

LPC11

INTERFACE DIAGNOSTIC TEST
MD-11-DZLPB-B

EP-DZLPB-B-DL

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MADE IN USA

IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DZLPB-B-0
PRODUCT NAME:	LPC11 INTERFACE DIAGNOSTIC TEST
DATE CREATED:	FEBRUARY 25, 1973
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	R.B. BARNES

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1. ABSTRACT

THIS DIAGNOSTIC WILL EXERCISE ALL LOGIC FUNCTIONS AND DATA CAPABILITIES OF THE LPC11 INTERFACE. THE PROGRAM SHOULD BE STARTED AT LOCATION 200 AND WILL TYPE OUT THE PROGRAM NAME AND REQUEST INPUT OF VECTOR ADDRESS, REGISTER ADDRESS, AND INTERFACE MODE SETTING.

THE PROGRAM CONSISTS OF FOUR (4) TEST GROUPS: LOGIC TESTS, DATA TESTS, MAINTENANCE MODE TESTS, AND LINE COUNT MODE. THE LOGIC AND DATA TESTS ARE PERFORMED SEQUENTIALLY; (EXCEPT LOGIC TEST 22 WHICH IS ENTERED VIA SWITCH TEN). THE MAINTENANCE MODE AND LINE COUNT MODE ARE ENTERED THROUGH THE CONSOLE SWITCHES.

THE PROGRAM IS DESIGNED TO PROVIDE THE OPERATOR WITH AS MUCH FLEXABILITY AS POSSIBLE THROUGH THE USE OF THE CONSOLE SWITCH REGISTER. USE OF THE SWITCHES PROVIDES FOR CONTROL OF ERROR PRINT, STOP ON ERROR, ITERATION OF DATA PATTERNS, REPEAT LOOP, ERROR STATUS BIT TESTING, MAINTENANCE MODE ENTRY, MAINTENANCE MODE INTERRUPT RECOGNITION, AND LINE COUNT MODE ENTRY.

2. REQUIREMENTS (EQUIPMENT)

- A. PDP-11/05,15,20,45
- B. TELETYPE
- C. LPC11 INTERFACE
- D. PDP-11/45 AND KL11-L LINE CLOCK
ARE REQUIRED FOR THE LINE COUNT MODE.

3. LOADING PROCEDURE

- A. USE STANDARD PROCEDURE FOR LOADING BINARY TAPES

4. STARTING PROCEDURE

- A. LOAD AND START 200 TO ENTER NEW VECTOR AND REGISTER ADDRESSES; SET CONSOLE SWITCHES BEFORE TYPING 'G'.
- B. LOAD AND START 204 TO BYPASS ENTRY OF NEW ADDRESSES; SET CONSOLE SWITCHES BEFORE TYPING 'G'.
- C. DUE TO FLOATABLE VECTOR AND REGISTER USAGE, A START AT 200 MUST BE DONE ON THE INITIAL RUN. THEREAFTER 204 MAY BE USED.
- D. THE PROGRAM WILL TYPE "END OF TEST" UPON COMPLETION OF A SINGLE PASS AND MAY BE RESTARTED BY PRESSING THE CONTINUE SWITCH.
- E. A POWER FAIL RESTART IS PROVIDED AND WILL TYPE A POWER FAIL MESSAGE BEFORE RESTARTING AT LOC 200(0).

5. CONSOLE SWITCH SETTINGS

- A. THE CONSOLE SWITCHES MAY BE SET TO ANY CONFIGURATION AND ARE APPLICABLE TO ALL TESTS.
- B. ANY SWITCH MAY BE CHANGED DYNAMICALLY.
- C. IF NO SWITCHES ARE SET THE PROGRAM WILL RUN IN THE "NORMAL" MANNER. THE SWITCHES SHOULD BE SET FOR ANY VARIATION DESIRED.

SWITCHES:

- SW 15: 1=NO ERROR PRINTS
2=PRINT ALL ERRORS
- SW 14: 1=STOP ON ERROR
2=CONTINUE ON ERROR
- SW 13: 1=LOOP MODE
2=SINGLE PASS
- SW 12: 1=INHIBIT DATA ITERATIONS
2=DO NOT INHIBIT ITERATIONS
- SW 11: 1=GO TO MAINTENANCE MODE
2=DO NOT ENTER MAINTENANCE MODE
- SW 10: 1=DO ERROR BIT TEST
2=DO NOT DO ERROR BIT TEST
- SW 9: 1=USE TESTER INTERRUPT FOR MAINTENANCE MODE
2=USE CONTROLLER INTERRUPT
- SW 8: 1=ENTER LINE COUNT MODE (PDP-11/45 ONLY)
2=DO NOT ENTER LINE COUNT MODE

6. ERROR PRINTOUTS

- A. THERE ARE THREE (3) TYPES OF ERROR PRINTOUTS:
 - 1. ILLEGAL VECTOR OR REGISTER ENTRY
 - 2. LOGIC TEST ERROR
 - 3. DATA TEST ERROR
- B. ANY ODD VECTOR OR REGISTER ADDRESS, OR OUT OF BOUNDS ENTRY (0-500 FOR VECTORS; 760000-777600 FOR REGISTERS) WILL RESULT IN AN ERROR PRINT AND REENTRY REQUEST, REGARDLESS OF CONSOLE SWITCH 15 SETTING.
- C. ANY LOGIC ERROR WILL RESULT IN A PRINT OUT OF THE TEST NUMBER AND ENGLISH LANGUAGE DESCRIPTION OF THE ERROR.
- D. ANY DATA ERROR WILL RESULT IN A PRINT OUT OF THE EXPECTED DATA AND THE RECEIVED DATA IN BIT FORMAT.

- E. CONSOLE SWITCH 15 CONDITIONS ERROR PRINTOUTS.
BY SETTING SWITCH 15 TO A ONE, ALL ERROR MESSAGES
ARE INHIBITED EXCEPT FOR ENTRY OF AN ILLEGAL
VECTOR OR REGISTER ADDRESS.
- F. CONSOLE SWITCH 14 CONDITIONS STOP/CONTINUE ON ERROR
IF A LOGIC TEST ERROR HALT IS ENCOUNTERED, THE
PROGRAM MAY BE RESTARTED BY PRESSING THE CONTINUE
SWITCH.
IF A DATA TEST ERROR HALT IS ENCOUNTERED, THE
PROGRAM MAY BE CONTINUED BY PRESSING THE CONTINUE
SWITCH.

7. TEST DESCRIPTIONS

- A. GROUP 11 LOGIC TESTS
THIS GROUP OF 22(8) TESTS WILL CHECK ALL USABLE BITS OF
BOTH THE TESTER AND CONTROLLER STATUS REGISTERS
FOR SET AND RESET. THE ERROR BIT (19) IN THE CONTROLLER
STATUS REGISTERS ONLY SETS WHEN THE INTERFACE IS
OFF LINE, THEREFORE REQUIRING MANUAL INTERVENTION
BY AN OPERATOR. CONSOLE SWITCH 18 CONDITIONS ENTRY
TO THIS TEST. WHEN ENTERED A MESSAGE WILL BE TYPED
REQUESTING THE INTERFACE BE PLACED 'OFF LINE', WHEN
COMPLETED ANOTHER MESSAGE WILL BE TYPED REQUESTING A RETURN
TO "ON LINE." THE ERROR BIT WILL BE CHECKED FOR
BOTH SET AND RESET.

- TEST11: ASSURE THAT ALL BITS OF THE CONTROLLER STATUS REGISTER
EXCEPT READY CAN BE CLEARED. BITS 0-9 ARE NOT CHECKED
AS THEY MAY BE USED FOR INTERFACE TYPE IDENTIFICATION
AT A LATER DATE.
- TEST21: ASSURE THAT ALL BITS OF THE TESTER STATUS REGISTER
EXCEPT READY CAN BE CLEARED.
- TEST31: ASSURE THAT THE CONTROLLER READY BIT WAS CLEARED BY INIT.
- TEST41: ASSURE THAT THE TESTER READY BIT WAS CLEARED BY INIT.
- TEST51: ASSURE THAT THE CONTROLLER READY BIT REMAINS RESET WHEN
A CHARACTER IS LOADED INTO THE CONTROLLER BUFFER.
- TEST61: ASSURE THAT THE TESTER READY BIT DOES SET UPON
COMPLETION OF DATA TRANSFER FROM CONTROLLER BUFFER TO
TESTER BUFFER.
- TEST71: ASSURE THAT THE GO BIT OF THE TESTER STATUS REGISTER
RESETS IMMEDIATELY AFTER BEING SET.
- TEST101: ASSURE THAT THE TESTER READY BIT IS NOT RESET BY
THE SETTING OF THE GO BIT.

- TEST11: ASSURE THAT THE CONTROLLER READY BIT SETS AFTER THE GO BIT IS SET TO COMPLETE THE CYCLE.
- TEST12: ASSURE THAT THE TESTER READY BIT IS NOT RESET AT THE END OF THE CYCLE.
- TEST13: ASSURE THAT THE CONTROLLER READY BIT IS NOT RESET AT THE END OF THE CYCLE.
- TEST14: ASSURE THAT THE TESTER INTERRUPT IS GENERATED AND RECOGNIZED AFTER COMPLETION OF A DATA TRANSFER CYCLE.
- TEST15: ASSURE THAT THE CONTROLLER INTERRUPT IS GENERATED AND RECOGNIZED AT THE END OF A CYCLE.
- TEST16: ASSURE THAT THE TESTER INTERRUPT WILL NOT BE RECOGNIZED WHEN THE INTERRUPT ENABLE BIT IS NOT SET.
- TEST17: ASSURE THAT THE TESTER INTERRUPT WILL NOT BE RECOGNIZED AT A PRIORITY LEVEL ABOVE FOUR (4).
- TEST20: ASSURE THAT THE CONTROLLER INTERRUPT IS NOT RECOGNIZED WHEN THE INTERRUPT ENABLE BIT IS NOT SET.
- TEST21: ASSURE THAT THE CONTROLLER INTERRUPT IS NOT RECOGNIZED AT A PRIORITY LEVEL ABOVE FOUR (4).
- TEST22: THIS TEST, ENTERED VIA CONSOLE SWITCH TEN (10), WILL CHECK THE ERROR STATUS BIT, BIT FIFTEEN (15), FOR THE PROPER STATE IN EACH MODE OF THE INTERFACE. OPERATOR INTERVENTION WILL BE REQUESTED ON THE TELETYPE TO SET THE MODE SWITCHES ON THE INTERFACE TO EACH OF THE FOUR STATES:
1. ON LINE - NORMAL MODE: BIT 15 = 0
 2. OFF LINE - NORMAL MODE: BIT 15 = 1
 3. OFF LINE - TEST MODE: BIT 15 = 1
 4. ON LINE - TEST MODE: BIT 15 = 1

B. GROUP 2: DATA TESTS
THIS GROUP OF 2 TESTS WILL PERFORM DATA CHECKS BY WRAPPING DATA AROUND FROM THE CONTROLLER BUFFER TO THE TESTER BUFFER AND COMPARING FOR ERRORS.

- TEST 1: WRAP - PATTERNS OF ALL ZEROS, ALL ONES, A ZERO WALKING FROM RIGHT TO LEFT IN A FIELD OF ONES, AND A ONE WALKING FROM RIGHT TO LEFT IN A FIELD OF ZEROS. THE DATA CAN BE OBSERVED IN THE INDICATOR LIGHTS ON THE INTERFACE PANEL.
- TEST 2: WRAP PATTERNS OF ALL POSSIBLE COMBINATIONS OF THE 8 BIT CHARACTER (2⁸ = 256).

THE PATTERNS IN TEST 1 ARE EACH REPEATED 512 TIMES AND EACH SET OF ALL BIT COMBINATIONS IS REPEATED 6 TIMES IN TEST 2. THESE ITERATIONS MAY BE INHIBITED VIA CONSOLE SWITCH 12.

