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IDENTIFICATION

PRODUCT CODE: AC-F863D-MC  
PRODUCT NAME: CXUDADG UDC11 MODULE  
PRODUCT DATE: SEPTEMBER 1978  
MAINTAINER: DEC/X11 SUPPORT GROUP

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1. ABSTRACT

UDA IS AN IOMOD THAT EXERCISES THE UDC11 IN MAINTENANCE MODE. INTERRUPTS ARE GENERATED IN IMMEDIATE AND DEFERRED SCAN MODES BY SETTING THE MAINTENANCE BIT.

2. REQUIREMENTS

HARDWARE: ONE UDC11 CONTROL UNIT

STORAGE: UDA REQUIRES:

1. DECIMAL WORDS: 177
2. OCTAL WORDS: 0261
3. OCTAL BYTES: 542

3. PASS DEFINITION

ONE PASS OF THE UDA MODULE CONSISTS OF 1000. ITERATIONS OF THE BASIC TEST SEQUENCE WHICH CONSISTS OF GENERATING TWO INTERRUPTS, ONE IMMEDIATE, ONE DEFERRED.

4. EXECUTION TIME

THE UDA MODULE RUNNING ALONE ON A PDP11/05 PROCESSOR TAKES APPROXIMATELY --- MINUTES

5. CONFIGURATION REQUIREMENTS

DEFAULT PARAMETERS:

DEVADR: 171774, VECTOR: 234, BR1: 6, BR2: 4, DEVCNT: 1

REQUIRED PARAMETERS:

NONE

6. DEVICE OPTION SET-UP

NONE

7. MODULE/OPERATION

TEST SEQUENCE:

- A. INITIALIZE UDC VECTOR
- B. GENERATE AN IMMEDIATE INTERRUPT AND WAIT IN BRANCH LOOP

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SEQ 0003

C. INTERRUPT SERVICE SETTING SOFTWARE FLAG CAUSES BRANCH LOOP  
TO OPEN

D. TEST FOR ERRORS AND REPORT  
E. GENERATE A DEFERRED INTERRUPT AND WAIT IN BRANCH LOOP  
C. INTERRUPT SERVICE SETTING SOFTWARE FLAG CAUSES BRANCH LOOP  
TO OPEN  
E. TEST FOR ERRORS AND REPORT  
F. IF NOT 100. TIMES REPEAT R THRU E  
G. REPORT END PASS AND RESTART AT B

8. OPERATION OPTIONS

NCNE

9. NON STANDARD PRINTOUTS

NCNE: ALL PRINTOUTS HAVE THE STANDARD FORMATS DESCRIBED IN  
THE DEC/X11 DOCUMENT.

JUDC11 DEC/X11 EXERCISER MODULE

000000: IOMOD <UDAD > 171774 234 6 4 1000 52  
000000: MODULE 140000 UDAD 171774 234 6 4 1000 52  
; TITLE UDAD DEC/X11 SYSTEM EXERCISER MODULE  
; DDXCOM VERSION 6 23-NOV-78

