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IDENTIFICATION

PRODUCT CODE: AC-F809B-MC
PRODUCT NAME: CXBTB90 BUS TESTER MODULE A
PRODUCT DATE: SEPTEMBER 1978
MAINTAINER: DEC/X11 SUPPORT GROUP

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1. ABSTRACT

THE BTB MODULE IS AN UJMODR THAT EXERCISES THE SECOND TWO ADDRESSES AND VECTORS OF THE BUS TESTER. BOTH CSR'S ARE TESTED AND STEPPED THROUGH FOUR BR LEVELS.

2. REQUIREMENTS

HARDWARE: A UNIBUS TESTER

STORAGE: BTB REQUIRES:

1. DECIMAL WORDS: 408
2. OCTAL WORDS: 0630
3. OCTAL BYTES: 1400

3. PASS DEFINITION

ONE PASS CONSISTS OF CYCLING THROUGH THE CODE 2500 TIMES WHICH CHECKS THE INTERRUPT ON FOUR BR LEVELS.

4. EXECUTION TIME

ONE PASS TAKES APPROXIMATELY 1 MINUTE.

5. CONFIGURATION REQUIREMENTS

DEFAULT PARAMETERS: DVA:170020 VCT: 520 BR1:0 BR2:0 DVC:1 SR1:0
REQUIRED PARAMETERS: NONE
MEANING OF SR1: NONE

6. DEVICE/OPTION SETUP

CONNECT THE BUS TESTER AND POWER UP.

7. MODULE OPERATION

SETS UP A TRANSFER TO BE DONE BY BOTH CSR'S THEN WAITS FOR AN INTERRUPT. WHEN IT OCCURS, ERROR CHECKING IS DONE, THE BR LEVELS ARE CHANGED AND TESTING CONTINUED.

8. OPERATION OPTIONS

NONE

9. NON-STANDARD PRINTOUTS

NONE

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000000-
000000- MODULE IOMODR <BTBB > 170020,520,466,2000,56
          ;      152000 BTBB 170020,520,466,2000,56
          ;      DOKCOM VERSION 6 23-MAY-78
          ;*****LIST BIN*****
000000- BEGIN:
000000- 052102 041102 040 MODNAM: -ASCII /RTBB / ;MODULE NAME.
000005- 000 XFLAG: -BYTE OPEN ;USED TO KEEP TRACK OF WBOFF USAGR.
000006- 170020 ADDR: 170020+0 ;1ST DEVICE ADDR.
000010- 000520 VECTOR: 520+0 ;1ST DEVICE VECTOR.
000012- 000 BR1: OPEN ;1ST BR LEVEL.
000013- 000 BR2: -BYTE PRTV+0 ;2ND BR LEVEL.
000014- 000001 DVID1: +1 ;DEVICE INDICATOR 1.
000016- 000000 SR1: JPEM ;SWITCH REGISTER 1
000020- 000000 SR2: OPEN ;SWITCH REGISTER 2
000022- 000000 SR3: OPEN ;SWITCH REGISTER 3
000024- 000000 SR4: OPEN ;SWITCH REGISTER 4
          ;*****
000026- 152000 STAT: 152000 ;STATUS WORD.
000030- 000224- INIT: START ;MODULE START ADDR.
          ;*****
000032- 000274- SPOINT: MODSP ;MODULE STACK POINTER.
000034- 000000 PASCNT: 0 ;PASS COUNTER.
000036- 002000 ICOUNT: 2000 ;# OF ITERATIONS PER PASS=2000
000040- 000000 ICOUNT: 0 ;LOC TO COUNT ITERATIONS
000042- 000000 SOFCNT: 0 ;LOC TO SAVE TOTAL SOFT ERRORS
000044- 000000 HRDCNT: 0 ;LOC TO SAVE TOTAL HARD ERRORS
000046- 000000 SOFPAS: 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 RANRUM: 0 ;HOLDS RANDOM # WHEN RAND MACRO IS CALLED
000056- 000000 CMTIC: 0 ;RESERVED FOR MONITOR USE
000060- 000000 RES1: 0 ;RESERVED FOR MONITOR USE
000062- 000000 RES2: 0 ;RESERVED FOR MONITOR USE
000064- 000000 SVR0: OPEN ;LOC TO SAVE R0.
000066- 000000 SVR1: OPEN ;LOC TO SAVE R1.
000068- 000000 SVR2: JPEM ;LOC TO SAVE R2.
000070- 000000 SVR3: OPEN ;LOC TO SAVE R3.
000072- 000000 SVR4: OPEN ;LOC TO SAVE R4.
000074- 000000 SVR5: JPEM ;LOC TO SAVE R5.
000076- 000000 SVR6: OPEN ;LOC TO SAVE R6.
000078- 000000 CSRA: OPEN ;ADDR OF CURRENT CSP.
000102- 000000 SBADR: OPEN ;ADDR OF GOOD DATA, OR
000104- 000000 MASADR: OPEN ;ADDR OF BAD DATA, OR
000106- 000000 ASADR: OPEN ;STATUS REG CONTENTS.
000108- 000000 ERATYP: OPEN ;TYPE OF ERROR
000110- 000000 ASB: OPEN ;EXPECTED DATA.
000112- 000000 AWAS: OPEN ;ACTUAL DATA.
000114- 000070- RSTRT: RSTRT ;RESTART ADDRESS AFTER END OF PASS
000116- 000000 WDFR: OPEN ;WORDS TO MEMORY PER ITERATION
000120- 000000 INTR: OPEN ;# OF INTERRUPTS PER ITERATION
000122- 000056 IDNUM: 56 ;MODULE IDENTIFICATION NUMBER=56
          ;*****
          .REPT SPSIZ ;MODULE STACK STARTS HERE.

