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IDENTIFICATION

PRODUCT CODE: AC-E962R-MC
PRODUCT NAME: CXPCS80 PCS-11 MODULE
PRODUCT DATE: SEPTEMBER 1978
MAINTAINER: DEC/X11 SUPPORT GROUP

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1. ABSTRACT
PCS IS AN IOMOD THAT EXERCISES PCS CONTROLLER AND FILE BOX. IT WILL EXERCISE ALL BITS OF CSR ADDRESS, CHECK FOR MAINTENANCE INTERRUPT CAPABILITIES AND CHECK ALL THE ADDRESSES FROM 171000 TO 171375 IN MAINTENANCE MODE.
2. REQUIREMENTS
HARDWARE: IOCM CONTROL MODULE WITH FILE BOX
STORAGE:: PCS REQUIRES:
 1. DECIMAL WORDS: 748
 2. OCTAL WORDS: 1354
 3. OCTAL BYTES: 2730
3. TEST DESCRIPTION
ONE PASS OF THE MODULE CONSISTS OF CSR CHECKS, INTERRUPT TEST AND IAR TEST IN MAINTENANCE MODE. DURING THE TEST DBIT IS SET SO THE TEST WILL NOT EFFECT I/O MODULES
4. EXECUTION TIME
ONE PASS OF THE TEST TAKES LESS THEN 1 SEC
5. CONFIGURATION REQUIREMENTS
DEFAULT PARAMETERS
DEUADR: 171376
VECTOR: 234
DEVcnt: 1
6. MODULE OPERATION
TEST SEQUENCE
 - A. SET UP THE DEVICE ADDRESSES
 - B. SET G BIT, READ IT BACK AND CLEAR IT
 - C. SET D BIT, READ IT BACK AND CLEAR IT
 - D. SET T BIT, READ IT BACK AND CLEAR IT
 - E. SET RIF BIT, READ IT BACK AND CLEAR IT
 - F. SET E BIT, READ IT BACK AND CLEAR IT
 - G. SET M BIT, READ IT BACK AND CLEAR IT
 - H. SET MBIT AND READ ALL ADDRESSES FROM 171000 TO 171375
 - I. SET MAINTENANCE INTERRUPT AND READ ALL ONES FROM IAR
 - J. RESET CSR.
7. OPERATOR OPTIONS:
NONE
8. PRINTOUTS:

