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IDENTIFICATION

PRODUCT CODE: AC-E902C-WC  
PRODUCT NAME: CXDRDCO DR11K MODULE  
PRODUCT DATE: SEPTEMBER 1978  
MAINTAINER: DEC/X11 SUPPORT GROUP

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1. ABSTRACT

DRD IS AN IOMOD THAT EXERCISES ONE DR11-K. THE MODULE USES THE MAINTENANCE MODE TO CHECK DATA TRANSFERS TO AND FROM THE DR11-K TRANSMITTERS AND RECEIVES ALL COMBINATIONS OF 16 BIT WORDS AND ALSO TESTS THE ABILITY OF THE DR11K TO GENERATE BOTH TRANSMIT AND RECEIVE INTERRUPTS.

2. REQUIREMENTS

- HARDWARE: 1. ONE DR11-K IN THE STANDARD FACTORY MODE  
A. INPUT INTERRUPT SWITCHES OFF  
B. LATCHING INPUT DATA BITS  
C. W21A, W22A AND W23A JUMPERS INSTALLED  
2. MAINTENANCE CABLE (BC08-R-1)

STORAGE: DRD REQUIRES:

- 1. DECIMAL WORDS: 218
- 2. OCTAL WORDS: 0332
- 3. OCTAL BYTES: 664

3. PASS DEFINITION

ONE PASS OF THE DRD MODULE CONSISTS OF TRANSMITTING AND RECEIVING 65,536 WORDS AND GENERATING ONE TRANSMIT AND ONE RECEIVER INTERRUPT.

4. EXECUTION TIME

ONE PASS OF DRD RUNNING ALONE ON A PDP-11/10 PROCESSOR TAKES APPROXIMATELY 20 SECONDS.

5. CONFIGURATION REQUIREMENTS

DEFAULT PARAMETERS:

DEVADR: 167770, VECTOR: \*, BR1: 4, DEVCNT: 1

REQUIRED PARAMETERS:

\*\* AT CONFIGURATION TIME, MODIFY "VECTOR" FOR DEVICE VECTOR ADDRESS. FAILURE TO MODIFY LOCATION "VECTOR" WILL RESULT IN A "SYSTEM ERROR".

6. DEVICE/OPTION SET-UP

CONNECT THE MAINTENANCE CABLE TO THE OUTPUT BACK TO INPUT (REF. TO 3.).

7. MODULE OPERATION  
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TEST SEQUENCE:

- A. SET UP VECTORS AND ADDRESS POINTER
- B. LOAD OUTPUT TEST DATA INTO 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 65/536 TRANSFERS, INCREMENT TEST DATA-PPFAT B-D
- F. IF 65/536 TRANSFERS GENERATED AND TEST INPUT/OUTPUT INTERRUPTS
- G. IF NO INTERRUPT-REPORT ERROR THEN REPORT END PASS
- H. IF INTERRUPT-REPORT END PASS RESTART AT A

OPERATION OPTIONS  
-----

LOCATION "VECTOR" MUST BE CHANGED TO THE DEVICE VECTOR ADDRESS.  
SRI BIT0 = 1 INHIBIT INPUT DATA TEST.  
DVID1 IS NOT USED. (NOTE: USEFUL WHEN NO MAINTENANCE CABLE AVAILABLE)

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

MODULE TEST ENVIRONMENT  
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THE DRD MODULE IS KNOWN TO OPERATE UNDER THIS ENVIRONMENT.

PDP-11/10 WITH 16K  
TC11 2 DRIVES  
TA11 2 DRIVES  
DR11K 1 UNIT

8.

9.

10.

