500          CLR    GOOD          ;CLEAR GOOD
7445 064252 005037 002502          CLR    BAD           ;CLEAR BAD
7446 064256 005037 002426          CLR    TXADRH        ;SET UP DATA FOR ERROR MESSAGE
7447 064262 010137 002430          MOV    R1,TXADRL     ;...
7448 064266 005337 002430          DEC    TXADRL        ;...
7449 064272 005037 002422          CLR    RXADRH        ;...
7450 064276 010237 002424          MOV    R2,RXADRL    ;...
7451 064302 005337 002424          DEC    RXADRL        ;...
7452 064306 116137 177777 002500  MOVB   -1(R1),GOOD   ;SET UP DATA FOR ERROR MESSAGE
7453 064314 116237 177777 002502  MOVB   -1(R2),BAD    ;...
7454 064322          ERRSOFT 2407,E250,ERR231 ;ERROR HANDLER
          064322 104457          TRAP   C$ERSOFT
          064324 004547          .WORD 2407
          064326 005726          .WORD E250
          064330 003744          .WORD ERR231
7455 064332          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
          064332 104406          TRAP   C$CLP1
7456 064334 023737 002404 002240 46$:  CMP    CNT1,BCINP    ;ALL BYTES COMPARED ?
7457 064342 001335          BNE    44$          ;IF NO, GET NEXT ONE
7458 064344          ENDSEG
          064344 104405          10000$: TRAP   C$ESEG
7459 064346 005077 115726          CLR    @CSRX        ;CLEAR CSR1,
7460 064352 017737 115714 002502  MOV    @IDRX,BAD     ;READ DIR1 FOR CLEAR BO BIT IN IIR
7461 064360 052777 000010 115712  BIS    #10,@CSRX    ;SELECT CHANNEL 2
7462 064366 005077 115706          CLR    @CSRX        ;CLEAR CSR2,SELECT CHANNEL 1
7463          ;+-----+
7464          ;PART 2 CHECK THE NON EXISTENT MEMORY BIT OF CHAN. 1 (THE I/O PAGE IS USED
7465          ;FOR NON EXISTENT MEMORY)
7466          ;+-----+
7467 064372 012701 002624  PSEU24: MOV    #TABE,R1    ;CLEAR TWO WORD IN TABEL E
7468 064376 005021          CLR    (R1)+        ;...
7469 064400 005011          CLR    (R1)         ;...
7470 064402          SETVEC #4,#NXM,#PRI07 ;SET UP VECTOR FOR TRAP TO 4
          064402 012746 000340          MOV    #PRI07,-(SP)
          064406 012746 010132          MOV    #NXM,-(SP)
          064412 012746 000004          MOV    #4,-(SP)
          064416 012746 000003          MOV    #3,-(SP)
          064422 104437          TRAP   C$SVEC
          064424 062706 000010          ADD    #10,SP
7471 064430 005037 002326          CLR    NXMFLG       ;CLEAR FLAG
7472 064434 012701 160000          MOV    #160000,R1   ;LOAD FIRST ADDRESS OF I/O PAGE
7473 064440 005711          TST    (R1)         ;FIND A NON EXISTEND LOCATION
7474 064442 005737 002326          TST    NXMF G      ;...
7475 064446 062701 000002          ADD    #2,R1        ;NEXT I/O PAGE ADD.(NO AUTO INCR.1/4!)
7476 064452 001772          BEQ    1$          ;...
7477 064454          CLRVEC #4          ;SET VECTOR 4 TO NORMAL STATE
          064454 012700 000004          MOV    #4,R0
          064460 104436          TRAP   C$CVEC
7478 064462 162701 000002          SUB    #2,R1        ;...
7479 064466          BGNSEG
          064466 104404          TRAP   C$BSEG
7480 064470 005037 002376          CLR    INTFC1       ;CLEAR INTERRUPT FLAG
7481 064474 005037 002400          CLR    INTFC2       ;CLEAR INTERRUPT FLAG
7482 064500 042777 000010 115572  BIC    #10,@CSRX    ;SELECT CHANNEL 1
7483 064506 010177 115570          MOV    R1,@BARX     ;LOAD BAR1 WITH A NON EXISTS I/O ADDR.
7484 064512 012737 000002 002402  MOV    #2,RSAVE     ;LOAD NUMBER OF BYTE COUNTS
    
```

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7485 064520 005437 002402          NEG      RSAVE
7486 064524 013777 002402 115552    MOV      RSAVE,@BCRX
7487 064532 052777 000010 115540    BIS      #10,@CSRX
7488 064540 012777 000117 115532    MOV      #117,@CSRX
7489 064546 012777 002624 115526    MOV      #TABE,@BARX
7490 064554 013777 002402 115522    MOV      RSAVE,@BCRX
7491 064562 042777 000010 115510    BIC      #10,@CSRX
7492 064570 012777 017161 115502    MOV      #17161,@CSRX
7493 064576 052777 000010 115474    BIS      #10,@CSRX
7494 064604 012737 000002 002374    MOV      #2,CHAN
7495 064612          SETPRI  #PRI00
      064612 012700 000000          MOV      #PRI00,R0
      064616 104441          TRAP    C$SPRI
7496 064620 112777 000013 115442    MOVB     #13,@ICRHX
7497 064626 012702 077777          MOV      #77777,R2
7498 064632 005737 002400    3$:     TST     INTFC2
7499 064636 001015          BNE     6$
7500 064640 005302          DEC     R2
7501 064642 001373          BNE     3$
7502 064644 017737 115430 002502    MOV      @CSRX,BAD
7503 064652 012737 100016 002500    MOV      #100016,GOOD
7504 064660          ERRSOFT 2408,E232,ERR201
      064660 104457          TRAP    C$ERSOFT
      064662 004550          .WORD  2408
      064664 006072          .WORD  E232
      064666 003500          .WORD  ERR201
7505 064670          CKLOOP
      064670 104406          TRAP    C$CLP1
7506 064672          6$:     SETPRI  #PRI07
      064672 012700 000340          MOV      #PRI07,R0
      064676 104441          TRAP    C$SPRI
7507 064700 112777 000014 115362    MOVB     #14,@ICRHX
7508 064706 042777 000010 115364    BIC      #10,@CSRX
7509 064714 012737 000001 002374    MOV      #1,CHAN
7510 064722 017737 115352 002502    MOV      @CSRX,BAD
7511 064730 042737 017000 002502    BIC      #17000,BAD
7512 064736 022737 040060 002502    CMP      #40060,BAD
7513 064744 001410          BEQ     12$
7514 064746 012737 040060 002500    MOV      #40060,GOOD
7515 064754          ERRSOFT 2409,E401,ERR501
      064754 104457          TRAP    C$ERSOFT
      064756 004551          .WORD  2409
      064760 005265          .WORD  E401
      064762 003702          .WORD  ERR501
7516 064764          CKLOOP
      064764 104406          TRAP    C$CLP1
7517 064766          12$:    ENDSEG
      064766 104405          10001$: TRAP    C$ESEG
7518 064770 005077 115304          CLR      @CSRX
7519 064774 017737 115272 002502    MOV      @IDRX,BAD
7520 065002 052777 000010 115270    BIS      #10,@CSRX
7521 065010 005077 115264          CLR      @CSRX
7522          :+++-----
7523          :PART 3 DMA OVER 32K
7524          :+++-----
7525 065014 005037 002376          CLR      INTFC1
      :CLEAR INTERRUPT FLAG
    
```

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7526	065020	005037	002400		CLR	INTFC2	:CLEAR INTERRUPT FLAG
7527	065024	023727	002342	000001	CMP	PHHSIZ,#1	:IS THERE MORE THAN 32K
7528	065032	002404			BLT	11\$	:IF NO SKIP TEST
7529	065034	003005			BGT	13\$	
7530	065036	005737	002344		TST	PHLSIZ	
7531	065042	001002			BNE	13\$	
7532	065044	000137	067200	11\$:	JMP	EXQV24	:JUMP TO TEST END
7533	065050	005037	002336	13\$:	CLR	PHLOW	:LOAD INPUT FOR CONVERSION ROUTINE
7534	065054	012737	000001	002334	MOV	#1,PHHIGH	
7535	065062	004737	007724		JSR	PC,PVCON	:CREATE VIRTUAL ADDRESS
7536	065066	013700	002340		MOV	VIADD,R0	:GET START ADDRESS OF BUFFER A
7537	065072	010037	002356		MOV	R0,BUFAB	:LOAD START ADDRESS OF BUFFER A
7538	065076	012701	010000		MOV	#10000,R1	:LOAD COUNTER FOR 2K
7539	065102	005003			CLR	R3	:R3 CONTAINS
7540	065104	012737	000001	177572	MOV	#1,SRO	:**ENABLE MEMORY MANAGEMENT**
7541	065112	110320		16\$:	MOVB	R3,(R0)+	:LOAD BUFFER WITH DATA
7542	065114	005203			INC	R3	:CREAT NEXT DATA
7543	065116	005301			DEC	R1	
7544	065120	001374			BNE	16\$	
7545	065122	012701	010000		MOV	#10000,R1	:LOAD 2K
7546	065126	010037	002360		MOV	R0,BUFB	:LOAD START ADDRESS OF BUFFER B
7547	065132	105020		20\$:	CLRB	(R0)+	:CLEAR BUFFER B
7548	065134	005301			DEC	R1	:2K CLEARED
7549	065136	001375			BNE	20\$	:IF YES,DO THE TEST
7550	065140	052777	000010	115132	BIS	#10,@CSRX	:SELECT CHANNEL 2
7551	065146	005037	177572		CLR	SRO	:**DISABLE MEMORY MANAGEMENT**
7552	065152	112777	000212	115110	MOVB	#212,@ICRH	:-----LOAD TON INTO ACR 2-----
7553	065160	013701	002312		MOV	DPA1,R1	:CREATE MLA1
7554	065164	062701	000040		ADD	#40,R1	
7555	065170	010137	002410		MOV	R1,MLA1	:STORE MLA1
7556	065174	113777	002410	115074	MOVB	MLA1,@IDRH	:-----LOAD MLA1 INTO DOR 2-----
7557	065202	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
7558	065206				BGNSEG		
	065206	104404					TRAP C\$BSEG
7559	065210	052777	000010	115062	BIS	#10,@CSRX	:SELECT CHANNEL 2
7560	065216	005077	115060		CLR	@BARX	:---LOAD START ADDRESS OF BUFFER A---
7561	065222	013737	002240	002402	MOV	BCINP,RSAVE	:STORE BYTE COUNT INPUT
7562	065230	005437	002402		NEG	RSAVE	:BILD 2'COMPL FOR BCR
7563	065234	013777	002402	115042	MOV	RSAVE,@BCRX	:---LOAD INPUT INTO BCR 2---
7564	065242	012777	000127	115030	MOV	#127,@CSRX	:DMA ENB,DMA DIR,INT ENB,BIT 16,SYS C
7565	065250	042777	000010	115022	BIC	#10,@CSRX	:SELECT CHANNEL 1
7566	065256	012777	010000	115016	MOV	#10000,@BARX	:---LOAD START ADDRESS OF BUFFER B---
7567	065264	013777	002402	115012	MOV	RSAVE,@BCRX	:---LOAD INPUT INTO BCR 1---
7568	065272	012777	000121	115000	MOV	#121,@CSRX	:---SET DMA ENB,INT ENB,BIT16 IN CSR1
7569	065300				SETPRI	#PRI00	:SET PRIORITY TO ZERO
	065300	012700	000000				MOV #PRI00,R0
	065304	104441					TRAP C\$SPRI
7570	065306	052777	000010	114764	BIS	#10,@CSRX	:SELECT CHANNEL 2
7571	065314	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
7572	065322	112777	000013	114740	MOVB	#13,@ICRH	:-----LOAD GTS INTO ACR 2-----
7573	065330	012701	077777		MOV	#77777,R1	:LOAD LOOP COUNTER
7574	065334	005737	002400	23\$:	TST	INTFC2	:IS INTERRUPT IN CHANNEL 2 OCCER
7575	065340	001015			BNE	24\$	:BRANCH IF YES
7576	065342	005301			DEC	R1	:DECREMENT COUNTER
7577	065344	001373			BNE	23\$	:IF NO,TEST AGIN
7578	065346	017737	114726	002502	MOV	@CSRX,BAD	:GET CSR2 CONTENTS
7579	065354	012737	100036	002500	MOV	#100036,GOOD	:BC OF,MUX,DMA DIR,BA 16,SYS CONT

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

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7580 065362          ERRSOFT 2410,E232,ERR201      ;ERROR HANDLER
      065362 104457
      065364 004552
      065366 006072
      065370 003500
7581 065372          CKLOOP                        ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      065372 104406
      7582 065374 042777 000010 114676 24$: BIC #10,@CSRX      ;SELECT CHANNEL 1
      7583 065402 012737 000001 002374      MOV #1,CHAN      ;LOAD CHANNEL NUMBER
      7584 065410 005737 002376      TST INTFC1      ;IS AN INTERRUPT IN CHANNEL 1 OCCURED
      7585 065414 001013      BNE 25$      ;BRANCH IF YES
      7586 065416 017737 114656 002502      MOV @CSRX,BAD   ;GET CSR1 CONTENTS
      7587 065424 012737 100020 002500      MOV #100020,GOOD ;BC OF,BA 16 SHOULD BE SET
      7588 065432          ERRSOFT 2411,E232,ERR201      ;ERROR HANDLER
      065432 104457
      065434 004553
      065436 006072
      065440 003500
7589 065442          CKLOOP                        ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      065442 104406
      7590 065444          SETPRI #PRI07            ;NO FURTHER INTERRUPT ALLOWED
      065444 012700 000340
      065450 104441
      7591 065452 052777 000010 114620      BIS #10,@CSRX   ;SELECT CHANNEL 2
      7592 065460 012737 000002 002374      MOV #2,CHAN     ;LOAD CHANNEL NUMBER
      7593 065466 112777 000014 114574      MOVB #14,@ICRHX ;----LOAD TCA INTO ACR 2-----
      7594 065474 013737 002336 002500      MOV PHLOW,GOOD ;SET UP COMPARE VALUE
      7595 065502 063737 002240 002500      ADD BCINP,GOOD
      7596 065510 017737 114566 002502      MOV @BARX,BAD  ;GET BAR2 CONTENTS
      7597 065516 023737 002502 002500      CMP BAD,GOOD   ;HAS BAR2 THE CORRECT ADDRESS
      7598 065524 001404      BEQ 30$      ;BRANCH IF YES
      7599 065526          ERRSOFT 2412,E234,ERR501      ;ERROR HANDLER
      065526 104457
      065530 004554
      065532 006200
      065534 003702
7600 065536 017737 114542 002502 30$: MOV @BCRX,BAD   ;GET BCR2 CONTENTS
7601 065544 005037 002500      CLR GOOD
7602 065550 023737 002502 002500      CMP BAD,GOOD   ;IS BCR2 ZERO
7603 065556 001404      BEQ 31$      ;BRANCH IF YES
7604 065560          ERRSOFT 2413,E235,ERR501      ;ERROR HANDLER
      065560 104457
      065562 004555
      065564 006231
      065566 003702
7605 065570 042777 000010 114502 31$: BIC #10,@CSRX   ;SELECT CHANNEL 1
7606 065576 012737 000001 002374      MOV #1,CHAN     ;LOAD CHANNEL NUMBER
7607 065604 013737 002360 002500      MOV BUFBB,GOOD ;SET UP COMPARE VALUE
7608 065612 042737 160000 002500      BIC #160000,GOOD ;CLEAR BIT 13+14+15
7609 065620 063737 002240 002500      ADD BCINP,GOOD
7610 065626 017737 114450 002502      MOV @BARX,BAD  ;GET BAR1 CONTENTS
7611 065634 023737 002500 002502      CMP GOOD,BAD   ;HAS BAR1 THE CORRECT ADDRESS
7612 065642 001404      BEQ 40$      ;BRANCH IF YES
7613 065644          ERRSOFT 2414,E234,ERR501      ;ERROR HANDLER
      065644 104457
      065646 004556
      065650 006200
    
