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Title:

Testprogram for Front Processor Adapter FPA 100

Keywords:

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Abstract:

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1      U 00000
1      U 00000 R.   F127,6127          JRC3500 FPA TEST PROGRAM
2      U 00000 W.   JVOLKER RAAR 15.2.76
3      U 00000
3      U 00000 FU=6 ;INITERNOR
4      U 00000 JGD  ;RESTART ENTRY
5      U 00000
5      U 00000 ;MEMORY LAYOUT OCTAL ADDRESSES
6      U 00000 ;LOCATION COMMENT
7      U 00000 ; 0 RUNMODE
8      U 00000 ; 2 (RECEIVERLEVELNO OR ZERO)<B+RECEIVERDEVICENO
9      U 00000 ; 4 (TRANSMITLEVELNO OR ZERO)<B+TRANSMITDEVICENO
10     U 00000 ; 6 AUTOLOAD STOP,PARAMETER- AND SYSTEMERROR
11     U 00000 ; 10 FAULTSTOP1 - READSTATUS ON RECEIVER
12     U 00000 ; 12 FAULTSTOP2 - READSTATUS ON TRANSMIT
13     U 00000 ; 14 FAULTSTOP3 - WRITECONTROL RESET ON RECEIVER
14     U 00000 ; 16 FAULTSTOP4 - WRITECONTROL RESET ON TRANSMIT
15     U 00000 ; 20 FAULTSTOP5 - WRITECONTROL AUTOLOAD ON RECEIVER
16     U 00000 ; 22 FAULTSTOP6 - WRITECONTROL AUTOLOAD ON TRANSMIT
17     U 00000 ; 24 FAULTSTOP7 - READWORD ON RECEIVER , WAIT FOR TIMEOUT
18     U 00000 ; 26 FAULTSTOP8 - READWORD ON TRANSMIT , WAIT FOR TIMEOUT
19     U 00000 ; 30 FAULTSTOP9 - READWORD ON RECEIVER , CHECK STARTREAD
20     U 00000 ; 32 FAULTSTOP10- READWORD ON TRANSMIT , CHECK STARTREAD
21     U 00000 ; 34 FAULTSTOP11- WRITEWORD ON RECEIVER , READWORD ON TRANSMIT
22     U 00000 ; 36 FAULTSTOP12- WRITEWORD ON TRANSMIT , READWORD ON RECEIVER
23     U 00000 ; 40 FAULTSTOP13- WRITEWORD ON RECEIVER , READWORD ON TRANSMIT
24     U 00000 ; 42 FAULTSTOP14- WRITEWORD ON TRANSMIT , READWORD ON RECEIVER
25     U 00000 ; 44 FAULTSTOP15- WRITELOCK ON RECEIVER , READLOCK ON TRANSMIT
26     U 00000 ; 46 FAULTSTOP16- WRITELOCK ON TRANSMIT , READLOCK ON RECEIVER
27     U 00000 ; 400 GLOBAL RESTART ENTRY TO BE USED AFTER ANY STOP OF THE PROGRAM
28     U 00000 ; ON ANY LEVEL
29     U 00000
29     U 00000 ;WARNING
30     U 00000
30     U 00000 ;THIS VERSION CAN ONLY PERFORM ALL TESTS IN SEQUENCE
31     U 00000 ;AND EITHER HALT WHENEVER AN ERROR OCCURS
32     U 00000 ;OR CONTINUE REGARDLESS OF ALL OCCURING ERRORS
33     U 00000 ;SOME BUT FAR FROM ALL SINGLE TESTS MAY BE EXECUTED ALONE
34     U 00000 ;AFTER REPEATED EXECUTION OF A SINGLE TEST THE INTERNAL
35     U 00000 ;STATUS OF THE HARDWARE INTERFACE MAY BE UNDEFINED
36     U 00000
36     U 00000 ;DESCRIPTION
37     U 00000
37     U 00000 ;RUNMODE LOCATION 0
38     U 00000
38     U 00000 ;RUNMODE DENOTES THE ACTUAL TEST THAT SHOULD BE CONDUCTED
39     U 00000 ;RUNMODE EQUAL TO ZERO DENOTES THAT ALL TEST SHOULD BE CONDUCTED
40     U 00000 ;AFTER COMPLETION OF THE LAST TEST THE FIRST TEST WILL BE RESTARTED
41     U 00000 ;RUNMODES OTHER THAN ZERO DENOTE WHAT SPECIFIC TEST WILL BE STARTED
42     U 00000 ;RUNMODE SHOULD BE EQUAL TO THE ADDRESS FOR THE FAULTSTOP FOR THAT TEST
43     U 00000 ;IF THE LAST BIT (1<U) IS SET THE SELECTED TEST WILL BE REPEATED
44     U 00000

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44 0 00000
44 0 00000 ;DEVICENUMBERS
45 0 00000
45 0 00000 ;THE DEVICE AND LEVELNUMBERS ARE SPECIFIED IN LOCATION 2 AND 4
46 0 00000 ;IF THE LEVELNUMBER EQUALS THE DEVICENUMBER IT MAY BE OMITTED
47 0 00000 ;THE CHANNEL CORRESPONDING TO THE DEVICENUMBER IN LOCATION 2
48 0 00000 ;IS CALLED RECEIVER , THE CHANNEL CORRESPONDING TO THE DEVICENUMBER
49 0 00000 ;IN LOCATION 4 IS CALLED TRANSMIT
50 0 00000
50 0 00000 ;SWITCHES
51 0 00000
51 0 00000 ;THE SWITCHES ARE READ AFTER EXECUTION OF ANY SINGLE TEST
52 0 00000 ;IF THE SWITCHES DIFFER FROM ZERO THE PROGRAM HALTS EXECUTION
53 0 00000 ;WHENEVER AN ERROR IS MET
54 0 00000 ;IF THE SWITCHES ARE NEGATIVE , E. G. BIT 0 (1<15) IS UP ,THE PROGRAM
55 0 00000 ;WILL WAIT FOR THE SWITCHES TO BECOME NONNEGATIVE (ZERO OR POSITIVE
56 0 00000 ;AND SELECT THE NEXT RUNMODE BY UPDATING LOCATION 0 WITH 2
57 0 00000 ;KEEPING THE ORIGINAL REPEATBIT BIT 15 (1<0)
58 0 00000
58 0 00000 ;FAULTSTOPS
59 0 00000
59 0 00000 ;EACH TEST HAS ITS OWN SPECIFIC FAULTSTOPADDRESS
60 0 00000 ;IF A FAULT OCCURS AND THE SWITCHES DIFFER FROM ZERO THE PROGRAM WILL
61 0 00000 ;HALT AT THE FAULTSTOPADDRESS FOR THE JUST EXECUTED SPECIFIC TEST
62 0 00000 ;THE FAULTSTOPADDRESS IS EQUALLY USED AS A RESTART ADDRESS WHEN
63 0 00000 ;ENTERED IN LOCATION 0
64 0 00000
64 0 00000 ;REGISTER CONTENTS ON ERROR HALT
65 0 00000
65 0 00000 ;ON ANY HALT AT A FAULTSTOPADDRESS THE REGISTERS OF LEVEL 0 WILL CONTAIN
66 0 00000 ;W0: FAULTSTOPADDRESS FOR THE TEST THAT ENCOUNTERED AN ERROR
67 0 00000 ;W1: EXPECTED STATUS < 8 + RECEIVED STATUS FOR RECEIVER
68 0 00000 ;W2: EXPECTED STATUS < 8 + RECEIVED STATUS FOR TRANSMIT
69 0 00000 ;W3: RECEIVER CHARACTER < 8 + TRANSMIT CHARACTER
70 0 00000 ;ALL ZERO IN A REGISTER MAY DENOTE THAT NO CHECK WAS PERFORMED
71 0 00000 ;ALL ONES IN REGISTER W1 AND W2 ( AND W3 ) DENOTES A PROGRAMMED TIME
72 0 00000 ;
73 0 00000 ;NOTE:
74 0 00000
74 0 00000 ;AFTER ANY STOP THE PROGRAM SHOULD BE RESTARTED AT LOCATION 0.400
75 0 00000 ;FAULTSTOPADDRESS 0 INDICATES A PARAMETER ERROR IN LOCATION 0 TO
76 0 00000 ;THE STATUSBITS RECEIVER BLOCKEND AND TRANSMIT BLOCKEND OCCURRING
77 0 00000 ;INDICATE THAT THE CORRESPONDING HARDWARE STATUSBITS OCCURRED IN A
78 0 00000 ;WRONG CONTEXT ( MISSING WHEN EXPECTED OR PRESENT WHEN UNEXPECTED )
79 0 00000
79 0 00000 ;HARDWARE
80 0 00000
80 0 00000 ;THE RC500 MUST BE EQUIPPED WITH A FPA101 INTERFACE AND A CABLE
81 0 00000 ;CONNECTING THE FPA101 RECEIVER TO THE FPA101 TRANSMITTER
82 0 00000