- C. GROUP 3: MAINTENANCE MODE
THIS GROUP, ENTERED VIA CONSOLE SWITCH 11, WILL RUN CONTINUOUSLY AND SHOULD BE USED FOR DEBUGGING AND DELAY ADJUSTMENTS. A FULL CYCLE OF DATA WRAP AND INTERRUPT AT END OF CYCLE IS PERFORMED. THE INTERRUPT RECOGNIZED, TESTER OR CONTROLLER, IS VARIABLE DYNAMICALLY VIA CONSOLE SWITCH 9. THE INTERRUPT ENABLE INDICATORS ON THE INTERFACE PANEL WILL SHOW WHICH IS BEING USED. DATA IS TAKEN FROM CONSOLE SWITCHES 8-7 AND MAY BE VARIED DYNAMICALLY. THE DATA IS COMPLEMENTED ON EVERY OTHER PASS TO PROVIDE TRANSITIONS IN THE LOGIC.
- D. GROUP 4: LINE COUNT MODE
THIS GROUP, ENTERED VIA CONSOLE SWITCH EIGHT (8), WILL COUNT THE NUMBER OF CHARACTERS TRANSMITTED IN ONE SECOND AND DIVIDE THIS NUMBER BY 37 IN ORDER TO PROVIDE A PRINTOUT OF THE NUMBER OF LINES PER SECOND. THE TEST WILL ONLY RUN ON A PDP-11/45 WITH A KL11-L LINE CLOCK. AS LONG AS SWITCH 8 IS SET TO A ONE, THE TEST WILL CONTINUE TO RUN WITH A PRINTOUT APPROXIMATELY EVERY SECOND. CONSOLE SWITCH 13 (CONTINUOUS OR SINGLE PASS) WILL HAVE FULL USE DURING THIS TEST; HOWEVER, NO OTHER SWITCHES ARE USED.

8. LISTING

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.TITLE LPC11
.ABS

!LPC11 INTERFACE TEST
!MAINDEC-11-D2LPH-B-D
!FEBRUARY 25, 1973
!DIGITAL EQUIPMENT CORP. MAYNARD MASS.
!PROGRAMMER R. B. BARNES

!*****
!CONSOLE SWITCH SETTINGS
!
!SW 15: 1=NO ERROR PRINT
!      0=PRINT ALL ERRORS
!
!SW 14: 1=STOP ON ERROR
!      0=CONTINUE
!
!SW 13: 1=CONTINUE MODE
!      0=1 PASS ONLY
!
!SW 12: 1=INHIBIT ITERATIONS
!      0=NORMAL TEST
!
!SW 11: 1=MAINTENANCE MODE
!      0=NORMAL MODE
!
!SW 10: 1=DO ERROR BIT TEST
!      0=NO ERROR BIT TEST
!
!SW 9: 1=USE TESTER INTERRUPT IN MAINTENANCE MODE
!      0=USE CONTROLLER INTERRUPT
!
!SW 8: 1=ENTER LINE COUNT MODE (PDP-11/45 ONLY)
!      0=DO NOT ENTER LINE COUNT MODE
!*****

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40			
41			
42			IREGISTER EQUIVS
43			
44		000000	R0=R0
45		000001	R1=R1
46		000002	R2=R2
47		000003	R3=R3
48		000004	R4=R4
49		000005	R5=R5
50		000006	SP=R6
51		000007	PC=R7
52			
53			ITRAP CATCHERS 0-1000
54			
55		000000	.R0
56			.HEPT 200
57			.+2
58			HALT
59			.ENDR
60			
61			IPOWER FAIL VECTOR
62			
63		000024	.R24
64	000024	005352	PWRFAL
65	000026	000340	340
66			
67			ILINE CLOCK VECTOR
68			
69		000100	.R100
70	000100	004224	TINT
71	000102	000340	340
72			
73			

95

.....

1GO TO START BUT DO NOT SET ADDRESSES

97				
98	001000		.=1000	
99				
100			IFLAGS AND COUNTERS	
101				
102	001000	000000	PVEC: 0	IVECTOR POINTER SAVE
103	001002	000000	PHEG: 0	IREGISTER POINTER SAVE
104	001004	000000	PTNI: 0	ITEST NUMBER STORAGE
105	001006	000000	PSPS: 0	ISTACK POINTER SAVE LOC
106	001010	000000	PITA: 0	INTERRUPT RETURN STORAGE
107	001012	000000	PGOF: 0	IGO FLAG
108	001014	000000	PTIM1: 0	ITIMER
109	001016	000000	PTIM2: 0	IGROSS TIMER
110	001020	000000	PICI: 0	ITERATION CNTR
111	001022	000000	PCHAR: 0	ITEST CHAR TEMP STORAGE
112	001024	000000	TUBI: 0	ITTY OUTPUT BUFFER STORAGE
113	001026	000000	TIBI: 0	ITTY INPUT BUFFER STORAGE
114	001030	000000	ROTA: 0	IPOTATION FACTOR
115	001032	000000	PINTR: 0	INTERRUPT RETURN POINTER
116	001034	000000	PETI: 0	IERNOW BIT TEMP STORAGE
117				
118			ADDRESS CONSTANTS	
119				
120	001036	177560	TKSI: 177560	ITTY STATUS
121	001040	177562	TKBI: 177562	ITTY BUFFER
122	001042	177564	TPSI: 177564	ITTP STATUS
123	001044	177566	TPBI: 177566	ITTP BUFFER
124	001046	177546	LKSI: 177546	ILINE CLOCK REGISTER
125	001050	177570	SNRI: 177570	ICONSOLE SWITCH REGISTER
126	001052	177776	PSWI: 177776	IPROGRAM STATUS WORD
127	001054	000000	PCSI: 0	IPACESETTER STATUS
128	001056	000000	PCBI: 0	IPACESETTER BUFFER
129	001060	000000	PTSI: 0	ITEST STATUS
130	001062	000000	PTBI: 0	ITEST BUFFER

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132
133      001200      ,=1200
134
135      ;*****
136      ;PROGRAM START
137      ;
138      ;THIS IS THE HOUSE KEEPING ROUTINE
139      ;WHICH CLEANS ALL COUNTERS AND FLAGS
140      ;TYPES THE PROGRAM NAME, SETS UP
141      ;REGISTERS AND VECTOR ADDRESSES, ASSUMES
142      ;THAT THE LPC11 INTERFACE IS IN THE PROPER
143      ;MODE, AND CHECKS FOR MAINTENANCE MODE.
144      ;*****
145
146      ;CLEAR COUNTERS AND FLAGS
147
148      001200 012702 000001      PSKIP: MOV      #1,R2      ;SET SKIP FLAG
149      001204 000401      BR      PSTART      ;GO TO START
150      001206 005002      PBEG:  CLR      R2      ;RESET SKIP FLAG
151      001210 012706 000500      PSTART: MOV      #500,SP      ;SET STACK POINTER
152      001214 012777 000340 177630      MOV      #340,SPSW      ;SET PSW
153      001222 000005      RESET      ;RESET AT START OR RESTART
154      001224 005000      CLR      R0
155      001226 005300      DEC      R0
156      001230 001376      BNE      ,=2      ;DELAY FOR RESET
157      001232 012701 000014      MOV      #14,R1      ;R1=NUMBER OF LOCATIONS TO CLEAR
158      001236 012700 001034      MOV      #PET,R0      ;R0=START ADDR
159      001242 005010      CLR      R0
160      001244 005040      PCLR:  CLR      -(R0)      ;CLEAR ALL COUNTERS
161      001246 005301      DEC      R1
162      001250 001375      BNE      PCLR      ;CONTINUE UNTIL DONE
163      001252 005702      TST      R2      ;SEE IF SHOULD GET ADDR
164      001254 001137      BNE      PSMC      ;IF NOT; BR
165
166      ;PRINT PROGRAM NAME
167
168      001256 012704 005535      MOV      #MSG1,R4
169      001262 004767 003516      JSR      PC,TTOUT      ;TYPE PROGRAM NAME
170      001266 012704 005564      MOV      #MSG2,R4
171
172      ;GET NEW VECTOR ADDRESS
173
174      001272 004767 003506      JSR      PC,TTOUT      ;TYPE VECTOR REQUEST
175      001276 012704 001000      PV1:  MOV      #PVEC,R4      ;R4=VECTOR STORAGE ADDR
176      001302 012703 000003      MOV      #3,R3      ;R3=INPUT CHAR NUMBER
177      001306 012767 000003 177514      MOV      #3,ROTA      ;ROTA=ROTATION FACTOR
178      001314 012705 177770      MOV      #177770,R5      ;R5=MASK
179      001320 004767 003556      JSR      PC,READ      ;GO READ IN VECTOR
180      001324 032767 000001 177446      BIT      #1,PVEC      ;TEST FOR ODD ADDR
181      001332 001004      BNE      PVE      ;IF ODD; BR
182      001334 022767 000500 177436      CMP      #500,PVEC      ;TEST FOR TOO HIGH
183      001342 101005      BHI      PRG      ;IF OK; BR