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          .NLIST 0
          .WORD 0
          .LIST
          .ENOR
000224- MODSP:
          ;*****
162
163
164
165 000224- 012767 000010 177666 START: MOV #8,INTR ;8 INTERRUPTS/ITERATION
166 000232- 012767 000310 177654 MOV #200,WDTO ;200 WORDS TO MEM/ITERATION
167 000240- 005067 001176 CLR TOT ;GO SET UP ADDRESSES
168 000244- 004567 000340 JSR R5,ADSUP ;GO SET VECTORS
169 000250- 004567 000420 JSR R5,VEC ;GO SET VECTORS
170 000254- 012767 052615 MOV #52615,FUNC ;SET FIRST FUNCTION
171 000262- 012767 052605 MOV #52605,FUNB ;SET SECOND FUNCTION
172 000270- 012777 000310 RFSTR: MOV #200,BCBMC ;SET WORD COUNT 1
173 000276- 012777 001100 MOV #CBBUF,BCBCA ;SET WORD ADDRESS 1
174 000304- 012777 000310 MOV #200,ADBCA ;SET WORD COUNT 2
175 000312- 012777 001100 MOV #DBBUF,ADBCA ;SET CURRENT ADDRESS 2
176 000320- 016777 001130 MOV FUNC,ACBCSR ;SET FIRST FUNCTION
177 000326- 016777 001124 MOV FUNB,ADBCSR ;SET SECOND FUNCTION
178 000334- 104400 000000- EXITS,BEGIN ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
179
180 000340- CBUS1:
          ;-----
181 000340- 000004 000000 000346- ;PIRQS,BEGIN,IS ; QUEUE UP TO CONTINUE AT IS AND RTI
182
183 000346- 005777 001066 1S: TST #CBBCSR ;TEST FOR BUSY
184 000352- 100004 BPL 2S
185 000354- 016700 001060 MOV CRCSR,R0
186 000360- 004567 000150 JSR R5,FR1
187 000364- 005077 001050 2S: CLR #CBBCSR
188 000370- 005077 001044 CLR #CBCSR
189 000374- 005077 001052 CLR #DBBCSR
190 000400- 005077 001046 CLR #CBCSR
191 000404- 012700 000310 MOV #200,R0 ;GET SET TO CHECK DATA
192 000410- 012701 001100- MOV #CBBUF,R1
193 000414- 020021 3S: CMP R0,(R1)+ ;COMPARE DATA
194 000416- 001061 BNE ERK ;DATA ERROR
195 000420- 005740 TST -(R0) ;CHANGE DATA
196 000422- 001374 BNE 3S ;GET MORE DATA
197 000424- 004567 000324 JSR R5,CHG
198 000430- 000167 000070 JMP CRK
199
200 000434- DRUS1:
          ;-----
201 000434- 000004 000000 000442- ;PIRQS,BEGIN,IS ; QUEUE UP TO CONTINUE AT IS AND RTI
202
203 000442- 005777 001004 1S: TST #DBBCSR ;TEST FOR BUSY
204 000446- 100004 BPL 2S
205 000450- 016700 000776 MOV DBCSR,R0
206 000454- 004567 000054 JSR R5,ERR1
207 000458- 005077 000766 2S: CLR #CBCSR
208 000464- 005077 000762 CLR #DBBCSR
209 000470- 005077 000744 CLR #CBBCSR