PCSB DEC/X11 SYSTEM EXERCISER MODULE
XPCSB0.P11 12-OCT-78 12:05

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SEQ 0003

ALL PRINTOUTS ARE STANDARD

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104 000000: IOMOD <PCSB > 171376 234 0 0 0 10 147
105 000000: MODULE 140000 PCSB 171376 234 0 0 0 147
106 ; TITLE PCSB DEC/X11 SYSTEM EXERCISER MODULE
107 ; DDICOM VERSION 6 23-MAY-78
108 ;
109 ;*****
110 ;*****
111 BEGIN: ;*****
112 WDFNAM: .ASCII /PCSB / ;MODULE NAME
113 XFLAG: .BYTE OPEN ;USED TO KEEP TRACK OF WBUFF USAGE
114 ADDR: 171376+0 ;1ST DEVICE ADDR.
115 VECTOR: 234+0 ;1ST DEVICE VECTOR.
116 BR1: .BYTE PRIV0+0 ;1ST BR LEVEL.
117 BR2: .BYTE PRIV0+0 ;2ND BR LEVEL.
118 DVID1: 0+1 ;DEVICE INDICATOR 1.
119 SR1: OPEN ;SWITCH REGISTER 1.
120 SR2: OPEN ;SWITCH REGISTER 2.
121 SR3: OPEN ;SWITCH REGISTER 3.
122 SR4: OPEN ;SWITCH REGISTER 4.
123 ;*****
124 STAT: 140000 ;STATUS WORD.
125 INIT: START ;MODULE START ADDR.
126 SPOINT: MODSP ;MODULE STACK POINTER.
127 PASCNT: 0 ;PASS COUNTER.
128 ICOUNT: 10 ;# OF ITERATIONS PER PASS=10
129 ICONF: 0 ;LOC TO COUNT ITERATIONS
130 SDFCN: 0 ;LOC TO SAVE TOTAL SOFT ERRORS
131 HRDCNT: 0 ;LOC TO SAVE TOTAL HARD ERRORS
132 SOPPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS
133 HRDPAS: 0 ;LOC TO SAVE HARD ERRORS PER PASS
134 SYSCNT: 0 ;# OF SYS ERRORS ACCUMULATED
135 RANNUM: 0 ;HOLDS RANDOM # WHEN RAND MACRO IS CALLED
136 CONFIG: 0 ;RESERVED FOR MONITOR USE
137 RES1: 0 ;RESERVED FOR MONITOR USE
138 RES2: 0 ;RESERVED FOR MONITOR USE
139 SVR0: OPEN ;LOC TO SAVE R0.
140 SVR1: OPEN ;LOC TO SAVE R1.
141 SVR2: OPEN ;LOC TO SAVE R2.
142 SVR3: OPEN ;LOC TO SAVE R3.
143 SVR4: OPEN ;LOC TO SAVE R4.
144 SVR5: OPEN ;LOC TO SAVE R5.
145 SVR6: OPEN ;LOC TO SAVE R6.
146 CSRA: OPEN ;ADDR OF CURRENT CSR.
147 SBADR: ;ADDR OF GOOD DATA, OR
148 ACSR: OPEN ;CONTENTS OF CSR.
149 WASADR: ;ADDR OF BAD DATA, OR
150 ASAT: OPEN ;STATUS REG CONTENTS.
151 ERTYP: ;TYPE OF ERROR
152 ASB: OPEN ;EXPECTED DATA.
153 AWAS: OPEN ;ACTUAL DATA.
154 RSTRT: RESTR ;RESTART ADDRESS AFTER END OF PASS
155 WDT0: OPEN ;WORDS TO MEMORY PER ITERATION
156 WDFR: OPEN ;WORDS FROM MEMORY PER ITERATION
157 INTR: OPEN ;# OF INTERRUPTS PER ITERATION
158 IDNUM: 147 ;MODULE IDENTIFICATION NUMBER=147
159 .REPT SPSIZ ;MODULE STACK STARTS HERE.

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160 .NLIST
161 .WORD 0
162 .LIST
163 .ENDR
164 000224'
165 MODSP:
166 ;*****