```

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7614 065652 003702
7614 065654 017737 114424 002502 40$: MOV @BCRX,BAD ;GET BCR1 CONTENTS .WORD ERR501
7615 065662 005737 002502 TST BAD ;BCR1 CONTENTS SHOULD BE ZERO
7616 065666 001406 BEQ 43$ ;BRANCH IF YES
7617 065670 005037 002500 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
7618 065674 005037 002500 ERRSOFT 2415,E235,ERR501 ;ERROR HANDLER
                                TRAP C$ERSOFT
                                .WORD 2415
                                .WORD E235
                                .WORD ERR501
                                065674 104457
                                065676 004557
                                065700 006231
                                065702 003702
7619 065704 012737 000001 177572 43$: MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7620 065712 013701 002356 MOV BUFAB,R1 ;PROVIDE FIRST BYTE OF BUFFER A
7621 065716 013702 002360 MOV BUFBB,R2 ;PROVIDE FIRST BYTE OF BUFFER B
7622 065722 005037 002404 CLR CNT1 ;CLEAR BUFFER COUNTER
7623 065726 005237 002404 44$: INC CNT1
7624 065732 122122 CMPB (R1)+,(R2)+ ;BUFFER A EQUAL BUFFER B
7625 065734 001446 BEQ 46$ ;IF YES CONTINUE
7626 065736 005037 002500 CLR GOOD ;CLEAR GOOD
7627 065742 005037 002502 CLR BAD ;CLEAR BAD
7628 065746 012737 000001 002426 MOV #1, TXADRH ;TX ADDRESS IS OVER 32K
7629 065754 012737 000001 002422 MOV #1, RXADRH ;RX ADDRESS IS OVER 32K
7630 065762 010137 002430 MOV R1, TXADRL ;GET ADDRESS OVER 32K
7631 065766 005337 002430 DEC TXADRL
7632 065772 042737 160000 002430 BIC #160000, TXADRL ;CLEAR PAR INFORMATION
7633 066000 013737 002430 002424 MOV TXADRL, RXADRL ;GENERATE RX ADDRESS FROM TX ADDRESS
7634 066006 052737 010000 002424 BIS #10000, RXADRL ;RX ADDRRES IS TX ADDRESS +2K
7635 066014 116137 177777 002500 MOVB -1(R1),GOOD ;SET UP DATA FOR ERROR MESSAGE
7636 066022 116237 177777 002502 MOVB -1(R2),BAD
7637 066030 005037 177572 CLR SRO
7638 066034 005037 177572 ERRSOFT 2416,E250,ERR231 ;**DISABLE MEMORY MANAGEMENT**
                                ;ERROR HANDLER
                                TRAP C$ERSOFT
                                .WORD 2416
                                .WORD E250
                                .WORD ERR231
                                066034 104457
                                066036 004560
                                066040 005726
                                066042 003744
7639 066044 012737 000001 177572 MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7640 066052 023737 002404 002240 46$: CMP CNT1,BCINP ;ALL BYTES COMPARED ?
7641 066060 001322 BNE 44$ ;IF NO, GET NEXT ONE
7642 066062 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7643 066066 005037 177572 ENDSEG
                                10002$:
                                TRAP C$ESEG
                                066066 104405
7644 066070 005077 114204 CLR @CSRX ;CLEAR CSR1
7645 066074 017737 114172 002502 MOV @IDRX,BAD ;READ DIR1 FOR CLEAR BO BIT IN IIR
7646 066102 052777 000010 114170 BIS #10,@CSRX ;SELECT CHANNEL 2
7647 066110 005077 114164 CLR @CSRX ;CLEAR CHANNEL 2,SELECT CHANNEL 1
7648
7649
7650
:+++-----:
:PART 4 DMA OVER 64K
:+++-----:
PSEU34: 7651 066114 005037 002376 CLR INTFC1 ;CLEAR INTERRUPT FLAG
7652 066120 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG
7653 066124 023727 002342 000002 CMP PHHSIZ,#2 ;IS THERE MORE THAN 64K
7654 066132 002404 BLT 11$ ;IF NO SKIP TEST
7655 066134 003005 BGT 13$
7656 066136 005737 002344 TST PHLSIZ
7657 066142 001002 BNE 13$
7658 066144 000137 067200 11$: JMP EXQV24 ;JUMP TO TEST END
7659 066150 005037 002336 13$: CLR PHLOW ;LOAD INPUT FOR CONVERSION ROUTINE
    
```

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7660	066154	012737	000002	002334	MOV	#2,PHHIGH				
7661	066162	004737	007724		JSR	PC,PVCON				:CREATE VIRTUAL ADDRESS
7662	066166	013700	002340		MOV	VIADD,R0				:GET START ADDRESS OF BUFFER A
7663	066172	010037	002356		MOV	R0,BUFAB				:LOAD START ADDRESS OF BUFFER A
7664	066176	012701	010000		MOV	#10000,R1				:LOAD COUNTER FOR 2K
7665	066202	005003			CLR	R3				:R3 CONTAINS
7666	066204	012737	000001	177572	MOV	#1,SRO				:**ENABLE MEMORY MANAGEMENT**
7667	066212	110320			MOV	R3,(R0)+				:LOAD BUFFER WITH DATA
7668	066214	005203			INC	R3				:CREAT NEXT DATA
7669	066216	005301			DEC	R1				
7670	066220	001374			BNE	16\$				
7671	066222	012701	010000		MOV	#10000,R1				:LOAD 2K
7672	066226	010037	002360		MOV	R0,BUFBB				:LOAD START ADDRESS OF BUFFER B
7673	066232	105020			CLRB	(R0)+				:CLEAR BUFFER B
7674	066234	005301			DEC	R1				:2K CLEARED
7675	066236	001375			BNE	20\$				:IF YES,DO THE TEST
7676	066240	052777	000010	114032	BIS	#10,@CSRX				:SELECT CHANNEL 2
7677	066246	005037	177572		CLR	SRO				:**DISABLE MEMORY MANAGEMENT**
7678	066252	112777	000212	114010	MOV	#212,@ICRHX				:----LOAD TON INTO ACR 2-----
7679	066260	013701	002312		MOV	DPA1,R1				:CREATE MLA1
7680	066264	062701	000040		ADD	#40,R1				
7681	066270	010137	002410		MOV	R1,MLA1				:STORE MLA1
7682	066274	113777	002410	113774	MOV	MLA1,@IDRHX				:----LOAD MLA1 INTO DOR 2-----
7683	066302	004737	011060		JSR	PC,LOOP				:WAIT A LITTLE
7684	066306	005077	113770		CLR	@BARX				:---LOAD START ADDRESS OF BUFFER A---
7685	066312	013737	002240	002402	MOV	BCINP,RSAVE				:STORE BYTE COUNT INPUT
7686	066320	005437	002402		NEG	RSAVE				:BILD 2*COMPL FOR BCR
7687	066324	013777	002402	113752	MOV	RSAVE,@BCRX				:----LOAD INPUT INTO BCR 1-----
7688	066332	012777	000147	113740	MOV	#147,@CSRX				:DMA ENB,DMA DIR,INT ENB,BA 17,SYS C
7689	066340	042777	000010	113732	BIC	#10,@CSRX				:SELECT CHANNEL 1
7690	066346	012777	010000	113726	MOV	#10000,@BARX				:----LOAD START ADDRESS OF BUFFER B---
7691	066354	013777	002402	113722	MOV	RSAVE,@BCRX				:----LOAD INPUT INTO BCR 1---
7692	066362	012777	000141	113710	MOV	#141,@CSRX				:----SET DMA ENB,INT ENB,BIT17 IN CSR1
7693	066370				SETPRI	#PRI00				:SET PRIORITY TO ZERO
	066370	012700	000000						MOV	#PRI100,R0
	066374	104441							TRAP	C\$SPRI
7694	066376	052777	000010	113674	BIS	#10,@CSRX				:SELECT CHANNEL 2
7695	066404	012737	000002	002374	MOV	#2,CHAN				:LOAD CHANNEL NUMBER
7696	066412	112777	000013	113650	MOV	#13,@ICRHX				:----LOAD GTS INTO ACR 2-----
7697	066420	012701	077777		MOV	#77777,R1				:LOAD LOOP COUNTER
7698	066424	005737	002400		TST	INTFC2				:IS INTERRUPT IN CHANNEL 2 OCCER
7699	066430	001014			BNE	24\$				:BRANCH IF YES
7700	066432	005301			DEC	R1				:DECREMENT COUNTER
7701	066434	001373			BNE	23\$				:IF NO,TEST AGIN
7702	066436	017737	113636	002502	MOV	@CSRX,BAD				:GET CSR2 CONTENTS
7703	066444	012737	100056	002500	MOV	#100056,GOOD				:BC OF,MUX,DMA DIR,BA 17,SYS CONT
7704	066452				ERRSOFT	2417,E232,ERR201				:ERROR HANDLER
	066452	104457							TRAP	C\$ERSOFT
	066454	004561							.WORD	2417
	066456	006072							.WORD	E232
	066460	003500							.WORD	ERR201
7705	066462	042777	000010	113610	BIC	#10,@CSRX				:SELECT CHANNEL 1
7706	066470	012737	000001	002374	MOV	#1,CHAN				:LOAD CHANNEL NUMBER
7707	066476	005737	002376		TST	INTFC1				:IS AN INTERRUPT IN CHANNEL 1 OCCURED
7708	066502	001012			BNE	25\$				:BRANCH IF YES
7709	066504	017737	113570	002502	MOV	@CSRX,BAD				:GET CSR1 CONTENTS
7710	066512	012737	100040	002500	MOV	#100040,GOOD				:BC OF,BA 17 SHOULD BE SET

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7711 066520           ERRSOFT 2418,E232,ERR201           ;ERROR HANDLER
      066520 104457
      066522 004562                                     TRAP      C$ERSOFT
      066524 006072                                     .WORD    2418
      066526 003500                                     .WORD    E232
      066530           25$: SETPRI #PRI07                ;NO FURTHER INTERRUPT ALLOWED
      066530 012700 000340                               MOV      #PRI07,R0
      066534 104441                                     TRAP      C$SPRI
7713 066536 052777 000010 113534   BIS      #10,@CSRX           ;SELECT CHANNEL 2
7714 066544 012737 000002 002374   MOV      #2,CHAN            ;LOAD CHANNEL NUMBER
7715 066552 112777 000014 113510   MOVB    #14,@ICRHX         ;----LOAD TCA INTO ACR 2-----
7716 066560 013737 002336 002500   MOV      PHLOW,GOOD        ;SET UP COMPARE VALUE
7717 066566 063737 002240 002500   ADD     BCINP,GOOD
7718 066574 017737 113502 002502   MOV     @BARX,BAD
7719 066602 023737 002502 002500   CMP     BAD,GOOD
7720 066610 001404   BEQ     30$
7721 066612           ERRSOFT 2419,E234,ERR501           ;ERROR HANDLER
      066612 104457
      066614 004563                                     TRAP      C$ERSOFT
      066616 006200                                     .WORD    2419
      066620 003702                                     .WORD    E234
      066622 017737 113456 002502 30$: MOV     @BCRX,BAD           ;GET BCR2 CONTENTS
      066630 005037 002500   CLR     GOOD
      066634 023737 002502 002500   CMP     BAL,GOOD
      066642 001404   BEQ     31$
      066644           ERRSOFT 2420,E235,ERR501           ;ERROR HANDLER
      066644 104457
      066646 004564                                     TRAP      C$ERSOFT
      066650 006231                                     .WORD    2420
      066652 003702                                     .WORD    E235
      066654 042777 000010 113416 31$: BIC     #10,@CSRX           ;SELECT CHANNEL 1
      066662 012737 000001 002374   MOV     #1,CHAN            ;LOAD CHANNEL NUMBER
      066670 013737 002360 002500   MOV     BUFBB,GOOD        ;SET UP COMPARE VALUE
      066676 042737 160000 002500   BIC    #160000,GOOD       ;CLEAR BIT 13+14+15
      066704 063737 002240 002500   ADD     BCINP,GOOD
      066712 017737 113364 002502   MOV     @BARX,BAD
      066720 023737 002500 002502   CMP     GOOD,BAD
      066726 001404   BEQ     40$
      066730           ERRSOFT 2421,E234,ERR501           ;ERROR HANDLER
      066730 104457
      066732 004565                                     TRAP      C$ERSOFT
      066734 006200                                     .WORD    2421
      066736 003702                                     .WORD    E234
      066740 017737 113340 002502 40$: MOV     @BCRX,BAD           ;GET BCR1 CONTENTS
      066746 005737 002502   TST    BAD
      066752 001406   BEQ    43$
      066754 005037 002500   CLR     GOOD
      066760           ERRSOFT 2422,E235,ERR501           ;ERROR HANDLER
      066760 104457
      066762 004566                                     TRAP      C$ERSOFT
      066764 006231                                     .WORD    2422
      066766 003702                                     .WORD    E235
      066770 012737 000001 177572 43$: MOV     #1,SRO
      066776 013701 002356   MOV     BUFAB,R1
      067002 013702 002360   MOV     BUFBB,R2
      067006 005037 002404   CLR     CNT1
      067012 005237 002404   INC     CNT1
      ;
      ;**ENABLE MEMORY MANAGEMENT**
      ;PROVIDE FIRST BYTE OF BUFFER A
      ;PROVIDE FIRST BYTE OF BUFFER B
      ;CLEAR BUFFER COUNTER
      ;
    
