

LPD

INTERFACE DIAGNOSTIC
MD-11-DZLPJ-B

EP-DZLPJ-B-DL-A

OCT 1976

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FICHE 1 OF 1

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TEST 1	TEST 2	TEST 3	TEST 4
TEST 5	TEST 6	TEST 7	TEST 8
TEST 9	TEST 10	TEST 11	TEST 12
TEST 13	TEST 14	TEST 15	TEST 16
TEST 17	TEST 18	TEST 19	TEST 20
TEST 21	TEST 22	TEST 23	TEST 24
TEST 25	TEST 26	TEST 27	TEST 28
TEST 29	TEST 30	TEST 31	TEST 32
TEST 33	TEST 34	TEST 35	TEST 36
TEST 37	TEST 38	TEST 39	TEST 40
TEST 41	TEST 42	TEST 43	TEST 44
TEST 45	TEST 46	TEST 47	TEST 48
TEST 49	TEST 50	TEST 51	TEST 52
TEST 53	TEST 54	TEST 55	TEST 56
TEST 57	TEST 58	TEST 59	TEST 60
TEST 61	TEST 62	TEST 63	TEST 64
TEST 65	TEST 66	TEST 67	TEST 68
TEST 69	TEST 70	TEST 71	TEST 72
TEST 73	TEST 74	TEST 75	TEST 76
TEST 77	TEST 78	TEST 79	TEST 80
TEST 81	TEST 82	TEST 83	TEST 84
TEST 85	TEST 86	TEST 87	TEST 88
TEST 89	TEST 90	TEST 91	TEST 92
TEST 93	TEST 94	TEST 95	TEST 96
TEST 97	TEST 98	TEST 99	TEST 100

.REM *

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZLPJ-B-D
 PRODUCT NAME: LPD11 INTERFACE
 DIAGNOSTIC TEST
 DATE CREATED: NOVEMBER 7, 1974
 MAINTAINER: DIAGNOSTIC GROUP
 AUTHOR: R. MOORE

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1. ABSTRACT

THIS DIAGNOSTIC WILL EXERCISE ALL LOGIC FUNCTIONS AND DATA CAPABILITIES OF THE LPD11 CONTROLLER. 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 FIVE (5) TEST PARTS: LOGIC TESTS, DATA TESTS, MAINTENANCE MODE TESTS, LINE COUNT TEST AND THE DATA OUTPUT TEST. THE LOGIC AND DATA TESTS ARE PERFORMED SEQUENTIALLY: (EXCEPT LOGIC TEST 22 WHICH IS ENTERED VIA SWITCH TEN). THE MAINTENANCE MODE, LINE COUNT TEST AND DATA OUTPUT TEST 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, LINE COUNT TEST ENTRY AND DATA OUTPUT TEST ENTRY.

2. REQUIREMENTS (EQUIPMENT)

- A. PDP-11 FAMILY
B. CONSOLE TELETYPE
C. LPD11 CONTROLLER
D. LPC01 INTERFACE - REQUIRED FOR PART 1 - TEST 22
E. PHOTO-COMPOSITION MACHINE OR LPC01 - REQUIRED FOR PART 5
F. PDP-11/45 AND KW11-L LINE CLOCK
ARE REQUIRED FOR THE LINE COUNT TEST.

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 VIA TTY; SET CONSOLE SWITCHES BEFORE TYPING '3'.
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(8).