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82 0 00000
82 0 00000 B. M15,112,J23 ;MINIMONITOR
83 0 00000 ;THE MINIMONITOR SIMULATES SOME OF THE NORMAL MONITORFUNCTIONS AND
84 0 00000 ;IT USES THE FOLLOWING MONITOR NAMES : M0,M2,M5,M8,M9,M14,M15
85 0 00000 ;THE MINIMONITOR ALLOWS THE USE OF NORMAL HIGHLEVEL DRIVERS AND EACH
86 0 00000 ;ONE MONITORLEVEL COROUTINE (WITHOUT NORMAL COROUTINE DESCRIPTION)
87 0 00000 ;IT FURTHERMORE INCLUDES A SIMPEL TIMER AND INTERRUPTER
88 0 00000 ;THE MINIMONITOR USES THE FOLLOWING TWO PREDEFINED EXITS:
89 0 00000 ;FU EXIT AFTER AUTOLOAD ACTION
90 0 00000 ;GU EXIT AFTER MONITOR RESET ACTION , E.G. AFTER RESTART
91 0 00000 ;THE MONITOR AUTOLOAD ACTION ASSUMES THAT ALL LEVELS ARE STOPPED BY
92 0 00000 ;AUTOLOAD PROGRAM. IT WILL THEN SET A HALT INSTRUCTION INTO ANY UNISE
93 0 00000 ;MEMORY LOCATION FROM M15 TO 8.400, STORE ALL ZEROPS INTO LOCATION
94 0 00000 ;ZERO AND ALL ONES INTO LOCATION 2 UPTO LOCATION FU AND FINALLY J34
95 0 00000 ;LOCATION F0
96 0 00000 ;THE MONITOR RESET ACTION WILL CLEAR ALL INTERRUPT LEVELS AND RESET
97 0 00000 ;INTERRUPTER AND THE TIMER
98 0 00000 W.
99 0 00000
99 0 00000 B. 87 ;MINIMONITOR PROGRAM BLCK
100 0 00000 W.
101 0 00000
101 0 00000 K=256
102 256 00400
102 256 00400 ILD W1 D X1 0 ;
103 258 00402 LDR W0 I 80 ; GOTO GLOBAL ENTRY
104 262 00406
104 262 00406 J0=0
105 262 00406 J1=31
106 262 00406 J11=1
107 262 00406 J12=0
108 262 00406
108 262 00406 J10=0
109 262 00406 J11=2
110 262 00406 J12=4
111 262 00406 J14=6
112 262 00406 J16=8
113 262 00406 J13=10
114 262 00406 J15=12
115 262 00406
115 262 00406 J23=-2
116 262 00406 J20=0
117 262 00406 J21=2
118 262 00406 J22=4
119 262 00406

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119 262 00406
119 262 00406 B. A2 ;AUTOLOAD AND RESET ENTRIES
120 262 00406 W.
121 262 00406
121 262 00406 BU: ;AUTOLOAD ENTRY:
122 262 00406 LDR W1 I A0 ; GET RESETENTRY:
123 266 00412 STR W1 BU-2 ; SET RESTARTSWITCH
124 270 00416 LDR W1 B5 ; GET HALTINSTRUCTION
125 274 00422 LDR W2 I H15 ; GET PROGRAM TOP
126 278 00426 LDR W3 I 256 ; GET PROGRAM START
127 282 00432 A1: ; SET ALL UNUSED WORDS TO HALTING PR
128 282 00432 STR W1 N X2 0 ;
129 284 00434 HEW W2 IN X3 0 ;A1 ;
130 288 00440 LDR W1 I -1 ; GET ALL ONES
131 290 00442 LDR W2 I 0 ; GET PARAMETER AREA START
132 292 00444 LDR W3 I FO ; GET PARAMETER AREA TOP
133 294 00446 A2: ; SET ALL PARAMETERS TO ALL ONES
134 294 00446 STR W1 N X2 0 ;
135 296 00450 HEW W2 IN X3 0 ;A2 ;
136 300 00454 LDR W1 I 0 ;
137 302 00456 STR W1 0 ; SET RUNMODE
138 304 00460 LDR W1 I FO ;
139 306 00462 IST W1 S XU 10 ; STOP LEVEL 10
140 308 00464 LCE W0 I B4 ; GOTO LEVELHALT
141 312 00470
141 312 00470 AU: ;RESETENTRY:
142 312 00470 LDR W1 I H7 ; GET RESETACTION
143 316 00474 IST W1 S XU 11 ; START MONITORLEVEL AT RESETACTION
144 318 00476 LCE W0 I K ; GOTO RESETACTION
145 322 00502 E.
146 322 00502

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146 322 00502
146 322 00502 B. A1 ;I1 LEVEL
147 322 00502 W.
148 322 00502
148 322 00502 B1: ;WAIT INTERUPT:
149 322 00502 LDR W2 X1 J11 ;
150 324 00504 LDR W3 I 0 ;
151 326 00506 STR W3 X1 J10 ;
152 328 00510 LDR W3 X2 J20 ;
153 330 00512 BSZ W3 I -2 ,A0 ;
154 334 00516 STI W1 X2 J21 ;
155 336 00520 STR W1 X2 J21 ;
156 338 00522 LCE W0 I B1 ;
157 342 00526 AU: ;NOOP:
158 342 00526 BEW W5 I 0 ,A1 ;
159 346 00532 LDR W3 I 0 ;
160 348 00534 STR W3 X2 J20 ;
161 350 00536 STR W2 X2 J21 ;
162 352 00540 LDR W3 I H5 ;
163 356 00544 IST W1 X2 I0 ;
164 358 00546 IST W3 XU I0 ;
165 360 00550 A1: ;
166 360 00550 STR W1 X2 J20 ;
167 362 00552 STR W1 X2 J21 ;
168 364 00554 LCE W0 I B1 ;
169 368 00560
169 368 00560 E.
170 368 00560

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170 368 00560
170 368 00560 B. A0 ;SIGNAL
171 368 00560 W.
172 368 00560
172 368 00560 H0: ;
173 368 00560 STR W3 B2 ;
174 372 00564 ILD W3 D X3 I0 ;
175 374 00566 LDR W3 I 0 ;
176 376 00570 STR W3 X2 J10 ;
177 378 00572 LDR W3 X1 J20 ;
178 380 00574 BSZ W3 I -2 ,A0 ;
179 384 00600 STI W2 X1 J21 ;
180 386 00602 STR W2 X1 J21 ;
181 388 00604 LCE W0 I H5 ;
182 392 00610 AU: ;NOOP:
183 392 00610 STR W2 X1 J20 ;
184 394 00612 STR W2 X1 J21 ;
185 396 00614 BEW W3 I 0 ,H5 ;
186 400 00620 LCE W0 X1 J22 ;
187 402 00622
187 402 00622 H5: ;
188 402 00622 LDR W3 H10 ;
189 406 00626 LCE W0 B2 ;
190 410 00632
190 410 00632 B2: 0 ;
191 412 00634 H10: 0 ;
192 414 00636
192 414 00636 E.
193 414 00636

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82 0 00000
82 0 00000 B. M15,112,J23 ;MINIMONITOR
83 0 00000 ;THE MINIMONITOR SIMULATES SOME OF THE NORMAL MONITORFUNCTIONS AND
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96 0 00000 ;THE MONITOR RESET ACTION WILL CLEAR ALL INTERRUPT LEVELS AND RESET
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98 0 00000 W.
99 0 00000
99 0 00000 B. 87 ;MINIMONITOR PROGRAM BLCK
100 0 00000 W.
101 0 00000
101 0 00000 K=256
102 256 00400
102 256 00400 ILD W1 D X1 0 ;
103 258 00402 LDR W0 I BU ; GOTO GLOBAL ENTRY
104 262 00406
104 262 00406 I0=0
105 262 00406 I1=31
106 262 00406 I11=1
107 262 00406 I12=0
108 262 00406
108 262 00406 J10=0
109 262 00406 J11=2
110 262 00406 J12=4
111 262 00406 J14=6
112 262 00406 J16=8
113 262 00406 J13=10
114 262 00406 J15=12
115 262 00406
115 262 00406 J23=-2
116 262 00406 J20=0
117 262 00406 J21=2
118 262 00406 J22=4
119 262 00406

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119 262 00406
119 262 00406 B. A2 ;AUTOLOAD AND RESET ENTRIES
120 262 00406 W.
121 262 00406
121 262 00406 BU: ;AUTOLOAD ENTRY:
122 262 00406 LDR W1 I A0 ; GET RESETENTRY:
123 266 00412 STR W1 BU-2 ; SET RESTARTSWITCH
124 270 00416 LDR W1 B5 ; GET HALTINSTRUCTION
125 274 00422 LDR W2 I H15 ; GET PROGRAM TOP
126 278 00426 LDR W3 I 256 ; GET PROGRAM START
127 282 00432 A1: ; SET ALL UNUSED WORDS TO HALTINGPRU
128 282 00432 STR W1 N X2 0 ;
129 284 00434 HEW W2 IN X3 0 ;A1 ;
130 288 00440 LDR W1 I -1 ; GET ALL ONES
131 290 00442 LDR W2 I 0 ; GET PARAMETER AREA START
132 292 00444 LDR W3 I F0 ; GET PARAMETER AREA TOP
133 294 00446 A2: ; SET ALL PARAMETERS TO ALL ONES
134 294 00446 STR W1 N X2 0 ;
135 296 00450 HEW W2 IN X3 0 ;A2 ;
136 300 00454 LDR W1 I 0 ;
137 302 00456 STM W1 0 ; SET RUNMODE
138 304 00460 LDR W1 I F0 ;
139 306 00462 IST W1 S XU I0 ; STOP LEVEL I0
140 308 00464 LCE W0 I B4 ; GOTO LEVELHALT
141 312 00470
141 312 00470 AU: ;RESETENTRY:
142 312 00470 LDR W1 I H7 ; GET RESETACTION
143 316 00474 IST W1 S XU I1 ; START MONITORLEVEL AT RESETACTION
144 318 00476 LCE W0 I K ; GOTO RESETACTION
145 322 00502 E.
145 322 00502
146 322 00502