```

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 TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7746 067016 122122          CMPB   (R1)+,(R2)+      ;BUFFER A EQUAL BUFFER B
7747 067020 001446          BEQ    46$              ;IF YES CONTINUE
7748 067022 005037 002500    CLR    GOOD            ;CLEAR GOOD
7749 067026 005037 002502    CLR    BAD             ;CLEAR BAD
7750 067032 012737 000002 002426  MOV    #2,TXADRH       ;TX ADDRESS IS OVER 64K
7751 067040 012737 000002 002422  MOV    #2,RXADRH       ;RX ADDRESS IS OVER 64K
7752 067046 010137 002430    MOV    R1,TXADRL      ;GET ADDRESS OVER 64K
7753 067052 005337 002430    DEC    TXADRL          ;
7754 067056 042737 160000 002430  BIC    #160000,TXADRL  ;CLEAR PAR INFORMATION
7755 067064 013737 002430 002424  MOV    TXADRL,RXADRL  ;GENERATE RX ADDRESS FROM TX ADDRESS
7756 067072 052137 010000 002424  BIS    #10000,RXADRL  ;RX ADDRESS IS TX ADDRESS +2K
7757 067100 116137 177777 002500  MOVB  -1(R1),GOOD     ;SET UP DATA FOR ERROR MESSAGE
7758 067106 116237 177777 002502  MOVB  -1(R2),BAD     ;
7759 067114 005037 177572    CLR    SRO             ;**DISABLE MEMORY MANAGEMENT**
7760 067120          ERRSOFT 2423,E250,ERR231 ;ERROR HANDLER
          067120 104457          TRAP   C$ERSOFT
          067122 004567          .WORD 2423
          067124 005726          .WORD E250
          067126 003744          .WORD ERR231
7761 067130 012737 000001 177572  MOV    #1,SRO          ;**ENABLE MEMORY MANAGEMENT**
7762 067136 023737 002404 002240 46$:  CMP    CNT1,BCINP     ;ALL BYTES COMPARED ?
7763 067144 001322          BNE    44$            ;IF NO, GET NEXT ONE
7764 067146 005037 177572    CLR    SRO            ;**DISABLE MEMORY MANAGEMENT**
7765 067152 005737 002234    TST   QVP             ;IS QUICK VERIFY PASS SELECTED
7766 067156 001010          BNE    EXQV24         ;IF YES EXIT TEST
7767 067160 005237 002322          INC    ITRCNT         ;INCREMENT COUNTER
7768 067164 023737 002322 002320  CMP    ITRCNT,ITRDEF  ;ALL DONE
7769 067172 001402          BEQ    EXQV24         ;BRANCH IF YES
7770 067174 000137 063322          JMP    ITAC24         ;IF NO TEST ITERATION
7771 067200          EXQV24: EXIT      TST   ;EXIT TEST
          067200 104432          TRAP   C$EXIT
          067202 000064          .WORD L10055-.
7772
7773
7774 067204 045 123 062 TSHD24: .NLIST BEX
          .ASCIZ /%S2%ADMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1%/
7775          .LIST BEX
7776          .EVEN
7777 067266          .ENDTST
          067266          L10055:
          067266 104401          TRAP   C$ETST
    
```


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 TEST 25: MCR FUNCTION TEST OF CHANNEL 1

```

7779          .SBTTL TEST 25: MCR FUNCTION TEST OF CHANNEL 1
7780          :*****
7781          :PART 1 CHANNEL 2 TRANSMITS 9 DATA BYTES (50) AND THEN
7782          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7783          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7784          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7785          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7786          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7787          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7788          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7789          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7790          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7791          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7792          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7793          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7794          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7795          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7796          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7797          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7798          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7799          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7800          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7801          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7802          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7803          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7804          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7805          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7806          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7807          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7808          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7809          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7810          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7811          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7812          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7813          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7814          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7815          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7816          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7817          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
    
```

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TEST 25: MCR FUNCTION TEST OF CHANNEL 1

```

7818 067540 104404 005037 002400          CLR    INTFC2          ;CLEAR INTERRUPT FLAG
7819 067542 005037 002376          CLR    INTFC1          ;CLEAR INTERRUPT FLAG
7820 067546 042777 000010 112520      BIC    #10,@CSRX       ;SELECT CHANNEL 1
7821 067552 012700 000110          MOV    #72.,R0         ;CLEAR BUFFER TABE
7822 067556 012701 002624          MOV    #TABE,R1
7823 067560 105021          CLR    (R1)+
7824 067564 105300          DECB   R0
7825 067568 001375          BNE    2$
7826 067572 012777 002624 112476      MOV    #TABE,@BARX     ;----LOAD START ADDRESS OF TABLE E----
7827 067576 012777 177667 112472      MOV    #177667,@BCRX  ;----LOAD INTO BCR 1----
7828 067580 012777 000101 112460      MOV    #101,@CSRX     ;---SET DMA ENB,INT ENB IN CSR1
7829 067584 012700 000000          SETPRI #PRIO0         ;SET PRIORITY TO ZERO
                                TRAP    C$BSEG
                                MOV    #PRIO0,R0
                                TRAP    C$SPRI

7830 067620 052777 000010 112444      BIS    #10,@CSRX       ;SELECT CHANNEL 2
7831 067624 012737 000002 002374      MOV    #2,CHAN        ;LOAD CHANNEL NUMBER
7832 067628 112777 000013 112420      MOV    #13,@ICRHX     ;---LOAD GTS INTO ACR 2-----
7833 067632 012701 077777          MOV    #77777,R1
7834 067636 005737 002400          TST    INTFC2         ;IS INTERRUPT IN CHANNEL 2 OCCER
7835 067640 001015          BNE    10$            ;BRANCH IF YES
7836 067644 005301          DEC    R1              ;DECREMENT COUNTER
7837 067648 001373          BNE    13$            ;IF COUNTER NO ZERO,TEST AGIN
7838 067652 017737 112406 002502      MOV    @CSRX,BAD      ;GET CSR2 CONTENTS
7839 067656 012737 100016 002500      MOV    #100016,GOOD   ;BC OF,DMA DIR,MUX,SYS CONT SHOULD SET
7840 067660          ERRSOFT 2501,E232,ERR201 ;ERROR HANDLER
                                TRAP    C$ERSOFT
                                .WORD  2501
                                .WORD  E232
                                .WORD  ERR201

7841 067702 104457          CKLOOP
                                ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP    C$CLP1

7842 067706 042777 000010 112356 10$:      BIC    #10,@CSRX       ;SELECT CHANNEL 1
7843 067710 012737 000001 002374      MOV    #1,CHAN        ;LOAD CHANNEL NUMBER
7844 067714 005737 002376          TST    INTFC1         ;IS AN INTERRUPT IN CHANNEL 1 OCCURED
7845 067718 001013          BNE    11$            ;BRANCH IF YES
7846 067722 017737 112336 002502      MOV    @CSRX,BAD      ;GET CSR1 CONTENTS
7847 067726 012737 020000 002500      MOV    #20000,GOOD    ;COMP END SHOULD BE SET
7848 067730          ERRSOFT 2502,E232,ERR201 ;ERROR HANDLER
                                TRAP    C$ERSOFT
                                .WORD  2502
                                .WORD  E232
                                .WORD  ERR201

7849 067734 104406          CKLOOP
                                ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP    C$CLP1

7850 067738 012700 000340 11$:      SETPRI #PRIO7         ;NO FURTHER INTERRUPT ALLOWED
                                MOV    #PRIO7,R0
                                TRAP    C$SPRI

7851 067742 012701 002734          MOV    #TABF,R1       ;PROVIDE FIRST BYTE OF BUFFER F
7852 067746 012702 002624          MOV    #TABE,R2       ;PROVIDE FIRST BYTE OF BUFFER E
7853 070000 005037 002404          CLR    CNT1           ;CLEAR BUFFER COUNTER
7854 070004 005237 002404          INC    CNT1           ;BYTE COUNT
7855 070008 122122          CMPB   (R1)+,(R2)+    ;BUFFER F EQUAL TO BUFFER E
7856 070012 001431          BEQ    33$           ;IF YES, CONTINUE
7857 070016 005037 002500          CLR    GOOD           ;CLEAR GOOD
7858 070020 005037 002502          CLR    BAD            ;CLEAR BAD
7859 070024 005037 002426          CLR    TXADRH        ;SET UP DATA FOR ERROR MESSAGE

```

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 TEST 25: MCR FUNCTION TEST OF CHANNEL 1

```

7860 070032 010137 002430      MOV      R1, TXADRL      ;...
7861 070036 005337 002430      DEC      TXADRL         ;...
7862 070042 005037 002422      CLR      RXADRH        ;...
7863 070046 010237 002424      MOV      R2, RXADRL    ;...
7864 070052 005337 002424      DEC      RXADRL        ;...
7865 070056 114137 002500      MOV      -(R1), GOOD   ;SET UP DATA FOR ERROR MESSAGE
7866 070062 114237 002502      MOV      -(R2), BAD    ;...
7867 070066 104457 002502      ERRSOF1 2503,E250,ERR231 ;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD    2503
                                .WORD    E250
                                .WORD    ERR231
                                TRAP      C$CLP1
7868 070076 104406 002404 002402 33$:  CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
7869 070100 023737 002404 002402 33$:  CMP      CNT1, RSAVE    ;ALL BYTES COMPARED ?
7870 070106 001337 002404 002402 33$:  BNE     30$           ;IF NOT, GET NEXT ONE
7871 070110 001337 002404 002402 33$:  ENDSEG
                                10000$:
7872 070112 012777 000010 112160      MOV      #10, @CSRX    ;SELECT CHA. 2 ,CLR ALL BIT IN CHA.1
7873 070120 112777 000014 112142      MOV      #14, @ICRHX   ;---LOAD TCA INTO ACR 2---
7874 070126 017737 112140 002502      MOV      @IDRX, BAD    ;READ DIR2 REG. FOR CLEAR ACCRO SIGNAL
7875
7876
7877
-----
;PART 2 CHECK THE FALSE NUMBER OF EOS CHARACTERS
-----
7878 070134 012777 000002 112136      MOV      #2, @CSRX    ;SELECT CHANNEL 1, SET SYS CON. IN CHA.2
7879 070142 005077 112140 112136      CLR      @MCRX        ;CLEAR MCR1 REGISTER
7880 070146 113777 002236 112134      MOV      MCINP, @MCRX ;---LOAD CNT INPUT INTO MCR 1---
7881 070154 052777 100025 112124      BIS      #100025, @MCRX ;---ENB MATCH + EOS CHARACTER (25)
7882 070162 052777 000010 112110      BIS      #10, @CSRX   ;SELECT CHANNEL 2
7883 070170 012777 003250 112104      MOV      #TABK, @BARX ;---LOAD START ADDRESS OF BUFFER K---
7884 070176 013737 002236 002402      MOV      MCINP, RSAVE ;STORE MATCH CHARACTER CNT INPUT
7885 070204 062737 000003 002402      ADD      #3, RSAVE    ;ADD 3 DATA BYTES TO CNT INPUT
7886 070212 005437 002402 112060      NEG      RSAVE        ;BILD 2'COMPL FOR BCR
7887 070216 013777 002402 112060      MOV      RSAVE, @BCRX ;---LOAD BYTE COUNT REGISTER---
7888 070224 005437 002402 112042      NEG      RSAVE        ;REBUILD INPUT+ DATA FOR COUNTER CNT1
7889 070230 012777 000107 112042      MOV      #107, @CSRX  ;---DMA ENB, DMA DIR, INT ENB, SYS CON
7890 070236 104404 002400 112042      BGNSEG
                                TRAP      C$BSEG
7891 070240 005037 002400 112022      CLR      INTFC2       ;CLEAR INTERRUPT FLAG
7892 070244 005037 002376 112022      CLR      INTFC1       ;CLEAR INTERRUPT FLAG
7893 070250 042777 000010 112022      BIC      #10, @CSRX   ;SELECT CHANNEL 1
7894 070256 012700 000102 112022      MOV      #66, R0      ;CLEAR BUFFER TABH
7895 070262 012701 003146 112022      MOV      #TABH, R1    ;...
7896 070266 105021 003146 112022      CLR      (R1)+        ;...
7897 070270 105300 003146 112022      DECB    R0            ;...
7898 070272 001375 003146 112022      BNE     34$          ;...
7899 070274 012777 003146 112000      MOV      #TABH, @BARX ;---LOAD START ADDRESS OF BUFFER H---
7900 070302 012777 177675 111774      MOV      #177675, @BCRX ;---LOAD MAX. TRANSFER INTO BCR 1---
7901 070310 012777 000101 111762      MOV      #101, @CSRX  ;---SET DMA ENB, INT ENB IN CSR1-
7902 070316 052777 000010 111754      BIS      #10, @CSRX   ;SELECT CHANNEL 2
7903 070324 012737 000002 002374      MOV      #2, CHAN     ;LOAD CHANNEL NUMBER
7904 070332 012700 000000 002374      SETPRI  #PRI0        ;SET PRI. TO ZERO (ALLOW INTERRUPT)
                                MOV      #PRI0, R0
                                TRAP      C$SPRI
7905 070340 112777 000013 111722      MOV      #13, @ICRHX  ;---LOAD GTS INTO ACR 2---
7906 070346 012701 007777 111722      MOV      #7777, R1   ;LOAD COUNTER

```


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 TEST 26: MCR FUNCTICN. TEST OF CHANNEL 2