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
0=PRINT ALL ERRORS

SW 14: 1=STOP ON ERROR
0=CONTINUE ON ERROR

SW 13: 1=LOOP MODE
0=SINGLE PASS

SW 12: 1=INHIBIT DATA ITERATIONS
0=DO NOT INHIBIT ITERATIONS

SW 11: 1=GO TO MAINTENANCE MODE
0=DO NOT ENTER MAINTENANCE MODE

SW 10: 1=DO ERROR BIT TEST
0=DO NOT DO ERROR BIT TEST

SW 9: 1=USE TESTER INTERRUPT FOR MAINTENANCE MODE
0=USE CONTROLLER INTERRUPT

SW 8: 1=ENTER LINE COUNT TEST (PDP-11/45 ONLY)
0=DO NOT ENTER LINE COUNT TEST

SW 6: 1=ENTER DATA OUTPUT TEST
0=DO NOT ENTER DATA OUTPUT TEST

SW 1: 1=IF LINE COUNT TEST PERFORMED ON 50HZ SYSTEM
0=IF LINE COUNT TEST PERFORMED ON 60HZ SYSTEM

SW 0: 1=SELECT TYPESET READER 0 FOR DATA INPUT (TEST 5)
0=SELECT KEYBOARD FOR DATA INPUT (TEST 5)

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 (0-776 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. PART 1: LOGIC TESTS

THIS GROUP OF 23(8) TESTS WILL CHECK ALL USABLE BITS OF BOTH THE TESTER AND CONTROLLER STATUS REGISTERS FOR SET AND RESET. THE ERROR BIT (15) IN THE CONTROLLER STATUS REGISTERS ONLY SETS WHEN THE INTERFACE (LPC01) IS POWERED DOWN OR 'OFF LINE' OR THE CONTROLLER (LPD) IS IN THE LOCAL TEST MODE WHICH REQUIRES MANUAL INTERVENTION BY AN OPERATOR. CONSOLE SWITCH 10 CONDITIONS ENTRY TO THIS TEST. WHEN ENTERED, MESSAGES WILL BE TYPED REQUESTING THE ABOVE CONDITIONS. WHEN THE TEST IS SUCCESSFULLY COMPLETED, THE MESSAGE 'ERROR BIT OK' WILL BE TYPED AND THE TESTING WILL RESUME.

- TEST0: ASSURE THAT THE ERROR BIT(15) IS SET WHEN THE LPD HAS BEEN SWITCHED TO THE LOCAL TEST MODE.
- TEST1: ASSURE THAT ALL BITS OF THE CONTROLLER STATUS REGISTER EXCEPT READY CAN BE CLEARED.
- TEST2: ASSURE THAT ALL BITS OF THE TESTER STATUS REGISTER EXCEPT READY CAN BE CLEARED.
- TEST3: ASSURE THAT THE CONTROLLER READY BIT WAS CLEARED BY INIT.
- TEST4: ASSURE THAT THE TESTER READY BIT WAS CLEARED BY INIT.
- TEST5: ASSURE THAT THE CONTROLLER READY BIT REMAINS RESET WHEN A CHARACTER IS LOADED INTO THE CONTROLLER BUFFER.
- TEST6: ASSURE THAT THE TESTER READY BIT DOES SET UPON COMPLETION OF DATA TRANSFER FROM CONTROLLER BUFFER TO TESTER BUFFER.
- TEST7: ASSURE THAT THE GO BIT OF THE TESTER STATUS REGISTER RESETS IMMEDIATELY AFTER BEING SET.
- TEST10: ASSURE THAT THE TESTER READY BIT IS NOT RESET BY THE SETTING OF THE GO BIT.

GO1

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 6

- 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 & CONTROLLER. OPERATOR INTERVENTION WILL BE REQUESTED ON THE TELETYPE TO SET THE ON/OFF LINE SWITCH AT THE INTERFACE (LPC01) AND THE LOCAL TEST MODE SWITCH ON THE M523 MODULE AT THE CONTROLLER (LPD).
1. ON LINE - NORMAL MODE: BIT 15 = 0
 2. OFF LINE - NORMAL MODE: BIT 15 = 1
 3. ON LINE - NORMAL MODE - POWER DOWN INTERFACE: BIT 15 = 1
 4. ON LINE - TEST MODE: BIT 15 = 1
- NOTE:
NORMAL MODE REFERS TO THE LOCAL TEST MODE SWITCH - OFF
TEST MODE REFERS TO THE LOCAL TEST MODE SWITCH - ON
- TEST23: THIS TEST CHECKS THE IDENTIFICATION BITS OF THE LPD STATUS WORD AGAINST THE MEMORY LOCATION 'ID'. ANY 'ID' VALUE OTHER THAN 5 MUST BE LOADED INTO THE MEMORY LOCATION IDENTIFIED BY 'ID'.