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191 414 00630      A1          ;WAIT
193 414 00630      w.
194 414 00630      H2:
195 414 00630      ;
196 414 00630      STR  W3      B2      ;
197 418 00642      ILD  W2 0    X2 10    ;DISABLE
198 420 00644      LDR  W2      X1 J20    ;
199 422 00646      BSZ  W2 1    -2      ,A0  ;
200 426 00652      LDR  W3      X2 J10    ;
201 428 00654      STR  W3      X1 J20    ;
202 430 00656      LCF  W0 1          H5      ;
203 434 00662      AU:
204 434 00662      BEW  W2 1      1      ,A0  ; NOOP: IF SEMAPHORE STOPPED THEN USER DRF
205 438 00666      LDR  W2 1      1          ;
206 440 00670      STR  W2      X1 J20    ;
207 442 00672      A1:
208 442 00672      LCF  W0 1          A1      ; DUMMY LOOP:
209 446 00676      HB:
210 446 00676      STR  W3      B2      ;
211 450 00702      ILD  W3 0    X3 10    ;
212 452 00704      LDR  W3      X2 J20    ;
213 454 00706      BSZ  W3 1    -2      ,M9  ;
214 458 00712      LCF  W0      X2 J25    ;
215 460 00714      H9:
216 460 00714      LDR  W3      B2      ;
217 464 00720      LCF  W0 1          H2      ;
218 468 00724      E.
218 468 00724
219 468 00724

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219 468 00724
219 468 00724 H. A4 ;TIMER
220 468 00724 W.
221 468 00724
221 468 00724 A4
222 470 00726 H14: 1,0,A0 ;SEMAPHORE
223 476 00734
223 476 00734 AU: ;
224 476 00734 LDR W1 I A1 ;
225 480 00740 IST W1 S X0 I11 ;
226 482 00742 LDR W0 I H5 ;
227 486 00746 A1: ;
228 486 00746 LDR W2 H14 ;
229 490 00752 LCE W1 X2 J12 ;
230 492 00754 A2: ;
231 492 00754 ADD W1 I 1<I12 ;
232 494 00756 BEW W1 I 0 ,A3 ;
233 498 00762 LCE W0 I A2 ;
234 502 00766 A3: ;
235 502 00766 LDR W2 H14 ;
236 506 00772 HSZ W2 I -2 ,B3 ;
237 510 00776 IST W2 S X1 I1 ;
238 512 01000 B3: ;
239 512 01000 LDR W1 I 1 ;
240 514 01002 STR W1 H14 ;
241 518 01006 LCE W0 I K ;
242 522 01012 A4: ;
243 522 01012 LDR W3 I A3 ;
244 526 01016 IST W3 S X0 I11 ;
245 528 01020 LDR W0 I H9 ;
246 532 01024
246 532 01024 E.
247 532 01024

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247 532 01024
247 532 01024 B. A2 ;RESETACTION
248 532 01024 W.
249 532 01024
249 532 01024 B4: LCE W0 I K ;CLEAR INSTRUCTION
250 536 01030 B5: SUB A W0 I 2 ;HALT INSTRUCTION
251 538 01032 B6: IST W1 XU 0 ;SET LEVEL INSTRUCTION
252 540 01034 A2: LCE W0 I B1 ;
253 544 01040 B7: ;RESETACTION:
254 544 01040 LDR W1 I B4 ; GET CLEAR INSTRUCTION
255 548 01044 LDR W2 I 0 ;
256 550 01046 LDR W3 B6 ;
257 554 01052 A0: ;CLEAR ALL INTERRUPT LEVELS
258 554 01052 ADD W2 I 1 ;
259 556 01054 ADD W3 I 1 ;
260 558 01056 STR W3 A1 ;
261 562 01062 A1: IST W1 XU 0 ;
262 564 01064 HLW W2 I 30 ,A0 ;
263 568 01070 LDR W2 I A2 ;
264 572 01074 LDR W3 I H15 ;
265 576 01100 LDR W1 N X2 0
266 578 01102 STR W1 N X3 0
267 580 01104 LDR W1 X2 0
268 582 01106 STR W1 X3 0
269 584 01110 LDR W1 I .G0
270 588 01114 IST W1 XU I0 ;
271 590 01116 LDR W1 I B3 ;
272 594 01122 IST W1 S XU I11 ;
273 596 01124
273 596 01124 E.
274 596 01124 E.
275 596 01124

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275 596 01124
275 596 01124 H. E4 ;PARAMETER DEFINITIONS
276 596 01124 W.
277 596 01124
277 596 01124 EU=U ;RUNMODE
278 596 01124 E1=2 ;RECEIVER LEVEL
279 596 01124 E2=3 ;RECEIVER DEVNO
280 596 01124 E3=4 ;TRANSMITTER LEVNO
281 596 01124 E4=5 ;TRANSMITTER DEVNO
282 596 01124
282 596 01124 H. A8 ;RESETENTRY
283 596 01124 W.
284 596 01124
284 596 01124 LDR W1 I 0 ;
285 598 01126 LDR W2 I F1 ;
286 602 01132 STR W1 X2 J20 ;
287 604 01134 STR W2 X2 J21 ;
288 606 01136 LDR W2 I F1 ;
289 608 01140 LDR W3 I F0 ;
290 610 01142 AU: ;
291 610 01142 LDB W1 N X2 0 ;
292 612 01144 BLW W1 I 30 ,F0 ;
293 616 01150 BLW W2 I X3 0 ,A0 ;
294 620 01154 LDR W3 I G11 ; GET RECEIVERDRIVERSTART
295 624 01160 A1: ;
296 624 01160 HEW W3 I G12 ,A4 ;
297 630 01166 LDR W2 N X3 0 ;
298 632 01170 AND W2 I 8.170000 ;
299 636 01174 HEW W2 I 8.140000 ,A5 ;
300 642 01202 HEW W2 I 8.150000 ,A2 ;
301 648 01210 ADD A WU I A1=A2 ;
302 650 01212 A2: ;SETDEVNO:
303 650 01212 LDR W2 X3=2 ;
304 652 01214 LDR W1 I X2 0 ;
305 654 01216 AND W1 I 31 ;
306 656 01220 HEW W1 I 11 ,A1 ;
307 660 01224 AND W2 I -32 ;
308 662 01226 LDR W1 E1 ;
309 666 01232 HEW W1 I 0 ,A3 ;
310 670 01236 HLW W1 I 2 ,F0 ;
311 674 01242 LDR W2 I X1 0 ;
312 676 01244 STR W2 X3=2 ;
313 678 01246 LDR WU I A1 ;
314 682 01252 A3: ;
315 682 01252 LDR W2 X3=2 ;
316 684 01254 LDR W1 I X2 0 ;
317 686 01256 AND W1 I 31 ;
318 688 01260 HEW W1 I 11 ,A1 ;
319 692 01264 AND W2 I -32 ;
320 694 01266 LDR W1 E2 ;
321 698 01272 HLW W1 I 2 ,F0 ;
322 702 01276 LDR W2 I X1 0 ;
323 704 01300 STR W2 X3=2 ;
324 706 01302 LDR WU I A1 ;
325 710 01306 A4: ;
326 710 01306 LDR W3 I G21 ;
327 714 01312 A5: ;
328 714 01312 HEW W3 I G22 ,A8 ;
329 720 01320 LDR W2 N X3 0 ;
330 722 01322 AND W2 I 8.170000 ;
331 726 01326 HEW W2 I 8.140000 ,A7 ;
332 732 01334 HEW W2 I 8.150000 ,A6 ;
333 738 01342 ADD A WU I A5=A6 ;
334 740 01344 A6: ;
335 740 01344 LDR W2 X3=2 ;
336 742 01346 LDR W1 I X2 0 ;
337 746 01350 AND W1 I 31 ;
338 748 01352 HEW W1 I 11 ,A5 ;
339 750 01356 AND W2 I -32 ;
340 752 01360 LDR W1 E3 ;
341 756 01364 HEW W1 I 0 ,A7 ;
342 760 01370 HLW W1 I 2 ,F0 ;
343 764 01374 LDR W2 I X1 0 ;
344 766 01376 STR W2 X3=2 ;
345 768 01400 ADD A WU I A5=A7 ;
346 770 01402 A7: ;
347 770 01402 LDR W2 X3=2 ;
348 772 01404 LDR W1 I X2 0 ;
349 774 01406 AND W1 I 31 ;
350 776 01410 HEW W1 I 11 ,A5 ;
351 780 01414 AND W2 I -32 ;
352 782 01416 LDR W1 E4 ;
353 786 01422 BLW W1 I 2 ,F0 ;
354 790 01426 LDR W2 I X1 0 ;
355 792 01430 STR W2 X3=2 ;
356 794 01432 LDR WU I A5 ;
357 798 01436 A8: ;
358 798 01436
358 798 01436 L.
359 798 01436 L.
360 798 01436