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7970 .SBTTL TEST 26: MCR FUNCTION TEST OF CHANNEL 2
7971 .....
7972 IEX - TEST 26
7973 :PART 1 CHANNEL 1 TRANSMITS 9 DATA BYTES (50) AND THEN
7974 A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177)
7975 VIA THE IEC/IEEE BUS TO CHANNEL 2. AFTER RECEIVING THESE CHARACTERS
7976 THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 2 (COMP END).
7977 :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7978 CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE
7979 EOS CHARACTERS ARE TRANSMITTED.
7980 I.E 2 EOS CHAR.(25), 1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25)
7981 .....
7982 BGNTST
7983 071012 005737 002324 TST PNTF ;IS THE PNT FLAG SET
7984 071016 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
7985 071020 PRINTF #TSHD26 ;....
7986 071020 012746 072474 MOV #TSHD26,-(SP)
7987 071024 012746 000001 MOV #1,-(SP)
7988 071030 010600 MOV SP,R0
7989 071032 104417 TRAP C$PNTF
7990 071034 062706 000004 ADD #4,SP
7991 071040 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
7992 071044 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
7993 071050 ITAC26: SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
7994 071050 012746 000340 MOV #PRI07,-(SP)
7995 071054 012746 010152 MOV #INTSC2,-(SP)
7996 071060 013746 002246 MOV VECC2,-(SP)
7997 071064 012746 000003 MOV #3,-(SP)
7998 071070 104437 TRAP C$SVEC
7999 071072 062706 000010 ADD #10,SP
8000 071076 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
8001 071076 012746 000340 MOV #PRI07,-(SP)
8002 071102 012746 010142 MOV #INTSC1,-(SP)
8003 071106 013746 002244 MOV VECC1,-(SP)
8004 071112 012746 000003 MOV #3,-(SP)
8005 071116 104437 TRAP C$SVEC
8006 071120 062706 000010 ADD #10,SP
8007 071124 112777 000212 111136 MOVB #212,@ICRHX ;----LOAD TON INTO ACR 1-----
8008 071132 013701 002314 MOV DPA2,R1 ;CREATE MLA2
8009 071136 062701 000040 ADD #40,R1 ;
8010 071142 010137 002412 MOV R1,MLA2 ;STORE MLA2
8011 071146 113777 002412 111122 MOVB MLA2,@IDRHX ;----LOAD MLA2 INTO DOR 1-----
8012 071154 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
8013 071160 052777 000010 111112 BIS #10,@CSRX ;SELECT CHANNEL 2
8014 071166 005077 111114 CLR @MCRX ;CLEAR MCR2 REGISTER
8015 071172 113777 002236 111110 MOVB MCINP,@MCRHX ;---LOAD CNT INPUT INTO MCR HIGH BYTE-
8016 071200 052777 100125 111100 BIS #100125,@MCRX ;--- ENB MATCH BIT +EOS (125) IN MCR2--
8017 071206 BGNSEG TRAP C$BSEG
8018 071210 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG
8019 071214 005037 002376 CLR INTFC1 ;CLEAR INTERRUPT FLAG
8020 071220 042777 000010 111052 BIC #10,@CSRX ;SELECT CHANNEL 1
8021 071226 012777 002514 111046 MOV #TABD,@BARX ;---LOAD START ADDRESS OF TABLE D ---
8022 071234 013737 002236 002402 MOV MCINP,RSAVE ;STORE MATCH CHARACTER COUNT INPUT
8023 071242 062737 000011 002402 ADD #11,RSAVE ;ADD 11(OCTAL) DATA BYTES TO INPUT
8024 071250 005437 002402 NEG RSAVE ;BILD 2'COMPL FOR BCR
    
```

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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

8008	071254	013777	002402	111022	MOV	RSAVE,@BCRX	----	LOAD INPUT+DATA BYTES INTO BCR 1-
8009	071262	005437	002402		NEG	RSAVE	----	REBUILD INPUT+DATA FOR COUNTER CNT1
8010	071266	012777	000107	111004	MOV	#107,@CSRX	----	DMA ENB,DMA DIR,INT ENB,SYS CONT
8011	071274	052777	000010	110776	BIS	#10,@CSRX	----	SELECT CHANNEL 2
8012	071302	012700	000110		MOV	#72,R0	----	CLEAR BUFFER TABE
8013	071306	012701	002624		MOV	#TABE,R1	----	----
8014	071312	105021		2\$:	CLRB	(R1)+	----	----
8015	071314	105300			DECB	R0	----	----
8016	071316	001375			BNE	2\$	----	----
8017	071320	012777	002624	110754	MOV	#TABE,@BARX	----	LOAD START ADDRESS OF TABLE E----
8018	071326	012777	177667	110750	MOV	#177667,@BCRX	----	LOAD INTO BCR 1----
8019	071334	012777	000101	110736	MOV	#101,@CSRX	----	SET DMA ENB,INT ENB IN CSR2
8020	071342				SETPRI	#PRI00	----	SET PRIORITY TO ZERO
	071342	012700	000000				MOV	#PRI00,R0
	071346	104441					TRAP	C\$SPRI
8021	071350	042777	000010	110722	BIC	#'0,@CSRX	----	SELECT CHANNEL 1
8022	071356	012737	000001	002374	MOV	#1,CHAN	----	LOAD CHANNEL NUMBER
8023	071364	112777	000013	110676	MOVB	#13,@ICRHX	----	LOAD GTS INTO ACR 1-----
8024	071372	012701	077777		MOV	#77777,R1	----	LOAD LOOP COUNTER
8025	071376	005737	002376	13\$:	TST	INTFC1	----	IS INTERRUPT IN CHANNEL 1 OCCER
8026	071402	001015			BNE	10\$	----	BRANCH IF YES
8027	071404	005301			DEC	R1	----	DECREMENT COUNTER
8028	071406	001373			BNE	13\$	----	IF NO,TEST AGIN
8029	071410	017737	110664	002502	MOV	@CSRX,BAD	----	GET CSR1 CONTENTS
8030	071416	012737	100006	002500	MOV	#100006,GOOD	----	BC OF,DMA DIR,SYS CONT SHOULD BE SET
8031	071424				ERRSOFT	2601,E232,ERR201	----	ERROR HANDLER
	071424	104457					TRAP	C\$ERSOFT
	071426	005051					.WORD	2601
	071430	006072					.WORD	E232
	071432	003500					.WORD	ERR201
8032	071434				CKLOOP		TRAP	C\$CLP1
	071434	104406					TRAP	C\$CLP1
8033	071436	052777	000010	110634	10\$:	BIS	#10,@CSRX	SELECT CHANNEL 2
8034	071444	012737	000002	002374	MOV	#2,CHAN	----	LOAD CHANNEL NUMBER
8035	071452	005737	002400		TST	INTFC2	----	IS AN INTERRUPT IN CHANNEL 2 OCCURED
8036	071456	001013			BNE	11\$	----	BRANCH IF YES
8037	071460	017737	110614	002502	MOV	@CSRX,BAD	----	GET CSR2 CONTENTS
8038	071466	012737	020010	002500	MOV	#20010,GOOD	----	COMP END,MUX SHOULD BE SET
8039	071474				ERRSOFT	2602,E232,ERR201	----	ERROR HANDLER
	071474	104457					TRAP	C\$ERSOFT
	071476	005052					.WORD	2602
	071500	006072					.WORD	E232
	071502	003500					.WORD	ERR201
8040	071504				CKLOOP		TRAP	C\$CLP1
	071504	104406					TRAP	C\$CLP1
8041	071506				11\$:	SETPRI	#PRI07	NO FURTHER INTERRUPT ALLOWED
	071506	012700	000340				MOV	#PRI07,R0
	071512	104441					TRAP	C\$SPRI
8042	071514	012701	002514		MOV	#TABD,R1	----	PROVIDE FIRST BYTE OF BUFFER D
8043	071520	012702	002624		MOV	#TABE,R2	----	PROVIDE FIRST BYTE OF BUFFER E
8044	071524	005037	002404		CLR	CNT1	----	CLEAR BUFFER COUNTER
8045	071530	005237	002404	30\$:	INC	CNT1	----	BYTE COUNT
8046	071534	122122			CMPB	(R1)+,(R2)+	----	BUFFER D EQUAL TO BUFFER E
8047	071536	001433			BEQ	33\$	----	IF YES, CONTINUE
8048	071540	005037	002500		CLR	GOOD	----	CLEAR GOOD
8049	071544	005037	002502		CLR	BAD	----	CLEAR BAD
8050	071550	005037	002426		CLR	TXADRH	----	SET UP DATA FOR ERROR MESSAGE

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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

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8051 071554 010137 002430      MOV      R1, TXADRL      ;...
8052 071560 005337 002430      DEC      TXADRL         ;...
8053 071564 005037 002422      CLR      RXADRH         ;...
8054 071570 010237 002424      MOV      R2, RXADRL     ;...
8055 071574 005337 002424      DEC      RXADRL         ;...
8056 071600 116137 177777 002500  MOVB     -1(R1), GOOD    ;SET UP DATA FOR ERROR MESSAGE
8057 071606 116237 177777 002502  MOVB     -1(R2), BAD     ;...
8058 071614                                ERRSOFT 2603, E231, ERR231 ;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     2603
                                .WORD     E231
                                .WORD     ERR231
8059 071624                                CKLOOP                    ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
8060 071626 023737 002404 002402 33$:  CMP      CNT1, RSAVE     ;ALL BYTES COMPARED ?
8061 071634 001335                                BNE      30$             ;IF NOT, GET NEXT ONE
8062 071636                                ENDSEG
                                10000$:
8063 071640 005077 110434                                CLR      @CSRX           ;SELECT CHAN. 1, CLR ALL BIT IN CHA.2
8064 071644 112777 000014 110416  MOVB     #14, @ICRXH     ;----LOAD TCA INTO ACR 1-----
8065 071652 017737 110414 002502  MOV      @IDRX, BAD     ;READ DIR1 TO CLEAR ACCRQ SIGNAL
8066 071660 005077 110414                                CLR      @CSRX           ;CLEAR CSR1
8067
8068 :+++-----
8069 :PART 2 CHECK THE FALSE NUMBER OF EOS CHARACTERS
8070 071664 052777 000012 110406  BIS      #12, @CSRX     ;SET SYS CON IN CHA 1, SELECT CHANNEL 2
8071 071672 005077 110410                                CLR      @MCRX           ;CLEAR MCR2 REGISTER
8072 071676 113777 002236 110404  MCVB     MCINP, @MCRHX  ;----LOAD CNT INPUT INTO MCR 2-----
8073 071704 052777 100012 110374  BIS      #100012, @MCRX ;---- ENB MATCH + EOS CHARACTER (12)
8074 071712 042777 000010 110360  BIC      #10, @CSRX     ;SELECT CHANNEL 1
8075 071720 012737 000001 002374  MOV      #1, CHAN      ;LOAD CHANNEL NUMBER
8076 071726 012777 003044 110346  MOV      #TABG, @BARX   ;---LOAD START ADDRESS OF BUFFER G---
8077 071734 013737 002236 002402  MOV      MCINP, RSAVE   ;STORE MATCH CHARACTER CNT INPUT
8078 071742 062737 000003 002402  ADD      #3, RSAVE      ;ADD 3 DATA BYTES TO CNT INPUT
8079 071750 005437 002402                                NEG      RSAVE           ;BILD 2'COMPL FOR BCR
8080 071754 013777 002402 110322  MOV      RSAVE, @BCRX   ;---LOAD BYTE COUNT REGISTER 1-----
8081 071762 005437 002402                                NEG      RSAVE           ;REBUILD INPUT+DATA FOR COUNTER CNT1
8082 071766 012777 000107 110304  MOV      #107, @CSRX    ;--- DMA ENB, DMA DIR, INT ENB, SYS CONT
8083 071774                                BGNSEG
                                TRAP      C$BSEG
8084 071776 005037 002400                                CLR      INTFC2         ;CLEAR INTERRUPT FLAG
8085 072002 005037 002376                                CLR      INTFC1         ;CLEAR INTERRUPT FLAG
8086 072006 052777 000010 110264  BIS      #10, @CSRX     ;SELECT CHANNEL 2
8087 072014 012700 000102                                MOV      #66., RO       ;CLEAR BUFFER TABH
8088 072020 012701 003146                                MOV      #TABH, R1      ;...
8089 072024 105021                                CLRB    (R1)+           ;...
8090 072026 105300                                DECB    RO              ;...
8091 072030 001375                                BNE     34$             ;...
8092 072032 012777 003146 110242  MOV      #TABH, @BARX   ;---LOAD START ADDRESS OF BUFFER H---
8093 072040 012777 177675 110236  MOV      #177675, @BCRX ;---LOAD MAX. TRANSFER INTO BCR 2---
8094 072046 012777 000101 110224  MOV      #101, @CSRX    ;---SET DMA ENB, INT ENB IN CSR2-----
8095 072054 042777 000010 110216  BIC      #10, @CSRX     ;SELECT CHANNEL 1
8096 072062 012737 000001 002374  MOV      #1, CHAN      ;LOAD CHANNEL NUMBER
8097 072070                                SETPRI  #PRI00         ;SET PRI. TO ZERO (ALLOW INTERRUPT)
                                MOV      #PRI00, RO
                                TRAP      C$SPRI
072074 012700 000000
104441

```


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 TEST 26: MCR FUNCTION TEST OF CHANNEL 2