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185 001344 012704 005624      PVE:  MOV  #MSG3,R4
186 001350 004767 003430      JSR  PC,TTOUT      ;TYPE ILLEGAL VECION
187 001354 000750      BH  PV1      ;TRY AGAIN
188
189      ;GEI NEW REGISTER ADDRESS
190
191 001356 012704 005660      PRG:  MOV  #MSG4,R4
192 001362 004767 003416      JSR  PC,TTOUT      ;TYPE REGISTER ADDR REQUEST
193 001366 012704 001002      PRG1: MOV  #PREG,R4
194 001372 012703 000006      MOV  #6,R3
195 001376 012767 000003 177424  MOV  #3,ROTA
196 001404 012705 177770      MOV  #177770,R5
197 001410 004767 003466      JSR  PC,HEAD      ;GO READ STARTING REGISTER ADDR
198 001414 032767 000001 177360  BIT  #1,PREG      ;TEST FOR ODD ADDR
199 001422 001010      BNE  PREG      ;IF ODD: BR
200 001424 022767 160000 177350  CMP  #160000,PREG  ;TEST FOR TOO LOW
201 001432 101004      BHI  PREG      ;IF TOO LOW: BR
202 001434 022767 177600 177340  CMP  #177600,PREG  ;TEST FOR TOO HIGH
203 001442 101005      BHI  PSET      ;IF NOT TO HIGH: BR
204 001444 012704 005722      PREG: MOV  #MSG5,R4
205 001450 004767 003330      JSR  PC,TTOUT      ;TYPE ILLEGAL REGISTER ADDR
206 001454 000744      BR  PRG1      ;TRY AGAIN
207 001456 016700 177320      PSET: MOV  PREG,R0      ;SET P. S. STATUS ADDR IN R0
208 001462 012701 001054      MOV  #PCS,R1      ;R1=PACESETTER STATUS ADDR
209      .REPT 4
210      MOV  R0,(R1)+      ;SET REGISTERS
211      ADD  #2,R0
212      .ENDR
213
214      ;REQUEST ON LINE/TEST MODE
215
216 001516 012704 005760      MOV  #MSG6,R4
217 001522 004767 003256      JSR  PC,TTOUT      ;REQUEST ON LINE/TEST MODE
218 001526 012704 001012      MOV  #PGOF,R4
219 001532 012703 000001      MOV  #1,R3
220 001536 012767 000003 177264  MOV  #3,ROTA
221 001544 012705 177770      MOV  #177770,R5
222 001550 004767 003326      JSR  PC,READ      ;SET MASK
223      ;AWAIT GO COMMAND
224
225      ;MAINTENANCE MODE CHECK
226 001554 032777 004000 177266  PSMC: BIT  #4000,OSWR      ;LOOK FOR MAINTENANCE MODE BIT
227 001562 001402      BEQ  PLCC      ;IF NOT: BR
228 001564 000167 002074      JMP  PSCOP      ;ELSE GO TO MAINTENANCE MODE
229
230      ;LINE COUNT MODE ENTRY CHECK
231
232 001570 032777 000400 177252  PLCC: BIT  #400,OSWR      ;SEE IF SHOULD ENTER LINE COUNT MODE
233 001576 001402      BEQ  PT1      ;IF NOT: BR
234 001600 000167 002306      JMP  PLC      ;ELSE GO TO LINE COUNT MODE
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255 001604 005077 177244 PT11 CLR 0PCS ;CLEAR CONT STATUS
256 001610 005077 177244 CLR 0PTS ;CLEAR TESTER STATUS
257 001614 012767 030460 177162 MOV 030460,PTN ;SAVE TEST NO.
258 001622 004767 003500 JSR PC,PRSTV ;RESET VECTORS
259 001626 032777 077500 177220 BIT 077500,0PCS ;LOOK FOR CLEAR
260 001634 001404 BEQ PT1A1 ;IF OKI BR
261 001636 012703 006276 MOV 0MSG13,R3 ;SET ERROR MSG ADDR
262 001642 000167 002450 JMP PLE ;GO TYPE ERROR
263
264
265
266 001646 012767 031060 177130 PT1A11 MOV 031060,PTN ;SAVE TEST NO.
267 001654 032777 077577 177176 BIT 077577,0PTS ;LOOK FOR CLEAR
268 001662 001404 BEQ PT1A1A ;IF OKI BR
269 001664 012703 006241 MOV 0MSG12,R3 ;SET ERROR MSG ADDR
270 001670 000167 002422 JMP PLE ;GO TYPE ERROR MSG
271
272
273
274 001674 012767 031460 177102 PT1A1A1 MOV 031460,PTN ;SAVE TEST NO.
275 001702 032777 000200 177144 BIT 0200,0PCS ;LOOK FOR CONT READY RESET
276 001710 001404 BEQ PT1A1B ;IF OKI BR
277 001712 012703 007573 MOV 0MSG41,R3 ;SET ERROR MSG ADDR
278 001716 000167 002374 JMP PLE ;GO TO ERROR ROUTINE
279
280
281
282 001722 012767 032060 177054 PT1A1B1 MOV 032060,PTN ;SAVE TEST NO.
283 001730 032777 000200 177122 BIT 0200,0PTS ;LOOK FOR TESTER READY RESET
284 001736 001404 BEQ PT1A2 ;IF OKI BR
285 001740 012703 007632 MOV 0MSG42,R3 ;SET ERROR MSG ADDR
286 001744 000167 002346 JMP PLE ;GO TO ERROR ROUTINE
287
288
289
290 001750 012767 032460 177026 PT1A21 MOV 032460,PTN ;SAVE TEST NO.
291 001756 012777 000000 177072 MOV 00,0PCB ;CLEAR BUFFER

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292	001764	032777	000200	177062		BIT	#200,#PCS	!LOOK FOR READY
293	001772	001404				BEG	PT1A3	!IF OK: BR
294	001774	012703	006337			MOV	#MSG14,R3	!SET ERROR MSG ADDR
295	002000	000167	002312			JMP	PLE	!GO TYPE ERROR MSG
296								
297								!LOGIC TEST 06: TESTER READY SET AFTER CHAR LOAD
298								
299	002004	012767	033060	176772	PT1A3:	MOV	#33060,PTN	!SAVE TEST NO.
300	002012	005067	176776			CLR	PTIM1	!SET TIMER
301	002016	005367	176772		PT1A3A:	DEC	PTIM1	!DELAY
302	002022	001375				BNE	PT1A3A	
303	002024	032777	000200	177026		BIT	#200,#PTS	!LOOK FOR TESTER READY
304	002032	001004				BNE	PT1A4	!IF OK: BR
305	002034	012703	006411			MOV	#MSG15,R3	!SET ERROR MSG ADDR
306	002040	000167	002252			JMP	PLE	!GO TYPE ERROR MSG
307								
308								!LOGIC TEST 07: ASSURE GO BIT RESET
309								
310	002044	012767	034060	176732	PT1A4:	MOV	#34060,PTN	!SAVE TEST NO.
311	002052	005277	177002			INC	#PTS	!SET GO
312	002056	012767	000100	176730		MOV	#100,PTIM1	!SET TIME
313	002064	005367	176724		PT1A:	DEC	PTIM1	!DELAY
314	002070	001375				BNE	PT1A	
315	002072	032777	000001	176760		BIT	#1,#PTS	!LOOK FOR GO RESET
316	002100	001404				BEG	PT1B1	!IF OK: BR
317	002102	012703	006460			MOV	#MSG16,R3	!SET ERROR MSG ADDR
318	002106	000167	002204			JMP	PLE	!GO TYPE ERROR MSG
319								
320								!LOGIC TEST 10: TESTER READY NOT RESET BY GO
321								
322	002112	012767	030061	176664	PT1B1:	MOV	#30061,PTN	!SAVE TEST NO.
323	002120	032777	000200	176732		BIT	#200,#PTS	!LOOK FOR TESTER READY NOT RESET
324	002126	001004				BNE	PT1B2	!IF OK: BR
325	002130	012703	006510			MOV	#MSG17,R3	!SET ERROR MSG ADDR
326	002134	000167	002156			JMP	PLE	!GO TYPE ERROR MSG
327								
328								!LOGIC TEST 11: CONT READY SET FROM GO
329								
330	002140	012767	030461	176636	PT1B2:	MOV	#30461,PTN	!SAVE TEST NO.
331	002146	005067	176642			CLR	PTIM1	!SET TIMER
332	002152	005367	176636		PT1B2A:	DEC	PTIM1	!DELAY
333	002156	001375				BNE	PT1B2A	
334	002160	032777	000200	176666		BIT	#200,#PCS	!LOOK FOR CONT READY SET
335	002166	001004				BNE	PT1B3	!IF OK: BR
336	002170	012703	006546			MOV	#MSG20,R3	!SET ERROR MSG ADDR
337	002174	000167	002116			JMP	PLE	!GO TYPE ERROR MSG
338								
339								!LOGIC TEST 12: TESTER READY AT END OF CYCLE
340								
341	002200	012767	032601	176576	PT1B3:	MOV	#32601,PTN	!SAVE TEST NO.
342	002206	012777	000000	176642		MOV	#0,#PCH	!LOAD CHAR
343	002214	005067	176574			CLR	PTIM1	!SET TIME
344	002220	005367	176570		PT1B:	DEC	PTIM1	!DELAY
345	002224	001375				BNE	PT1B	

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346 002226 032777 000200 176624      BIT      #200,OPTS      ;LOOK FOR TESTER READY
347 002234 001004          BNE      PT1C      ;IF OK: BR
348 002236 012703 006611      MOV      #MSG21,R3      ;SET ERROR MSG ADDR
349 002242 000167 002050      JMP      PLE      ;GO TYPE ERROR MSG
350
351                                ;LOGIC TEST 13: CONT READY RESET AT END OF CYCLE
352
353 002246 012767 031461 176530 PT1C:  MOV      #31461,PTN      ;SAVE TEST NO.
354 002254 005367 176534          DEC      PTIM1
355 002260 001372          RNE      PT1C      ;DELAY
356 002262 032777 000200 176564      BIT      #200,OPCS      ;LOOK FOR CONT READY
357 002270 001404          BEO      PT1E      ;IF OK: BR
358 002272 012703 006660      MOV      #MSG22,R3      ;SET ERROR MSG ADDR
359 002276 000167 002014      JMP      PLE      ;GO TYPE ERROR MSG
360
361                                ;LOGIC TEST 14: TESTER INTERRUPT
362
363 002302 012767 031461 176474 PT1E:  MOV      #31461,PTN      ;SAVE TEST NO.
364 002310 005077 176544          CLR      OPTS      ;CLEAR TESTER
365 002314 005077 176534          CLR      OPCS      ;CLEAR CONTROLLER
366 002320 016700 176454          MOV      PVEC,R0      ;R0 = STARTING VECTOR
367 002324 022020          CMP      (R0)+,(R0)+      ;POINT TO TESTER VECTOR
368 002326 012720 005236          MOV      #PINT,(R0)+      ;SET VECTOR ADDR
369 002332 012720 000340          MOV      #340,(R0)+      ;SET PSW
370 002336 052777 000100 176514      BIS      #100,OPTS      ;SET TESTER INTERRUPT ENABLE
371 002344 005067 176444          CLR      PTIM1      ;SET TIME
372 002350 012767 000010 176440      MOV      #10,PTIM2      ;SET TIME
373 002356 012767 002422 176446      MOV      #PT1FA,PINTR      ;SET RETURN
374 002364 005077 176462          CLR      OPSW      ;SET PSW TO LOWEST PRIORITY
375 002370 012777 000000 176460      MOV      #0,OPCB      ;LOAD CHAR
376 002376 005367 176412          PT1F:  DEC      PTIM1      ;DELAY
377 002402 001375          BNE      PT1F
378 002404 005367 176406          DEC      PTIM2      ;DELAY
379 002410 001372          BNE      PT1F
380 002412 012703 006727      MOV      #MSG24,R3      ;SET ERROR MSG ADDR
381 002416 000167 001674      JMP      PLE      ;GO TYPE ERROR MSG
382
383                                ;LOGIC TEST 15: CONT INTERRUPT
384
385 002422 012767 032461 176354 PT1FA:  MOV      #32461,PTN      ;SAVE TEST NO.
386 002430 005077 176424          CLR      OPTS      ;CLEAR TESTER INT ENABLE
387 002434 005067 176354          CLR      PTIM1
388 002440 005367 176350          PT1FB:  DEC      PTIM1
389 002444 001375          BNE      PT1FB      ;AWAIT COMPLETE FROM TESTER INTERRUPT
390 002446 005367 176342          PT1FC:  DEC      PTIM1
391 002452 001375          BNE      PT1FC
392 002454 004767 002646          JSR      PC,PRSTV      ;RESET VECTORS
393 002460 016700 176314          MOV      PVEC,R0      ;R0 = STARTING VECTOR
394 002464 012720 005236          MOV      #PINT,(R0)+      ;SET VECTOR ADDR
395 002470 012720 000340          MOV      #340,(R0)+      ;SET PSW
396 002474 052777 000100 176352      BIS      #100,OPCS      ;SET CONT INTERRUPT ENABLE
397 002502 012767 000010 176306      MOV      #10,PTIM2      ;SET TIME
398 002510 012767 002552 176314      MOV      #PT1H,PINTR      ;SET RETURN
399 002516 005077 176330          CLR      OPSW      ;SET PSW TO LOWEST PRIORITY