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212 000474* 005077 000740 CLR #CBCSR ;CHECK DATA
213 000500* 012700 000310 MOV #200,R0
214 000504* 012701 001100 MOV #DBBUF,R1
215 000510* 020021 35: CMP R0,(R1)+ ;DATA ERROR
216 000514* 001023 BNE R0,R1 ;MOVE DATA POINTER
217 000516* 005740 TST -(R0) ;NOT DONE
218 000516* 001374 BNE 35
219 000520* 004567 000230 JSR R4,CHG
220
221
222
223
224 000524* 000000 CHK: ENDTTS,REGIN ;SIGNAL END OF ITERATION.
225 000524* 104413 000000 ;MONITOR SHALL TEST END OF PASS
226 000530* 000167 177534 JMP R#STRT
227
228
229
230 000534* 010067 177340 ERR1: MOV R0,CSRA ;LOAD CSR ADDRESS
231 000540* 010067 177336 MOV (R0),ACSR ;LOAD CONTENTS OF CSR
232 000544* 012767 000011 177334 MOV #11,ERRTYP ;ILLEGAL INTERRUPT
233 *****
234 000552* 104405 000000* 000000 HRDFRS,REGIN,NULL *****
235 *****
236 000560* 000205 RTS R5 *****
237
238
239
240
241 000562* 010067 177312 ERR2: MOV R0,CSRA ;LOAD CSR ADDRESS
242 000566* 011067 177310 MOV (R0),ACSR ;LOAD CONTENTS OF CSR
243 000572* 012767 000001 177306 MOV #1,ERRTYP ;DATA ERROR
244 *****
245 000600* 104405 000000* 000000 HRDFRS,REGIN,NULL *****
246 *****
247 000606* 000205 RTS R5 *****
248
249
250
251 000610* 016700 177172 ADSUP: MOV ADDR,R0 ;GET ADDRESS
252 000614* 010067 000612 MOV R0,CBDBR ;SET DATA BUFFER IN SECTION 1
253 CLR (R0)+
254 MOV R0,CBCA ;SET ADDRESS REG IN SECTION 1
255 CLR (R0)+
256 MOV R0,CBWC ;SET WORD COUNT IN SECTION 1
257 CLR (R0)+
258 MOV R0,CBCSR ;SET CSR IN SECTION 1
259 CLR (R0)+
260 MOV R0,DBDBR ;SET DATA BUFFER IN SECTION 2
261 CLR (R0)+
262 MOV R0,DBCA ;SET ADDRESS REG IN SECTION 2
263 CLR (R0)+
264 MOV R0,DBWC ;SET WORD COUNT IN SECTION 2
265 CLR (R0)+
266 MOV R0,DBCSR ;SET CSR IN SECTION 2
267 RTS R5