8098	072076	112777	000013	110164		MOVB	#13,@!CRHX		:---	LOAD	GTS	INTO	ACR	1-----				
8099	072104	012701	077777			MOV	#7777,R1		:	LOAD	COUNTER							
8100	072110	005737	002376		40\$:	TST	INTFC1		:	IS	INTERRUPT	IN	CHANNEL	1	OCCUR			
8101	072114	001015				BNE	43\$		:	BRANCH	IF	YES				
8102	072116	005301				DEC	R1		:	IS	TIME	OVER						
8103	072120	001373				BNE	40\$		:	IF	NO,	TEST	AGAIN			
8104	072122	017737	110152	002502		MOV	@CSRX,BAD		:	GET	CSR1	CONTENTS						
8105	072130	012737	100006	002500		MOV	#100006,GOOD		:	BC	OF	DMA	DIR,	SYS	CONT,	SHOULD	BE	SET
8106	072136					ERRSOFT	2604,E232,ERR201		:	ERROR	HANDLER							
	072136	104457								TRAP	C\$ERSOFT							
	072140	005054								.WORD	2604							
	072142	006072								.WORD	E232							
	072144	003500								.WORD	ERR201							
8107	072146					CKLOOP			:	BRANCH	TO	BGNSEG	IF	ERRLOOP	IS	SET		
	072146	104406								TRAP	C\$CLP1							
8108	072150	052777	000010	110122	43\$:	BIS	#10,@CSRX		:	SELECT	CHANNEL	2						
8109	072156	012737	000002	002374		MOV	#2,CHAN		:	LOAD	CHANNEL	NUMBER						
8110	072164	005737	002400			TST	INTFC2		:	IS	THERE	AN	INTERRUPT	IN	CHANNEL	2	-	
8111	072170	001013				BNE	41\$		:	BRANCH	IF	YES				
8112	072172	017737	110102	002502		MOV	@CSRX,BAD		:	GET	CSR2	CONTENTS						
8113	072200	012737	020010	002500		MOV	#20010,GOOD		:	COMP	END,	MUX	SHOULD	BE	SET			
8114	072206					ERRSOFT	2605,E232,ERR201		:	ERROR	HANDLER							
	072206	104457								TRAP	C\$ERSOFT							
	072210	005055								.WORD	2605							
	072212	006072								.WORD	E232							
	072214	003500								.WORD	ERR201							
8115	072216					CKLOOP			:	BRANCH	TO	BGNSEG	IF	ERRLOOP	IS	SET		
	072216	104406								TRAP	C\$CLP1							
8116	072220				41\$:	SETPRI	#PRI07		:	DISABLE	INTERRUPTS							
	072220	012700	000340							MOV	#PRI07,R0							
	072224	104441								TRAP	C\$SPRI							
8117	072226	012701	003044			MOV	#TABG,R1		:	PROVIDE	FIRST	BYTE	OF	BUFFER	G			
8118	072232	012702	003146			MOV	#TABH,R2		:	PROVIDE	FIRST	BYTE	OF	BUFFER	H			
8119	072236	005037	002404			CLR	CNT1		:	CLEAR	COUNTER							
8120	072242	005237	002404		60\$:	INC	CNT1		:	BYTE	COUNT							
8121	072246	122122				CMPB	(R1)+,(R2)+		:	BUFFER	G	EQUAL	BUFFER	H				
8122	072250	001431				BEQ	63\$		:	IF	YES,	CONTINUE				
8123	072252	005037	002500			CLR	GOOD		:	CLEAR	GOOD							
8124	072256	005037	002502			CLR	BAD		:	CLEAR	BAD							
8125	072262	005037	002426			CLR	TXADRH		:	SET	UP	DATA	FOR	ERROR	MESSAGE			
8126	072266	010137	002430			MOV	R1,TXADRL		:	....							
8127	072272	005337	002430			DEC	TXADRL		:	....							
8128	072276	005037	002422			CLR	RXADRH		:	....							
8129	072302	010237	002424			MOV	R2,RXADRL		:	....							
8130	072306	005337	002424			DEC	RXADRL		:	....							
8131	072312	114137	002500			MOVB	-(R1),GOOD		:	SET	UP	DATA	FOR	ERROR	MESSAGE			
8132	072316	114237	002502			MOVB	-(R2),BAD		:	....							
8133	072322					ERRSOFT	2606,E231,ERR231		:	ERROR	HANDLER							
	072322	104457								TRAP	C\$ERSOFT							
	072324	005056								.WORD	2606							
	072326	006010								.WORD	E231							
	072330	003744								.WORD	ERR231							
8134	072332					CKLOOP			:	BRANCH	TO	BGNSEG	IF	ERRLOOP	IS	SET		
	072332	104406								TRAP	C\$CLP1							
8135	072334	023737	002404	002402	63\$:	CMP	CNT1,RSAVE		:	ALL	BYTES	COMPARED	?					
8136	072342	001337				BNE	60\$:	IF	NO,	GET	NEXT	ONE				
8137	072344					ENDSEG												

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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