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400 002522 005277 176332          INC      OPTS          ;SET GO
401 002526 005367 176262          PT1G:  DEC      PTIM1
402 002532 001375                BNE      PT1G          ;DELAY
403 002534 005367 176256          DEC      PTIM2
404 002540 001372                BNE      PT1G          ;DELAY
405 002542 012703 006770          MOV      MSG25,R3      ;SET ERROR MSG ADDR
406 002546 000167 001544          JMP      PLE          ;GO TYPE ERROR MSG
407
408                                ;LOGIC TEST 16: TESTER INT ENABLE OFF
409
410 002552 012767 033061 176224  PT1H:  MOV      #33061,PTN      ;SAVE TEST NO.
411 002560 005077 176270          CLR      OPCB
412 002564 005077 176270          CLR      OPTS
413 002570 005005                CLR      R5          ;CLEAR FLAG
414 002572 012767 002704 176210  MOV      OPTIM,PITA      ;SET POINTER
415 002600 012704 002674          MOV      OPTIL,R4      ;SET RETURN ADDRESS
416 002604 005003                CLR      R3
417 002606 016700 176166          MOV      PVEC,R0      ;R0=STARTING VECTOR ADDRESS
418 002612 022020                CMP      (R0)+,(R0)+      ;POINT TO TESTER VECTOR
419 002614 012720 005224          PT1HA: MOV      OPTS,(R0)+      ;SET VECTOR TO SERVICE ROUTINE
420 002620 012720 000340          MOV      #340,(R0)+      ;SET PSW TO PRIORITY 7
421 002624 010467 176202          PT1HB: MOV      R4,PINTR      ;SET INTERRUPT RETURN
422 002630 010377 176216          MOV      R3,OPSW      ;SET PSW
423 002634 005067 176154          CLR      PTIM1      ;CLEAR TIMER
424 002640 012777 000000 176210  MOV      #0,OPCB      ;LOAD CHAR
425 002646 005367 176142          PT1J:  DEC      PTIM1
426 002652 001375                BNE      PT1J          ;DELAY
427 002654 005367 176134          PT1K:  DEC      PTIM1
428 002660 001375                BNE      PT1K          ;DELAY
429 002662 012777 000340 176162  MOV      #340,OPSW      ;RESET PSW TO PRIORITY 7
430 002670 000177 176114          JMP      OPITA      ;CONTINUE TO NEXT TEST
431 002674 012703 007246          PT1L:  MOV      MSG34,R3      ;TYPE ERROR
432 002700 000167 001412          JMP      PLE
433
434                                ;LOGIC TEST 17: TESTER INT AT HIGHER LEVEL
435
436 002704 012767 033461 176072  PT1M:  MOV      #33461,PTN      ;SAVE TEST NO.
437 002712 005077 176144          CLR      OPTB
438 002716 005077 176136          CLR      OPTS
439 002722 005077 176126          CLR      OPCB
440 002726 005705                TST      R5          ;SEE IF TESTER COMPLETE
441 002730 001029                BNE      PT1P          ;IF SOME
442 002732 005205                INC      R5          ;SET FLAG
443 002734 005367 176054          PT1M1: DEC      PTIM1
444 002740 001375                BNE      PT1M1
445 002742 005077 176110          CLR      OPCB
446 002746 052777 000100 176104  BIS      #100,OPTS      ;SET TESTER INTERRUPT ENABLE
447 002754 012777 000200 176070  MOV      #200,OPSW      ;PSW SETTING = PRIORITY 4
448 002762 012767 002774 176042  MOV      OPTIN,PINTR      ;LOAD RETURN ADDRESS
449 002770 000167 177652          JMP      PT1J      ;DELAY FOR INTERRUPT
450 002774 012703 007323          PT1N:  MOV      MSG35,R3
451 003000 000167 001312          JMP      PLE          ;GO TO ERROR ROUTINE
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457 003004 012767 030062 175772 PT1P: MOV      #30062,PTN      ;SAVE TEST NO.
458 003012 005077 176044          CLR      OPTB
459 003016 005077 176036          CLR      OPTS
460 003022 005077 176026          CLR      OPCS
461 003026 005005          CLR      R5          ;CLEAR FLAG
462 003030 016700 175744          MOV      PVEC,R0      ;ROM VECTOR ADDRESS
463 003034 005003          CLR      R3          ;R3=PSW
464 003036 012704 003104          MOV      #PT1R,R4      ;R4=INTERRUPT RETURN ADDR
465 003042 012767 003114 175740          MOV      #PT1S,PTA      ;SET CONTINUE ADDR
466 003050 012720 005224          MOV      #PINTS,(R0)+    ;SET VECTOR ADDR
467 003054 012720 000340          MOV      #340,(R0)+    ;SET PSW
468 003060 010467 175746          MOV      R4,PINTR      ;SET RETURN ADDR
469 003064 010377 175762          MOV      R3,OPSW      ;SET PSW
470 003070 005067 175720          CLR      PTIM1      ;SET TIMER
471 003074 005277 175760          INC      OPTS      ;SET GO
472 003100 000167 177542          JMP      PT1J      ;TEST CONT INTERRUPT
473 003104 012703 007376          PT1R: MOV      #MSG36,R3
474 003110 000167 001202          JMP      PLE          ;GO TO ERROR ROUTINE
475
476
477
478 003114 012767 030462 175662 PT1S: MOV      #30462,PTN      ;SAVE TEST NO.
479 003122 005077 175734          CLR      OPTB
480 003126 005077 175726          CLR      OPTS
481 003132 005077 175716          CLR      OPCS
482 003136 005705          TST      R5          ;SEE IF DONE BOTH TESTS
483 003140 001016          BNE      PEBT      ;IF SO:BR
484 003142 005205          INC      R5          ;SET FLAG
485 003144 052777 000100 175702          BIS      #100,OPCS      ;SET CONTROLLER INTERRUPT ENABLE
486 003152 012703 000200          MOV      #200,R3      ;SET PSW
487 003156 012704 003166          MOV      #PT1T,R4      ;SET INTERRUPT RETURN ADDR
488 003162 000167 177672          JMP      PT1Q      ;TEST CONTROLLER
489 003166 012703 007457          PT1T: MOV      #MSG37,R3
490 003172 000167 001120          JMP      PLE          ;GO TO ERROR ROUTINE
491
492
493
494 003176 012767 031062 175600 PEBT: MOV      #31062,PTN      ;SAVE TEST NUMBER
495 003204 004767 002116          JSR      PC,PRSTV      ;RESET VECTORS.
496 003210 032777 002000 175632          BIT      #2000,OPWR      ;SEE IF ERROR BIT TEST
497 003216 001002          BNE      PEBT0      ;IF SO: BR
498 003220 000167 000150          JMP      PDAT      ;ELSE GO TO DATA TEST
499 003224 005067 175604          PEBT0: CLR      PET      ;TEST FOR RESET
500 003230 012704 007720          MOV      #MSG44,R4      ;REQUEST ON LINE - NORMAL MODE
501 003234 004767 000052          JSR      PC,PEBT1
502 003240 012767 100000 175566          MOV      #100000,PET      ;TEST FOR SET
503 003246 012704 010061          MOV      #MSG45,R4      ;REQUEST OFF LINE - NORMAL MODE
504 003252 004767 000034          JSR      PC,PEBT1
505 003256 012704 006131          MOV      #MSG11,R4      ;REQUEST OFF LINE - TEST MODE
506 003262 004767 000024          JSR      PC,PEBT1
507 003266 012704 005760          MOV      #MSG6,R4      ;REQUEST ON LINE - TEST MODE

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LPC11B.SRC

506	003272	004767	000014		JSR	PC,PEBT1	
509	003276	012704	010174		MOV	8MSG46,R4	
510	003302	004767	001476		JSR	PC,ITOUT	ITYPE ERROR HIT OK
511	003306	000167	000062		JMP	PDAT	IGO TO DATA TEST
512	003312	004767	001466	PEBT1:	JSR	PC,ITOUT	ITYPE MSG
513	003316	016704	175470		MOV	PGOF,R4	
514	003322	012703	000001		MOV	81,R3	
515	003326	012767	000003	175474	MOV	83,HOTA	
516	003334	012705	177770		MOV	8177770,R5	
517	003340	004767	001536		JSR	PC,READ	IAWAIT GO REPLY
518	003344	017700	175504	PEBT2:	MOV	8PCS,R0	ISAVE CONTROLLER STATUS
519	003350	042700	077777		BIC	877777,R0	IMASK ERROR BIT
520	003354	020067	175454		CMP	R0,PET	ISEE IF ERROR HIT IN PROPER STATE
521	003360	001404			BEQ	PEBT3	IF SOI BR
522	003362	012703	007035		MOV	8MSG26,R3	
523	003366	000167	000724		JMP	PLE	IGO TYPE ERROR MSG
524	003372	000207		PEBT3:	RTS	PC	
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550 003374 012701 005466          PDAT1: MOV      @PPATS,R1          ;R1=START OF DATA TABLE
551 003400 012767 001000 175412 PDAT0: MOV      #1000,PIC
552 003406 005077 175442          CLR      @PCB
553 003412 005077 175442          CLR      @PTS
554 003416 005077 175440          CLR      @PTB
555 003422 005067 175374          CLR      PCHAR
556 003426 022701 005510          CMP      @PPATE,R1          ;LOOK FOR END OF DATA TABLE
557 003432 001437              BEQ      PDAT4          ;IF SO:BR
558 003434 112167 175362          MOVB     (R1)+,PCHAR          ;SET CHAR
559 003440 116777 175356 175410 PDAT1: MOVB     PCHAR,@PCB          ;SET BUFFER
560 003446 005067 175342          CLR      PTIM1          ;SET TIMER
561 003452 032777 000200 175400 PDAT2: BIT      #200,@PTS          ;AWAIT TESTER READY
562 003460 001005              BNE      PDAT2A          ;IF HAVE: BR
563 003462 005367 175326          DEC      PTIM1          ;DELAY
564 003466 001371              BNE      PDAT2
565 003470 000167 000100          JMP      PDAT7A          ;TYPE ERROR
566 003474 117700 175362          PDAT2A: MOVB     @PTB,R0          ;R0=INPUT CHAR
567 003500 120067 175316          CNPB     R0,PCHAR          ;COMPARE INPUT/OUTPUT
568 003504 001402              BEQ      PDAT3          ;IF OK: BR
569 003506 004767 000672          JSR      PC,PDE          ;GO TYPE ERROR
570 003512 032777 010000 175330 PDAT3: BIT      #10000,@S=NR          ;LOOK FOR INHIBIT ITERATIONS
571 003520 001327              BNE      PDAT0          ;IF SO: BR
572 003522 005367 175272          DEC      PIC          ;DECREMENT ITERATION COUNTER
573 003526 001344              BNE      PDAT1          ;IF NOT DONE: BR
574 003530 000723              BR       PDAT0          ;ELSE GET NEXT PATTERN
575
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578 003532 012767 000006 175260 PDAT4: MOV      #6,PIC          ;SET ITERATION CNTR
579 003540 005067 175256          PDAT5: CLR      PCHAR
580 003544 016777 175252 175304 PDAT6: MOV      PCHAR,@PCB          ;SET BUFFER

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581	003552	005067	175236		CLR	PTIM1	ICLEAR 11MEN
582	003556	032777	000200	175274	PDAT7:	#200,0PTS	!LOOK FOR READY BIT SET
583	003564	001011			RNE	PDAT7B	!IF OK: BR
584	003566	005367	175222		DEC	PTIM1	
585	003572	001371			BNE	PDAT7	!AWAIT READY
586	003574	012704	007205		PDAT7A:	MSG33,R4	
587	003600	004767	001200		JSR	PC,ITOUT	!TYPE NO READY IN DATA TEST
588	003604	000167	000746		JMP	PEND	!GO TO END ROUTINE
589	003610	117700	175246		PDAT7B:	0PTS,R0	!ROW INPUT CHAR
590	003614	120067	175202		CMPS	R0,PCHAR	!TEST CHAR
591	003620	001402			BEQ	PDAT10	!IF OK: BR
592	003622	004767	000556		JSR	PC,PDL	!GO TYPE ERROR
593	003626	005267	175170		PDAT10:	PCHAR	!SET NEW CHAR
594	003632	032767	000400	175162	BIT	#400,PCHAR	!SEE IF DONE ALL
595	003640	001741			BEQ	PDAT6	!IF NOT: BR
596	003642	032777	010000	175200	BIT	#10000,0S#R	!LOOK FOR INHIBIT ITERATIONS
597	003650	001003			RNE	PDAT11	!IF SO: BR
598	003652	005367	175142		DEC	PIC	!LOOK FOR COMPLETE ITERATIONS
599	003656	001330			BNE	PDAT5	!IF NOT: BR
600	003660	000167	000672		PDAT11:	JMP	!GO TO END ROUTINE
601						PEND	