B. PART 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 (0 - 377).

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. PART 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. DATA IS TAKEN FROM CONSOLE SWITCHES 0-7 AND MAY BE VARIED DYNAMICALLY. THE DATA IS COMPLEMENTED ON EVERY OTHER PASS TO PROVIDE TRANSITIONS IN THE LOGIC.

D. PART 4: LINE COUNT TEST

THIS PART, 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. CONSULT THE LPD11 MANUAL FOR LINES PER SECOND INFORMATION.

THE TEST WILL ONLY RUN ON A PDP-11/45 WITH A KW11-L LINE CLOCK.

SWITCH 1 MUST BE SET ON SYSTEMS CONNECTED TO A 50HZ POWER SOURCE.

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.

E. PART 5: DATA OUTPUT TEST

THIS TEST, ENTERED VIA CONSOLE SWITCH SIX (6), IS DESIGNED TO TAKE OCTAL VALUES (0-377) FROM THE KEYBOARD OR TYPESET READER 0, STORE THEM IN A MEMORY BUFFER, AND THEN TRANSMIT THE CONTENTS OF THIS BUFFER OUT TO THE PHOTO-COMP MACHINE OR LPC01. THE PROGRAM REQUESTS THAT THE CONTROLLER BE IN THE NORMAL MODE AND THE PHOTO-COMP BE PLACED 'ON LINE'. WHEN READY, THE OPERATOR RESPONDS BY TYPING A 'G'. THE PROGRAM THEN LOOKS AT SW 0 FOR THE SELECTED INPUT MODE (KEYBOARD OR TYPESET READER 0). IF THE READER IS SELECTED (SW0=1), THE PAPER TAPE WILL BE READ UNTIL OUT OF TAPE, AT WHICH TIME THE CONTROL CHARACTER 'T' IS EXPECTED. NOTE; READER 0 MUST HAVE THE PAPER TAPE IN POSITION BEFORE TYPING THE 'G' MENTIONED ABOVE. IF THE KEYBOARD IS SELECTED (SW0=0), THEN THE PROGRAM TYPES A LINE NUMBER AND WAITS FOR DATA. THE PROGRAM WILL EXPECT OCTAL VALUES FROM 0 TO 377. EACH TERMINATED WITH A CARRIAGE RETURN. TYPING A "RUBOUT" WILL TYPE "??" BEFORE RETYPING THE CURRENT LINE NUMBER.

THE OCTAL BUFFER WILL EXPAND TO 2048 BYTES BEFORE A 'BUFFER FULL' MESSAGE IS TYPED. HOWEVER, IF CORE EXISTS ABOVE 4K THE INPUT MAY CONTINUE TO THAT LIMIT. THE FOLLOWING KEYS CONTROL THE DATA TRANSMISSION TO THE PHOTO-COMP MACHINE:

'T' -TRANSMIT- WILL TRANSMIT THE CONTENTS OF THE BUFFER
'S' -STOP- WILL STOP THE TRANSFER OF DATA ANYTIME
'C' -CONTINUE- WILL CONTINUE AT THE POINT WHERE 'S' WAS TYPED
'I' -INPUT- WILL TRANSFER CONTROL TO INPUT A NEW BUFFER

CONSOLE SWITCH 0, WHEN SET, WILL SELECT TYPESET READER 0* INSTEAD OF THE KEYBOARD FOR DATA INPUT. CONSOLE SWITCH 13 (CONTINUOUS OR SINGLE PASS) WILL HAVE FULL USE DURING THIS TEST. UNACCEPTABLE INPUTS WILL EITHER BE IGNORED OR QUESTIONED BY THE RESPONSE '??'.