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000000- JDR11-K DEC/X11 EXERCISER MODULE
000000- IDMOD <DRDC > 167770, 167770, 6000, 65
000000- MODULE 140000, DRDC 167770, 167770, 6000, 65
; TITLE DRDC DEC/X11 SYSTEM EXERCISER MODULE
DDXCON VERSION 6 23-MAY-78
- LIST BIN
*****
000000- 051104 041504 040
000000- BEGIN:
000005- 000 MODNAM: -ASCII /DRDC / ;MODULE NAME
000006- 167770 000 RFLAG: -BYTE OPEN ;USED TO KEEP TRACK OF WBUFF USAGE
000010- 000001 ADDR: 167770+0 ;1ST DEVICE ADDR.
000013- 000 VECTOR: 1+0 ;1ST DEVICE VECTOR.
000014- 000 BR1: -BYTE PRTY+0 ;1ST BR LEVEL.
000015- 000 BR2: -BYTE PRTY+0 ;2ND BR LEVEL.
000016- 000001 DTID1: +1 ;DEVICE INDICATOR 1.
000020- 000000 SR1: OPEN ;SWITCH REGISTER 1.
000021- 000000 SR2: OPEN ;SWITCH REGISTER 2.
000022- 000000 SR3: OPEN ;SWITCH REGISTER 3.
000024- 000000 SR4: OPEN ;SWITCH REGISTER 4.
*****
000026- 140000 STAT: 140000 ;STATUS WORD.
000030- 000232- INIT: START ;MODULE START ADDR.
000033- 000224- SPOINT: MODSP ;MODULE STACK POINTER.
000034- 000000 PASCNT: 0 ;PASS COUNTER.
000036- 013560 ICOUNT: 6000. ;# OF ITERATIONS PER PASS=6000.
000040- 000000 LCCOUNT: 0 ;LOC TO COUNT ITERATIONS.
000043- 000000 HRDCNT: 0 ;LOC TO SAVE TOTAL SOFT ERRORS
000044- 000000 SOFPAS: 0 ;LOC TO SAVE TOTAL HARD ERRORS
000046- 000000 HRDPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS
000050- 000000 SYSCNT: 0 ;LOC TO SAVE HARD ERRORS PER PASS
000054- 000000 RANUM: 0 ;# OF SYS ERRORS ACCUMULATED
000055- 000000 COMFIC: 0 ;HOLDS RANDOM # WHEN RANUM MACRO IS CALLED
000056- 000000 RES1: 0 ;RESERVED FOR MONITOR USE
000060- 000000 RES2: 0 ;RESERVED FOR MONITOR USE
000063- 000000 SVR0: 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.
00100- 000000 CSRA: OPEN ;ADDR OF CURRENT CSR.
00102- 000000 ACSR: OPEN ;ADDR OF GOOD DATA, OR
00104- 000000 WASADR: OPEN ;CONTENTS OF CSR.
00104- 000000 ASADR: OPEN ;ADDR OF BAD DATA, OR
00106- 000000 ERRRTYP: OPEN ;STATUS REG CONTENTS.
00106- 000000 ASB: OPEN ;TYPE OF ERROR.
00110- 000000 AWAS: OPEN ;EXPECTED DATA.
00112- 000254- RSTRT: RESTRT ;ACTUAL DATA.
00114- 000000 WDT0: OPEN ;RESTART ADDRESS AFTER END OF PASS
00116- 000000 WDFR: OPEN ;WORDS TO MEMORY PER ITERATION
00120- 000000 INTR: OPEN ;WORDS FROM MEMORY PFR ITERATION
00122- 000065 IDNUM: 65 ;# OF INTERRUPTS PER ITERATION
;MODULE IDENTIFICATION NUMBER=65

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000040 .REPT SPSIZ ;MODULE STACK STARTS HERE.
;LIST 0
;WORD 0
;LIST ENDR
000224- MODSP:
;*****

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262                                     ;CHECK INTERRUPTS ON DR11-K
263
264 000504 005077 177514
265 000510 017767 000003 000106 TMRSET: CLR   @DRSTAT          ;CLEAR CONTROL REGISTER
266 000516 017777 020040 177500      MOV   @INTRO,@DRSTAT ;LOAD SOFT FLAG COUNTER
267 000524 005004                                     ;SET MAINTENANCE BIT FOR DR-11K INTERRUPT
268 000526 104407 000000 1$:          CLR   @R4          ;CLEAR BREAK COUNTER
269 000532 104407 000000      BREAKS,BEGIN ;TEMPORARY RETURN TO MONITOR...
270 000536 005767 000062      BREAKS,BEGIN ;THEN CONTINUE AT NEXT INSTRUCTION.
271 000542 001405          INTRO ;TWO INTERRUPTS OCCURED?
272 000544 005304          DEC   @R1          ;IF DONE
273 000546 001367          BNE   @R1          ;DELAY
274 000548 104403 000000 000626 2$:      BMS   @R1          ;IF NOT TIMEOUT
275 000556 005077 177442      MSGNS,BEGIN,HUNG ;ASCII MESSAGE CALL WITH COMMON HEADER
276 000562 104413 000000      CLR   @DRSTAT    ;CLEAR DEVICE
277                                     ;SIGNAL END OF ITERATION.
278                                     ;MONITOR SHALL TEST END OF PASS
279
280                                     ;INPUT/OUTPUT SERVICE ROUTINES
281
282 000566 017777 177434 177432 DRACTI: MOV   @DRIN,@DRIN ;READ DATA TO GENERATE DATA OK IC.
283 000574 042767 000001 000022      BIC   @BIT0,@INTRO ;INDICATE INPUT INTERRUPT
284 000602 000002                                     ;RETURN
285
286 000604 005077 177414 DRACTO: CLR   @DRSTAT    ;CLEAR MAINT INT.
287 000610 005077 177414      @DROUT ;CLEAR OUTPUT
288 000614 042767 000002 000002      BIC   @BIT1,@INTRO ;INDICATE OUTPUT INTERRUPT
289 000622 000002                                     ;RETURN
290
291 000624 000003      INTRO: 3
292 000626 000632      HUNG:  -1
293 000630 177777      MES1:  .ASCIZ  /%NO INTERRUPT FOR DEVICE/
294 000632 047045 020117 047111
295 000640 042524 051122 050125
296 000646 020124 047506 020122
297 000654 042504 044526 042503
298 000662 000664 .EVEN
299                                     .END
300
301 000001