\*\*\*\*\*LIST BIN\*\*\*\*\*  
BEGIN: ;  
MODNAM: .ASCII /UDAD / ;MODULE NAME  
XFLAG: OPEN ;SET TO KEEP TRACK OF WBUFF USAGE  
ADDR: 17174+0 ;1ST DEVICE ADDR.  
VECTCR: 234+0 ;1ST DEVICE VECTOR.  
BR1: .BUTE PRTV6+0 ;1ST BR LEVEL.  
BR2: .BUTE PRTV4+0 ;2ND BR LEVEL.  
DVID1: +1 ;DEVICE INDICATOR 1.  
SR1: OPEN ;SWITCH REGISTER 1  
SR2: OPEN ;SWITCH REGISTER 2  
SR3: OPEN ;SWITCH REGISTER 3  
SR4: OPEN ;SWITCH REGISTER 4  
\*\*\*\*\*  
STAT: 140000 ;STATUS WORD.  
INIT: START ;MODULE START ADDR.  
SPDINT: WDDSP ;MODULE STACK POINTER.  
PASCNT: 0 ;PASS COUNTER.  
ICONT: 1000. ;# OF ITERATIONS PER PASS=1000.  
ICOUNT: 0 ;LOC TO COUNT ITERATIONS  
SOFCNT: 0 ;LOC TO COUNT TOTAL SOFT ERRORS  
HRDCNT: 0 ;LOC TO SAVE TOTAL HARD ERRORS  
SOPPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS  
HRPPAS: 0 ;LOC TO SAVE HARD ERRORS PER PASS  
SYSCNT: 0 ;# OF SYS ERRORS ACCUMULATED  
RANUM: 0 ;HOLDS RANDOM # WHEN RAND MACRO IS CALLED  
CONFIC: 0 ;RESERVED FOR MONITOR USE  
RES1: 0 ;RESERVED FOR MONITOR USE  
SVRO: OPEN ;LOC TO SAVE R0.  
SVR1: OPEN ;LOC TO SAVE R1.  
SVR2: OPEN ;LOC TO SAVE R2.  
SVR3: OPEN ;LOC TO SAVE R3.  
SVR4: OPEN ;LOC TO SAVE R4.  
SVR5: OPEN ;LOC TO SAVE R5.  
SVR6: OPEN ;LOC TO SAVE R6.  
CSRA: OPEN ;ADDR OF CURR RG. CSR.  
CSADR: OPEN ;ADDR OF GOOD DATA, OR  
ACSR: OPEN ;CONTENTS OF CSR.  
WASADR: OPEN ;ADDR OF BAD DATA OR  
ERRADR: OPEN ;STATUS REG CONTENTS.  
ASB: OPEN ;TYPE OF ERROR  
AMAS: OPEN ;EXPECTED DATA.  
RSTRT: OPEN ;ACTUAL DATA.  
WDR: OPEN ;RESTART ADDRESS AFTER END OF PASS  
WDFR: OPEN ;WORDS TO MEMORY PER ITERATION  
WDFR: OPEN ;WORDS FROM MEMORY PER ITERATION  
INTR: OPEN ;# OF INTERRUPTS PER ITERATION

000122: 000052 IDNUM: 52 ;MODULE IDENTIFICATION NUMBER=52  
000040: 000040 ;MODULE STACK STARTS HERE.  
; .REPT SPSIZ  
; .NLST  
; .WORD 0  
; .LIST  
; .ENDP