*NOTE: TYPESET READER 0 BUS ADDRESSES OF 172600 & 172602 ARE USED BY THE PROGRAM. LOCATIONS 'PRS' & 'PRB' MAY BE ALTERED TO SELECT ANOTHER READER.

8. LISTING

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LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 9

.TITLE LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D

.ENABL ABS AMA

:NOVEMBER 7, 1974
:DIGITAL EQUIPMENT CORP. MAYNARD MASS.
:PROGRAMMER R. MOORE

:*****
: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 TEST (PDP-11/45 ONLY)
: 0=DO NOT ENTER LINE COUNT TEST

:SW 6: 1=ENTER DATA OUTPUT TEST
: 0=DO NOT ENTER DATA OUTPUT TEST

:SW 1: 1=LINE COUNT TEST PERFORMED ON 50HZ SYSTEMS
: 0=LINE COUNT TEST PERFORMED ON 60HZ SYSTEMS

:SW 0: 1=SELECT TYPESET READER 0 FOR DATA INPUT (TEST 5)
: 0=SELECT KEYBOARD FOR DATA INPUT (TEST 5)

:*****

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LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 10

418			
419			
420			;REGISTER EQUIVS
421			
422		000000	R0=%0
423		000001	R1=%1
424		000002	R2=%2
425		000003	R3=%3
426		000004	R4=%4
427		000005	R5=%5
428		000006	SP=%6
429		000006	R6=SP
430		000007	PC=%7
431			
432			;TRAP CATCHERS 0-1000
433			
434		000000	.=0
435			.REPT 200
436			.+2
437			HALT
438			.ENDR
439			
440			;POWER FAIL VECTOR
441			
442		000024	.=24
443	000024	006476	PWRFAL
444	000026	000340	340
445			
446			;LINE CLOCK VECTOR
447			
448		000100	.=100
449	000100	004372	TINT
450	000102	000340	340
451			
452			

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472
473

000200 000200 001206
000204 000137 001200

```
*****
PROGRAM START LOCATIONS:
:200 = INPUT VECTOR AND REGISTER ADDRESSES AT START
:204 = USE PREVIOUSLY SET ADDRESSES

VECTORS AND REGISTER ADDRESSES MUST BE
INPUT ON THE INITIAL RUN.
ON ALL OTHER RUNS, THE PREVIOUSLY SET
ADDRESSES MAY BE USED.
*****

.=200
JMP PBEG ;GO TO START AND SET VECTOR / REGISTERS

.=204
JMP PSKIP ;GO TO START BUT DO NOT SET ADDRESSES
```

```

474
475      001000      . = 1000
476
477      ;FLAGS AND COUNTERS
478
479      001000      000000      PVEC:      0      ; VECTOR POINTER SAVE
480      001002      000000      PREG:      0      ; REGISTER POINTER SAVE
481      001004      000000      PTN:      0      ; TEST NUMBER STORAGE
482      001006      000000      PSPS:     00      ; STACK POINTER SAVE LOC
483      001010      000000      PITA:     00      ; INTERRUPT RETURN STORAGE
484      001012      000000      PGOF:     00      ; GO FLAG
485      001014      000000      PTIM1:    00      ; TIMER
486      001016      000000      PTIM2:    00      ; GROSS TIMER
487      001020      000000      PIC:      00      ; ITERATION CNTR
488      001022      000000      PCHAR:    00      ; TEST CHAR TEMP STORAGE
489      001024      000000      TOR:      00      ; TTY OUTPUT BUFFER STORAGE
490      001026      000000      TIB:      00      ; TTY INPUT BUFFER STORAGE
491      001030      000000      ROTA:     00      ; ROTATION FACTOR
492      001032      000000      PINTR:    00      ; INTERRUPT RETURN POINTER
493      001034      000000      PET:      00      ; ERROR BIT TEMP STORAGE
494      001036      000005      ID:       5      ; CONTAINS 'ID' BITS FILLED BY
495                                         ; USER IF 'ID' NOT EQUAL TO 5
496
497      ;ADDRESS CONSTANTS
498
499      001040      172600      PRS:      172600      ; TYPESET READER 0 CSR ADRS
500      001042      172602      PRB:      172602      ; TYPESET READER 0 DBR ADRS
501      001044      177560      TKS:      177560      ; TTY STATUS
502      001046      177562      TKB:      177562      ; TTY BUFFER
503      001050      177564      TPS:      177564      ; TTP STATUS
504      001052      177566      TPB:      177566      ; TTP BUFFER
505      001054      177546      LKS:      177546      ; LINE CLOCK REGISTER
506      001056      177570      SWR:      177570      ; CONSOLE SWITCH REGISTER
507      001060      177776      PSW:      177776      ; PROGRAM STATUS WORD
508      001062      000000      PCS:      0      ; LPD STATUS
509      001064      000000      PCB:      0      ; LPD BUFFER
510      001066      000000      PTS:      0      ; TEST STATUS
511      001070      000000      PTB:      0      ; TEST BUFFER