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```
167 000224 000000 TEMP1: .WORD 0 ;TEMPORARY STORAGE
168 000226 000000 TEMP2: .WORD 0 ;TEMPORARY STORAGE
169 000230 000000 TEMP3: .WORD 0 ;TEMPORARY STORAGE
170 000232 000000 CSR: .WORD 0 ;ADDRESS OF CSR = 171377
171 000234 000000 IAR: .WORD 0 ;ADDRESS OF IAR = 17136
172 000236 000000 INTFLG: .WORD 0 ;INTERRUPT OCCURED FLAG
173 000240 000000 CNT: .WORD 0 ;PASS COUNT
174 000242 000000 BASE: .WORD 0 ;ADDRESS 171000
175 000244 000000 VECT2: .WORD 0 ;SECCND ADDR OF VECTOR
176
177
178 000246 012767 000001 177644 START: MOV #1,INTR ; ONE INTERRUPT/ITERATION
179 000254 012767 000010 177632 MOV #8,@WDR0 ;8. WORDS TO MEM/ITERATION
180 000262 012767 000010 177626 MOV #8,@WDR ;8. WORDS FROM MEM/ITERATION
181 000270 005067 177744 CLR CNT ;CLEAR PASS COUNT
182 000274 012700 177506 RESTRT: MOV @R0,RO ;SET ADDRESS OF IAR = 171376
183 000276 012700 177730 MOV @R0,IAR
184 000304 005067 177720 INC RO,CSR ;SET ADDRESS OF CSR = 171377
185 000306 010067 177720 MOV RO,CSR
186 000312 042700 000377 BIC #377,RO ;SET ADDRESS OF THE LOWEST ID = 171000
187 000316 010067 177720 MOV RO,BASE
188
189
190 000322 012703 000033 177676 1S: MOV #9,*3,@R3 ;SET UP WAIT LOOP
191 000326 152777 000002 BISH #2,@CSR ;SET CBIT TO CLEAR CSR
192 000334 000240 000000 32S: NOP ;WAIT FOR CLEAR
193 000336 005303 DEC R3
194 000340 001375 BNE 32S
195 000342 127703 000044 177656 33S: MOV #12,*3,@R3 ;ANOTHER WAIT LOOP
196 000346 000240 000000 34S: BISH #2,@CSR
197 000356 005303 NOP
198 000360 001375 DEC R3
199 000362 001407 TSTB @CSR ;IS CSR CLEAR?
200 000370 117767 177636 MOVR @CSR,AWAS ;NO, SET BAD DATA FOR ERROR CALL
201 000376 005067 177504 CLR ASB ;SET GOOD DATA.
202
203
204 000402 104404 000000 ;*****
205 ;DATERS,BEGIN ;DATA ERROR!!!
206 ;*****
207
208
209 000406 152777 000001 177616 ;TEST GBIT
210 000414 132777 000001 BITB #1,@CSR ;SET BIT
211 000416 001017 BITB #1,@CSR ;IS IT SET
212 000424 117767 177502 MOVB @CSR,ACSR ;YES, GO TO 3S
213 000432 016767 177574 MOV @CSR,CSRA ;LOAD CONTENTS OF CSR FOR ERROR
214 000440 104403 000000 MSGNS,BEGIN,RIFNOT ;ASCII MESSAGE CALL WITH COMMON HEADER
215
216 000446 012767 000025 177432 MOV #25,ERRTYP ;BIT STUCK
217 ;*****
218 000454 104405 000000 000000 ;RIF BIT IS NOT SETTING
219 ;*****
220
221 000462 132777 000001 177542 3S: BITB #1,@CSR ;NOW RIF BIT SHOULD BE CLEAR
222 000470 001417 BEQ 4S ;YES GO TO 4S
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223 000472 117767 177534 177492 MOVR @CSR,ACSR
224 000500 016767 177392 MOV CSR,CSRA
225 000506 104403 000000 MSGNS,BEGIN,RIFCLR ;ASCII MESSAGE CALL WITH COMMON HEADER
226 000514 012767 000025 177364 MOVR #25,ERRTYP ;BIT STUCK
227 ;*****
228 000522 104405 000000 000000 ;RIF BIT IS NOT CLEARING
229 ;*****
230
231 000530 152777 000004 177474 4S: BISH #4,@CSR ;SET GBIT AT CSR
232 000536 132777 000004 BITB #4,@CSR ;TEST IF SET
233 000544 001017 BNE 5S ;YES, GO TO 5S
234 000546 117767 177460 MOVB @CSR,ACSR
235 000554 016767 177326 MOV @CSR,CSRA
236 000562 104403 000000 MSGNS,BEGIN,GBITS ;ASCII MESSAGE CALL WITH COMMON HEADER
237 000570 012767 000025 177310 MOVR #25,ERRTYP ;BIT STUCK
238 ;*****
239 000576 104405 000000 000000 ;GENERIC BIT IS NOT SETTING
240 ;*****
241
242 000604 142777 000004 177470 5S: BICB #4,@CSR ;CLEAR GBIT AT CSR
243 000612 132777 000004 BITB #4,@CSR ;TEST IF CLEAR
244 000620 001417 BEQ 6S ;YES, GO TO 6S
245 000622 117767 177404 MOVB @CSR,ACSR
246 000630 016767 177376 MOV @CSR,CSRA
247 000636 104403 000000 MSGNS,BEGIN,GBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
248 000644 012767 000025 177372 MOVR #25,ERRTYP ;BIT STUCK
249 ;*****
250 000652 104405 000000 000000 ;GENERIC BIT IS NOT CLEARING
251 ;*****
252
253 000660 152777 000020 177344 6S: BISH #20,@CSR ;SET DBIT AT CSR
254 000666 132777 000020 BITB #20,@CSR ;TEST IF SET
255 000674 001017 BNE 7S ;YES, GO TO 7S
256 000676 117767 177330 MOVB @CSR,ACSR
257 000704 016767 177322 MOV @CSR,CSRA
258 000712 104403 000000 MSGNS,BEGIN,DBITS ;ASCII MESSAGE CALL WITH COMMON HEADER
259 000720 012767 000025 177160 MOVR #25,ERRTYP ;BIT STUCK
260 ;*****
261 000726 104405 000000 000000 ;DBIT IS NOT SETTING
262 ;*****
263
264 000734 152777 000010 177270 7S: BISH #10,@CSR ;SET TBIT @CSR
265 000742 132777 000010 BITB #10,@CSR ;IS IT SET
266 000750 001017 BNE 8S ;YES, CONT.
267 000752 117767 177254 MOVB @CSR,ACSR
268 000760 016767 177246 MOV @CSR,CSRA
269 000766 104403 000000 MSGNS,BEGIN,TBITS ;ASCII MESSAGE CALL WITH COMMON HEADER
270 000774 012767 000025 177104 MOVR #25,ERRTYP ;BIT STUCK
271 ;*****
272 001002 104405 000000 000000 ;TBIT NOT SETTING
273 ;*****
274
275 001010 142777 000010 177214 8S: BICB #10,@CSR ;CLEAR TBIT
276 001016 132777 000010 BITB #10,@CSR ;IS IT CLEAR
277 001024 117767 177200 MOVB @CSR,ACSR ;YES, CONT
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270 001034 016767 177172 177036 MOV CSR,CSRA
280 001034 016767 000000 000000 MSGNS,BEGIN,EBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
290 001056 012767 000025 177030 MOV #25,ERRTYP ;BIT STUCK
300 001056 104405 000000 000000 HDRERS,BEGIN,NULL ;BIT NOT CLEARING
310 001064 012703 000025 177134 9S: MOV #7,*3,R3 ;SET UP WAIT LOOP
320 001070 142777 000020 177134 BICB #20,@CSR ;CLEAR DBIT
330 001076 000240 MOP ;WAIT FOR CSR
340 001100 005303 DEC R3
350 001102 001375 BNE #0,S
360 001104 132777 000020 177120 BTB #0,@CSR
370 001112 001420 BEQ #0,S
380 001114 001417 BEQ #0,S
390 001116 117767 177110 176756 MOVB @CSR,ACSR
400 001124 016767 177112 176746 MOV CSR,CSRA
410 001146 012767 000025 176746 MSGNS,BEGIN,EBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
420 001146 104405 000000 000000 MOV #25,ERRTYP ;BIT STUCK
430 001146 104405 000000 000000 HDRERS,BEGIN,NULL ;DBIT NOT CLEARING
440 001154 152777 000040 177050 10S: BISB #40,@CSR ;SET MBIT
450 001162 132777 000040 177042 BITB #40,@CSR ;IS IT SET
460 001170 001417 BNE #1,S
470 001172 117767 177034 176702 MOVB @CSR,ACSR ;NO
480 001200 016767 176760 176678 MOV CSR,CSRA
490 001214 012767 000025 176664 MSGNS,BEGIN,MBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
500 001214 012767 000025 176664 MOV #25,ERRTYP ;BIT STUCK
510 001222 104405 000000 000000 HDRERS,BEGIN,NULL ;MAINTENANCE BIT IS NOT SETTING
520 001230 142777 000040 176774 11S: BICB #40,@CSR ;CLEAR MBIT
530 001236 132777 000040 176766 BITB #40,@CSR ;IS IT CLEAR
540 001244 001417 BEQ #0,S
550 001246 117767 176760 176678 MOVB @CSR,ACSR ;NO
560 001252 016767 176760 176678 MOV CSR,CSRA
570 001262 012767 000025 176610 MSGNS,BEGIN,MBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
580 001262 104405 000025 176610 MOV #25,ERRTYP ;BIT STUCK
590 001262 104405 000000 000000 HDRERS,BEGIN,NULL ;MAINTENANCE BIT IS NOT CLEARING
600 001304 152777 000100 176720 12S: BISB #100,@CSR ;SET EBIT
610 001312 132777 000100 176712 BITB #100,@CSR ;IS EBIT SET
620 001320 001017 BNE #1,S
630 001322 117767 176704 176552 MOVB @CSR,ACSR ;NO
640 001330 016767 176760 176466 MOV CSR,CSRA
650 001344 012767 000025 176534 MSGNS,BEGIN,EBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
660 001344 012767 000025 176534 MOV #25,ERRTYP ;BIT STUCK
670 001352 104405 000000 000000 HDRERS,BEGIN,NULL ;INTERRUPT ENABLE BIT IS NOT SETTING