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625 003664 017702 175160      PSCOP1: MOV      0SWR,R2      ;R2 = DATA FROM SWITCHES
626 003670 010203              MOV      R2,R3
627 003672 127702 175152      PSCOP01: CMPB     0SWR,R2      ;SEE IF NEW DATA
628 003676 001372              BNE       PSCOP      ;IF SO: BR
629 003700 012777 000340 175144 MOV      0340,0PSW      ;RESET PSW TO PRIORTY 7
630 003706 005077 175146      CLR       0PTS      ;CLEAR STATUS REGISTERS
631 003712 005077 175136      CLR       0PCS
632 003716 004767 001404      JSR       PC,PRSTV      ;RESET VECTORS
633 003722 032777 001000 175120 BIT       01000,0SWR      ;SEE IF TESTER INTERRUPT
634 003730 001012              BNE       PSCOP1      ;IF SO: BR
635 003732 016700 175042      MOV       PVEC,R0      ;R0 = STARTING VECTOR
636 003736 012720 005224      MOV       0PINTS,(R0)+ ;SET VECTOR FOR MAINTENANCE MODE TRAP
637 003742 012720 000340      MOV       0340,(R0)+
638 003746 052777 000100 175100 BIS       0100,0PCS      ;SET CONTROLLER INTERRUPT ENABLE
639 003754 000412              BR        PSCOP2
640 003756 052777 000100 175074 PSCOP11: BIS       0100,0PTS      ;SET TESTER INTERRUPT ENABLE
641 003764 016700 175010      MOV       PVEC,R0      ;R0 = STARTING VECTOR
642 003770 022020              CMP       (R0)+,(R0)+ ;POINT TO TESTER VECTOR
643 003772 012720 005224      MOV       0PINTS,(R0)+ ;SET VECTOR ADDR TO MAINTENANCE MODE TRAP
644 003776 012720 000340      MOV       0340,(R0)+
645 004002 012767 004052 175022 PSCOP21: MOV      0PSCOP4,PINTR ;SET RETURN ADDR
646 004010 012767 000010 175000 MOV      010,PTIM2      ;SET DELAY
647 004016 005067 174772      CLR       PTIM1      ;SET DELAY
648 004022 110377 175030      MOVB     R3,0PCB      ;LOAD CHAR
649 004026 005277 175026      INC      0PTS      ;SET GO BIT
650 004032 005077 175014      CLR      0PSW      ;SET TO PRIORITY 0
651 004036 005367 174752      PSCOP31: DEC      PTIM1
652 004042 001375              BNE      PSCOP3
653 004044 005367 174746      DEC      PTIM2
654 004050 001372              BNE      PSCOP3
655 004052 005103              PSCOP41: COM      R3      ;COMPLEMENT DATA
656 004054 032777 001000 174766 BIT       01000,0SWR      ;SEE IF ON TESTER INTERRUPT

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657	004062	001703		BEO	PSCOPO	IF NOT: BR
658	004064	005067	174724	CLR	PTIM1	
659	004070	032777	000200 174762	BIT	6200,PTS	LOOK FOR TESTER READY
660	004076	001275		BNE	PSCOPO	IF SU: BR
661	004100	005367	174710	DEC	PTIM1	
662	004104	001371		BNE	PSCOPS	DELAY FOR COMPLETE FROM TESTER
663	004106	000167	177560	JMP	PSCOPO	CONTINUE

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682 004112 005077 174742      PLC:  CLR      OPTS      ;CLEAR TESTER STATUS
683 004116 005077 174732      CLR      OPC6      ;CLEAR CONTROLLER STATUS
684 004122 005077 174720      CLR      OLKS      ;CLEAR LINE CLOCK
685 004126 005003              CLR      R3       ;CLEAR CHARACTER COUNTER
686 004130 005277 174724      INC      OPTS      ;SET GO
687 004134 016701 000152      MOV      LINE,R1    ;SET DIVISON
688 004140 052777 000100 174712  BIS      @100,OPTS    ;SET TESTER INTERRUPT ENABLE
689 004146 016700 174626      MOV      PVEC,R0
690 004152 022020              CMP      (R0)+,(R0)+ ;POINT TO TESTER VECTOR
691 004154 012720 004232      MOV      @DINT,(R0)+ ;SET VECTOR
692 004160 012710 000340      MOV      @340,(R0)  ;SET TRAP PSW
693 004164 016700 000124      MOV      TIME,R0    ;SET 1 SECOND TIMER
694 004170 005077 174656      CLR      OPSW      ;CLEAR PSW
695 004174 032777 000200 174644  PLC1:  BIT      @200,OLKS
696 004202 001774              BEQ      PLC1
697 004204 052777 000100 174634  BIS      @100,OLKS    ;AWAIT CLOCK CYCLE START
698 004212 010077 174640      PLC2:  MOV      R0,OPCB    ;SET CLOCK INTERRUPT ENABLE
699 004216 000001              WAIT
700 004220 000167 177766      JMP      PLC2      ;TRANSMIT CHARACTER
701
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704 004224 005300              ;AWAIT INTERRUPT
705 004226 001405              ;CONTINUE
706 004230 000002
707
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710 004232 005203              ;CLOCK TIMER INTERRUPT HANDLER
711 004234 005277 174620      TINT:  DEC      R0       ;SEE IF DONE 1 SECOND
712 004240 000002              BEQ      PLCP      ;IF 80: BR
713
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716 004242 005077 174600      RTI              ;ELSE RETURN
717 004246 005077 174606
718 004252 005077 174576

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;*****
;GROUP 4: LINE COUNT MODE
;
;THE LINE COUNT MODE, ENTERED VIA
;CONSOLE SWITCH 8, WILL PROVIDE A
;PRINTOUT OF THE DATA TRANSFER RATE
;IN LINES PER SECOND. EACH PASS
;OF THE LINE COUNT MODE WILL COUNT
;THE NUMBER OF 37 CHARACTER GROUPS
;AND PRINT OUT THE AMOUNT IN
;DECIMAL FORM. THE TEST WILL BE
;PERFORMED PER SWITCH 13; CONTINUOUSLY
;OR SINGLE PASS.
;NO OTHER SWITCHES HAVE EFFECT.
;*****

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;CLOCK TIMER INTERRUPT HANDLER

;DATA INTERRUPT HANDLER

;LINE COUNT PRINT ROUTINE

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PLCP:  CLR      OLKS      ;CLEAR CLOCK
        CLR      OPTS      ;CLEAR TESTER
        CLR      OPC6      ;CLEAR CONTROLLER

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719	004256	071103				DIV	R3,R1	1DIVIDE CHARACTER AMOUNT BY LINE FACTOR
720	004260	012704	007673			MOV	MSG43,R4	
721	004264	004767	000914			JSR	PC,TTOUT	1PRINT HEADER
722	004270	004767	000310			JSR	PC,DECPNT	1PRINT LINE AMOUNT IN DECIMAL
723	004274	032777	020000	174546		BIT	020000,05WR	1SEE IF CONTINUOUS MODE
724	004302	001001				BNE	PLCG	1IF SOI BR
725	004304	000000				HALT		
726	004306	000167	175256		PLCG:	JMP	PLCC	1CONTINUE
727								
728	004312	000045			LINE:	45		1DIVISION FOR 37 CHARACTER PER LINE
729	004314	000072			TIME:	72		1TIMER FOR 1 SECOND AT 60 CYCLES
730								
731								1*****
732								1LOGIC TEST ERROR ROUTINE
733								1
734								1THIS ROUTINE IS USED TO DISPLAY THE
735								1TEST NUMBER AND ERROR CONDITION FOUND
736								1DURING GROUP 1.
737								1ERROR PRINTING IS CONDITIONED BY
738								1CONSOLE SWITCH 15. CONSOLE SWITCH 14
739								1CONDITIONS STOP OR CONTINUE ON ERROR.
740								1DUE TO TIMING AND SEQUENCE CONSIDERATIONS
741								1ANY LOGIC ERROR WILL RESULT IN A RESTART
742								1OF THE LOGIC TEST.
743								1*****
744								
745	004316	032777	100000	174524	PLE:	BIT	0100000,05WR	1SEE IF NO PRINT
746	004324	001012				BNE	PCONTL	1IF SOI BR
747	004326	012704	005512			MOV	MSG0,R4	1R4 = TEST NUMBER MSG ADDR
748	004332	016764	174446	000020		MOV	PTN,+20(R4)	1SET TEST NUMBER
749	004340	004767	000440			JSR	PC,TTOUT	1GO TYPE TEST NUMBER
750	004344	010304				MOV	R3,R4	1R4 = ERROR MAG ADDR
751	004346	004767	000432			JSR	PC,TTOUT	1PRINT ERROR
752	004352	032777	040000	174470	PCONTL:	BIT	040000,05WR	1SEE IF HALT ON ERROR
753	004360	001401				BEQ	PGOL	1IF NOT: BR
754	004362	000000				HALT		
755	004364	032777	002000	174456	PGOL:	BIT	02000,05WR	1SEE IF IN ERROR BIT TEST
756	004372	001774				BEQ	PGOL	1IF NOT: BR
757	004374	000167	176744			JMP	PEBT2	1RETRY ERROR BIT TEST
758	004400	000167	174574		PGO:	JMP	PSKIP	1RESTART
759								

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777 004404 032777 100000 174436 PDE1 BIT 0100000,0SWR ;SEE IF NO PRINT
778 004412 001053 BNE PCONTD ;IF NO PRINT: BR
779 004414 012704 007123 MOV 0MSG27,R4 ;SET ERROR MSG ADDR
780 004420 004767 000360 JSR PC,TTOUT
781 004424 012704 007140 MOV 0MSG30,R4
782 004430 004767 000350 JSR PC,TTOUT ;TYPE EXPECTED DATA HEADER
783 004434 005003 CLR R3
784 004436 016704 174360 MOV PCHAR,R4 ;R4 = EXPT CHAR
785 004442 012705 000010 PDE1: MOV 010,R5 ;R5 = NUMBER OF BITS TO TYPE
786 004446 105777 174370 PDE2: TSTB 0TPB
787 004452 100375 BPL PDE2 ;AWAIT TTY READY
788 004454 132704 000200 BITB 0200,R4 ;SEE IF ONE OR ZERO
789 004460 001404 BEQ PDE3 ;IF ZERO: BR
790 004462 012777 000061 174354 MOV 0061,0TPB ;TYPE A ONE
791 004470 000403 BR PDE4
792 004472 012777 000060 174344 PDE3: MOV 0060,0TPB ;TYPE A ZERO
793 004500 006104 PDE4: ROL R4 ;GET NEXT BIT
794 004502 005305 DEC R5 ;SEE IF DONE ALL
795 004504 001360 BNE PDE2 ;IF NOT: BR
796 004506 005703 TST R3 ;LOOK FOR RECIEVED DONE FLAG
797 004510 001010 BNE PDE5 ;IF NOT: BR
798 004512 012704 007161 MOV 0MSG31,R4
799 004516 004767 000262 JSR PC,TTOUT ;TYPE RECIEVED DATA HEADER
800 004522 005203 INC R3 ;SET FLAG
801 004524 010004 MOV R0,R4 ;SET RECIEVED CHAR IN R4
802 004526 000167 177710 JMP PDE1 ;DO RECIEVED
803 004532 012704 007202 PDE5: MOV 0MSG32,R4
804 004536 004767 000242 JSR PC,TTOUT ;TYPE CR/LF
805 004542 032777 040000 174300 PCONTD: BIT 040000,0SWR ;SEE IF HALT ON ERROR
806 004550 001401 BEQ PGOD ;IF NO: BR
807 004552 000000 HALT
808 004554 000207 PGOD: RTS PC ;RETURN
809

