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IDENTIFICATION

PRODUCT CODE: AC-E854D-MC
PRODUCT NAME: CXDRADO DR11-A MODULE
PRODUCT DATE: SEPTEMBER 1978
MAINTAINER: DEC/X11 SUPPORT GROUP

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1. ABSTRACT

DR11-A IS AN IONMOD THAT EXERCISES ONE DR11-A. THE MODULE USES THE MAINTENANCE MODE TO CHECK DATA TRANSFERS TO AND FROM THE DR11-A. IT TRANSMITS AND RECEIVES A SERIES OF WORST-CASE BUS PATTERNS AND ALSO TESTS THE ABILITY OF THE DR11A TO GENERATE BOTH TRANSMIT AND RECEIVE INTERRUPTS.

2. REQUIREMENTS

HARDWARE: ONE DR11-A WITH A MAINTENANCE CABLE

STORAGE:: DRA REQUIRES:

- 1: DECIMAL WORDS: 196
- 2: OCTAL WORDS: 0304
- 3: OCTAL BYTES: 610

3. PASS DEFINITION

ONE PASS OF THE DRA MODULE CONSISTS OF TRANSMITTING AND RECEIVING 64 WORDS AND GENERATING ONE TRANSMIT AND ONE RECEIVER INTERRUPT.

4. EXECUTION TIME

ONE PASS OF DRA RUNNING ALONE ON A PDP11/05 PROCESSOR TAKES APPROXIMATELY MINUTES

5. CONFIGURATION REQUIREMENTS

DEFAULT PARAMETERS:

DEVADR: 167770, VECTOR: 410, BR1: 5, DEVCNT: 1

REQUIRED PARAMETERS:

AT CONFIGURATION TIME MODIFY "VECTOR" IF SYSTEM SPECIFIES OTHER THAN 410

DEVICE/OPTION SET-UP

CONNECT THE MAINTENANCE CABLE TO TIE OUTPUT BACK TO INPUT

7. MODULE OPERATION

TEST SEQUENCE:

- A. SET UP VECTORS AND ADDRESS POINTER
- B. OUTPUT TEST DATA TO OUTPUT BUFFER
- C. COMPARE OUTPUT BUFFER WITH TEST DATA-REPORT ANY DATA ERROR
- D. COMPARE INPUT BUFFER WITH TEST DATA-REPORT ANY DATA ERROR
- E. IF NOT 64 TRANSFERS NEXT TEST DATUM--REPEAT B-D
- F. IF FINISHED GENERATE AND TEST INPUT/OUTPUT INTERRUPTS.
- G. IF NO INTERRUPT - DO NOT REPORT END PASS
- H. IF INTERRUPT - REPORT END PASS RESTART AT A

IF DEVICE FAILS TO GENERATE INTERRUPT DRA LOOPS AT:

- A. DRA 452 FOR RECEIVE
- B. DRA 460 FOR TRANSMIT

IN EITHER CASE NO END PASS PRINTOUT OCCURS.

8. OPERATION OPTIONS

NONE

9. NON-STANDARD PRINTOUTS

NONE: ALL PRINTOUTS HAVE THE STANDARD FORMATS DESCRIBED IN THE
DEC/X11 DOCUMENT

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000000- DR11-A DEC/X11 EXERCISER MODULE
000000- IDMOD <DRAD 167770,410,5,500,55
000000- MODULE 140000,DRAD,167770,410,5,500,55
; TITLE DRAD DEC/X11 SYSTEM EXERCISER MODULE
; DDXCOM VERSION 6 23-MAY-78
;*****LIST BIN*****
000000- 051104 042101 040 BEGIN:
000005- 000 MODNAM: .ASCII /DRAD / ;MODULE NAME.
000006- 167770 ADDR: .BYTE OPEN ;USED TO KEEP TRACK OF WBUF USAGE
000010- 000410 VECTOR: 410+0 ;1ST DEVICE ADDR.
000012- 240 BR1: .BYTE PRTY5+0 ;1ST BR LEVEL.
000013- 000 BR2: .BYTE PRTY+0 ;2ND BR LEVEL.
000014- 000001 DVID1: +1 ;DEVICE INDICATOR 1.
000016- 000000 SR1: OPEN ;SWITCH REGISTER 1
000020- 000000 SR2: OPEN ;SWITCH REGISTER 2
000022- 000000 SR3: OPEN ;SWITCH REGISTER 3
000024- 000000 SR4: OPEN ;SWITCH REGISTER 4
;*****LIST BIN*****
000026- 140000 STAT: 140000 ;STATUS WORD.
000030- 000232 INIT: START ;MODULE START ADDR.
000032- 000224 SPOINT: MODSP ;MODULE STACK POINTER.
000034- 000000 PASCNT: 0 ;PASS COUNTER.
000036- 000500 ICDNT: 500 ;# OF ITERATIONS PER PASS=500
000040- 000000 ICDUNT: 0 ;LOC TO COUNT ITERATIONS
000042- 000000 SDFCNT: 0 ;LOC TO SAVE TOTAL SOFT ERRORS
000044- 000000 HRDCNT: 0 ;LOC TO SAVE TOTAL HARD ERRORS
000046- 000000 SDFPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS
000050- 000000 HRDPAS: 0 ;LOC TO SAVE HARD ERRORS PER PASS
000052- 000000 SYSCNT: 0 ;# OF SYS ERRORS ACCUMULATED
000054- 000000 RANDOP: 0 ;HELDS RANDOP # WHEN RAND MACRO IS CALLED
000056- 000000 CONFIG: 0 ;RESERVED FOR MONITOR USE
000058- 000000 RESA: 0 ;RESERVED FOR MONITOR USE
000060- 000000 RESB: 0 ;RESERVED FOR MONITOR USE
000062- 000000 SVDR: OPEN ;LOC TO SAVE R0.
000064- 000000 SVR1: OPEN ;LOC TO SAVE R1.
000066- 000000 SVR2: OPEN ;LOC TO SAVE R2.
000070- 000000 SVR3: OPEN ;LOC TO SAVE R3.
000072- 000000 SVR4: OPEN ;LOC TO SAVE R4.
000074- 000000 SVR5: OPEN ;LOC TO SAVE R5.
000076- 000000 SVR6: OPEN ;LOC TO SAVE R6.
000100- 000000 CSRA: OPEN ;ADDR OF CURRENT CSR.
000102- 000000 WDTA: OPEN ;ADDR OF GOOD DATA, OR
000104- 000000 ACSR: OPEN ;CONTENTS OF CSR.
000106- 000000 WASADR: OPEN ;ADDR OF BAD DATA, OR
000108- 000000 ERSTAT: OPEN ;STATUS REG. CONTENTS.
000110- 000000 ASB: OPEN ;TYPE OF ERROR.
000112- 000254 AWAS: OPEN ;EXPECTED DATA.
000114- 000000 RSTART: RESTRT ;ACTUAL DATA.
000116- 000000 WDFR: OPEN ;RESTART ADDRESS AFTER END OF PASS
000120- 000000 INTR: OPEN ;WORDS TO MEMOR PER ITERATION
000122- 000055 IDNUM: 55 ;WORDS FROM MEMORY PER ITERATION
;# OF INTERRUPTS PER ITERATION
;MODULE IDENTIFICATION NUMBER=ES