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335 001360 142777 000100 176644 13S: BICB #100,@CSR ;CLEAR EBIT
340 001366 132777 000100 176636 BITB #100,@CSR ;IS EBIT CLEAR
350 001374 001417 BEQ #0,S
360 001376 117767 176630 176476 MOVB @CSR,ACSR ;NO
370 001412 016767 176672 176466 MOV CSR,CSRA
380 001412 016767 000025 176430 MSGNS,BEGIN,EBITC ;ASCII MESSAGE CALL WITH COMMON HEADER
390 001420 012767 000025 176460 MOV #25,ERRTYP ;BIT STUCK
400 001426 104405 000000 000000 HDRERS,BEGIN,NULL ;INTERRUPT ENABLE BIT IS NOT CLEARING
410 001434 112777 000040 176570 14S: MOVB #40,@CSR ;SET MBIT
420 001442 016702 176574 MOV BASE,R2
430 001446 000000 CLR R0
440 001450 000000 CLR R1
450 001452 152777 000001 176552 15S: BISB #1,@CSR ;SET RIF BIT
460 001460 112201 177400 MOVB (R2)+R1 ;READ ADDRESS 171000+R0 AND
470 001462 042701 BIC #177400,R1 ;LOAD CONTENTS INTO R1
480 001466 020001 CMP R0,R1 ;R1 SHOULD BE EQUAL R2
490 001470 001416 BEQ #0,S ;YES
500 001472 010067 176410 MOV R0,ASB ;NO, SAVE GOOD DATA
510 001476 010167 176406 MOV R1,AWAS ;SAVE BAD DATA
520 001502 016767 176384 176372 MOV BASE,ACSR ;SAVE ADDRESS
530 001510 150767 176386 BITB #0,@CSR
540 001514 016767 176512 176356 MOV CSR,CSRA
550 001522 104404 000000 000000 HDRERS,BEGIN ;DATA ERROR!!!
560 001526 005200 INC R0 ;GO TO NEXT ADDRESS
570 001530 127400 000376 16S: CMPB #376,R0 ;IS IT LAST ONE
580 001534 001346 BNE #1,S ;NO, DO IT AGAIN
590 001542 000000 ;THIS TEST WILL CHECK ALL ADDRESSES WITH MBIT SET
600 001544 000000 ;THIS TEST CHECKS MAINTENANCE INTERRUPT
610 001546 000000 ;IF MBIT EBIT ARE SET ICM GENERATES
620 001548 000000 ;INTERRUPT AT ADDRESS 234 AND IAR HAS
630 001550 000000 ;UPPER BYTE OF CSR ADDRESS (377)
640 001552 000000
650 001554 000000
660 001556 000000
670 001558 000000
680 001560 000000
690 001562 000000
700 001564 000000
710 001566 000000
720 001568 000000
730 001570 000000
740 001572 000000
750 001574 000000
760 001576 000000
770 001578 000000
780 001580 000000
790 001582 000000
800 001584 000000
810 001586 000000
820 001588 000000
830 001590 000000
840 001592 000000
850 001594 000000
860 001596 000000
870 001598 000000
880 001600 000000
890 001602 000000
900 001604 000000
910 001606 000000
920 001608 000000
930 001610 000000
940 001612 000000
950 001614 000000
960 001616 000000
970 001618 000000
980 001620 000000
990 001622 000000