000224: WDDSP: \*\*\*\*\*  
;SOME MODULE DEFINITIONS

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000224: 000000 UDSCR: OPEN ;CONTAINS THE ADDRESS OF THE SCAN REG.  
000226: 000000 UDSCR: OPEN ;CONTAINS THE ADDRESS OF THE CSR REG.  
000230: 000000 UDFLAG: .WORD 0 ;INTERRUPT OCCURRED FLAG  
;MODULE INITIALIZATION  
000232: 012767 000001 177656 START: MOV #1,WDFR ;1 WD FR MEN PER ITERATION  
000240: 012767 000002 177652 MOV #2,INTR ;2 INTERRUPTS PER ITERATION  
000246: 016705 177534 RESTRT: MOV ADDR,R5 ;GET THE FIRST ADDRESS  
000252: 010567 177746 PS,UDSCR ;SET UP SCAN REG. ADDRESS  
000256: 005725 TST (R5) ;SET UP THE CSR ADDRESS  
000260: 010567 MOV PS,UDCS ;GET THE VECTOR ADDRESS  
000264: 016700 MOV VECTCR,R0 ;POINT ALL INTR TO UDINT  
000270: 012720 005520 MOVB BR1,(R0) ;SET UP THE 1ST PRIORITY LEVEL  
000274: 018710 177512 ST: CLR @UDCS ;CLEAR THE SCAN REG.  
000278: 005077 177720 CLR @UDFLAG ;INITIALIZE INTERRUPT OCCURRED FLAG  
000284: 005067 177720 CLR @UDCS ;CLEAR THE CONTROL REG.  
000288: 005077 177712 TST @UDSCR ;GENERATE RIF  
000294: 005777 177704 NOP ;WAIT FOR CLEAR DONE  
000300: 005777 177704 BIS #25,@UDCS ;SET IMMED. INTR ENAB, IMMED. SCAN  
000304: 005777 177676 BIS #400,@UDCS ;ENAB, GENERATE RIF  
000308: 005777 177670 ;SET MAINT. MODE  
000312: 005777 177670 1S: BREAKS,REGIN ;TEMPORARY RETURN TO MONITOR.  
000316: 005777 177670 BREAKS,REGIN ;THEN CONTINUE AT NEXT INSTRUCTION.  
000320: 005777 177656 TST @UDFLAG ;INTERRUPT YET?  
000324: 005777 177656 BPL IS ;BR AND WAIT  
000328: 005777 177656 CLR @UDFLAG ;CLEAR THE INTERRUPT INDICATOR  
000332: 005777 177656 MOVBR BR2,(R0) ;SET UP THE 2ND PRIORITY LEVEL  
000336: 005777 177656 CMP #100201,@UDCS ;CHECK FOR ERRORS  
000340: 005777 177656 BND NERP ;BR IF NO ERRORS  
000344: 005777 177656 JSR PC,ERROR ;GO REPORT THE ERROR  
000348: 005777 177656 TST @UDSCR ;GENERATE RIF  
000352: 005777 177656 NOP ;SET DEFERRED INTR ENAB, SCAN ENAB  
000356: 005777 177656 BIS #13,@UDCS ;SET MAINT. MODE  
000360: 005777 177656 1S: BREAKS,REGIN ;TEMPORARY RETURN TO MONITOR.  
000364: 005777 177656 BREAKS,REGIN ;THEN CONTINUE AT NEXT INSTRUCTION.  
000368: 005777 177656 TST @UDFLAG ;INTERRUPT YET?  
000372: 005777 177656 BPL IS ;BR AND WAIT  
000376: 005777 177656 CLR @UDFLAG ;CLEAR THE INTERRUPT INDICATOR  
000380: 005777 177656 CMP #100041,@UDCS ;CHECK FOR ERRORS

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238 000452 001402          BEQ 1S          ;RR IF NO ERRORS
239 000454 004767 000006   JSR PC,ERROR   ;GO REPORT ERROR
240 000460 104413 000000   1S:           ;SIGNAL END OF ITERATION
241 000460 104413 000000   ENDTLS,REGIN  ;MONITOR SHALL TEST END OF PASS
242 000460 104413 000000   BR ST
243 000464 000705          BR ST
244 000466 016767 177534 177404  ERROR:        ;SAVE THE CSR ADDRESS
245 000474 017767 177536 177400  MOV UDCS,CSRA  ;SAVE THE CONTENTS OF THE CSR
246 000502 017767 177516 177374  MOV UDCS,ACSRA ;SAVE THE CONTENTS OF THE SCAN REG.
247 000510 104405 000000 000000  MOV RUDSR,ASTAT
248 000510 104405 000000 000000  *****
249 000510 104405 000000 000000  HRDRS,REGIN,NULL
250 000516 000207          *****
251 000516 000207          RTS PC         ;RETURN
252 000520 042777 000036 177500  UDINT:        ;DISABLE THE CONTROL
253 000526 042777 000036 177472  BIC #36,UDCS  ;TURN OFF THE INTR.
254 000534 005167 177470  BIC #400,UDCS ;SET THE INTERRUPT OCCURRED FLAG
255 000534 005167 177470  MOV UDFLAG
256 000534 005167 177470  RTI           ;RETURN FROM INTERRUPT
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259          000001          .END
    