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360 798 01436
360 798 01436 B. E99 ;OPERATION DEFINITIONS
361 798 01436 W.
362 798 01436
362 798 01436 E90=3 ;DATASTART
363 798 01436 E91=0 ;OPERATIONCODE
364 798 01436 E92=1 ;CONTROLWORD
365 798 01436 E93=2 ;STATUSBYTE
366 798 01436 E94=3 ;ANSWERBYTE CONSIDERED AS DATA
367 798 01436 E95=3 ;STARTRBYTE CONSIDERED AS DATA
368 798 01436
368 798 01436 G11:
369 798 01436
369 798 01436 B. E5 ;RECEIVER DRIVER
370 798 01436 W.
371 798 01436
371 798 01436 E1=0
372 798 01436 E2=0
373 798 01436 E4=0
374 798 01436 E5=0
375 798 01436
375 798 01436
375 798 01436 B. D4,B9,C10 ;RCD PROGRAM
376 798 01436 W.
377 798 01436
377 798 01436 LDR W0 I B0 ;
378 802 01442
378 802 01442 ;EXTERNAL REFERENCES
379 802 01442
379 802 01442 ;E1 DEVICENUMBER
380 802 01442 ;E2 LEVELNUMBER
381 802 01442 ;E3 SEMAPHORE
382 802 01442 ;E4 BCC MAILBOX SEMAPHORE
383 802 01442 ;E5 BCC TESTFUNCTION
384 802 01442
384 802 01442 ;DRIVERTABLE DESCRIPTION
385 802 01442
385 802 01442 D0=K-J25,B2,1,D0,B1,D0,E5
386 814 01456 D1=K-D0,0 ;OPERATIONCODE
387 816 01460 D2=K-D0,0 ;DATASTART
388 818 01462 D3=K-D0,0 ;DATATOP
389 820 01464 D4=K-D0,0 ;STATUSWORD
390 822 01466
390 822 01466 E3=D0
391 822 01466
391 822 01466 ;RCD CONSTANTS
392 822 01466
392 822 01466 C0=1<0 ;WRITECONTROL BIT IN OPCODE
393 822 01466 C1=1<1 ;WRITEANSWER BIT IN OPCODE
394 822 01466 C2=1<2 ;WRITEBLOCK BIT IN OPCODE
395 822 01466 C3=1<3 ;READANSWER BIT IN OPCODE
396 822 01466 C4=1<4 ;READBLOCK BIT IN OPCODE
397 822 01466 C5=1<8 ;ENDCHAR
398 822 01466 C6=2 ;REPEAT INTERRUPT CONTROLCODE
399 822 01466 C7=3 ;STARTREAD CONTROLCODE
400 822 01466 C8=1<4 ;RECEIVER BLOCKEND
401 822 01466 C9=1<6 ;TRANSMIT BLOCKEND
402 822 01466 C10=1<7 ;REGRET STATUSBIT
403 822 01466

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```

3 822 01466
403 822 01466 B. ;RCD START
404 822 01466 W.
405 822 01466
405 822 01466 B1: ;START:
406 822 01466 LDR W3 I B3 ;
407 826 01472 IST W3 S X0 E2 ; START DRIVER AT NEXT
408 828 01474 LDR W0 I H5 ; RETURN TO MONITOR
409 832 01500
409 832 01500 E.
410 832 01500 B. A0 ;RCD REGRET
411 832 01500 W.
412 832 01500
412 832 01500 B2: ;REGRET:
413 832 01500 LDR W3 I A0 ;
414 836 01504 IST W3 S X0 E2 ;
415 838 01506 LDR W0 I H9 ; RETURN TO MONITOR
416 842 01512 A0: ;
417 842 01512 LDR W2 X3 J20 ;
418 844 01514 BSZ W2 I -2 ,B9 ;
419 848 01520 LDR W2 X3 02 ;
420 850 01522 RSC W2 X2 E1 ;
421 852 01524 LOR W1 I C10 ;
422 856 01530 STR W1 X3 04 ;
423 858 01532 LDR W0 I H8 ;
424 862 01536 E.
424 862 01536
425 862 01536

```



```

425 862 01516
425 862 01536 H. A1 ;PCD NEXT
426 862 01536 W.
427 862 01536
427 862 01536 H.SI ;NEXT(=,--,SEM):
428 862 01536 LDR W2 X5 J20 ; GET SEM.OPADDR
429 864 01540 LDR W1 X2 J11 ;
430 866 01542 HEW W1 IN F4 ,A1 ;
431 870 01546 LDR W1 X2 J15+2 ;
432 872 01550 XSW W1 X2 J15+10 ;
433 874 01552 STR W1 X2 J15+2 ;
434 876 01554 A1: ;
435 878 01556 LDR W1 X2 J16 ; GET OP.DATATOP
436 878 01556 STR W1 X3 D3 ; SET SEM.DATATOP
437 880 01560 LDR W2 X2 J14 ; GET OP.DATASTART
438 882 01562 STR W2 X3 D2 ; SET SEM.OPBASE
439 884 01564 RSC W2 X2 E1 ;
440 886 01566 STR W1 X3 D4 ;
441 888 01570 LDH J1 X2 E91 ; GET OP.OPCODE
442 890 01572 STR W1 X3 D1 ; SET SEM.OPCODE
443 892 01574 HSZ W1 I C0 ,B4 ; IF NOT WRITECONTROL THEN GOTO WRIT
444 896 01600 LDH W1 X2 E92 ; GET OP.CONTROLBYTE
445 898 01602 HGW W1 I 1 ,A0 ; IF LEGAL CONTROLBYTE
446 902 01606 WCC W2 X2 E1 ; THEN WRITECONTROL(CONTROLBYTE)
447 904 01610 AUI: LDR W1 X3 D1 ; GET OP.OPCODE
448 906 01612
448 906 01612 E.
449 906 01612

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478 962 01702
478 962 01702 H. A1 ;RCU READ
479 962 01702 W.
480 962 01702
480 962 01702 H6: ;READANSWER(OPCODE,OPHASE,SEM):
481 962 01702 HSZ w1 I C3 ;B7 ; IF NOT READANSWER THEN GOTO READW
482 966 01706 LDR w1 I C7 ;
483 968 01710 WCC w0 XU E1 ; WRITECONTROL(STARTREAD)
484 970 01712 RWC w2 X2 E1 ; READWORD(ANSWERBYTE)
485 972 01714 STH w1 X2 E94 ; SET OP.ANSWERBYTE
486 974 01716 LDR w0 I A1 ;
487 978 01722 H7: ;READLOCK(OPCODE,OPHASE,SEM):
488 978 01722 HSZ w1 I C4 ;H8 ; IF NOT READLOCK THEN GOTO READS
489 982 01726 LDR w1 I C7 ;
490 984 01730 WCC w0 XU E1 ; WRITECONTROL(STARTREAD)
491 986 01732 LDR w1 X3 D3 ; GET SEM.DATATOP
492 988 01734 ADD w2 I E95 ; GET DATASTART
493 990 01736 RHH w1 X2 E1 ; READLOCK
494 992 01740 STH w2 X3 D3 ; SET SEM.OPTOP
495 994 01742 LDR w2 X3 D2 ; GET SEM.OPHASE
496 996 01744 A1: ;
497 996 01744 LDR w1 I C6 ;
498 998 01746 WCC w0 XU E1 ; REPEAT INTERRUPT
499 1000 01750 RWC w2 X2 E1 ; READWORD(ENDCHAR)
500 1002 01752 RSC w2 X2 E1 ;
501 1004 01754 XOR w1 I C8 ;
502 1006 01756 LDR w1 X3 D4 ;
503 1008 01760 SIR w1 X3 D4 ;
504 1010 01762 E.
505 1010 01762

```