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622	004556	032777	020000	174264	PEND:	BIT	020000,0SWR			
623	004564	001005				BNE	PLOOP			
624	004566	012704	006067			MOV	04SG7,R4			
625	004572	004767	000206			JSR	PC,ITOUT			
626	004576	000000				HALT				
627	004600	000167	174374		PLOOP:	JMP	P&KIP			
628										

```

;*****
;PROGRAM END ROUTINE
;
;THIS ROUTINE IS USED TO PRINT OUT
;"END OF TEST" AND THEN HALT AT
;THE END OF A SINGLE PASS ON TO
;RESTART WITH NO PRINT OUT DEPENDING
;ON CONSOLE SWITCH 13.
;*****

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830
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837 004604 012767 177773 000152 DECPNT: MOV      #5,DIGCNT
838 004612 012767 004772 000150      MOV      @DECPNT+2,DECPNT
839 004620 005067 000142      CLR      ZERO
840 004624 012767 177777 000130 TYPT1:  MOV      #1,DIGIT
841 004632 005267 000124      TYPT2:  INC      DIGIT
842 004636 167703 000126      SUB      @DECPNT,R3
843 004642 100373      BPL      TYPT2
844 004644 067703 000120      ADD      @DECPNT,R3
845 004650 004767 000020      JSR      PC,DECOUT
846 004654 005267 000104      INC      DIGCNT
847 004660 001001      BNE      TYPT3
848 004662 000207      RTS      PC
849 004664 062767 000002 000076 TYPT3:  ADD      #2,DECPNT
850 004672 000754      BH      TYPT1
851 004674 005767 000062      DECOUT: TST      DIGIT
852 004700 001010      BNE      DEC1
853 004702 022767 177777 000054      CMP      #1,DIGCNT
854 004710 001404      BEQ      DEC1
855 004712 016767 000050 000042      MOV      ZERO,DIGIT
856 004720 000406      BR      DEC2
857 004722 012767 000260 000036 DEC1:  MOV      #260,ZERO
858 004730 052767 000260 000024      BIS      #260,DIGIT
859 004736 005767 000020      DEC2:  TST      DIGIT
860 004742 001406      BEQ      DEC3
861 004744 105777 174072      TSTB     @TP5
862 004750 100372      BPL      DEC2
863 004752 016777 000004 174064      MOV      DIGIT,@TPB
864 004760 000207      DEC3:  RTS      PC
865
866 004762 000000      DIGIT:  0
867 004764 000000      DIGCNT: 0
868 004766 000000      ZERO:   0
869 004770 004772      DECPNT:  .+2
870 004772 023420      10000.
871 004774 001750      1000.
872 004776 000144      100.
873 005000 000012      10.
874 005002 000001      1.
875

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884 005004 112467 174014      TTOUT:  MOVB    (R4)+,TOB      ;TOB = OUTPUT CHAN
885 005010 122767 000043 174006      CMPB    #43,TOB      ;LOOK FOR TERMINATOR
886 005016 001430                BEQ     TEX          ;EXIT
887 005020 122767 000045 173776      CMPB    #45,TOB      ;LOOK FOR CR/LF
888 005026 001403                BEQ     TCRLF         ;IF SO: BR
889 005030 004767 000030                JSR     PC,TOG      ;GO TYPE CHAR
890 005034 000763                BR      TTOUT         ;CONTINUE
891 005036 112767 000015 173760      TCRLF:  MOVB    #15,TOB      ;TOB = CR
892 005044 004767 000014                JSR     PC,TOG      ;GO TYPE CR
893 005050 112767 000012 173746      MOVB    #12,TOB      ;TOB = LF
894 005056 004767 000002                JSR     PC,TOG      ;GO TYPE LF
895 005062 000750                BR      TTOUT         ;CONTINUE
896 005064 105777 173752                TOG:   TSTB    #TPB      ;LOOK FOR DONE
897 005070 100375                BPL     TOG          ;AWAIT FLAG
898 005072 116777 173726 173744      MOVB    TOB,#TPB     ;ECHO CHAN
899 005100 000207                TEX:   RTS     PC          ;EXIT
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909 005102 005014                READ:   CLR     #R4          ;CLEAR FOR INPUT
910 005104 004767 000042                READ1: JSR     PC,TTIN        ;GO READ KEYBOARD AND ECHO
911 005110 022767 000215 173710      CMP     #215,TIB     ;LOOK FOR CR
912 005116 001414                BEQ     REX          ;IF SO: BR
913 005120 016701 173704                MOV     ROTA,R1      ;SET ROTATION FACTOR
914 005124 000241                ROT:   CLC
915 005126 006114                ROL     #R4          ;ROTATE INPUT
916 005130 005301                DEC     R1          ;DECREMENT POSITION FACTOR
917 005132 001374                BNE     ROT          ;DO ALL ROTATIONS
918 005134 040567 173666                BIC     #5,TIB        ;STRIP ASCII
919 005140 056714 173662                BIS     TIB,#R4      ;SET NEW DIGIT
920 005144 005303                DEC     R3          ;DECREMENT CHAR CNTR
921 005146 001356                BNE     READ1         ;CONTINUE
922 005150 000207                REX:   RTS     PC          ;EXIT
923
924
925
926 005152 005077 173660                TTIN:  CLR     #TKS      ;GET CHAR FROM KEYBOARD AND ECHO
927 005156 005077 173656                CLR     #TKB
928 005162 005067 173640                CLR     TIB
929 005166 005277 173644                INC     #TKS          ;SET READER GO BIT
930 005172 105777 173640                TTIN1: TSTB    #TKS      ;AWAIT DONE

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931	005176	100375				BPL	TTIN1	
932	005200	017767	173634	173620		MOV	0TKB,TIB	ITIB = INPUT CHAR
933	005206	105777	173630		TTIN2:	TSTB	0TP5	IAWAIT PUNCH READY
934	005212	100375				BPL	TTIN2	
935	005214	116777	173606	173622		MOVB	TIB,0TPB	ISK1 ECHO
936	005222	000207				RIS	PC	EXIT
937								


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940
941      ;*****
942      ;MAINTENANCE MODE INTERRUPT ROUTINE
943      ;
944      ;THIS ROUTINE IS USED TO RESET THE
945      ;STACK POINTER AND TO RESET VECTORS
946      ;TO HALTS THEN RETURN.
947      ;*****
948      005224 032626          PINT5: BIT      (SP)+,(SP)+      ;RESET STACK POINTER
949      005226 004767 000074    JSR      PC,PRSTV      ;RESET VECTORS
950      005232 000177 173574    JMP      @PINTR      ;RETURN
951
952      ;*****
953      ;LOGIC TEST INTERRUPT ROUTINE
954      ;
955      ;THIS ROUTINE IS USED TO RESET THE
956      ;THE STACK POINTER AND TO ASSURE THAT
957      ;THE INTERRUPT DOES INDEED CLEAR.
958      ;IF THE INTERRUPT SHOULD NOT CLEAR
959      ;IT WILL BE FLAGGED AS AN ERROR.
960      ;IF THE INTERRUPT IS CLEARED, THEN
961      ;THE VECTORS WILL BE RESET AND A
962      ;RETURN EXECUTED.
963      ;*****
964
965      005236 022626          PINT1: CMP      (SP)+,(SP)+      ;RESET STACK POINTER
966      005240 005077 173614    CLR      @PTS      ;RESET INTERRUPT ENABLE IN TESTER
967      005244 005077 173604    CLR      @PCS      ;RESET CONT INTERRUPT ENABLE
968      005250 024040          CMP      -(R0),-(R0)      ;POINT TO PROPER VECTOR
969      005252 012720 005316    MOV      @PINTL,(R0)+      ;SET TO ERROR VECTOR
970      005256 012720 000340    MOV      @340,(R0)+
971      005262 005077 173564    CLR      @PSW      ;SET PSW TO LOWEST PRIORITY
972      005266 005067 173522    CLR      PTIM1      ;SET TIME
973      005272 005367 173516          PINT11: DEC      PTIM1
974      005276 001375          BNE      PINT1      ;AWAIT ANY ERROR INTERRUPTS
975      005300 012777 000340 173544    MOV      @340,@PSW      ;RESET PSW
976      005306 004767 000014          JSR      PC,PRSTV      ;RESET VECTORS
977      005312 000177 173514          JMP      @PINTR      ;RETURN
978      005316 012704 006105          PINTL: MOV      @MSG10,R4
979      005322 000167 176770          JMP      PLE      ;GO TO ERROR ROUTINE
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991 005326 016700 173446 PRSTV: MOV PVEC,H0 ;RO = CONT VECTOR
992 005332 010001 MOV R0,R1
993 005334 005721 TST (R1)+ ;POINT TO CONT HALT LOC
994 005336 010120 MOV R1,(R0)+ ;SET CONT VECTOR ADDR
995 005340 005020 CLR (H0)+ ;SET CONT HALT
996 005342 022121 CMP (R1)+,(R1)+ ;POINT TO TESTER HALT
997 005344 010120 MOV R1,(R0)+ ;SET TESTER VECTOR ADDR
998 005346 005020 CLR (R0)+ ;SET TESTER HALT
999 005350 000207 RTS PC ;RETURN

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1010 005352 010046 PWRFAL: MOV R0,-(SP)
1011 005354 010146 MOV R1,-(SP)
1012 005356 010246 MOV R2,-(SP)
1013 005360 010346 MOV R3,-(SP)
1014 005362 010446 MOV R4,-(SP)
1015 005364 010546 MOV R5,-(SP)
1016 005366 016746 172432 MOV 24,-(SP)
1017 005372 010667 173410 MOV SP,PSPS ;SAVE STACK POINTER
1018 005376 012767 005406 172420 MOV @PWRUP,24
1019 005404 000000 HALT

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1030 005406 012777 000340 173436 PWRUP: MOV @340,@PSW
1031 005414 016706 173366 MOV PSPS,SP
1032 005420 012667 172400 MOV (SP)+,24
1033 005424 012605 MOV (SP)+,R5
1034 005426 012604 MOV (SP)+,R4
1035 005430 012603 MOV (SP)+,R3

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1036	005432	012602	MOV	(SP)+,R2	
1037	005434	012601	MOV	(SP)+,R1	
1038	005436	012600	MOV	(SP)+,R0	
1039	005440	005005	CLR	R5	
1040	005442	005305	DEC	R5	
1041	005444	001376	BNE	.-2	
1042	005446	012704	MOV	MSG40,R4	ITYPE POWER FAIL MESSAGE
1043	005452	004767	JSR	PC,TTOUT	
1044	005456	005305	DEC	R5	
1045	005460	001376	BNE	.-2	
1046	005462	000167	JMP	PHEG	
1047					


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1055 005466      000      377      376  PPATB: .EVEN
      005471      375      373      367      .BYTE  0,377,376,375,373,367,357,337,277,177
      005474      357      337      277
      005477      177
1056 005500      001      002      004      .BYTE  1,2,4,10,20,40,100,200
      005503      010      020      040
      005506      100      200
1057 005510      377      PPATE: .BYTE  377
1058      005512      .EVEN
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1064
1065 005512 046045 043517 041511 MSG0: .ASCII  /%LOGIC TEST NO. 00%/
      005520 052040 051505 020124
      005526 047516 020056 030060
      005534      043
1066
1067 005535      045 050114 030503 MSG1: .ASCII  /%LPC11 INTERFACE TEST%/
      005542 020061 047111 042524
      005550 043122 041501 020105
      005556 042524 052123 021445
1068
1069 005564 042445 052116 051105 MSG2: .ASCII  /%ENTER STARTING VECTOR ADDRESS%/