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      072344
      072344 104405
8138 072346 042777 000010 107724      BIC      #10,@CSRX      ;SELECT CHANNEL 1
8139 072354 112777 000014 107706      MOVB     #14,@ICRHX    ;---LOAD TCA INTO ACR 1-----
8140 072362 112777 000077 107706      MOVB     #77,@IDRHX    ;---LOAD UNL INTO DOR 1-----
8141 072370 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
8142 072374 112777 000200 107666      MOVB     #200,@ICRHX   ;---LOAD SWRST INTO ACR 1-----
8143 072402 112777 000000 107660      MOVB     #0,@ICRHX    ;---LOAD NOT SWRST INTO ACR 1-----
8144 072410 005737 002234      TST      QVP          ;IS QUICK VERIFY PASS SELECTED ?
8145 072414 001025      BNE     EXQV26        ;IF YES EXIT TEST
8146 072416 005237 002322      INC      ITRCNT       ;ITERATION COUNTER +1
8147 072422 023737 002322 002320      CMP      ITRCNT,I TRDEF ;DEFAULT ITERATION EXECUTED
8148 072430 001417      BEQ     EXQV26        ;IF YES EXIT TEST
8149 072432 012777 000010 107640      MCV     #10,@CSRX    ;CLEAR CSR1,SELECT CHANNEL 2
8150 072440 005077 107634      CLR     @CSRX        ;CLEAR CSR2,SELECT CHANNEL 1
8151 072444 112777 000217 107616      MOVB     #217,@ICRHX  ;---LOAD SIC INTO ACR 1-----
8152 072452 004737 011072      JSR      PC,WAIT      ;WAIT A LITTLE
8153 072456 112777 000017 107604      MOVB     #17,@ICRHX   ;---LOAD NOT SIC INTO ACR 1-----
8154 072464 000137 071050      JMP      ITAC26       ;IF NO TEST ITERATION
8155 072470      EXQV26: EXIT        TST
      072470 104432      TRAP    C$EXIT
      072472 000050      .WORD  L10057-.
8156
8157
8158 072474      045      123      062  TSMD26: .NLISI  BEX
      .ASCIZ  /%S2%AMCR FUNCTION TEST OF CHANNEL 2%/
8159      .LIST  BEX
8160      .EVEN
8161 072542      ENDTST
      072542
      072542 104401      L10057: TRAP    C$E1ST

```

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TEST 27: EXTENDED ADDRESS BIT (Q22-BUS)TEST

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8163 .SBTTL TEST 27: EXTENDED ADDRESS BIT (Q22-BUS)TEST
8164 .....
8165 IEX - TEST 27
8166 :THIS TEST IS ONLY BE CARRIED OUT IF A 22-BIT Q-BUS (11/23B)IS USED
8167 :AND IF THE AVAILABLE MEMORY IS GREATER THAN 128K.
8168
8169 :PART 1 FINDS OUT IF AVAILABLE MEMORY IS GREATER THAN 128K.IF YES,THEN
8170 A DMA IS CARRIED OUT BY SENDING 2K DATA VIA THE IEC/IEEE BUS
8171 FROM CHANNEL 1 TO 2.THE DMA CROSS THE BOUNDERY
8172 THE SEQUENCE DESCRIBED ABOVE IS ALSO EXECUTED WITH 256K (BA 19 SET),
8173 512K (BA 20 SET) AND 1024K (BA 21 SET).
8174 :PART 2 SAME AS PART 1 EXCEPT THE CHANNELS .THE DMA DATA TRANSFER
8175 IS CARRIED OUT FROM CHANNEL 2 TO 1.
8176 .....
8177 BGNTST
8178 072544 READBUS ;DETERMINE BUS TYPE T27:: TRAP CSRDBU
072544 104407 ;BRANCH IF Q-BUS BCS 3$
8179 072546 BCOMPLETE 3$ ;IS THE PNT FLAG SET ;IF YES, PRINT MESSAGE ;...
072546 103415 TST PNTF ;...
8180 072550 005737 002324 BEQ 2$ ;...
8181 072554 001410 PRINTF #INFO3 ;...
8182 072556 012746 076502 MOV #INFO3,-(SP)
072562 012746 000001 MOV #1,-(SP)
072566 010600 MCV SP,RO
072570 104417 TRAP C$PNTF
8183 072572 062706 000004 ADD #4,SP
072576 104432 2$: EXIT TST ;EXIT TEST TRAP C$EXIT
072600 002654 .WORD L10060-.
8184 072602 012737 000004 002350 3$: MOV #4,MASK ;
8185 072610 005737 002324 TST PNTF ;IS THE PNT FLAG SET
8186 072614 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
8187 072616 012746 075406 PRINTF #TSHD27 ;...
072622 012746 000001 MOV #TSHD27,-(SP)
072626 010600 MOV #1,-(SP)
072630 104417 MOV SP,RO
8188 072632 062706 000004 TRAP C$PNTF
072636 012746 000340 7$: SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
072642 012746 010142 MOV #PRI07,-(SP)
072646 013746 002244 MOV #INTSC1,-(SP)
072652 012746 000003 MOV VECC1,-(SP)
072656 104437 MOV #3,-(SP)
8189 072660 062706 000010 TRAP C$SVEC
072664 012746 000340 ADD #10,SP
072670 012746 010152 MOV #PRI07,-(SP)
072674 013746 002246 MOV #INTSC2,-(SP)
072700 012746 000003 MOV VECC2,-(SP)
072704 104437 MOV #3,-(SP)
8190 072712 005037 002364 CLR CSRMS1 ;LOAD MASK FOR CSR1
8191 072716 012737 001000 002366 MOV #1000,CSRMS2 ;LOAD EXTENDED ADDR BIT FOR RX CHANNEL
8192 072724 005037 002376 ITAC27: CLR INTFC1 ;CLEAR INTERRUPT FLAG

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 TEST 27: EXTENDED ADDRESS BIT (Q22-BJS)TEST

8193	072730	005037	002400		CLR	INTFC2	:CLEAR INTERRUPT FLAG
8194	072734	023737	002342	002350	CMP	PHHSIZ, MASK	:IS THERE MORE THAN 128K
8195	072742	002404			BLT	11\$	:IF NO SKIP TEST
8196	072744	003005			BGT	13\$:
8197	072746	005737	002344		TST	PHLSIZ	:
8198	072752	001002			BNE	13\$:
8199	072754			11\$:	EXIT	TST	:EXIT TEST
	072754	104432					
	072756	002476					TRAP C\$EXIT
8200	072760	004737	010534	13\$:	JSR	PC, BGIN1	.WORD L10060-
8201	072764	000240			NOP		:
8202	072766	012737	177777	002336	MOV	#177777, PHLGW	:LOAD INPUT FOR CONVERSION ROUTINE
8203	072774	013704	002350		MOV	MASK, R4	:...
8204	073000	005304			DEC	R4	:...
8205	073002	010437	002334		MOV	R4, PHHIGH	:...
8206	073006	004737	007724		JSR	PC, PVCON	:CREATE VIRTUAL ADDRESS
8207	073012	013700	002340		MOV	VIADD, R0	:GET START ADDRESS OF BUFFER A
8208	073016	010037	002356		MOV	R0, BUFAB	:LOAD START ADDRESS OF BUFFER A
8209	073022	012701	010000		MOV	#10000, R1	:LOAD COUNTER FOR 2K
8210	073026	005003			CLR	R3	:R3 CONTAINS DATA
8211	073030	012737	000020	172516	MOV	#20, SR3	:**ENABLE 22-BIT MEMORY MANAGEMENT**
8212	073036	012737	000001	177572	MOV	#1, SR0	:**ENABLE MEMORY MANAGEMENT**
8213	073044	110310			MOVB	R3, (R0)	:LOAD FIRST DATA BYTE
8214	073046	012700	120000		MOV	#120000, R0	:SET UP ADDRESS FOR NEXT DATA BYTE
8215	073052	005237	172352		INC	KPAR5	:LOAD NEXT PAGE
8216	073056	005203		16\$:	INC	R3	:CREATE NEXT DATA
8217	073060	110320			MOVB	R3, (R0)+	:LOAD BUFFER WITH DATA
8218	073062	005301			DEC	R1	:
8219	073064	001374			BNE	10\$:
8220	073066	005300			DEC	R0	:
8221	073070	012701	010000		MOV	#10000, R1	:LOAD 2K
8222	073074	010037	002360		MOV	R0, BUFBB	:LOAD START ADDRESS OF BUFFER B
8223	073100	000240		20\$:	NOP		:
8224	073102	105020			CLRB	(R0)+	:CLEAR BUFFER B
8225	073104	005301			DEC	R1	:2K CLEARED
8226	073106	001374			BNE	20\$	:IF YES, DO THE TEST
8227	073110	005037	177572		CLR	SR0	:**DISABLE MEMORY MANAGEMENT**
8228	073114	112777	000212	107146	MOVB	#212, @ICRHX	:-----LOAD TON INTO ACR 1-----
8229	073122	013701	002314		MOV	DPA2, R1	:CREATE MLA2
8230	073126	062701	000040		ADD	#40, R1	:
8231	073132	010137	002412		MOV	R1, MLA2	:STORE MLA2
8232	073136	113777	002412	107132	MOVB	MLA2, @IDRHX	:-----LOAD MLA2 INTO DOR 1-----
8233	073144	004737	011060		JSR	PC, LOOP	:WAIT A LITTLE
8234	073150	012777	177777	107124	MOV	#177777, @BARX	:---LOAD START ADDRESS OF BUFFER A---
8235	073156	013737	002240	002402	MOV	BCINP, RSAVE	:STORE BYTE COUNT INPUT
8236	073164	005437	002402		NEG	RSAVE	:BUILD 2'COMPL FOR BCR
8237	073170	013777	002402	107106	MOV	RSAVE, @BCRX	:---LOAD INPUT INTO BCR 1-----
8238	073176	012777	000167	107074	MOV	#167, @CSRX	:DMA ENB, DMA DIR, INT ENB, SYS CO, BA16+17
8239	073204	053777	002364	107066	BIS	CSRMS1, @CSRX	:--LOAD ADDITIONAL EXTENDED ADDRESS BIT
8240	073212	052777	000010	107060	BIS	#10, @CSRX	:SELECT CHANNEL 2
8241	073220	012777	007777	107054	MOV	#7777, @BARX	:-----LOAD START ADDRESS OF BUFFER B---
8242	073226	013777	002402	107050	MOV	RSAVE, @BCRX	:---LOAD INPUT INTO BCR 2---
8243	073234	012777	000111	107036	MOV	#111, @CSRX	:---SET DMA ENB, INT ENB IN CSR2
8244	073242	053777	002366	107030	BIS	CSRMS2, @CSRX	:--LOAD EXTENDED ADDRESS BITS-----
8245	073250				SETPRI	#PRIO0	:SET PRIORITY TO ZERO
	073250	012700	000000				MOV #PRIO0, R0
	073254	104441					TRAP C\$SPRI

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 TEST 27: EXTENDED ADDRESS BIT (Q22-BUS) TEST

8246	073256	042777	000010	107014		BIC	#10,@CSRX		:SELECT CHANNEL 1
8247	073264	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
8248	073272	112777	000013	106770		MOVB	#13,@ICRHX		:----LOAD GTS INTO ACR 1-----
8249	073300	012701	077777			MOV	#77777,R1		:LOAD LOOP COUNTER
8250	073304	005737	002376		23\$:	TST	INTFC1		:HAS INTERRUPT IN CHANNEL 1 OCCURED
8251	073310	001017				BNE	24\$		:BRANCH IF YES
8252	073312	005301				DEC	R1		:DECREMENT COUNTER
8253	073314	001373				BNE	23\$		:IF NO,TEST AGAIN
8254	073316	01737	106756	002502		MOV	@CSRX,BAD		:GET CSR1 CONTENTS
8255	073324	012737	100066	002500		MOV	#100066,GOOD		:BC OF,DMA DIR,SYS CONT
8256	073332	053737	002364	002500		BIS	CSRMS1,GOOD		:SET EXTENDED ADDRESS BIT TO CSR CONT.
8257	073340					ERRSOFT	2701,E232,ERR201		:ERROR HANDLER
	073340	104457							TRAP C\$ERSOFT
	073342	005215							.WORD 2701
	073344	006072							.WORD E232
	073346	003500							.WORD ERR201
8258	073350	052777	000010	106722	24\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2
8259	073356	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
8260	073364	005737	002400			TST	INTFC2		:HAS AN INTERRUPT IN CHANNEL 2 OCCURED
8261	073370	001015				BNE	25\$		:BRANCH IF YES
8262	073372	017737	106702	002502		MOV	@CSRX,BAD		:GET CSR2 CONTENTS
8263	073400	012737	100010	002500		MOV	#100010,GOOD		:BC OF,MUX SHOULD BE SET
8264	073406	053737	002366	002500		BIS	CSRMS2,GOOD		:SET EXTENDED ADDRESS BIT TO CSR CONT.
8265	073414					ERRSOFT	2702,E232,ERR201		:ERROR HANDLER
	073414	104457							TRAP C\$ERSOFT
	073416	005216							.WORD 2702
	073420	006072							.WORD E232
	073422	003500							.WORD ERR201
8266	073424				25\$:	SETPRI	#PRI07		:NO FURTHER INTERRUPT ALLOWED
	073424	012700	000340						MOV #PRI07,R0
	073430	104441							TRAP C\$SPRI
8267	073432	042777	000010	106640		BIC	#10,@CSRX		:SELECT CHANNEL 1
8268	073440	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
8269	073446	112777	000014	106614		MOVB	#14,@ICRHX		:----LOAD TCA INTO ACR 1-----
8270	073454	013737	002336	002500		MUV	PHLOW,GOOD		:SET UP COMPARE VALUE
8271	073462	063737	002240	002500		ADD	BCINP,GOOD		:...:
8272	073470	017737	106606	002502		MOV	@BARX,BAD		:GET BAR1 CONTENTS
8273	073476	023737	002502	002500		CMP	BAD,GOOD		:HAS BAR1 THE CORRECT ADDRESS
8274	073504	001404				BEQ	30\$		:BRANCH IF YES
8275	073506					ERRSOFT	2703,E234,ERR501		:ERROR HANDLER
	073506	104457							TRAP C\$ERSOFT
	073510	005217							.WORD 2703
	073512	006200							.WORD E234
	073514	003702							.WORD ERR501
8276	073516	017737	106562	002502	30\$:	MOV	@BCRX,BAD		:GET BCR1 CONTENTS
8277	073524	005037	002500	002500		CLR	GOOD		:
8278	073530	023737	002502	002500		CMP	BAD,GOOD		:IS BCR1 ZERO
8279	073536	001404				BEQ	31\$		:BRANCH IF YES
8280	073540					ERRSOFT	2704,E235,ERR501		:ERROR HANDLER
	073540	104457							TRAP C\$ERSOFT
	073542	005220							.WORD 2704
	073544	006231							.WORD E235
	073546	003702							.WORD ERR501
8281	073550	052777	000010	106522	31\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2
8282	073556	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
8283	073564	013737	002360	002500		MOV	BUFBB,GOOD		:SET UP COMPARE VALUE
8284	073572	042737	160000	002500		BIC	#160000,GOOD		:CLEAR BIT 13+14+15

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 TEST 27: EXTENDED ADDRESS BIT (Q22-BUS) TEST

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8334 074132 005077 106142          CLR    @CSRX          ;CLEAR CSR1
8335                                     :+++-----
8336                                     ;PART 2 DMA DATA TRANSFER FROM CHANNEL 2 TO 1
8337                                     :+++-----
8338 074136 005037 002376          PSEU27: CLR    INTFC1          ;CLEAR INTERRUPT FLAG FOR CHANNEL 1
8339 074142 005037 002400          CLR    INTFC2          ;CLEAR INTERRUPT FLAG FOR CHANNEL 2
8340 074146 004737 010710          JSR    PC,BGIN2        ;SET UP PARAMETER
8341 074152 000240                    NOP
8342 074154 012737 177777 002336    MOV    #177777,PHLOW   ;LOAD INPUT FOR CONVERSION ROUTINE
8343 074162 013704 002350          MOV    MASK,R4        ;...
8344 074166 005304                    DEC    R4              ;...
8345 074170 010437 002334          MOV    R4,PHHIGH      ;...
8346 074174 004737 007724          JSR    PC,PVCON        ;CREATE VIRTUAL ADDRESS
8347 074200 013700 002340          MOV    VIADD,R0       ;GET START ADDRESS OF BUFFER A
8348 074204 010037 002356          MOV    R0,BUFAB       ;LOAD START ADDRESS OF BUFFER A
8349 074210 012701 010000          MOV    #10000,R1      ;LOAD COUNTER FOR 2K
8350 074214 005003                    CLR    R3              ;R3 CONTAINS DATA
8351 074216 012737 000020 172516    MOV    #20,SR3        ;**ENABLE 22-BIT MEMORY MANAGEMENT**
8352 074224 012737 000001 177572    MOV    #1,SR0         ;**ENABLE MEMORY MANAGEMENT**
8353 074232 110310                    MOV    R3,(R0)        ;LOAD FIRST DATA BYTE
8354 074234 012700 120000          MOV    #120000,R0     ;SET UP ADDRESS FOR NEXT DATA BYTE
8355 074240 005237 172352          INC    KPAR5          ;LOAD NEXT PAGE
8356 074244 005203 16$:            INC    R3              ;CREATE NEXT DATA
8357 074246 110320                    MOV    P3,(R0)+       ;LOAD BUFFER WITH DATA
8358 074250 005301                    DEC    R1
8359 074252 001374                    BNE    16$
8360 074254 005300                    DEC    R0
8361 074256 012701 010000          MOV    #10000,R1      ;LOAD 2K
8362 074262 010037 002360          MOV    R0,BUFBB       ;LOAD START ADDRESS OF BUFFER B
8363 074266 000240 20$:            *JP
8364 074270 105020                    CLRB   (R0)+          ;CLEAR BUFFER B
8365 074272 005301                    DEC    R1              ;2K CLEARED
8366 074274 001374                    BNE    20$            ;IF YES,DO THE TEST
8367 074276 005037 177572          CLR    SR0            ;**DISABLE MEMORY MANAGEMENT**
8368 074302 112777 000212 105760    MOV    #212,@ICRHX    ;----LOAD TON INTO ACR 2-----
8369 074310 013701 002312          MOV    DPA1,R1        ;CREATE MLA1
8370 074314 062701 000040          ADD    #40,R1
8371 074320 010137 002410          MOV    R1,MLA1        ;STORE MLA1
8372 074324 113777 002410 105744    MOV    MLA1,@IDRHX    ;----LOAD MLA1 INTO DOR 2-----
8373 074332 004737 011060          JSR    PC,LOOP        ;WAIT A LITTLE
8374 074336 012777 177777 105736    MOV    #177777,@BARX  ;---LOAD START ADDRESS OF BUFFER A---
8375 074344 013737 002240 002402    MOV    BCINP,RSAVE    ;STORE BYTE COUNT INPUT
8376 074352 005437 002402          NEG    RSAVE          ;BUILD 2'COMPL FOR BCR
8377 074356 013777 002402 105720    MOV    RSAVE,@BCRX    ;----LOAD INPUT INTO BCR 1-----
8378 074364 012777 000177 105706    MOV    #177,@CSRX     ;-DMA ENB,DMA DIR,INT ENB,SYS CO,BA16+17
8379 074372 053777 002364 105700    BIS    CSRMS1,@CSRX   ;--LOAD ADDITIONAL EXTENDED ADDRESS BIT
8380 074400 042777 000010 105672    BIC    #10,@CSRX     ;SELECT CHANNEL 1
8381 074406 012777 007777 105666    MOV    #7777,@BARX   ;----LOAD START ADDRESS OF BUFFER B---
8382 074414 013777 002402 105662    MOV    RSAVE,@BCRX   ;----LOAD INPUT INTO BCR 1---
8383 074422 012777 000101 105650    MOV    #101,@CSRX    ;---SET DMA ENB,INT ENB IN CSR1
8384 074430 053777 002366 105642    BIS    CSRMS2,@CSRX  ;---LOAD EXTENDED ADDRESS BITS-----
8385 074436                    SETPRI #PRI00        ;SET PRIORITY TO ZERO
                                MOV    #PRI00,R0
                                TRAP   C$SPRI
8386 074444 052777 000010 105626    BIS    #10,@CSRX     ;SELECT CHANNEL 2
8387 074452 012737 000002 002374    MOV    #2,CHAN        ;LOAD CHANNEL NUMBER
8388 074460 112777 000013 105602    MOV    #13,@ICRHX    ;----LOAD GTS INTO ACR 2-----

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 TEST 27: EXTENDED ADDRESS BIT (Q22-BUS)TEST

8389	074466	012701	077777			MOV	#77777,R1		:LOAD LOOP COUNTER
8390	074472	005737	002400	23\$:		TST	INTFC2		:HAS INTERRUPT IN CHANNEL 2 OCCURED
8391	074476	001017				BNE	24\$		:BRANCH IF YES
8392	074500	005301				DEC	R1		:DECREMENT COUNTER
8393	074502	001373				BNE	23\$		:IF NO,TEST AGIN
8394	074504	017737	105570	002502		MOV	@CSRX,BAD		:GET CSR2 CONTENTS
8395	074512	012737	100016	002500		MOV	#100016,GOOD		:BC OF DMA DIR,SYS CONT
8396	074520	053737	002364	002500		BIS	CSRMS1,GOOD		:SET EXTENDED ADDRESS BIT TO CSR CONT.
8397	074526					ERRSOFT	2707,E232,ERR201		:ERROR HANDLER
	074526	104457							TRAP C\$ERSOFT
	074530	005223							.WORD 2707
	074532	006072							.WORD E232
	074534	003500							.WORD ERR201
8398	074536	042777	000010	105534	24\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1
8399	074544	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
8400	074552	005737	002376			TST	INTFC1		:HAS AN INTERRUPT IN CHANNEL 1 OCCURED
8401	074556	001015				BNE	25\$		:BRANCH IF YES
8402	074560	017737	105514	002502		MOV	@CSRX,BAD		:GET CSR1 CONTENTS
8403	074566	012737	100000	002500		MOV	#100000,GOOD		:BC OF SHOULD BE SET
8404	074574	053737	002366	002500		BIS	CSRMS2,GOOD		:SET EXTENDED ADDRESS BIT TO CSR CONT.
8405	074602					ERRSOFT	2708,E232,ERR201		:ERROR HANDLER
	074602	104457							TRAP C\$ERSOFT
	074604	005224							.WORD 2708
	074606	006072							.WORD E232
	074610	003500							.WORD ERR201
8406	074612				25\$:	SETPRI	#PRI07		:NO FURTHER INTERRUPT ALLOWED
	074612	012700	000340						MOV #PRI07,R0
	074616	104441							TRAP C\$SPRI
8407	074620	052777	000010	105452		BIS	#10,@CSRX		:SELECT CHANNEL 2
8408	074626	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
8409	074634	112777	000014	105426		MOVB	#14,@ICRHX		:----LOAD TCA INTO ACR 2-----
8410	074642	013737	002336	002500		MOV	PHLOW,GOOD		:SET UP COMPARE VALUE
8411	074650	063737	002240	002500		ADD	BCINP,GOOD		:
8412	074656	017737	105420	002502		MOV	@BARX,BAD		:GET BAR1 CONTENTS
8413	074664	023737	002502	002500		CMP	BAD,GOOD		:HAS BAR1 THE CORRECT ADDRESS
8414	074672	001404				BEQ	30\$		:BRANCH IF YES
8415	074674					ERRSOFT	2709,E234,ERR501		:ERROR HANDLER
	074674	104457							TRAP C\$ERSOFT
	074676	005225							.WORD 2709
	074700	006200							.WORD E234
	074702	003702							.WORD ERR501
8416	074704	017737	105374	002502	30\$:	MOV	@BCRX,BAD		:GET BCR1 CONTENTS
8417	074712	005037	002500			CLR	GOOD		:
8418	074716	023737	002502	002500		CMP	BAD,GOOD		:IS BCR1 ZERO
8419	074724	001404				BEQ	31\$		:BRANCH IF YES
8420	074726					ERRSOFT	2710,E235,ERR501		:ERROR HANDLER
	074726	104457							TRAP C\$ERSOFT
	074730	005226							.WORD 2710
	074732	006231							.WORD E235
	074734	003702							.WORD ERR501
8421	074736	042777	000010	105334	31\$:	BIC	#10,@CSRX		:SFLECT CHANNEL 2
8422	074744	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
8423	074752	013737	002360	002500		MOV	BUFBB,GOOD		:SET UP COMPARE VALUE
8424	074760	042737	160000	002500		BIC	#160000,GOOD		:CLEAR BIT 13+14+15
8425	074766	063737	002240	002500		ADD	BCINP,GOOD		:
8426	074774	017737	105302	002502		MOV	@BARX,BAD		:GET BAR2 CONTENTS
8427	075002	023737	002500	002502		CMP	GOOD,BAD		:HAS BAR2 THE CORRECT ADDRESS

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 TEST 27: EXTENDED ADDRESS BIT (Q22-BUS)TEST

8428	075010	001404				BEQ	43\$:BRANCH IF YES
8429	075012					ERRSOFT	2711,E234,ERR501		:ERROR HANDLER
	075012	104457							TRAP C\$ERSOFT
	075014	005227							.WORD 2711
	075016	006200							.WORD E234
	075020	003702							.WORD ERR501
8430	075022	012737	000001	177572	43\$:	MOV	#1,SRO		:**ENABLE MEMORY MANAGEMENT**
8431	075030	005337	172352			DEC	KPAR5		:CROSS THE BOUNDARY FOR FIRST BYTE
8432	075034	013701	002356			MOV	BUFAB,R1		:PROVIDE FIRST BYTE OF BUFFER A
8433	075040	111103				MOVB	(R1),R3		:GET THE FIRST DATA BYTE
8434	075042	010137	002340			MOV	R1,VIADD		:SET UP DATA FOR CONVERSION ROUTINE
8435	075046	004737	010024			JSR	PC,VPCON		:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8436	075052	012701	120000			MOV	#120000,R1		:POINT TO NEXT LOCATION
8437	075056	005237	172352			INC	KPAR5		:CROSS THE BOUNDARY FOR NEXT DATA BYTE'S
8438	075062	013702	002360			MOV	BUFBB,R2		:PROVIDE FIRST BYTE OF BUFFER B
8439	075066	012737	000001	002404		MOV	#1,CNT1		:SET UP COUNTER FOR DATA COMPARE
8440	075074	120322				CMFB	R3,(R2)+		:COMPARE THE FIRST DATA BYTE
8441	075076	000240				NOP			
8442	075100	001415				BEQ	44\$		:BRANCH IF EQUAL TO NEXT COMPARE
8443	075102	005037	002500			CLR	GOOD		:CLEAR HIGH BYTE OF GOOD
8444	075105	005037	002502			CLR	BAD		:CLEAR HIGH BYTE OF BAD
8445	075112	110337	002500			MOVB	R3,GOOD		:LOAD FIRST TX DATA FOR ERROR MESSAGES
8446	075116	013737	002334	002426		MOV	PHHIGH,TXADRH		:FIRST TX ADDRESS
8447	075124	013737	002336	002430		MOV	PHLOW,IXADRL		:GET ADDRESS OVER 128K
8448	075132	000425				BR	45\$		:BRANCH TO ERROR REPORT
8449	075134	005237	002404		44\$:	INC	CNT1		
8450	075140	122122				CMFB	(R1)+,(R2)+		:BUFFER A EQUAL BUFFER B
8451	075142	001453				BEQ	46\$		:IF YES CONTINUE
8452	075144	005037	002500			CLR	GOOD		:CLEAR GOOD
8453	075150	005037	002502			CLR	BAD		:CLEAR BAD
8454	075154	010137	002340			MOV	R1,VIADD		
8455	075160	004737	010024			JSR	PC,VPCON		:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8456	075164	013737	002334	002426		MOV	PHHIGH,IXADRH		:TX ADDRESS IS OVER 128K
8457	075172	013737	002336	002430		MOV	PHLOW,IXADRL		
8458	075200	116137	177777	002500		MOVB	-1(R1),GOOD		:LOAD TX DATA FOR ERROR MESSAGE
8459	075206	010237	002340		45\$:	MOV	R2,VIADD		:SET UP DATA FOR CONVERSION ROUTINE
8460	075212	004737	010024			JSR	PC,VPCON		:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8461	075216	013737	002334	002422		MOV	PHHIGH,RXADRH		:RX ADDRESS IS OVER 128K
8462	075224	013737	002336	002424		MOV	PHLOW,RXADRL		:GET ADDRESS OVER 128K
8463	075232	005337	002430			DEC	TXADRL		:...
8464	075236	005337	002424			DEC	RXADRL		
8465	075242	116237	177777	002502		MOVB	-1(R2),BAD		:LOAD RX DATA FOR ERROR MESSAGE
8466	075250	005037	177572			CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
8467	075254					ERRSOFT	2712,E250,ERR231		:ERROR HANDLER
	075254	104457							TRAP C\$ERSOFT
	075256	005230							.WORD 2712
	075260	005726							.WORD E250
	075262	003744							.WORD ERR231
8468	075264	012737	000001	177572		MOV	#1,SRO		:**ENABLE MEMORY MANAGEMENT**
8469	075272	023737	002404	002240	46\$:	CMP	CNT1,BCINP		:ALL BYTES COMPARED ?
8470	075300	001315				BNE	44\$		:IF NO, GET NEXT ONE
8471	075302	005037	177572			CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
8472	075306	005077	104766			CLR	@CSRX		:CLEAR CSR2,SELECT CHANNEL 1
8473	075312	017737	104754	002502		MOV	@IDRX,BAD		:READ DIR1 FOR CLEAR BO BIT IN IIR
8474	075320	005077	104754			CLR	@CSRX		:CLEAR CSR1
8475	075324	006337	002350			ASL	MASK		:NEXT MEMORY RANGE
8476	075330	022737	001000	002364		CMP	#1000,CSRMS1		:WAS BA 18 SET

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TEST 28: ADDITIONAL STANDBY TEST

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075456
075456
075456 005737 002242
075462 001015
075464 005737 002324
075470 001410
075472
075472 012746 076374
075476 012746 000001
075502 010600
075504 104417
075506 062706 000004
075512
075512 104432
075514 001204
075516
075516 104407
075520
075520 103415
075522 005737 002324
075526 001410
075530
075530 012746 076502
075534 012746 000001
075540 010600
075542 104417
075544 062706 000004
075550
075550 104432
075552 001146
075554 005737 002324
075560 001410
075562
075562 012746 076220
075566 012746 000001
075572 010600
075574 104417
075576 062706 000004
075602
075602 012746 076244
075606 012746 000001
075612 010600
075614 104417

.SBTTL TEST 28: ADDITIONAL STANDBY TEST
:*****
: IEX - TEST 28
: THIS TEST MOVES A SLIDING ONE'S BIT PATTERN ACROSS THE
: ADDRESS LINE 16,17,18,19,20,21 IGNORING NXM ERRORS BUT CHECKING
: THE ADDRESS REGISTER LINES TO THE BUS.
: THE PATTERN SHOULD BE CHECKED ON A LOGIC ANALYSER .
: THE LOGIC ANALYSER HAS TO BE CONNECT TO ADDRESS LINES 16-21,
: THE TRIGGER HAS TO BE CONNECET TO THE SIGNAL ADREN L (E9,PIN4).
: THIS TEST IS ONLY CARRIED OUT IF A Q-BUS IS USED AND IF YOU ANSWER
: THE SOFTWARE QUESTION.
:*****

BGNTST

T28::
TST MAINB ;IS THIS TEST SELECTED
BNE 3\$;EXIT IF NO
TST PNTF ;IS THE PNT FLAG SET
BEQ 2\$;IF YES ,PRINT INFRMATION
PRINTF #INFO2 ;PRINT MESSAGE FOR USER
MOV #INFO2,-(SP)
MOV #1,-(SP)
MOV SP,RO
TRAP C\$PNTF
ADD #4,SP
2\$: EXIT TST ;EXIT TEST
TRAP C\$EXIT
.WORD L10061-
3\$: READBUS ;ARE YOU ON A Q-BUS
TRAP C\$RDBU
BCOMPLETE 5\$;BRANCH IF Q-BUS
BCS 5\$
TST PNTF ;IS THE PNT FLAG SET
BEQ 11\$;IF YES,PRINT INFORMATION
PRINTF #INFO3 ;PRINT MESSAGE FOR USER
MOV #INFO3,-(SP)
MOV #1,-(SP)
MOV SP,RO
TRAP C\$PNTF
ADD #4,SP
11\$: EXIT TST ;IF UNI-BUS EXIT TEST
TRAP C\$EXIT
.WORD L10061-
5\$: TST PNTF ;IS THE PNT FLAG SET
BEQ 7\$;IF YES, PRINT THE TEST HEADER
PRINTF #TSHD28 ;....
MOV #TSHD28,-(SP)
MOV #1,-(SP)
MOV SP,RO
TRAP C\$PNTF
ADD #4,SP
7\$: PRINTF #INFO1 ;PRINT MESSAGE FOR USER
MOV #INFO1,-(SP)
MOV #1,-(SP)
MOV SP,RO
TRAP C\$PNTF

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TES 28: ADDITIONAL STANDBY TEST