```

505 1010 01762
505 1010 01762 H. ;RCD RETURN
506 1010 01762 W.
507 1010 01762
507 1010 01762 HBI ;RETURN(=,OPRASE,SEM);
508 1010 01762 HSC W2 X2 E1 ; READSTATUS
509 1012 01764 LDR W1 X3 D4 ;
510 1016 01766 SHL W1 X2 EY3 ; SET OP.STATUSBYE
511 1016 01770 LDR W1 X3 J20 ; GET SEM.OPADDRESS
512 1018 01772 LDR W2 X3 D3 ; GET SEM.OPTOP
513 1020 01774 STR W2 X1 J12 ; SET OP.DATATOP
514 1022 01776 LDR W2 X1 J10 ; GET OP.NEXT OPADDRESS
515 1024 02000 IST W1 S X1 I1 ; RETURN OPERATION
516 1026 02002 STR W2 X3 J20 ; SET SEM.OPADDRESS
517 1028 02004 BEW W2 IN 0 ;B3 ; IF OPADDRESS<DU THEN GOTO NEXT
518 1032 02010 LDR W0 I ;B9 ; GOTO STOP
519 1036 02014
519 1036 02014 E.
520 1036 02014
520 1036 02014 H. ;RCD STOP
521 1036 02014 W.
522 1036 02014
522 1036 02014 H9; ;STOP(=,=,=);
523 1036 02014 LDR W3 I DU ; GET SEMADDRESS
524 1040 02020 LDR W1 I 1 ;
525 1042 02022 STR W1 X3 J20 ; STOP SEMAPHORE
526 1044 02024 LCE W0 I K ; SKIP INTERRUPT
527 1048 02030
527 1048 02030 E.
528 1048 02030
528 1048 02030 H. ;RCD RESET
529 1048 02030 W.
530 1048 02030
530 1048 02030 H0; ;RESET(=,=,=);
531 1048 02030 LDR W1 I ;B9 ; GET STOPENTRY
532 1052 02034 IST W1 S XU E2 ; SET DRIVERLEVEL
533 1054 02036
533 1054 02036 E.
534 1054 02036 E.
535 1054 02036
535 1054 02036 F2=E4
536 1054 02036 G12;
537 1054 02036 E.
538 1054 02036
538 1054 02036 G21;
539 1054 02036
539 1054 02036 H. E5 ;TRANSMIT DRIVER
540 1054 02036 W.
541 1054 02036
541 1054 02036 E1=0
542 1054 02036 E2=0
543 1054 02036 E4=0
544 1054 02036 E5=0
545 1054 02036
545 1054 02036
545 1054 02036
545 1054 02036
545 1054 02036
545 1054 02036 H. D4,H9,C10 ;RCD PROGRAM
546 1054 02036 W.
547 1054 02036 LDR W0 I ;B0 ;
548 1058 02042
548 1058 02042 ;EXTERNAL REFERENCES
549 1058 02042
549 1058 02042 ;E1 DEVICE NUMBER
550 1058 02042 ;E2 LEVEL NUMBER
551 1058 02042 ;E3 SEMAPHORE
552 1058 02042 ;E4 MCC MAILBOX SEMAPHORE
553 1058 02042 ;E5 BCC TESTFUNCTION
554 1058 02042
554 1058 02042 ;DRIVERABLE DESCRIPTION
555 1058 02042
555 1058 02042 DUMK=J25,H2,1,DU,H1,DU,E5
556 1070 02056 O1=K=DU,0 ;OPERATIONCODE
557 1072 02060 O2=K=DU,0 ;DATASTART
558 1074 02062 O3=K=DU,0 ;DATATOP
559 1076 02064 O4=K=DU,0 ;STATUSWORD
560 1078 02066
560 1078 02066 F3=00
561 1078 02066
561 1078 02066 ;RCD CONSTANTS
562 1078 02066
562 1078 02066 C0=1<0 ;WRITECONTROL BIT IN OPCODE
563 1078 02066 C1=1<1 ;WRITEANSWER BIT IN OPCODE
564 1078 02066 C2=1<2 ;WRITEBLOCK BIT IN OPCODE
565 1078 02066 C3=1<3 ;READANSWER BIT IN OPCODE
566 1078 02066 C4=1<4 ;READBLOCK BIT IN OPCODE
567 1078 02066 C5=1<8 ;ENOCAR
568 1078 02066 C6=2 ;REPEAT INTERRUPT CONTROLCODE
569 1078 02066 C7=3 ;STARTHEAD CONTROLCODE
570 1078 02066 C8=1<4 ;RECEIVER BLOCKEND
571 1078 02066 C9=1<6 ;TRANSMIT BLOCKEND
572 1078 02066 C10=1<7 ;REGRET STATUSBIT
573 1078 02066

```

```

573 1078 02066
573 1078 02066 B. ;RCD START
574 1078 02066 W.
575 1078 02066
575 1078 02066 B1: ;START:
576 1078 02066 LDR W3 I B3 ;
577 1082 02072 IST W3 S XU E2 ; START DRIVER AT NEXT
578 1084 02074 LDR W0 I H5 ; RETURN TO MONITOR.
579 1088 02100
579 1088 02100 E.
580 1088 02100 B. AU ;RCD REGRET
581 1088 02100 W.
582 1088 02100
582 1088 02100 B2: ;REGRET:
583 1088 02100 LDR W3 I A0 ;
584 1092 02104 IST W3 S XU E2 ;
585 1094 02106 LDR W0 I H9 ; RETURN TO MONITOR
586 1098 02112 AU: ;
587 1098 02112 LDR W2 X5 J20 ;
588 1100 02114 BSZ W2 I -2 ,B9 ;
589 1104 02120 LDR W2 X3 D2 ;
590 1106 02122 RSC W2 X2 E1 ;
591 1108 02124 LOR W1 I C10 ;
592 1112 02130 STR W1 X5 D4 ;
593 1114 02132 LDR W0 I B8 ;
594 1118 02136
594 1118 02136 E.
595 1118 02136

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595 1118 02156
595 1118 02156 B. A1 ;RCD NEXT
596 1118 02156 W.
597 1118 02156
597 1118 02156 H3: ;NEXT(=,SE4):
598 1118 02156 LDR w2 x3 J20 ; GET SEM.OPADDR
599 1120 02160 LDR w1 x2 J11 ;
600 1122 02162 HFW w1 IN E4 ,A1 ;
601 1126 02166 LDR w1 x2 J15+2 ;
602 1128 02150 XSR w1 x2 J15+10 ;
603 1130 02152 STW w1 x2 J15+2 ;
604 1132 02154 A1: ;
605 1132 02154 LDW w1 x2 J16 ; GET OP.DATATOP
606 1134 02156 STR w1 x3 D3 ; SET SEM.DATATOP
607 1136 02160 LDR w2 x2 J14 ; GET OP.DATASTART
608 1138 02162 STR w2 x3 D2 ; SET SEM.OPBASE
609 1140 02164 HSC w2 x2 E1 ;
610 1142 02166 STR w1 x3 D4 ;
611 1144 02170 LDB w1 x2 E91 ; GET OP.OPCODE
612 1146 02172 STR w1 x3 D1 ; SET SEM.OPCODE
613 1148 02174 RSZ w1 I CU ,B4 ; IF NOT WRITECONTROL THEN GOTO WH1
614 1152 02200 LDB w1 x2 E92 ; GET OP.CONTROLBYTE
615 1154 02202 HGW w1 I 1 ,A0 ; IF LEGAL CONTROLBYTE
616 1158 02206 WCC w2 x2 E1 ; THEN WRITECONTROL(CONTROLBYTE)
617 1160 02210 AU: LDR w1 x3 D1 ; GET OP.OPCODE
618 1162 02212 F.
619 1162 02212

```

619	1162	02212									
619	1162	02212	R.	A1							
620	1162	02212	W.								
621	1162	02212									
621	1162	02212	H4:								
622	1162	02212		BSZ	W1	1	C1	H5			
623	1166	02216		LDR	W1		X2	E94			
624	1168	02220		LDR	W0	1			A1		
625	1172	02224	H5:								
626	1172	02224		BSZ	W1	1	C2	H6			
627	1176	02230		LDR	W1		X3	D3			
628	1178	02232		SUB	W1	1					
629	1180	02234		ADD	W2	I		E95			
630	1182	02236		WRB	W1		X2	F1			
631	1184	02240		ADD	W2	I		1			
632	1186	02242		STR	W2		X3	D5			
633	1188	02244		LDR	W1	1			C6		
634	1190	02246		WCC	W0		X0	F1			
635	1192	02250		LDR	W1			X2-1			
636	1194	02252	A1:								
637	1194	02252		LOR	W1	1			C5		
638	1198	02256		WVC	W2		X2	E1			
639	1200	02260		LDR	W1	1			C6		
640	1202	02262		WCC	W0		X0	E1			
641	1204	02264		RSC	W2		X2	E1			
642	1206	02266		XOR	W1	1			C9		
643	1210	02272		LOW	W1		X3	D4			
644	1212	02274		STR	W1		X3	D4			
645	1214	02276		LDR	W1		X3	D1			
646	1216	02300		LDR	W2		X3	D2			
647	1218	02302									
647	1218	02302	E.								
648	1218	02302									

JRCD WRITE

```

;WRITEANSWER(OPCODE,OPHASE,SEM);
; IF NOT WRITEANSWER THEN GOTO WRITE
; GET OP.ANSWERBYTE
;
;WRITEBLOCK(OPCODE,OPBASE,SEM);
; IF NOT WRITEBLOCK THEN GOTO READAP
; GET SEM.DATATOP
;
; GET DATASTART
; WRITEBLOCK
;
; SET SEM.OPTOP
;
; REPEAT INTERRUPT
;
;
; GET ENDCHAR
; WRITEWORD(ENDCHAR)
;
; REPEAT INTERRUPT
;
;
;
;
; GET SEM.OPCODE
; GET SEM.OPBASE

```

```

644 1218 02302
646 1218 02302 H. A1 ;RCD READ
649 1218 02302 H.
650 1218 02302
650 1218 02302 H08 ;HEADANSWER(OPCODE,OPBASE,SEM):
651 1218 02302 HSZ w1 1 C5 ; IF NOT READANSWER THEN GOTO READHL
652 1222 02306 LDR w1 1 C7 ;
653 1224 02310 WCC w0 X0 E1 ; WRITECONTROL(STARTREAD)
654 1226 02312 RWC w2 X2 E1 ; READWORD(ANSWERBYTE)
655 1228 02314 STH w1 X2 F94 ; SET OP.ANSWERBYTE
656 1230 02316 LDR w0 1 A1 ;
657 1234 02322 H71 ;READBLOCK(OPCODE,OPBASE,SEM):
658 1234 02322 HSZ w1 1 C4 ; IF NOT READBLOCK THEN GOTO READSIS
659 1238 02326 LDR w1 1 C7 ;
660 1240 02330 WCC w0 X0 E1 ; WRITECONTROL(STARTREAD)
661 1242 02332 LDR w1 X3 D5 ; GET SEM.DATATOP
662 1244 02334 ADD w2 1 F95 ; GET DATASTART
663 1246 02336 RBH w1 X2 E1 ; READBLOCK
664 1248 02340 STH w2 X3 D3 ; SFT SEM.OPTOP
665 1250 02342 LDR w2 X3 D2 ; GET SEM.OPBASE
666 1252 02344 A1: ;
667 1252 02344 LDR w1 1 C6 ;
668 1254 02346 WCC w0 X0 E1 ; REPEAT INTERRUPT
669 1256 02350 RWC w2 X2 E1 ; READWORD(ENDCHAR)
670 1258 02352 RSC w2 X2 E1 ;
671 1260 02354 XOR w1 1 C8 ;
672 1262 02356 LDR w1 X3 D4 ;
673 1264 02360 STR w1 X3 D4 ;
674 1266 02362 E.
674 1266 02362
675 1266 02362