      005572 051440 040524 052122
      005600 047111 020107 042526
      005606 052103 051117 040440
      005614 042104 042522 051523
      005622 021445
1070
1071 005624 044445 046114 043505 MSG3: .ASCII  /%ILLEGAL VECTOR: TRY AGAIN%/
      005632 046101 053040 041505
      005640 047524 035122 052040
      005646 054522 040440 040507
      005654 047111 021445
1072
1073 005660 042445 052116 051105 MSG4: .ASCII  /%ENTER STARTING REGISTER ADDRESS%/
      005666 051440 040524 052122
      005674 047111 020107 042522
      005702 044507 052123 051105
      005710 040440 042104 042522
      005716 051523 021445
1074
1075 005722 044445 046114 043505 MSG5: .ASCII  /%ILLEGAL REGISTER: TRY AGAIN%/
      005730 046101 051040 043505
      005736 051511 042524 035122

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LPC11F.SRC

	005744	052040	054522	040440	
	005752	040507	047111	021445	
1076					
1077	005760	051445	052105	044440	MSG6: .ASCII /%SET INTERFACE TO 'ON LINE' AND 'TEST MODE'%/
	005766	052116	051105	040506	
	005774	042503	052040	020117	
	006002	047447	020116	044514	
	006010	042516	020047	047101	
	006016	020104	052047	051505	
	006024	020124	047515	042504	
	006032	022447			
1076	006034	054524	042520	023440	.ASCII /TYPE 'G' WHEN READY TO GO%/
	006042	023507	053440	042510	
	006050	020116	042522	042101	
	006056	020131	047524	043440	
	006064	022517	043		
1079					
1080	006067	045	047105	020104	MSG7: .ASCII /%END OF TEST%/
	006074	043117	052040	051505	
	006102	022524	043		
1081					
1082	006105	045	047111	042524	MSG10: .ASCII /%INTERRUPT HANG UP%/
	006112	051122	050125	020124	
	006120	040510	043516	052440	
	006126	021520	045		
1083					
1084	006131	045	042523	020124	MSG11: .ASCII /%SET INTERFACE TO 'OFF LINE' AND 'TEST MODE'%/
	006136	047111	042524	043122	
	006144	041501	020105	047524	
	006152	023440	043117	020106	
	006160	044514	042516	020047	
	006166	047101	020104	052047	
	006174	051505	020124	047515	
	006202	042504	022447		
1085	006206	054524	042520	023440	.ASCII /TYPE 'G' WHEN READY TO GO%/
	006214	023507	053440	042510	
	006222	020116	042522	042101	
	006230	020131	047524	043440	
	006236	022517	043		
1086					
1087	006241	045	040503	047116	MSG12: .ASCII /%CANNOT CLEAR TESTER STATUS%/
	006246	052117	041440	042514	
	006254	051101	052040	051505	
	006262	042524	020122	052123	
	006270	052101	051525	021445	
1088					
1089	006276	041445	047101	047516	MSG13: .ASCII /%CANNOT CLEAR CONTROLLER STATUS%/
	006304	020124	046103	040505	
	006312	020122	047503	052116	
	006320	047522	046114	051105	
	006326	051440	040524	052524	
	006334	022523	043		
1090					
1091	006337	045	047503	052116	MSG14: .ASCII /%CONTROLLER READY NOT RESET BY CHAR LOAD%/

	006344	047522	046114	051105	
	006352	051040	040505	054504	
	006360	047040	052117	051040	
	006366	051505	052105	041040	
	006374	020131	044103	051101	
	006402	046040	040517	022504	
	006410	043			
1092					
1093	006411	045	042524	052123	MSG15: .ASCII /%TESTER READY NOT SET AFTER CHAR LOAD%/
	006416	051105	051040	040505	
	006424	054504	047040	052117	
	006432	051440	052105	040440	
	006440	052106	051105	041440	
	006446	040510	020122	047514	
	006454	042101	021445		
1094					
1095	006460	043445	020117	044502	MSG16: .ASCII /%GO BIT WILL NOT RESET%/
	006466	020124	044527	046114	
	006474	047040	052117	051040	
	006502	051505	052105	021445	
1096					
1097	006510	052045	051505	042524	MSG17: .ASCII /%TESTER READY RESETS FROM GO%/
	006516	020122	042522	042101	
	006524	020131	042522	042523	
	006532	051524	043040	047522	
	006540	020115	047507	021445	
1098					
1099	006546	041445	047117	051124	MSG20: .ASCII /%CONTROLLER READY NOT SET FROM GO%/
	006554	046117	047514	020122	
	006562	042522	042101	020131	
	006570	047516	020124	042523	
	006576	020124	051106	046517	
	006604	043440	022517	043	
1100					
1101	006611	045	042524	052123	MSG21: .ASCII /%TESTER READY NOT SET AT END OF CYCLE%/
	006616	051105	051040	040505	
	006624	054504	047040	052117	
	006632	051440	052105	040440	
	006640	020124	047105	020104	
	006646	043117	041440	041531	
	006654	042514	021445		
1102					
1103	006660	041445	047117	051124	MSG22: .ASCII /%CONTROLLER READY SET AT END OF CYCLE%/
	006666	046117	042514	020122	
	006674	042522	042101	020131	
	006702	042523	020124	052101	
	006710	042440	042116	047440	
	006716	020106	054503	046103	
	006724	022505	043		
1104					
1105	006727	045	047516	044440	MSG24: .ASCII /%NO INTERRUPT FROM TESTER READY%/
	006734	052116	051105	052522	
	006742	052120	043040	047522	
	006750	020115	042524	052123	

LPC11B.SPC

	006756	051105	051040	040505	
	006764	054504	021445		
1106					
1107	006770	047045	020117	047111	MSG25: .ASCII /%NO INTERRUPT FROM CONTROLLER READY%/
	006776	042524	051122	050125	
	007004	020124	051106	046517	
	007012	041440	047117	051124	
	007020	046117	042514	020122	
	007026	042522	042101	022531	
	007034	043			
1108					
1109	007035	045	051105	047522	MSG26: .ASCII /%ERROR BIT WILL NOT GO TO PROPER STATE%/
	007042	020122	044502	020124	
	007050	044527	046114	047040	
	007056	052117	043440	020117	
	007064	047524	050040	047522	
	007072	042520	020122	052123	
	007100	052101	022505		
1110	007104	047506	020122	044124	.ASCII /%FOR THIS MODE%/
	007112	051511	046440	042117	
	007120	022505	043		
1111					
1112	007123	045	040504	040524	MSG27: .ASCII /%DATA ERROR%/
	007130	042440	051122	051117	
	007136	021445			
1113					
1114	007140	042445	050130	041505	MSG30: .ASCII /%EXPECTED DATA: %/
	007146	042524	020104	040504	
	007154	040524	020072	043	
1115					
1116	007161	045	042522	044503	MSG31: .ASCII /%RECEIVED DATA: %/
	007166	053105	042105	042040	
	007174	052101	035101	021440	
1117					
1118	007202	022445	043		MSG32: .ASCII /%%/
1119					
1120					
1121	007205	045	047516	051040	MSG33: .ASCII /%NO READY FLAG DURING DATA TEST%/
	007212	040505	054504	043040	
	007220	040514	020107	052504	
	007226	044522	043516	042040	
	007234	052101	020101	042524	
	007242	052123	021445		
1122					
1123	007246	052045	051505	042524	MSG34: .ASCII /%TESTER INTERRUPTS WITH NO INTERRUPT ENABLE%/
	007254	020122	047111	042524	
	007262	051122	050125	051524	
	007270	053440	052111	020110	
	007276	047516	044440	052116	
	007304	051105	052522	052120	
	007312	042440	040516	046102	
	007320	022505	043		
1124					
1125	007323	045	042524	052123	MSG35: .ASCII /%TESTER INTERRUPTS AT HIGHER THAN LEVEL 4%/

	007330	051105	044440	052116	
	007336	051105	052522	052120	
	007344	020123	052101	044040	
	007352	043511	042510	020122	
	007360	044124	047101	046040	
	007366	053105	046105	032040	
	007374	021445			
1126					
1127	007376	041445	047117	051124	MSG36: .ASCII /%CONTROLLER INTERRUPTS WITH NO INTERRUPT ENABLE%/
	007404	046117	042514	020122	
	007412	047111	042524	051122	
	007420	050125	051524	053440	
	007426	052111	020110	047516	
	007434	044440	052116	051105	
	007442	052522	052120	042440	
	007450	040516	046102	022505	
	007456	043			
1128					
1129	007457	045	047503	052116	MSG37: .ASCII /%CONTROLLER INTERRUPTS AT HIGHER THAN LEVEL 4%/
	007464	047522	046114	051105	
	007472	044440	052116	051105	
	007500	052522	052120	020123	
	007506	052101	044040	043511	
	007514	042510	020122	044124	
	007522	047101	046040	053105	
	007530	046105	032040	021445	
1130					
1131	007536	051045	051505	040524	MSG40: .ASCII /%RESTART FROM POWER FAILURE%/
	007544	052122	043040	047522	
	007552	020115	047520	042527	
	007560	020122	040506	046111	
	007566	051125	022505	043	
1132					
1133	007573	045	047503	052116	MSG41: .ASCII /%CONT READY NOT RESET BY INIT%/
	007600	051040	040505	054504	
	007606	047040	052117	051040	
	007614	051505	052105	041040	
	007622	020131	047111	052111	
	007630	021445			
1134					
1135	007632	052045	051505	042524	MSG42: .ASCII /%TESTER READY NOT RESET BY INIT%/
	007640	020122	042522	042101	
	007646	020131	047516	020124	
	007654	042522	042523	020124	
	007662	054502	044440	044516	
	007670	022524	043		
1136					
1137	007673	045	044514	042516	MSG43: .ASCII /%LINES PER SECOND: %/
	007700	020123	042520	020122	
	007706	042523	047503	042116	
	007714	020072	021445		
1138					
1139	007720	042445	051122	051117	MSG44: .ASCII /%ERROR STATUS BIT TEST %/
	007726	051440	040524	052524	

	007734	020123	044502	020124	
	007742	042524	052123	022440	
1140	007750	042523	020124	047111	.ASCII /SET INTERFACE TO 'ON LINE' AND 'NORMAL MODE'</td>
	007756	042524	043122	041501	
	007764	020105	047524	023440	
	007772	047117	046040	047111	
	010000	023505	040440	042116	
	010006	023440	047516	046522	
	010014	046101	046440	042117	
	010022	023505	045		
1141	010025	124	050131	020105	.ASCII /TYPE 'G' WHEN READY TO GO </td>
	010032	043447	020047	044127	
	010040	047105	051040	040505	
	010046	054504	052040	020117	
	010054	047507	022440	043	
1142					
1143	010061	045	042523	020124	MSG45: .ASCII /</td>
	010066	047111	042524	043122	
	010074	041501	020105	047524	
	010102	023440	043117	020106	
	010110	044514	042516	020047	
	010116	047101	020104	047047	
	010124	051117	040515	020114	
	010132	047515	042504	022447	
1144	010140	054524	042520	023440	.ASCII /TYPE 'G' WHEN READY TO GO </td>
	010146	023507	053440	042510	
	010154	020116	042522	042101	
	010162	020131	047524	043440	
	010170	020117	021445		
1145					
1146	010174	042445	051122	051117	MSG46: .ASCII /</td>
	010202	041040	052111	047440	
	010210	022513	043		
1147		000001			.END

M3

LPC11F.SPC CROSS REFERENCE TABLE

PCR	001056	128	291	342	375	424	445	559	580	648	698			
PCHAN	001022	111	555	558	559	567	579	560	590	593	594	784		
PCLF	001244	160	162											
PCONTD	004542	778	805											
PCONTL	004352	746	752											
PCS	001054	127	208	255	259	275	292	334	356	365	396	411	439	460
		481	485	516	552	631	638	663	718	967				
PDA1	003374	498	511	550										
PDA10	003400	551	571	574										
PDA11	003440	559	573											
PDA110	003626	591	593											
PDA111	003660	597	600											
PDA12	003452	561	564											
PDA12A	003474	562	566											
PDA13	003512	568	570											
PDA14	003532	557	578											