```

8555 076104          SETPRI #PRI07          ;DISABLE INTERRUPT
      076104 012700 000340          MOV #PRI07,R0
      076110 104441          TRAP C$SPRI
3556 076112          EXIT TST
      076112 104432          TRAP C$EXIT
      076114 000604          .WORD L10061-.
8557 076116          10$: SETPRI #PRI07          ;DISABLE INTERRUPT
      076116 012700 000340          MOV #PRI07,R0
      076122 104441          TRAP C$SPRI
8558 076124 022737 001000 002350    CMP #1000,MASK          ;IS BA 19 SET
8559 076132 003411          BLE 20$                ;BRANCH IF YES
8560 076134 006337 002350          ASL MASK
8561 076140 023727 002350 000100    CMP MASK,#100          ;WAS BA 17 SET
8562 076146 001312          BNE NEXTBA            ;BRANCH IF NO
8563 076150 012737 000400 002350    MOV #400,MASK          ;LOAD BA 19 INTO MASK
8564 076156 006337 002350          20$: ASL MASK          ;GENERATE NEXT EXTENDED ADDRESS BIT
8565 076162 000240          NOP
8566 076164 000240          NOP
8567 076166 000240          NOP
8568 076170 112777 000014 104072    MOVB #14,@ICRHX        ;---LOAD TCA INTO ACR 1-----
8569 076176 017737 104070 002502    MOV @IDRX,BAD          ;READ DIR FOR CLEAR THE BO BIT
8570 076204 022737 020000 002350    CMP #20000,MASK       ;ALL EXTENDED ADDRESS BIT SHIFTED
8571 076212 001270          BNE NEXTBA            ;BRANCH IF NO
8572 076214          EXIT TST
      076214 104432          TRAP C$EXIT
      076216 000502          .WORD L10061-.
8573
8574
8575 076220          045 123 062 TSHD28: .NLIST BEX
8576 076244          045 116 045 INFO1: .ASCII /%S2%ASTANDBY TEST%N/
8577 076323          045 101 101 .ASCII /%N%ACONNECT YOUR LOGIC ANALYSER TO BDAL 16-21%N/
8578 076374          045 123 062 INFO2: .ASCII /%AAND THE TRIGGER TO ADREN L (E9,PIN4)%N/
8579 076445          045 123 071 .ASCII /%S2%AFOR SELECT THIS TEST PLEASE ANSWER%N/
8580 076502          045 123 062 INFO3: .ASCII /%S9%ATHE SOFTWARE QUESTION%N/
8581 076563          111 123 040 TRIMSG: .ASCII /%S2%ATHIS TEST IS ONLY FOR THE Q-BUS INTERFACE%N/
8582 076634          116 117 040 E271: .ASCII /IS THE LOGIC ANALYSER READY FOR TRIGGER?/
8583 .LIST BEX
8584 .EVEN
8585 076720          .ENDTST
      076720          L10061: TRAP C$EXIT
      076720 104401          .WORD L10061-.
8586
8587 076722          ENDMOD
8588

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 71
 TEST 28: ADDITIONAL STANDBY TEST

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 8639 076722
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 8646
 8647
 8648
 8649
 8650 076722 000032
 076722
 076724
 8651
 8661 076724 000031
 076724 077010
 076726 160000
 076730 177776
 8662 076734 001031
 076734 077046
 076736 000200
 076740 000770
 8663 076744 002032
 076744 077104
 076750 000340
 076752 000004
 076754 000006
 8664 076756 003032
 076756 077164
 076760 177777
 076762 000000
 076764 000036
 8665 076770 004032
 076770 077226
 076772 177777
 076774 000000
 076776 000036
 8666 077002 005120
 077002 077271
 077004 177777

.TITLE PARAMETER CODING

.SBTTL HARDWARE PARAMETER CODING SECTION

BGNMOD

```

:++
: THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
: THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
: MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
: INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
: MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
: WITH THE OPERATOR.
:--
    
```

BGNHRD

.WORD L10062-L\$HARD/2
 L\$HARD::

GPRMA HPM1,0,0,160000,177776,YES

.WORD T\$CODE
 .WORD HPM1
 .WORD T\$LLOLIM
 .WORD T\$HILIM

GPRMA HPM2,2,0,200,770,YES

.WORD T\$CODE
 .WORD HPM2
 .WORD T\$LLOLIM
 .WORD T\$HILIM

GPRMD HPM3,4,0,340,4,6,YES

.WORD T\$CODE
 .WORD HPM3
 .WORD 340
 .WORD T\$LLOLIM
 .WORD T\$HILIM

GPRMD HPM4,6,0,-1,0,36,YES

.WORD T\$CODE
 .WORD HPM4
 .WORD -1
 .WORD T\$LLOLIM
 .WORD T\$HILIM

GPRMD HPM5,10,0,-1,0,36,YES

.WORD T\$CODE
 .WORD HPM5
 .WORD -1
 .WORD T\$LLOLIM
 .WORD T\$HILIM

GPRML HPM6,12,-1,NO

.WORD T\$CODE
 .WORD HPM6
 .WORD -1

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 71-1
HARDWARE PARAMETER CODING SECTION

8667
8668
8669 077010

ENDHRD

L10062: .EVEN

8670 077010

8677
8678 077010 104 105 126
8679 077046 126 105 103
8680 077104 120 122 111
8681 077164 104 105 126
8682 077226 104 105 126
8683 077271 111 123 040

.NLIST BEX
.ASCIZ /DEVICE ADDRESS /
.ASCIZ /VECTOR ADDRESS /
.ASCIZ /PRIORITY LEVEL (FOR LSI WITH FIXED PRI. TYPE 4)/
.ASCIZ /DEVICE PRIMARY ADDRESS CH.1 /
.ASCIZ /DEVICE PRIMARY ADDRESS CH.2 /
.ASCIZ /IS TESTCABLE IN ? /
.EVEN
.LIST BEX

8684
8685
8686

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 73
SOFTWARE PARAMETER CODING SECTION