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391 001630 001366 BNE 1R$ ;NO, LOOP TO BREAK
392
393 001632 117767 176374 176242 MOV# @CSR,ACSR
394 001640 016767 076366 176234 MOV# CSR,CSRA ;ASCII MESSAGE CALL WITH COMMON HEADER
395 001648 044403 076366 076234 MSGNS,BEGIN,NOINT ;NO INTERRUPT
396 001654 012767 000023 176224 MOV# #2$,ERRTYP *****
397 *****
398 001662 104405 000000 000000 HDRRS,BEGIN,NULL ;NO INTERRUPT
399 *****
400
401 001670 000444 BR 22$
402
403 001672 142777 000100 176332 20$: BICB #100,@CSR ;CLEAR INTERRUPT ENABLE
404 001700 005267 176332 INC INTFLG ;GET INTERRUPT FLAG
405 001704 000002 RTI
406
407 001706 152777 000001 176316 21$: BISR #1,@CSR ;SET RIF BIT
408 001714 117700 176314 MOV# @IAR,R0 ;CHECK IF IAR = 377
409 001720 122700 000377 CMPR #377,R0
410 001724 001426 BEQ 22$ ;YES, GO TO END
411 001728 110087 176156 MOV# R0,@AS ;NO, SAVE BAD DATA
412 001732 000377 176146 MOV# #377,ASB ; SAVE GOOD DATA
413 001740 012767 176270 176134 MOV# @IAR,@CSRA ; SAVE ADDRESS
414 001746 016767 176262 176124 MOV# @IAR,CSRA
415 001754 044403 000000 002140 MSGNS,BEGIN,IARERR ;ASCII MESSAGE CALL WITH COMMON HEADER
416 001762 012767 000001 176118 MOV# #1,ERRTYP ;DATA ERROR
417 *****
418 001770 104405 000000 000000 HDRRS,BEGIN,NULL ;WRONG DATA IN IAR AFTER INTERRUPT
419 *****
420 *****
421 001776 104404 000000 DATERS,BEGIN ;DATA ERROR!!!
422 *****
423
424 002002 012703 000041 22$: MOV #11,*3,R3 ;SET UP WAIT LOOP
425 002006 152777 000002 176216 BISR #2,@CSR ;CLEAR CSR
426 002014 000240 NOP ;WAIT
427 002018 005303 DEC R3
428 002022 001375 BNE 60$
429 002026 012703 000036 176176 MOV #10,*3,R3 ;WAIT SOME MORE
430 002028 152777 000002 BISR #2,@CSR ;SET UP ANOTHER LOOP
431 002034 000240 NOP ;CLEAR AGAIN
432 002038 005303 DEC R3
433 002042 001375 BNE 23$
434
435 002042 104413 000000 ENDIRS,BEGIN ;SIGNAL END OF ITERATION.
436 ;MONITOR SHALL TEST END OF PASS
437
438 002046 000167 176222 JMP RESTRT
439 002052 104410 000000 FINI: ENDS,BEGIN ;
440
441 .EVEN
442
443 002056 002144 RIFNOT: MES1
444 002060 177777 177777
445
446