PDA15	003540	579	599											
PDA16	003544	580	595											
PDA17	003556	582	585											
PDA17A	003574	585	586											
PDA17B	003610	583	589											
PDE	004404	569	592	777										
PDE1	004442	785	802											
PDE2	004446	786	787	795										
PDE3	004472	789	792											
PDE4	004500	791	793											
PDE5	004532	797	803											
PEB1	003176	483	494											
PEBT0	003224	497	499											
PEBT1	003312	501	504	506	508	512								
PEBT2	003344	518	757											
PEBT3	003372	521	524											
PEND	004556	588	600	822										
PET	001034	116	158	499	502	520								
PGO	004400	758												
PGOD	004554	806	808											
PGOF	001012	107	218	513										
PGOL	004364	753	755	756										
PIC	001020	110	551	572	578	598								
PINI	005236	368	394	965										
PINTE	005316	969	978											
PINIF	001032	115	373	398	421	448	468	645	950	977				
PINIS	005224	419	466	636	643	948								
PINT1	005272	973	974											
PITA	001010	106	414	430	465									
PLC	004112	234	682											
PLCC	001570	227	232	726										
PLCG	004306	724	726											
PLCP	004242	705	716											
PLC1	004174	695	696											
PLC2	004212	698	700											
PLE	004316	262	270	278	286	295	306	318	326	337	349	359	381	406
		432	451	474	490	523	745	979						
PLOOP	004600	823	827											

PPATE	005510	556	1057*															
PPA1S	005466	550	1055*															
PREG	001002	103*	193	198	200	202	207											
PREGE	001444	199	201	204*														
PRG	001356	183	191*															
PRG1	001366	193*	206															
PRSTV	005326	258	392	495	632	949	976	991*										
PSCOP	003664	228	625*	628														
PSCOP0	003672	627*	657	660	663													
PSCOP1	003756	634	640*															
PSCOP2	004002	639	645*															
PSCOP3	004036	651*	652	654														
PSCOP4	004052	645	655*															
PSCOP5	004070	659*	662															
PSET	001456	203	207*															
PSKIP	001200	92	148*	758	827													
PSMC	001554	164	226*															
PSPS	001006	105*	1017*	1031														
PSTART	001210	149	151*															
PSW	001052	126*	152*	374*	399*	422*	429*	447*	469*	629*	650*	694*	971*	975*				
		1030*																
PTB	001062	130*	437*	458*	479*	554*	566	589										
PTIM1	001014	108*	300*	301*	312*	313*	331*	332*	343*	344*	354*	371*	376*	387*				
		388*	390*	401*	423*	425*	427*	443*	470*	560*	563*	581*	584*	647*				
		651*	658*	661*	972*	973*												
PTIM2	001016	109*	372*	378*	397*	403*	646*	653*										
PTN	001004	104*	257*	266*	274*	282*	290*	299*	310*	322*	330*	341*	353*	363*				
		385*	410*	436*	457*	478*	494*	748										
PTS	001060	129*	256*	267	283	303	311*	315	323	346	364*	370*	386*	400*				
		412*	438*	446*	459*	471*	480*	553*	561	582	630*	640*	649*	659				
		682*	686*	688*	711*	717*	966*											
PT1	001604	233	255*															
PT1A	002064	313*	314															
PT1A1	001646	260	266*															
PT1A1A	001674	268	274*															
PT1A1B	001722	276	282*															
PT1A2	001750	284	290*															
PT1A3	002004	293	299*															
PT1A3A	002016	301*	302															
PT1A4	002044	304	310*															
PT1b	002220	344*	345															
PT1B1	002112	316	322*															
PT1B2	002140	324	330*															
PT1b2A	002152	332*	333															
PT1b3	002200	335	341*															
PT1C	002246	347	353*	355														
PT1E	002302	357	363*															
PT1F	002376	376*	377	379														
PT1FA	002422	373	385*															
PT1FP	002440	388*	389															
PT1FC	002446	390*	391															
PT1G	002526	401*	402	404														
PT1H	002552	398	410*															
PT1HA	002614	419*																

PT1HB	002624	421*												
PT1J	002646	425*	426	449	472									
PT1K	002654	427*	428											
PT1L	002674	415	431*											
PT1M	002704	414	436*											
PT1M1	002734	443*	444											
PT1N	002774	446	450*											
PT1P	003004	441	457*											
PT1Q	003060	468*	488											
PT1R	003104	464	473*											
PT1S	003114	465	478*											
PT1T	003166	487	489*											
PVE	001344	181	185*											
PVEC	001000	102*	175	180	182	366	393	417	462	635	641	689	991	
PV1	001276	175*	187											
PWRFAL	005352	64	1010*											
PWRUP	005406	1018	1030*											
READ	005102	179	197	222	517	909*								
READ1	005104	910*	921											
REX	005150	912	922*											
ROT	005124	914*	917											
ROTA	001030	114*	177*	195*	220*	515*	913							
RO	=0000000	44*	154*	155*	158*	159*	160*	207*	212*	366*	367	368*	369*	393*
		394*	395*	417*	418	419*	420*	462*	466*	467*	518*	519*	520	566*
		567	589*	590	635*	636*	637*	641*	642	643*	644*	689*	690	691*
		692*	693*	698	704*	801	968	969*	970*	991*	992	994*	995*	997*
		998*	1010	1038*										
R1	=0000001	45*	157*	161*	208*	212*	550*	556	558	687*	719*	913*	916*	992*
		993	994	996	997	1011	1037*							
R2	=0000002	46*	148*	150*	163	625*	626	627	1012	1036*				
R3	=0000003	47*	176*	194*	219*	261*	269*	277*	285*	294*	305*	317*	325*	336*
		348*	358*	380*	405*	416*	422	431*	450*	463*	469	473*	486*	489*
		514*	522*	626*	648	655*	685*	710*	719	750	783*	796	800*	842*
		844*	920*	1013	1035*									
R4	=0000004	48*	168*	170*	175*	185*	191*	193*	204*	216*	218*	415*	421	464*
		468	487*	500*	503*	505*	507*	509*	513*	586*	720*	747*	748*	750*
		779*	781*	784*	788	793*	798*	801*	803*	824*	884	909*	915*	919*
		978*	1014	1034*	1042*									
R5	=0000005	49*	178*	196*	221*	413*	440	442*	461*	482	484*	516*	785*	794*
		918	1015	1033*	1039*	1040*	1044*							
SP	=0000006	50*	151*	948	965	1010*	1011*	1012*	1013*	1014*	1015*	1016*	1017	1031*
		1032	1033	1034	1035	1036	1037	1038						
SBR	001050	125*	226	232	496	570	596	625	627	633	656	723	745	752
		755	777	805	822									
TCRLF	005036	888	891*											
TEX	005100	886	899*											
TIB	001026	113*	911	918*	919	928*	932*	935						
TIME	004314	693	729*											
TINT	004224	70	704*											
TKB	001040	121*	927*	932										
TAS	001036	120*	926*	929*	930									
TOB	001024	112*	884*	885	887	891*	893*	898						
TOG	005064	889	892	894	896*	897								
TPB	001044	123*	790*	792*	863*	898*	935*							

TPS	001042	1228	786	861	896	933								
TTIN	005152	910	9268											
TTIN1	005172	9308	931											
TTIN2	005206	9338	934											
TTOUT	005004	169	174	186	192	205	217	510	512	587	721	749	751	780
		782	799	804	825	8648	890	895	1043					
TYPT1	004624	8408	850											
TYPT2	004632	8418	843											
TYPT3	004664	847	8498											
ZERO	004766	8398	855	8578	8688									
.	= 010213	558	59	638	698	888	918	988	1338	156	869	1041	1045	10588

ADD	212	844	849												
BEG	227	233	260	268	276	284	293	316	357	521	557	568	591	595	657
	696	705	753	756	789	806	854	860	886	888	912				
BHI	183	201	203												
BIC	519	918													
BIS	370	396	446	485	638	640	688	697	858	919					
BIT	180	198	226	232	259	267	275	283	292	303	315	323	334	346	356
	496	561	570	582	594	596	633	656	659	695	723	745	752	755	777
	805	822	948												
BITB	788														
BNE	156	162	164	181	199	302	304	314	324	333	335	345	347	355	377
	379	389	391	402	404	426	428	441	444	463	497	562	564	571	573
	583	585	597	599	628	634	652	654	660	662	724	746	778	795	797
	823	847	852	917	921	974	1041	1045							
BPL	787	843	862	897	931	934									
BR	149	187	206	574	639	791	850	856	890	895					
CLC	914														
CLR	150	154	159	160	255	256	300	331	343	364	365	371	374	386	387
	399	411	412	413	416	423	437	438	439	445	458	459	460	461	463
	470	479	480	481	499	552	553	554	555	560	579	581	630	631	647
	650	658	682	683	684	685	694	716	717	718	783	839	909	926	927
	928	966	967	971	972	995	998	1039							
CMP	182	200	202	367	418	520	556	642	690	853	911	965	968	996	
CMPH	567	590	627	885	887										
COM	655														
DEC	155	161	301	313	332	344	354	376	378	388	390	401	403	425	427
	443	563	572	584	598	651	653	661	704	794	916	920	973	1040	1044
DIV	719														
HALT	59	725	754	807	826	1019									
INC	311	400	442	471	484	593	649	686	710	711	800	841	846	929	
JMP	89	92	228	234	262	270	278	286	295	306	318	326	337	349	359
	381	406	430	432	449	451	472	474	488	490	498	511	523	565	588
	600	663	700	726	757	758	802	827	950	977	979	1046			
JSR	169	174	179	186	192	197	205	217	222	258	392	495	501	504	506
	508	510	512	517	569	587	592	632	721	722	749	751	780	782	799
	804	825	845	889	892	894	910	949	976	1043					
MOV	148	151	152	157	158	168	170	175	176	177	178	185	191	193	194
	195	196	204	207	208	212	216	218	219	220	221	257	261	266	269
	274	277	282	285	290	291	294	299	305	310	312	317	322	325	330
	336	341	342	348	353	358	363	366	368	369	372	373	375	380	385
	393	394	395	397	398	405	410	414	415	417	419	420	421	422	424
	429	431	436	447	448	450	457	462	464	465	466	467	468	469	473
	478	486	487	489	494	500	502	503	505	507	509	513	514	515	516
	518	522	550	551	578	580	586	625	626	629	635	636	637	641	643
	644	645	646	687	689	691	692	693	698	720	747	748	750	779	781
	784	785	790	792	798	801	803	824	837	838	840	855	857	863	913
	932	969	970	975	978	991	992	994	997	1010	1011	1012	1013	1014	1015
	1016	1017	1018	1030	1031	1032	1033	1034	1035	1036	1037	1038	1042		
MOVB	558	559	566	589	648	884	891	893	898	935					
RESET	153														
ROL	793	915													
RTI	706	712													
RTS	524	808	848	864	899	922	936	999							
SUB	842														

TST	163	440	482	796	851	859	993								
TSTH	786	861	896	930	933										
WAIT	699														
.ABS	3														
.ASCII	1065	1067	1069	1071	1073	1075	1077	1078	1080	1082	1084	1085	1087	1089	1091
	1093	1095	1097	1099	1101	1103	1105	1107	1109	1110	1112	1114	1116	1118	1121
	1123	1125	1127	1129	1131	1133	1135	1137	1139	1140	1141	1143	1144	1146	
.BYTE	1055	1056	1057												
.END	1147														
.EVEN	1054	1058													
.REPT	56	209													
.TITLE	2														

ERRORS DETECTED: 0

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LPC11B.SRC

•LPC11B/I,LPC11B/CRF,LPC11B.SRC
RUN-TIME: 3 7 1 SECONDS
CORE USED: 6K