8689
8690
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8692
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8698
8699

.SBTL SOFTWARE PARAMETER CODING SECTION

..*
: THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
: THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
: MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
: INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
: MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
: WITH THE OPERATOR.
:--

8700

077334
077334 000115
077336

BGNSFT

.WORD L10063-L\$SFT/2
L\$SFT::

8701

8710

8711

077336
077336 000130
077340 077400
077342 177777

GPRML PMQVP,0,-1,YES

.WORD T\$CODE
.WORD PMQVP
.WORD -1

8712

077344
077344 001052
077346 077427
077350 177777
077352 000003
077354 000077

GPRMD SPRM2,2,D,-1,3,77,YES

.WORD T\$CODE
.WORD SPRM2
.WORD -1
.WORD T\$LOLIM
.WORD T\$HILIM

8713

077356
077356 002052
077360 077471
077362 177777
077364 000001
077366 003777

GPRMD SPRM4,4,D,-1,1,3777,YES

.WORD T\$CODE
.WORD SPRM4
.WORD -1
.WORD T\$LOLIM
.WORD T\$HILIM

8714

077370
077370 003130
077372 077520
077374 177777

GPRML SPRM5,6,-1,YES

.WORD T\$CODE
.WORD SPRM5
.WORD -1

8715

077376
077376 075004

EXIT SFT

.WORD T\$CODE

8716

8717

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8719

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8722

8723

8724

077400 121 125 111 PMQVP:
077427 116 125 115 SPRM2:
077471 116 125 115 SPRM4:
077520 104 117 040 SPRM5:
077570

.NLIST BEX
.ASCIZ /QUICK VERIFY TEST /
.ASCIZ /NUMBER OF MATCH CHARACTER COUNTS /
.ASCIZ /NUMBER OF BYTE COUNTS /
.ASCIZ /DO YOU WANT THE ADDITIONAL STANDBY TEST/
.LIST BEX
.EVEN

ENDSFT

.EVEN
L10063:

8725

8726

8733

8734

8735

8736

8737

8738

077570

\$PATCH::

.BLKW 50 ; PATCH AREA
.BLKB 400-<.8377> ; LASTAD SHIFT FOR LSI BUG

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 73-1
SOFTWARE PARAMETER CODING SECTION

8745
8746 100000

LASTAD

100000 100024
100002 000010

.EVEN
.WORD T\$FREE
.WORD T\$SIZE

8747 100004

LSLAST::
ENDMOD

PARAMETER CODING
SYMBOL TABLE

MACRO M1113 06-SEP-82 16:46 PAGE 74-1

ADR = 000020 G	CDAT3 002440 G	C\$GPLO= 000030	EXQV11 036766	F\$HARD= 000004
ANS 002370 G	CDAT4 002442 G	C\$GPRI= 000040	EXQV12 040646	F\$HW = 000013
ASSEMB= 000010	CDAT5 002444 G	C\$INIT= 000011	EXQV13 043034	F\$INIT= 000006
A1 017024	CDAT6 002446 G	C\$INLP= 000020	EXQV14 043736	F\$JMP = 000050
A10 033612	CDAT7 002450 G	C\$MANI= 000050	EXQV15 044720	F\$MOD = 000000
A11 035360	CDAT8 002452 G	C\$MEM = 000031	EXQV16 04256	F\$MSG = 000011
A12 037130	CDAT9 002454 G	C\$MESSG = 000023	EXQV17 04640	F\$PROT= 000021
A2 023124	CHAN 002374 G	C\$OPEN= 000034	EXQV18 051730	F\$PWR = 000017
A81 030060	CNT1 002404 G	C\$PNTB= 000014	EXQV19 053040	F\$RPT = 000012
A82 031242	COPA1 020402	C\$PNTF= 000017	EXQV2 013332	F\$SEG = 000003
A9 032026	COPA10 034546	C\$PNTS= 000016	EXQV20 054112	F\$SOFT= 000005
BAD 002502 G	COPA11 036314	C\$PNTX= 000015	EXQV21 055162	F\$SRV = 000010
BARX 002302 G	COPA12 040152	C\$QIO = 000377	EXQV22 057176	F\$SUB = 000002
BCINP 002240 G	COPA2 024620	C\$RDBU= 000007	EXQV23 063200	F\$SW = 000014
BCRX 002304 G	COPA9 032776	C\$REFG= 000047	EXQV24 067200	F\$TEST= 000001
BGIN1 010534 G	COPB1 021264	C\$RESE= 000033	EXQV25 070736	GETPRM 011244
BGIN2 010710 G	COPB2 025562	C\$REVI= 000003	EXQV26 072470	GOOD 002500 G
BIT0 = 000001 G	COPC1 021616	C\$RFLA= 000021	EXQV27 075402	G\$CNTD= 000200
BIT00 = 000001 G	COPC2 026122	C\$RPT = 000025	EXQV3 014036	G\$DELM= 000372
BIT01 = 000002 G	COPD1 022460	C\$SEFG= 000046	EXQV4 015516	G\$DISP= 000003
BIT02 = 000004 G	COPD2 027000	C\$SPRI= 000041	EXQV5 016726	G\$EXCP= 000400
BIT03 = 000010 G	CSRMSK 002362 G	C\$SVEC= 000037	EXQV6 022774	G\$HILI= 000002
BIT04 = 000020 G	CSRMS1 002364 G	C\$TPRI= 000013	EXQV7 027330	G\$LOLI= 000001
BIT05 = 000040 G	CSRMS2 002366 G	DFPTBL 002216 G	EXQV9 033450	G\$NO = 000000
BIT06 = 000100 G	CSRNAM 014042	DIAGMC= 000000	E\$END = 002100	G\$OFFS= 000400
BIT07 = 000200 G	CSRX 002300 G	DMAHAD 004715	E\$LOAD= 000035	G\$OFFSI= 000376
BIT08 = 000400 G	CULPA 010220 G	DPA1 002312 G	E101 005012 G	G\$PRMA= 000001
BIT09 = 001000 G	C\$AU = 000052	DPA2 002314 G	E200 005057 G	G\$PRMD= 000002
BIT1 = 000002 G	C\$AUTO= 000061	EF.CON= 000036 G	E222 005675 G	G\$PRML= 000000
BIT10 = 002000 G	C\$BRK = 000022	EF.NEW= 000035 G	E231 006010 G	G\$RADA= 000140
BIT11 = 004000 G	C\$BSEG= 000004	EF.PWR= 000034 G	E232 006072 G	G\$RADB= 000000
BIT12 = 010000 G	C\$BSUB= 000002	EF.RES= 000037 G	E233 006123 G	G\$RADD= 000040
BIT13 = 020000 G	C\$CEFG= 000045	EF.STA= 000040 G	E234 006200 G	G\$RADL= 000120
BIT14 = 040000 G	C\$CLCK= 000062	EMG101 004116	E235 006231 G	G\$RADO= 000020
BIT15 = 100000 G	C\$CLEA= 000012	EMG201 004170	E250 005726 G	G\$XFER= 000004
BIT2 = 000004 G	C\$CLOSE= 000035	EMG202 004330	E271 076634	G\$YES = 000010
BIT3 = 000010 G	C\$CLP1= 000006	EMG203 004265	E301 005124 G	HFLP = 000000
BIT4 = 000020 G	C\$CVEC= 000036	EMG231 004651	E302 005162 G	HOE = 100000 G
BIT5 = 000040 G	C\$DCLN= 000044	EMG401 004425	E303 005230 G	HPM1 077010
BIT6 = 000100 G	C\$DODU= 000051	EMG402 004521	E400 00172	HPM2 077046
BIT7 = 000200 G	C\$DRPT= 000024	EMG501 004560	E401 005265 G	HPM3 077104
BIT8 = 000400 G	C\$DU = 000053	ERNU 002432 G	E402 005316 G	HPM4 077164
BIT9 = 001000 G	C\$EDIT= 000003	ERRBLK 002512 G	E403 005353 G	HPM5 077226
BOE = 000400 G	C\$ERDF= 000055	ERRMSG 002510 G	E501 005406 G	HPM6 077271
BUFAB 002356 G	C\$ERHR= 000056	ERRNBR 002506 G	E502 005447 G	IBE = 010000 G
BUFB 002360 G	C\$ERRO= 000060	ERRTYP 002504 G	E801 005510 G	ICRHX 002270 G
CDAT1 002434 G	C\$ERSF= 000054	ERR101 003454 G	E802 005566 G	ICRLX 002266 G
CDAT10 002456 G	C\$ERSO= 000057	ERR201 003500 G	E901 005644 G	ICRNAM 013350
CDAT11 002460 G	C\$ESCA= 000010	ERR202 003556 G	FINIT1 012046	ICRX 002264 G
CDAT12 002462 G	C\$ESEG= 000005	ERR231 003744 G	FINIT2 012136	IDRHX 002276 G
CDAT13 002464 G	C\$ESUB= 000003	ERR401 003616 G	FMDROP 012370	IDRLX 002274 G
CDAT14 002466 G	C\$ETST= 000001	ERR402 003654 G	F\$AU = 000015	IDRNAM 013355
CDAT15 002470 G	C\$EXIT= 000032	ERR501 003702 G	F\$AUTO= 000020	IDRX 002272 G
CDAT16 002472 G	C\$GETB= 000026	EVL = 000004 G	F\$BGN = 000040	IDU = 000040 G
CDAT17 002474 G	C\$GETW= 000027	EXINI 011220	F\$CLEA= 000007	IER = 020000 G
CDAT18 002476 G	C\$GMAN= 000043	EXQV1 012624	F\$DU = 000016	IIRHX 002254 G
CDAT2 002436 G	C\$GPHR= 000042	EXQV10 035220	F\$END 000041	IIRLX 002252 G

PARAMETER CODING
SYMBOL TABLE

MACRO M1113 06-SEP-82 16:46 PAGE 74-2

IIRNAM	013336				
IIRX	002250	G			
INFO1	076244				
INFO2	076374				
INFO3	076502				
INTERR	010162	G			
INTFC1	002376	G			
INTFC2	002400	G			
INTSC1	010142	G			
INTSC2	010152	G			
ISR	= 000100	G			
ISRMX	002262	G			
ISRLX	002260	G			
ISRNAM	013343				
ISRX	002256	G			
ITAC13	041002				
ITAC14	043150				
ITAC15	044054				
ITAC16	045030				
ITAC17	046376				
ITAC18	050756				
ITAC19	052066				
ITAC20	053204				
ITAC21	054254				
ITAC22	055320				
ITAC23	057306				
ITAC24	063322				
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SHPTP	002022	G			
SHW	002216	G			
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MCINP	002236	G			
MCRHX	002310	G			
MCRNAM	013362				
MCRX	002306	G			
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MM22	002330	G			
MSA1	002420	G			
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PHHSIZ	002342	G			
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PRI04	= 000200	G			
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PSEU18	056222				
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PSEU27	074136				
PSEU33	062026				
PSEU34	066114				
PSEU5	044376				
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QVP	002234	G			
QVT3	014010				
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REGERR	006612	G			
REGMSG	007077				
REGTST	006262	G			
REGTS1	006320	G			
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RERR3	007010				
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RXADRH	002422	G			
RXADRL	002424	G			
SDPA	002406	G			
SFPTBL	002234	G			
SIZEFA	002346	G			
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TABG	003044	G			
TABH	003146	G			
TABK	003250	G			
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TQVP7	027172				
TRIMSG	076563				
TSHD1	012642				
TSHD10	035224				

PARAMETER CODING
SYMBOL TABLE

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TSHD11	036772	TSHD8	031730	TSSAVL=	177777	TSSSEG=	010001	T26	071012	G	
TSHD12	040652	TSHD9	033454	TSSSEGL=	177777	TSSSOF=	010063	T27	072544	G	
TSHD13	043040	TXADRH	002426	TSSSEK0=	010001	TSSSRV=	010026	T28	075456	G	
TSHD14	043742	TXADRL	002430	TSSSIZE=	000010	TSSSW =	010001	T3	013424	G	
TSHD15	044724	T\$ARGC=	000001	TSSSUBN=	000000	TSSTES=	010061	T3SEC	013500		
TSHD16	046262	T\$CODE=	075004	T\$TAGL=	177777	T1	012430	G	T4	014076	G
TSHD17	050644	T\$ERRN=	005361	T\$TAGN=	010067	T10	033550	G	T5	015574	G
TSHD18	051734	T\$EXCP=	000000	T\$TEMP=	000000	T11	035316	G	T6	016762	G
TSHD19	053044	T\$FLAG=	000041	T\$TEST=	000034	T12	037066	G	T7	023062	G
TSHD2	013367	T\$FREE=	100024	T\$TSTM=	177777	T13	040744	G	T8	027416	G
TSHD20	054116	T\$GMAN=	000000	T\$TSTS=	000001	T14	043116	G	T9	031764	G
TSHD21	055166	T\$HILI=	003777	T\$SAU =	010024	T15	044022	G	UAM =	000200	G
TSHD22	057202	T\$LAST=	000001	T\$SAUT=	010021	T16	044776	G	UNIMSK	013514	
TSHD23	063204	T\$LOLI=	000001	T\$SCLE=	010022	T17	046344	G	VECC1	002244	G
TSHD24	067204	T\$LSYM=	010000	T\$SDAT=	010066	T18	050722	G	VECC2	002246	G
TSHD25	070742	T\$LTNO=	000034	T\$SDU =	010023	T19	052032	G	VIADD	002340	G
TSHD26	072474	T\$NEST=	177777	T\$SHAR=	010062	T2	012704	G	VPCON	010024	G
TSHD27	075406	T\$NSO =	000000	T\$SHW =	010000	T20	053142	G	WAIT	011072	G
TSHD28	076220	T\$NS1 =	000005	T\$SINI=	010020	T21	054212	G	X\$ALWA=	000000	
TSHD3	014047	T\$NS2 =	000003	T\$MSG=	010011	T22	055262	G	X\$FALS=	000040	
TSHD4	015522	T\$PCNT=	000000	T\$MPC =	000001	T23	057250	G	X\$OFFS=	000400	
TSHD5	016732	T\$PTAB=	010065	T\$PRO=	010017	T24	063270	G	X\$TRUE=	000020	
TSHD6	023000	T\$PTHV=	000001	T\$PTA=	010065	T25	067270	G	\$PATCH	077570	G
TSHD7	027334	T\$PTNU=	000001	T\$SRP1=	010016						

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