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268 000674* 016700 177110 VEC: MOV VECTOR,R0 ;POINT TO FIRST VECTOR
269 000700* 012720 000340 MOV #CBUS1,(R0)+ ;POINT TO FIRST INTERRUPT
270 000710* 010067 000510 MOV R0,SAVC ;SET BR LOCATION
271 000716* 052777 000502 BIS #200,ASAVC ;CLEAR BR BITS
272 000724* 005720 TST (R0)+ ;SET BR LEVEL OF 4
273 000728* 012710 000434 MOV #DBUS1,(R0) ;POINT TO SECOND INTERRUPT
274 000736* 042777 000464 MOV R0,SAVD ;SET BR LOCATION
275 000744* 052777 000456 BIS #200,ASAVD ;CLEAR BR BITS
276 000752* 000205 RTS R5 ;SET BR LEVEL OF 4
277
278
279
280
281
282 000754* 022767 000003 000460 CHG: CMP #3,TOT ;DONE ALL BR LEVELS?
283 000764* 001417 BFC #2 ;YES
284 000764* 062767 000040 000462 ADD #4,FUNC
285 000772* 062767 000040 000456 ADD #4,FUNB
286 001000* 062777 000040 000420 ADD #4,ASAVC
287 001006* 062777 000040 000414 ADD #4,ASAVD
288 001014* 005267 000422 INC #01
289 001020* 000205 RTS R5
290
291
292 001022* 005067 000414 1S: CLR TOT
293 001028* 012781 052615 MOV #52615,FUNC
294 001034* 012767 052605 000414 MOV #52605,FUNB
295 001042* 042777 000340 000356 BIC #340,ASAVC
296 001050* 052777 000200 000350 BIC #200,ASAVD
297 001056* 042777 000340 000344 BIC #340,ASAVD
298 001064* 052777 000200 000336 BIC #200,ASAVD
299 RTS R5
300
301
302
303
304 001074* 000000 CRCTB: 0
305 001076* 000000 CRCTA: 0
306 001100* 000000 DBBUF: 0
307 001100* 000322 CRCSB: 0
308 001422* 000000 DRCTA: 0
309 001424* 000000 DRCTB: 0
310
311 001426* 000000 SAVC: 0
312 001430* 000000 SAVD: 0
313
314 001432* 000000 CBDBR: 0
315 001434* 000000 CRCA: 0
316 001436* 000000 CRCC: 0
317 001440* 000000 CRCSA: 0
318 001442* 000000 CRCSB: 0
319 001444* 000000 TOT: 0
320 001444* 000000 DRDBR: 0
321 001446* 000000 DRCA: 0
322 001450* 000000 DRCC: 0
323 001452* 000000 DRCSA: 0

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324 001454 000000
 325 001456 000000
 326
 327
 328
 329
 330
 331
 332 000001

FUNC: 0
 FUNR: 0

.END

ACSR	000102R	144#	231*	242*						
ADDR	000006R	110#	250							
ADDR22=	001000	162#								
ADSUP	000610R	166#	250#							
ASB	000106R	148#								
ASTAT	000104R	146#								
AWAS	000110R	149#								
BCTN	000000R	107#								
BIT0 =	000001	162#	178	182	203	224	234	245		
BIT1 =	000002	162#								
BIT10 =	002000	162#								
BIT11 =	004000	162#								
BIT12 =	010000	162#								
BIT13 =	020000	162#								
BIT14 =	040000	162#								
BIT15 =	100000	162#								
BIT2 =	000004	162#								
BIT3 =	000010	162#								
BIT4 =	000020	162#								
BIT5 =	000040	162#								
BIT6 =	000100	162#								
BIT7 =	000200	162#								
BIT8 =	000400	162#								
BIT9 =	001000	162#								
BREAKS=	104407	162#								
BRI	000012R	112#								
BR2	000013R	113#								
BTDDS =	104421	162#								
CBRUP	001100R	173	193	307#						
CBCA	001434R	173*	253*	315#						
CBCSR	001440R	176*	184	186	188*	189*	211*	212*	257*	317#
CBCTA	001076R	305#								
CBCTB	001074R	304#								
CBDRR	001432R	251*								
CBUS1	000340R	180#								
CBWC	001436R	172*								
CDATAS=	104412	162#								
CRG	000754R	198								
CR	000524R	199								
CMNFIG	000056R	132#								
CSRA	000100R	142#	230*	241*						
DATCKS=	104411	162#								
DATERs=	104404	162#								
DRBUP	001100R	175								
DRCA	001446R	175*	214	306#						
DRCSR	001452R	177*	261*	321#						
DRCTA	001422R	308#	190*	191*	205	207	209*	210*	265*	323#
DRCTB	001424R	309#								
DRDRR	001444R	259*								
DRUS1	000434R	201#								
DRWC	001450R	174*	370#	275						
DVID1	000014R	114#	263*	322#						
ENDITS=	104413	162#								
ENDS	104410	162#								
ERRTYP	000106R	147#	232*	243*						
ERR1	000534R	187	208	230#						