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447 002062 002173 RIFCLR: MES2
448 002064 177777 177777
449
450 002066 002223 GBITS: MES3
451 002070 177777 177777
452
453 002072 002263 GBITC: MES4
454 002074 177777 177777
455
456 002076 002324 DBITS: MES5
457 002100 177777 177777
458
459 002102 002350 TBITS: MES6
460 002104 177777 177777
461
462 002106 002374 TBITC: MES7
463 002110 177777 177777
464
465 002112 002421 DBITC: MES8
466
467 002114 002446 MBITS: MES9
468 002116 177777 177777
469
470 002120 002472 MBITC: MES10
471 002122 177777 177777
472
473 002124 002517 EBITS: MES11
474 002128 177777 177777
475
476 002130 002563 EBITC: MES12
477 002132 177777 177777
478
479 002134 002630 NOINT: MES13
480 002136 177777 177777
481
482 002140 002666 IARERR: MES14
483 002142 177777 177777
484
485 002144 044522 020106 044502 MES1: .ASCIZ "RIF BIT IS NOT SETTING"
486 002152 020124 051511 047040
487 002160 052177 051440 052105
488 002166 044524 043516 000
489 002170 177777 043111 041040
490 002200 052111 044440 020123
491 002206 047516 020124 046103
492 002214 040505 044522 043516
493 002224 000
494 002230 000
495 002236 041511 041440 041117 MES3: .ASCIZ "GENERIC CODE BIT IS NOT SETTING"
496 002238 020105 044502 020124
497 002244 051511 047040 052117
498 002250 051440 052105 044524
499 002256 043516 000
500 002260 000
501 002270 041511 047105 051105 MES4: .ASCIZ "GENERIC CODE BIT IS NOT CLEARING"
502 002276 020105 044502 020124