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000040 .REPT SPSIZ ;MODULE STACK STARTS HERE.
;LIST
;WORD 0
;LIST
;ENDR
000224- MODSP:
;*****LIST BIN*****
193 ;LOCAL VARIABLES
194 ALLON: -1
195 000224- 177777
196 000226- 000000
197 000230- 177776
198
199
200
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209 ;THIS MODULE TESTS THE DR11-A AND DR11-C GENERAL DEVICE INTERFACE
210 ;MAINTENANCE CABLE MUST BE INSTALLED FOR THIS TEST
211
212
213
214 ;INITIALIZATION FOR GENERAL DEVICE INTERFACE
215 000232- 012767 000002 177660 START: MOV #2,INTR ;2 INTERRUPTS PER ITERATION
216 000240- 012767 000100 177646 MOV #64,WDT0 ;64. WDS TO MEM PER ITERATION
217 000246- 012767 000100 177642 MOV #64,WDFR ;64. WDS FROM MEM PER ITERATION
218
219 RESTRT: MOV ADDR,R5 ;GET DEVICE ADDRESS
220 000254- 016705 177526 R5,CSRA ;SAVE CSR ADDRESS IN CSRA
221 000260- 010567 177614 MOV VECTOR,R0 ;LOAD DEVICE VECTOR
222 000264- 016700 177520 MOV BR,(0)+ ;SET OUTPUT VECTOR TO SERVICE ROUTINE
223 000270- 012720 000000- BR,(0)+ ;SET OUTPUT PRIORITY
224 000274- 016720 177512 MOV BR,(0)+ ;SET INPUT VECTOR TO SERVICE ROUTINE
225 000300- 012720 000576- BR,(0)+ ;SET INPUT PRIORITY
226 000304- 016720 177502 MOV CLR,CBRA ;CLEAR CONTROL REGISTER
227 000310- 016707 177564 MOV ALLO,R1 ;SET UP INITIAL TEST PATTERNS; 177777
228 000314- 016701 177704 MOV BUBBLE,R2 ; AND 177776 (0 WILL BUBBLE TO LEFT)
229 000320- 016702 177704 MOV R1,R3 ;R3 REMEMBERS ALON/ALLOFF WHEN BUBBLE IS IN USE
230 000326- 010104 MOV R1,R4 ;C-BIT SET WORD FOR BUBBLE RCL
231
232
233 ;CHECK DATA TRANSFER ON DR11-A AND DR11-C
234 ; TRANSMIT, RECEIVE AND CHECK (VIA MAINTENANCE CABLE) A SERIES OF
235 ; 64 WORD PATTERNS FORCING "WORST-CASE" TRANSITIONS. THIS
236 ; CONSISTS OF 177777 FOLLOWED BY 177776, 177777, 177775, 177777,
237 ; 177773, 177771, 177769, ETC (ALL ONES ALTERNATING WITH A
238 ; 0 BUBBLING LEFT THROUGH A WORD OF ONES), THEN ALL ZEROS ALTERN-
239 ; ATING WITH THE SAME BUBBLE PATTERN.
240
241 000330- 010165 000002 DRACT1: MOV R1,2(R5) ;MOVE DATA TO OUTPUT BUFFER
242 000334- 020165 000002 CMP R1,2(R5) ;CHECK DATA
243 000340- 001422 BEQ IS ;BRANCH IF DATA GOOD

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WASADR	000104R	176#	244*	258*
WDPR	000116R	183#	213*	
WDTG	000114R	182#	212*	
XFLAG	000005R	140#		

. ABS. 000000 000
000610 001

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

XDRADO, XDRADO/SOL/CRF:SYM=DDXCOM, XDRADO
RUN-TIME: 1 1 . 3 SECONDS
RUN-TIME RATIO: 8/2=3.0
CORE USED: 7K (13 PAGES)