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```

675 1266 02362
675 1266 02362 H.
676 1266 02362 W.
677 1266 02362
677 1266 02362 BM:
678 1266 02362 HSC W? X2 E1 ;
679 1268 02366 LDR W1 X3 04 ; READSTATUS
680 1270 02366 STB W1 X2 E93 ;
681 1272 02370 LDR W1 X3 J20 ; SET OP.STATUSHYT
682 1274 02372 LDR W2 X3 03 ; GET SEM.OPADDRESS
683 1276 02374 STR W2 X1 J12 ; GET SEM.OPTOP
684 1278 02376 LDR W2 X1 J10 ; SET OP.DATATOP
685 1280 02400 IST W1 S X1 I1 ; GET OP.NEXT OPADDRESS
686 1282 02402 STR W2 X3 J20 ; RETURN OPERATION
687 1284 02404 REW W2 IN 0 ; SET SEM.OPADDRESS
688 1288 02410 LDR WU I ; IF OPADDRESS<>0 THEN GOTO NEXT
689 1292 02414 ; B9 ; GOTO STOP
689 1292 02414 E.
690 1292 02414
690 1292 02414 B.
691 1292 02414 W.
692 1292 02414
692 1292 02414 BM:
693 1292 02414 LDR W3 I 00 ; STOP(-,-,-);
694 1296 02420 LDR W1 I 1 ; GET SEMADDRESS
695 1298 02422 STR W1 X3 J20 ; STOP SEMAPHORE
696 1300 02424 LCF WU I K ; SKIP INTERRUPT
697 1304 02430
697 1304 02430 E.
698 1304 02430
698 1304 02430 B.
699 1304 02430 W.
700 1304 02430
700 1304 02430 BM:
701 1304 02430 LDR W1 I H9 ; IRESET(-,-,-);
702 1308 02434 IST W1 S XU F2 ; GET STOPENTRY
703 1310 02436 ; SET DRIVERLEVEL.
703 1310 02436 E.
704 1310 02436 E.
705 1310 02436
705 1310 02436 F5=E5
706 1310 02436 G22:
707 1310 02436 E.
708 1310 02436