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GETPAS = 104415	166#																			
GMBUF = 104414	166#																			
HRDCNT = 000044R	133#	218	228	239	250	261	272	283	299	310	321	332	343							
HRDRS = 104405	398#	418																		
HRDPAS = 000050R	133#																			
IAR = 000230R	172#	193*	408	413	414															
IARERR = 002140R	415#	482#																		
ICOUNT = 000036R	158#																			
IDNUM = 000120R	158#																			
INTL = 000030R	125#																			
INTFLG = 000236R	173#	380*	388	404*																
INTR = 000120R	157#	178*																		
MB22 = 104426	166#																			
MBITC = 002120R	318	470#																		
MBITS = 002114R	307	467#																		
MBOS1 = 002144R	443	485#																		
MBOS10 = 002379R	470	506#																		
MBOS11 = 002517R	470	506#																		
MBOS12 = 002563R	476	507#																		
MBOS13 = 002630R	479	504#																		
MBOS14 = 002666R	482	509#																		
MBOS2 = 002173R	447	489#																		
MBOS3 = 002223R	450	494#																		
MBOS4 = 002273R	450	494#																		
MBOS5 = 002324R	456	506#																		
MBOS6 = 002350R	459	510#																		
MBOS7 = 002374R	462	514#																		
MBOS8 = 002428R	469	522#																		
MBOS9 = 002448R	469	522#																		
MDDNAM = 000000R	112#																			
MDDSP = 000224R	126	164#																		
MSGNS = 104463	166#	415	225	236	247	258	269	280	296	307	318	329	340							
MSGSS = 104402	166#																			
MSGSS1 = 104401	166#																			
NOINT = 002134R	395	479#																		
NULL = 000000	166#	418	228	239	250	261	272	283	299	310	321	332	343							
OPEN = 000000	398	418																		
OTAS = 104420	113	152	128	121	122	126	128	137	141	142	143	144	145	146						
PASCNT = 000034R	166#																			
PIRQS = 000004	166#																			
POSP = 000572	166#																			
POSP2 = 000572	166#																			
POSP3 = 000606	166#																			
PRTVO = 000000	116		117	166#																
PRTV1 = 000040	166#																			
PRTV2 = 000100	166#																			
PRTV3 = 000140	166#																			
PRTV4 = 000140	166#																			
PRTV5 = 000140	166#																			
PRTV6 = 000300	166#																			
PRTV7 = 000340	166#																			

PS = 177776	166#																			
PSW = 177776	166#																			
PUSH = 005746	166#																			
PUSH2 = 024546	166#																			
RANDS = 104417	166#																			
RANNUM = 000054R	135#	182#	437																	
RESTRT = 000074R	137#																			
RES1 = 000056R	138#																			
RES2 = 000060R	138#																			
RIFCLR = 002062R	225	447#																		
RIFNDT = 002056R	214	443#																		
RSTRRT = 000104R	127#																			
SADRR = 000104R	127#																			
SOPCNT = 000042R	130#																			
SOPERS = 104406	166#																			
SOPPAS = 000046R	132#																			
SPOINT = 000032R	126	159																		
SPSIZ = 000040	119																			
SR1 = 000016R	119																			
SR2 = 000020R	120																			
SR3 = 000022R	121																			
SR4 = 000024R	122																			
SR4ART = 000246R	154	178#																		
SRT = 000246R	154																			
SVR0 = 000062R	139																			
SVR1 = 000064R	140																			
SVR2 = 000066R	141																			
SVR3 = 000070R	142																			
SVR4 = 000074R	142																			
SVR5 = 000074R	142																			
SVR6 = 000076R	145																			
SYSCNT = 000052R	134																			
TBITC = 002106R	280	462#																		
TBITS = 002102R	269	459#																		
TEMP1 = 000224R	168#	381*	390*																	
TEMP2 = 000226R	169																			
TEMP3 = 000230R	170																			
TRPDFD = 000022	166#																			
VECTOR = 000010R	115	376*	377	378*	379*															

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CROSS REFERENCE TABLE -- USER SYMROLS

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