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CROSS REFERENCE TABLE -- USER SYMBOLS
ACSR 0001C2R 172# 246*
ADDR 000006R 138# 202
ADDR22= 001000R 176#
ASR 000104R 174# 247*
ASTAT 000110R 177#
AWAS 000000R 180#
BEGIN 000000R 185# 218 219 232 233 241 249
BIT0 000002 190#
BIT1 002000 190#
BIT10 001000 190#
BIT11 001000 190#
BIT12 002000 190#
BIT13 002000 190#
BIT14 002000 190#
BIT15 000004 190#
BIT2 000010 190#
BIT3 000020 190#
BIT4 000020 190#
BIT5 000020 190#
BIT6 000020 190#
BIT7 000020 190#
BIT8 000020 190#
BIT9 000020 190#
BREAKS 104407 190# 218 219 232 233
BR1 000012R 140# 208
BR2 000013R 141# 223
CADDRS 104412 190#
CDATAS 104412 190#
CONFIG 000056R 160#
CSRA 000100R 170# 245*
DATCS 104411 190#
DATES 104464 190#
DEPI 000444R 237#
DVIDI 000140R 142#
ENDITS 104410 190# 241
ENDS 104410 190#
ERROR 000466R 226# 239 245#
ERRTYP 000106R 175#
EXIT 104400 190#
GETPAS 104415 190#
HRDCNT 104414 190#
HRDRS 000044R 155#
HRDRS 104405 190# 249
ICOUNT 000036R 167#
IDNUM 000122R 152#
INTR 000360R 223#
INIT 000030R 149#
INTR 000170P 181# 200*
MAP22S 104416 190#
MODNAM 000000P 136#
MODSP 000224R 150# 188#
MSGNS 104403 140#
MSGSS 104402 190#
MSG 104401 190#
    
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NEPP	= 00046CP	225#	227#																
NULL	= 0000000	137#	143#	144	145	146	163	164	165	166	167	168	169	170					
OPEN	= 0000000	172#	174#	176	177	179	180	181	190#	193	194								
OTOLS	= 104420	190#																	
PASCNT	= 000034P	190#																	
PIRGS	= 000004	190#																	
POPSP	= 005725	190#																	
POPSP2	= 022646	190#																	
PRTV	= 0000000	190#																	
PRTV0	= 0000000	190#																	
PRTV1	= 000040	190#																	
PRTV2	= 000103	190#																	
PRTV3	= 000140	190#																	
PRTV4	= 000200	141#	190#																
PRTV5	= 000240	190#																	
PRTV6	= 000300	140#	190#																
PRTV7	= 000340	190#																	
PSM	= 177776	190#																	
PSM2	= 177776	190#																	
PUSH	= 005746	190#																	
PUSH2	= 024646	190#																	
RANDS	= 104417	190#																	
RANNDM	= 000054P	159#																	
RESRRT	= 00246R	175#	202#																
RES1	= 000056R	161#																	
RES2	= 000060R	152#																	
RES3	= 000064R	178#																	
RES4	= 000112R	171#																	
SADR	= 000142P	154#																	
SOPCNT	= 000042P	190#																	
SOPERS	= 104406	156#																	
SOPFAS	= 000046P	150#																	
SPOINT	= 000040R	143#	183																
SPTSIZ	= 000040R	143#																	
SR1	= 000016P	143#																	
SR2	= 000020P	144#																	
SR3	= 000020P	144#																	
SR4	= 000024P	146#																	
ST	= 000300R	209#	243																
START	= 000232P	149#	199#																
STAT	= 000246P	148#																	
SVR0	= 000062P	164#																	
SVR1	= 000064R	164#																	
SVR2	= 000066P	165#																	
SVR3	= 000070P	165#																	
SVR4	= 000072R	167#																	
SVR5	= 000074P	168#																	
SVR6	= 000076P	169#																	
SYSCNT	= 000052R	158#																	
TRPFD	= 000022	190#																	
UDCS	= 000225R	194#	205*	211*	214*	216*	224	229*	230*	237	245	246	253*	254*					
UDFLAG	= 000230R	195#	210*	220	222*	234*	236*	255*											
UDINT	= 000520R	207#	253#																
UDSR	= 000244P	193#	203*																
VECTOR	= 000510R	139#	206				227	247											
WASADR	= 000104P	173#																	

WDFR	= 000116R	190#	199*																
WDT0	= 000114P	178#																	
XPLAC	= 000005R	137#																	

. ABS. 000000 000  
 000542 001

ERRORS DETECTED: 0  
 DEFAULT GLOBALS GENERATED: 0

XUDADO, XUDADO/SOL/CRF:SYM=DDXCCM, XUDADO  
 RUN-TIME: 111.2 SECONDS  
 RUN-TIME RATIO: 1772=5.3  
 CORE USED: 7K (13 PAGES)