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708 1510 02456
708 1510 02456 B. H127,C127,D127 ;GLOBAL TEST BLOCK
709 1510 02456 W.
710 1510 02456
710 1510 02430 LDR W1 J 0
711 1512 02440 LDR W2 J F1
712 1516 02444 STR W1 X2 J20
713 1518 02446 STR W2 X2 J21
714 1520 02450 LDR W0 I H15 ; GOTO START ENTRY
715 1524 02454
715 1524 02454 F1: 0,F1 ;TESTPROGRAM SEMAPHORE
716 1528 02460 F2 ;RECEIVER DRIVER SEMAPHORE
717 1528 02460 F3 ;TRANSMIT DRIVER SEMAPHORE
718 1528 02460
718 1528 02460 O5: 0 ;TESTDESCRIPTION ADDRESS
719 1530 02462 O5: 0 ;SAVED W1
720 1532 02464 O6: 0 ;SAVED W2
721 1534 02466 O7: 0 ;SAVED W3
722 1536 02470
722 1536 02470 CU=FU+2 ;FIRST TEST FAULT ADDRESS
723 1536 02470 C1=1 ;0 START RECEIVER,TRANSMIT ,1 START TRANSMIT,RECEIVER
724 1536 02470 C2=2 ;CHECK RECEIVER ANSWER
725 1536 02470 C3=4 ;CHECK TRANSMIT ANSWER
726 1536 02470 C4=8 ;CHECK DATA
727 1536 02470
727 1536 02470 H0: ;TESTDESCRIPTION TABLE
728 1536 02470 FU,R.(C0>1) ;UNUSED
729 1544 02500 B1 ;RECEIVER STATUS
730 1546 02502 B2 ;TRANSMIT STATUS
731 1548 02504 B3 ;RECEIVER RESET
732 1550 02506 B4 ;TRANSMIT RESET
733 1552 02510 B5 ;RECEIVER AUTOLOAD
734 1554 02512 B6 ;TRANSMIT AUTOLOAD
735 1556 02514 B7 ;RECEIVER REPEAT
736 1558 02516 B8 ;TRANSMIT REPEAT
737 1560 02520 B9 ;RECEIVER STARTREAD
738 1562 02522 B10 ;TRANSMIT STARTREAD
739 1564 02524 B11 ;RECEIVER WRITEWORD
740 1566 02526 B12 ;TRANSMIT WRITEWORD
741 1568 02530 B13 ;RECEIVER WRITEWORD , TRANSMIT READWORD
742 1570 02532 B14 ;TRANSMIT WRITEWORD , RECEIVER READWORD
743 1572 02534 B15 ;RECEIVER WRITEBLOCK ,TRANSMIT READLOCK
744 1574 02536 B16 ;TRANSMIT WRITEBLOCK ,RECEIVER READLOCK
745 1576 02540

```

745	1376	02540			
745	1376	02540	H.	A29	TESTDESCRIPTION
746	1376	02540	W.		FALTS: 8,10
747	1376	02540			
747	1376	02540	H1:	RECEIVER STATUS	
748	1376	02540		3,A1,A2,A3,A13,A23	
749	1388	02554	A1:	UFF1,-1	
750	1394	02562	A2:	UFF1,A12,A11,A12	
751	1404	02574	A3:	UFF1,A22,A21,A22	
752	1414	02606			
752	1414	02606	H.		
753	1414	02606	A11:	U,R,3	
754	1417	02611	A12:		
755	1417	02611	A21:	1,252,0	
756	1420	02614	A22:		
757	1420	02614	A13:	U,R,3	
758	1423	02617	A23:	U,R,3	
759	1426	02622	W.		
760	1426	02622	E.		
761	1426	02622			
761	1426	02622	CU=CU+2		
762	1426	02622	B.	A29	TESTDESCRIPTION
763	1426	02622	W.		FALTS: 8,12
764	1426	02622			
764	1426	02622	B2:	TRANSMIT STATUS	
765	1426	02622		4,A1,A2,A3,A13,A23	
766	1438	02636	A1:	UFF1,-1	
767	1444	02644	A2:	UFF1,A12,A11,A12	
768	1454	02656	A3:	UFF1,A22,A21,A22	
769	1464	02670			
769	1464	02670	H.		
770	1464	02670	A11:	1,252,0	
771	1467	02673	A12:		
772	1467	02673	A21:	U,R,3	
773	1470	02676	A22:		
774	1470	02676	A13:	U,R,3	
775	1473	02701	A23:	U,R,3	
776	1476	02704	W.		
777	1476	02704	E.		
778	1476	02704			
778	1476	02704	CU=CU+2		
779	1476	02704	H.	A29	TESTDESCRIPTION
780	1476	02704	W.		FALTS: 8,14
781	1476	02704			
781	1476	02704	H3:	RECEIVER RESET	
782	1476	02704		4,A1,A2,A3,A13,A23	
783	1488	02720	A1:	UFF1,-1	
784	1494	02726	A2:	UFF1,A12,A11,A12	
785	1504	02740	A3:	UFF1,A22,A21,A22	
786	1514	02752			
786	1514	02752	H.		
787	1514	02752	A11:	1,0,0	
788	1517	02755	A12:		
789	1517	02755	A21:	U,R,3	
790	1520	02760	A22:		
791	1520	02760	A13:	U,R,3	
792	1523	02763	A23:	U,R,3	
793	1526	02766	W.		
794	1526	02766	E.		
795	1526	02766			
795	1526	02766	CU=CU+2		
796	1526	02766	H.	A29	TESTDESCRIPTION
797	1526	02766	W.		FALTS: 8,16
798	1526	02766			
798	1526	02766	H4:	TRANSMIT RESET	
799	1526	02766		3,A1,A2,A3,A13,A23	
800	1538	03002	A1:	UFF1,-1	
801	1544	03010	A2:	UFF1,A12,A11,A12	
802	1554	03022	A3:	UFF1,A22,A21,A22	
803	1564	03034			
803	1564	03034	H.		
804	1564	03034	A11:	U,R,3	
805	1567	03037	A12:		
806	1567	03037	A21:	1,0,0	
807	1570	03042	A22:		
808	1570	03042	A13:	0,0,2	
809	1573	03045	A23:	U,R,3	
810	1576	03050	W.		
811	1576	03050	E.		
812	1576	03050			
812	1576	03050	CU=CU+2		
813	1576	03050	H.	A29	TESTDESCRIPTION
814	1576	03050	W.		FALTS: 8,20
815	1576	03050			
815	1576	03050	H5:	RECEIVER AUTOLOAD	
816	1576	03050		4,A1,A2,A3,A13,A23	
817	1588	03064	A1:	UFF1,-1	
818	1594	03072	A2:	UFF1,A12,A11,A12	
819	1604	03104	A3:	UFF1,A22,A21,A22	
820	1614	03116			
820	1614	03116	H.		
821	1614	03116	A11:	1,1,0	
822	1617	03121	A12:		
823	1617	03121	A21:	U,R,3	
824	1620	03124	A22:		
825	1620	03124	A13:	U,R,3	
826	1623	03127	A23:	U,R,3	
827	1626	03132	W.		
828	1626	03132	E.		
829	1626	03132			
829	1626	03132	CU=CU+2		
830	1626	03132	H.	A29	TESTDESCRIPTION
831	1626	03132	W.		FALTS: 8,22
832	1626	03132			

852	1626	U5152	H03	;	TRANSMIT AUTOLOAD
853	1626	U5132			3,A1,A2,A3,A13,A23
854	1638	U5146	A1:		U,F1,-1
855	1644	U5154	A2:		U,F1,A12,A11,A12
856	1654	U5166	A3:		U,F1,A22,A21,A22
857	1664	U5200			
857	1664	U5200	H.		
858	1664	U5200	A11:		0,R.3
859	1667	U5205	A12:		
860	1667	U5205	A21:		1,1,0
861	1670	U5206	A22:		
862	1670	U5206	A13:		0,0,8
863	1675	U5211	A23:		U,R.3
864	1676	U5214	H.		
865	1676	U5214	E.		
866	1676	U5214			
866	1676	U5214	CU=CU+2		
867	1676	U5214	H.		A29
868	1676	U5214	H.		
869	1676	U5214	H7:		;
869	1676	U5214			RECEIVER TIMEOUT
850	1676	U5214			2,A1,A2,A3,A13,A23
851	1688	U5230	A1:		U,F1,-16
852	1694	U5236	A2:		U,F1,A12,A11,A12
853	1704	U5250	A3:		U,F1,A22,A21,A22
854	1714	U5262			
854	1714	U5262	H.		
855	1714	U5262	A11:		2,0,0,0
856	1718	U5266	A12:		
857	1718	U5266	A21:		U,R.3
858	1721	U5271	A22:		
859	1721	U5271	A13:		U,0,32
860	1724	U5274	A23:		U,R.3
861	1727	U5277	H.		
862	1728	U5300	E.		
863	1728	U5300			
863	1728	U5300	CU=CU+2		
864	1728	U5300	H.		A29
865	1728	U5300	H.		
866	1728	U5300	H8:		;
866	1728	U5300			TRANSMIT TIMEOUT
867	1728	U5300			5,A1,A2,A3,A13,A23
868	1740	U5314	A1:		U,F1,-16
869	1746	U5322	A2:		U,F1,A12,A11,A12
870	1756	U5334	A3:		U,F1,A22,A21,A22
871	1766	U5346			
871	1766	U5346	H.		
872	1766	U5346	A11:		U,R.3
873	1769	U5351	A12:		
874	1769	U5351	A21:		2,0,0,0
875	1773	U5355	A22:		
876	1773	U5355	A13:		U,R.3
877	1776	U5360	A23:		U,0,32
878	1779	U5363	H.		
879	1780	U5364	E.		
880	1780	U5364			
880	1780	U5364	CU=CU+2		
881	1780	U5364	H.		A29
882	1780	U5364	H.		
883	1780	U5364	H9:		;
883	1780	U5364			RECEIVER STARTREAD
884	1780	U5364			0,A1,A2,A3,A13,A23
885	1792	U5400	A1:		U,F1,-4
886	1798	U5406	A2:		U,F1,A12,A11,A12
887	1808	U5420	A3:		U,F1,A22,A21,A22
888	1818	U5432			
888	1818	U5432	H.		
889	1818	U5432	A11:		8,0,R.3
890	1822	U5436	A12:		
891	1822	U5436	A21:		2,0,R.3
892	1826	U5442	A22:		
893	1826	U5442	A13:		U,R.3
894	1829	U5445	A23:		U,R.3
895	1832	U5450	H.		
896	1832	U5450	E.		
897	1832	U5450			
897	1832	U5450	CU=CU+2		
898	1832	U5450	H.		A29
899	1832	U5450	H.		
900	1832	U5450			

TESTDESCRIPTION
#HALT: 8.24

TESTDESCRIPTION
#HALT: 8.26

TESTDESCRIPTION
#HALT: 8.30

TESTDESCRIPTION
#HALT: 8.32

900	1832	03450		
900	1832	03450	H10:	!TRANSMIT STARTREAD
901	1832	03450		1,A1,A2,A3,A13,A23
902	1844	03464	A1:	U,F1,-4
903	1850	03472	A2:	U,F1,A12,A11,A12
904	1860	03504	A3:	U,F1,A22,A21,A22
905	1870	03516		
905	1870	03516	H.	
906	1870	03516	A11:	2,0,R,3
907	1874	03522	A12:	
908	1874	03522	A21:	8,0,R,3
909	1878	03526	A22:	
910	1878	03526	A13:	U,R,3
911	1881	03531	A23:	U,R,3
912	1884	03534	H.	
913	1884	03534	E.	
914	1884	03534		
914	1884	03534	CU=CU+2	
915	1884	03534	H.	A29
916	1884	03534	H.	
917	1884	03534		
917	1884	03534	B11:	!RECEIVER WRITEWORD
918	1884	03534		13,A1,A2,A3,A13,A23
919	1896	03550	A1:	U,F1,-4
920	1902	03556	A2:	U,F1,A12,A11,A12
921	1912	03570	A3:	U,F1,A22,A21,A22
922	1922	03602		
922	1922	03602	H.	
923	1922	03602	A11:	2,0,U,170
924	1926	03606	A12:	
925	1926	03606	A21:	8,0,U,85
926	1930	03612	A22:	
927	1930	03612	A13:	U,R,3
928	1933	03615	A23:	U,U,0
929	1936	03620	H.	
930	1936	03620	E.	
931	1936	03620		
931	1936	03620	CU=CU+2	
932	1936	03620	H.	A29
933	1936	03620	H.	
934	1936	03620		
934	1936	03620	H12:	!TRANSMIT WRITEWORD
935	1936	03620		10,A1,A2,A3,A13,A23
936	1948	03634	A1:	U,F1,-4
937	1954	03642	A2:	U,F1,A12,A11,A12
938	1964	03654	A3:	U,F1,A22,A21,A22