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ACSR 000102R 185#
ADDR 000006R 151#
ADDR22= 001000 203#
ASB 000106R 189#
ASAT 000104R 187#
AWAS 000108R 190#
BEGIN 000000R 148#
BIT0 == 000001 203#
BIT1 == 000002 203#
BIT10 == 002000 203#
BIT11 == 004000 203#
BIT12 == 010000 203#
BIT13 == 020000 203#
BIT14 == 040000 203#
BIT15 == 100000 203#
BIT2 == 000004 203#
BIT3 == 000010 203#
BIT4 == 000020 203#
BIT5 == 000040 203#
BIT6 == 000100 203#
BIT7 == 000200 203#
BIT8 == 000400 203#
BIT9 == 001000 203#
BREAKS = 104407 203#
BR1 000012R 153#
BR2 000013R 154#
BTODS = 104421 203#
CDAPAS = 104419 203#
CONFIG 000056R 173#
CSRA 000100R 183#
DATCKS = 104411 203#
DATERS = 104404 203#
DRACTI 000566R 223#
DRACTO 000604R 223#
DRACT1 000334R 204#
DRIN 000226R 204#
DROUT 000230R 205#
DRSTAT 000224R 203#
DVID1 000014R 155#
ENDITS = 104413 203#
ENDS = 104410 203#
ERRRYP = 000106R 188#
EXITS = 104400 203#
GETPAS = 104415 203#
GWBUF = 104414 203#
HRDCNT 000044R 168#
HRDERS = 104405 203#
HRDPAS 000050R 170#
HUNG 000626R 275#
ICONT 000036R 165#
ICOUNT 000040R 166#
IDN1M 000120R 167#
INIT 000030R 162#
INTR 000120R 194#
INTRO 000624R 265#
MAP22$ = 104416 203#
213
235* 248*
236* 249*
238 257 259 260 269 270 275 277
288
259 260 269 270
222 224
214*
238 251
282# 282#
286# 286#
261 261*
244 247 249 255* 282*
230* 231 234 236 254* 287*
284* 286* 276* 286*
257 277
292#
209* 271 283* 288* 291#

```

MES1	000632R	292	294#																	
MODNAM	000000R	149#																		
MODSP	000224R	163	201#																	
MSGNS	104403	203	275																	
MSGCS	104407	203																		
MSGCS	104401	203																		
NULL	000000	203																		
OPEN	000000	150	156	157	158	159	192	176	177	178	179	180	181	182	183					
OTGAS	104420	185	187																	
PASCNS	000034R	203																		
PIRQS	000004	164																		
PDPSP	005726	203																		
PDPSP	022626	203																		
PRV	000000	154	203#																	
PRTV0	000000	203																		
PRTV1	000040	203																		
PRTV2	000100	203																		
PRTV3	000140	203																		
PRTV4	000200	153	203#																	
PRTV5	000240	203																		
PRTV6	000300	203																		
PRTV7	000340	203																		
PS	177776	203																		
PSW	177776	203																		
PUSH	005746	203																		
PUSH2	024646	203																		
RAND	104417	203																		
RANRNM	000054R	193																		
RESTR1	000254R	191	213#																	
RES1	000056R	174																		
RES2	000060R	175																		
RSTRT	000112R	191																		
SADDR	000102R	181	233*	246*																
SDFCNT	000042R	167																		
SDFERS	104406	203																		
SDFPAS	000046R	169																		
SPOINT	000032R	163																		
SPSIZ	000046	151	196																	
SR1	000156R	151	242																	
SR2	000020R	159																		
SR3	000022R	158																		
SR4	000024R	159																		
START	000232R	162	209#																	
STAT	000025R	164																		
SVR0	000062R	177																		
SVR1	000064R	178																		
SVR2	000066R	178																		
SVR3	000070R	179																		
SVR4	000072R	180																		
SVR5	000074R	181																		
SVR6	000076R	181																		
SVSCNT	000052R	174																		
TRKSET	000510R	265																		
TRPDFD	000022	203																		
VECTOR	000010R	152#	220																	

WASADR	000104R	186#	234*	247*
WDFR	000116R	193	211*	
WDTO	000114R	192	210*	
XFLAG	000058R	198		
.	000664R	299#		

. ABS. 000000 000  
000664 001

ERRORS DETECTED: 0  
DEFAULT GLOBALS GENERATED: 0

XDRDCO XDRDCO/SOL/CRF:SYM=DDXCOM,XDRDCO  
RUN-TIME: 1 1 2 SECONDS  
RUN-TIME RATIO: 13/2=5.0  
CORE USED: 7K (13 PAGES)