EXH2	000507R	195#	216	241#															
EXITS	= 104400	162#	178																
FUN3	001456R	171#	177	285*	293*	325#													
FUNC	001454R	170#	176	284*	292*	324#													
GETPA	= 104415	162#																	
GWHTPS	= 104414	162#																	
HDDCNT	000044R	177#																	
HDDCMS	= 104405	162#	234	245															
HDDPAS	000050R	179#																	
ICOUNT	000036R	174#																	
ICOUNT	000040R	175#																	
IDNUM	000122R	154#																	
INLT	000130R	171#																	
INT0	000120R	173#																	
MAP225	= 104416	162#	165*																
MAPNAM	000000R	170#																	
MAPSP	000224R	122#	160#																
MSCNS	= 104403	162#																	
MSCS5	= 104407	162#																	
MSCS	= 104401	162#																	
NULL	= 000000	162#	234	245															
OPEN	= 000000	179#	115	116	117	118	135	136	137	138	139	140	141	142					
		144	146	148	149	151	152	153	162#										
OTDAS	= 104420	162#																	
PASCNT	000034R	123#																	
PTROS	= 000004	162#	182	203															
PJPSP	= 005725	162#																	
PJPSP2	= 022436	162#																	
PPTY	= 000000	172#	113	162#															
PPTY0	= 000000	162#																	
PPTY1	= 000040	162#																	
PPTY2	= 000100	162#																	
PPTY3	= 000144	162#																	
PPTY4	= 000200	162#																	
PPTY5	= 000240	162#																	
PPTY6	= 000300	162#																	
PPTY7	= 000340	162#																	
PS	= 177776	162#																	
PSW	= 177776	162#																	
PISSH	= 005746	162#																	
PISSH2	= 024646	162#																	
RANNS	= 104417	162#																	
RANNUM	000044R	131#																	
RSSTRT	000270R	150#	172#	276															
RES1	000056R	133#																	
RES2	000060R	134#																	
RSTOT	000112R	146#																	
SAVC	001432R	271#	272*	273*	286*	294*	295*	311#											
SAVD	001430R	276#	277*	278*	287*	296*	297*	312#											
SBADR	000102R	143#																	
SFPNT	000042R	126#																	
SDFRS	= 104406	162#																	
SDFPAS	000076R	173#																	
SPOINT	000032R	172#																	
SPSTZ	= 000040	1#	155																
SPI	000016R	115#																	

SR2	000020R	116#																	
SR3	000022R	117#																	
SR4	000024R	118#																	
START	000224R	121#	165#																
STAT	000026R	120#																	
SVR0	000002R	135#																	
SVR1	000064R	136#																	
SVR2	000066R	137#																	
SVR3	000070R	138#																	
SVR4	000072R	139#																	
SVR5	000074R	140#																	
SVR6	000076R	141#																	
SVSCNT	000052R	130#																	
TOT	001442R	157#	282	288*	291*	318#													
TDPDFD	= 000073	162#																	
VFC	000674R	169#																	
VFCRDR	000010R	111#	259#																
WASADR	000104R	145#	269																
WDEF	000116R	152#																	
WDT7	000114R	151#	166*																
XFLAG	000005R	109#																	
.	= 001460R	307#																	

. ARS. 000000 000
 001460 001

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

XRTBR0, XRTBR0/SOL/CRF:SYM=DDXCOM, XRTBR0
 RUN-TIME: 11.3 SECONDS
 RUN-TIME RATIO: 8/3=2.9
 CODE USED: 7K (13 PAGES)