939	1974	03666		
939	1974	03666	H.	
940	1974	03666	A11:	8,0,U,85
941	1978	03672	A12:	
942	1978	03672	A21:	2,0,U,170
943	1982	03676	A22:	
944	1982	03676	A13:	U,U,0
945	1985	03701	A23:	U,R,3
946	1988	03704	H.	
947	1988	03704	E.	
948	1988	03704		
948	1988	03704	CU=CU+2	
949	1988	03704	H.	A29
950	1988	03704	H.	
951	1988	03704		
951	1988	03704	H13:	!RECEIVER WRITEWORD
952	1988	03704		13,A1,A2,A3,A13,A23
953	2000	03720	A1:	U,F1,-4
954	2006	03726	A2:	U,F1,A12,A11,A12
955	2016	03740	A3:	U,F1,A22,A21,A22
956	2026	03752		

!TESTDESCRIPTION
!HALT: 8.36

!TESTDESCRIPTION
!HALT: 8.36

!TESTDESCRIPTION
!HALT: 8.40

956	2026	03752		
956	2026	03752	W.	
957	2026	03752	A11:	2,0,0,85
958	2030	03756	A12:	
959	2030	03756	A21:	8,0,0,170
960	2034	03762	A22:	
961	2034	03762	A13:	U,R,3
962	2037	03765	A23:	U,0,0
963	2040	03770	W.	
964	2040	03770	E.	
965	2040	03770		
965	2040	03770	CU=CU+2	
966	2040	03770	H.	A29
967	2040	03770	W.	TESTDESCRIPTION
968	2040	03770		HALT: 8.42
968	2040	03770	H14:	TRANSMIT WHITEWORD
969	2040	03770		10,A1,A2,A3,A13,A23
970	2052	04004	A1:	U,F1,-4
971	2058	04012	A2:	U,F1,A12,A11,A12
972	2068	04024	A3:	U,F1,A22,A21,A22
973	2078	04036		
973	2078	04036	W.	
974	2078	04036	A11:	8,0,0,170
975	2082	04042	A12:	
976	2082	04042	A21:	2,0,0,85
977	2086	04046	A22:	
978	2086	04046	A13:	U,0,0
979	2089	04051	A23:	U,R,3
980	2092	04054	W.	
981	2092	04054	E.	
982	2092	04054		
982	2092	04054	CU=CU+2	
983	2092	04054	H.	A29
984	2092	04054	W.	TESTDESCRIPTION
985	2092	04054		HALT: 8.44
985	2092	04054	H15:	RECEIVER WHITEBLOCK
986	2092	04054		15,A1,A2,A3,A13,A23
987	2104	04070	A1:	U,F1,-24
988	2110	04076	A2:	U,F1,A12,A11,A12
989	2120	04110	A3:	U,F1,A22,A21,A22
990	2130	04122		
990	2130	04122	W.	
991	2130	04122	A11:	4,0,0,1,2,4,8,16,32,64,128,0,255,0,254,253,251,247,239,223,191
992	2152	04150	A12:	
993	2152	04150	A21:	16,0,0,254,253,251,247,239,223,191,127,255,0,255,1,2,4,8,16,32
994	2174	04176	A22:	
995	2174	04176	A13:	U,R,3
996	2177	04201	A23:	U,0,0
997	2180	04204	W.	
998	2180	04204	E.	
999	2180	04204		
999	2180	04204	CU=CU+2	
1000	2180	04204	H.	A29
1001	2180	04204	W.	TESTDESCRIPTION
1002	2180	04204		HALT: 8.46
1002	2180	04204	H16:	TRANSMIT WHITEBLOCK
1003	2180	04204		14,A1,A2,A3,A13,A23
1004	2192	04220	A1:	U,F1,-24
1005	2198	04226	A2:	U,F1,A12,A11,A12
1006	2208	04240	A3:	U,F1,A22,A21,A22
1007	2218	04252		
1007	2218	04252	W.	
1008	2218	04252	A11:	16,0,0,254,253,251,247,239,223,191,127,255,0,255,1,2,4,8,16,32
1009	2240	04300	A12:	
1010	2240	04300	A21:	4,0,0,1,2,4,8,16,32,64,128,0,255,0,254,253,251,247,239,223,191
1011	2262	04326	A22:	
1012	2262	04326	A13:	U,0,0
1013	2265	04331	A23:	U,0,0
1014	2268	04334	W.	
1015	2268	04334	E.	
1016	2268	04334		
1016	2268	04334	CU=CU+2	
1017	2268	04334		

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1017 2268 04334
1017 2268 04334 B. E5 ;TEST INTERFACE
1018 2268 04334 W.
1019 2268 04334
1019 2268 04334 ;TESTDESCRIPTION
1020 2268 04334
1020 2268 04334 EUM0 ;MODE
1021 2268 04334 E1=2 ;TIMEROP
1022 2268 04334 E2=4 ;RECEIVEROP
1023 2268 04334 E3=6 ;TRANSMITOP
1024 2268 04334 E4=8 ;RECEIVER RESULT
1025 2268 04334 E5=10 ;TRANSMIT RESULT
1026 2268 04334
1026 2268 04334 B. A40 ;TESTPROGRAM
1027 2268 04334 W.
1028 2268 04334
1028 2268 04334 D4: ;
1029 2268 04334 LDR W3 D3 ;
1030 2272 04340 LDR W1 X3 E0 ;
1031 2274 04342 HSL W1 IN C1 ;A1 ;
1032 2280 04350 LDR W1 I F2 ;
1033 2284 04354 LDR W2 X3 E2 ;
1034 2286 04356 LDR W3 I AU ;
1035 2290 04362 LDR W0 I MU ; SEND RECEIVER
1036 2294 04366 AU: ;
1037 2294 04366 LDR W1 I F3 ;
1038 2298 04372 LDR W2 X3 E3 ;
1039 2300 04374 LDR W3 I A3 ;
1040 2304 04400 LDR W0 I MU ; SEND TRANSMIT
1041 2308 04404 A1: ;
1042 2308 04404 LDR W1 I F3 ;
1043 2312 04410 LDR W2 X3 E3 ;
1044 2314 04412 LDR W3 I A2 ;
1045 2318 04416 LDR W0 I MU ; SEND TRANSMIT
1046 2322 04422 A2: ;
1047 2322 04422 LDR W1 I F2 ;
1048 2326 04426 LDR W2 X3 E2 ;
1049 2328 04430 LDR W3 I A3 ;
1050 2332 04434 LDR W0 I MU ; SEND RECEIVER
1051 2336 04440 A3: ;
1052 2336 04440 LDR W3 D3 ;
1053 2340 04444 LDR W1 I H14 ;
1054 2344 04450 LDR W2 X3 E1 ;
1055 2346 04452 LDR W3 I A4 ;
1056 2350 04456 LDR W0 I MU ; SEND TIMER
1057 2354 04462 A4: ;
1058 2354 04462 LDR W1 I F1 ;
1059 2358 04466 LDR W3 I A5 ;
1060 2362 04472 LDR W0 I H2 ; ;AIT
1061 2366 04476 A5: ;
1062 2366 04476 LDR W3 D3 ;
1063 2370 04502 REW W2 X3 E1 ;A7 ;
1064 2374 04506 LDR W1 I F1 ;
1065 2378 04512 LDR W3 I A6 ;
1066 2382 04516 LDR W0 I H2 ; WAIT
1067 2386 04522 A6: ;
1068 2386 04522 LDR W3 D3 ;
1069 2390 04526 REW W2 X3 E1 ;A7 ;
1070 2394 04532 LDR W1 I F1 ;
1071 2398 04536 LDR W2 I H14 ;
1072 2402 04542 LDR W3 I A10 ;
1073 2406 04546 LDR W0 I H7 ; ; WAIT TIMER
1074 2410 04552 A7: ; ;TIMERERROR:
1075 2410 04552 LDR W1 I ;
1076 2412 04554 STW W1 D5 ;
1077 2416 04560 STW W1 D6 ;
1078 2420 04564 STW W1 D7 ;
1079 2424 04570 LDR W1 I F1 ;
1080 2428 04574 LDR W2 I F2 ;
1081 2432 04600 LDR W3 I AB ;
1082 2436 04604 LDR W0 I HB ;
1083 2440 04610 A8: ;
1084 2440 04610 LDR W1 I F1 ;
1085 2444 04614 LDR W2 I F3 ;
1086 2448 04620 LDR W3 I A9 ;
1087 2452 04624 LDR W0 I HB ;
1088 2456 04630 A9: ;
1089 2456 04630 LDR W0 I A55 ;
1090 2460 04634

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1116	2524	04734							
1116	2524	04734	A30:						;CHECK DATA
1117	2524	04734		LOR	W3		D3		;
1118	2528	04740		LOR	W1	X3	E0		;
1119	2530	04742		LS4	W1	I	C4	A33	;
1120	2534	04746		LOR	W1		X3	E2	;
1121	2536	04750		LOR	W2		X3	E3	;
1122	2538	04752		LOR	W3		X1	J16	;
1123	2540	04754		LOR	W1		X1	J14	;
1124	2542	04756		LOR	W2		X2	J14	;
1125	2544	04760		LOO	W1	I		E90	;
1126	2546	04762		LOO	W2	I		E90	;
1127	2548	04764		LOO	W3			A32	;
1128	2552	04770	A31:						;
1129	2552	04770		LOO	W2	I		1	;
1130	2554	04772		LOO	W1			A32	A33
1131	2560	05000		LOO	W3	N	X1	0	;
1132	2562	05002		LOO	W3		X2-1		A31
1133	2566	05006		LOO	W3			D7+1	;
1134	2570	05012		LOO	W3		X2-1		;
1135	2572	05014		LOO	W3			D7	;
1136	2576	05020		LOO	W0	I			D2
1137	2580	05024	A32:						;
1138	2582	05026	A33:						;
1139	2582	05026		LOI	W1	I		0	;
1140	2584	05030		HEI	W1	N		D5	D2
1141	2590	05036		HEI	W1	N		D6	D2
1142	2596	05044		LOR	W0	I			D0
1143	2600	05050							;
1143	2600	05050	E.						;
1144	2600	05050	E.						;
1145	2600	05050							;

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1145 2600 05050
1145 2600 05050 B. A6 ;RETURN ENTRY
1146 2600 05050 W.
1147 2600 05050
1147 2600 05050 GO:
1148 2600 05050 D1:
1149 2600 05050 A0: ;STARTENTRY:
1150 2600 05050 LDR W2 0 ; GET RUNMODE
1151 2602 05052 BLI W2 I 0 ,FO ;
1152 2606 05056 BLI W2 I FO+2 ,A4 ;
1153 2610 05062 HGI W2 I C0 ,FO ;
1154 2614 05066 LDI W3 x2 B0 ;
1155 2618 05072 STI W3 D3 ;
1156 2622 05076 STI W3 H10 ;
1157 2626 05102 LDI W1 I 0 ;
1158 2628 05104 STI W1 D5 ;
1159 2632 05110 STI W1 D6 ;
1160 2636 05114 STR W1 D7 ;
1161 2640 05120 LDR W0 I D4 ;
1162 2644 05124 D0: ;RETURNENTRY
1163 2644 05124 LDR W2 0 ;
1164 2646 05126 BSZ W2 I 1 ,A2 ;
1165 2650 05132 RSW W1 I 0 ;
1166 2652 05134 BLW W1 IN 0 ,A0 ;
1167 2656 05140 A6: ;
1168 2656 05140 RSW W1 I 0 ;
1169 2658 05142 BLW W1 I 0 ,A6 ;
1170 2662 05146 A2: ;
1171 2662 05146 ADD W2 I 2 ;
1172 2664 05150 BLW W2 I C0 ,A3 ;
1173 2668 05154 A4: ;ZERO:
1174 2668 05154 ADD W2 I 1 ;
1175 2670 05156 ADD W2 I FO+2 ;
1176 2672 05160 A3: ;
1177 2672 05160 STR W2 0 ;
1178 2674 05162 LDR W0 I A0 ;
1179 2678 05166 D2: ;FAULTENTRY:
1180 2678 05166 RSW W1 I 0 ;
1181 2680 05170 BLW W1 I 0 ,D0 ;
1182 2684 05174 A5: ;
1183 2684 05174 LDR W1 D5 ;
1184 2688 05200 STR W2 D6 ;
1185 2692 05204 LDR W3 D7 ;
1186 2696 05210 LDR W0 0 ;
1187 2698 05212
1187 2698 05212 E.
1188 2698 05212
1188 2698 05212 H15:
1189 2698 05212
1189 2698 05212 E.
1190 2698 05212

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END SOURCE, 3 ENDS MISSING

1190 2698 005212

PROG END, A: 254, B: 29, C: 158, SWAPCOUNT: 104


END 566

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