```

NO1

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 13

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512          001200          .=1200
513
514          ;*****
515          ;PROGRAM START
516
517          ;THIS IS THE HOUSE KEEPING ROUTINE
518          ;WHICH CLEARS ALL COUNTERS AND FLAGS
519          ;TYPES THE PROGRAM NAME, SETS UP
520          ;REGISTERS AND VECTOR ADDRESSES, ASSURES
521          ;THAT THE LPD11 INTERFACE IS IN THE PROPER
522          ;MODE, AND CHECKS FOR MAINTENANCE MODE.
523          ;*****
524          ;CLEAR COUNTERS AND FLAGS
525
526          PSKIP: MOV      #1,R2          ;SET SKIP FLAG
527          BR      PSTART          ;GO TO START
528          PBEG:  CLR      R2          ;RESET SKIP FLAG
529          PSTART: MOV      #500,SP      ;SET STACK POINTER
530          MOV      #340,@PSW          ;SET PSW
531          RESET          ;RESET AT START OR RESTART
532          CLR      R0
533          DEC      R0
534          BNE      .-2          ;DELAY FOR RESET
535          MOV      #14,R1          ;R1=NUMBER OF LOCATIONS TO CLEAR
536          MOV      @R0,R0          ;R0=START ADDR
537          CLR      @R0
538          CLR      -(R0)          ;CLEAR ALL COUNTERS
539          DEC      R1
540          BNE      PCLR          ;CONTINUE UNTIL DONE
541          TST      R2          ;SEE IF SHOULD GET ADDRS
542          BNE      PSMC          ;IF NOT; BR
543
544          ;PRINT PROGRAM NAME
545
546          MOV      #MSG1,R4
547          JSR      PC,TTOUT          ;TYPE PROGRAM NAME
548          MOV      #MSG2,R4
549
550          ;GET NEW VECTOR ADDRESS
551
552          JSR      PC,TTOUT          ;TYPE VECTOR REQUEST
553          MOV      #PVEC,R4          ;R4=VECTOR STORAGE ADDR
554          MOV      #3,R3          ;R3=INPUT CHAR NUMBER
555          MOV      #3,ROTA          ;ROTA=ROTATION FACTOR
556          MOV      #177770,R5          ;R5=MASK
557          JSR      PC,READ          ;GO READ IN VECTOR
558          BIT      #1,PVEC          ;TEST FOR ODD ADDR
559          BNE      PVE          ;IF ODD: BR
560          CMP      #776,PVEC          ;TEST FOR TOO HIGH
561          BHI      PRG          ;IF OK: BR
562          MOV      #MSG3,R4
563          JSR      PC,TTOUT          ;TYPE ILLEGAL VECTOR
564          BR      PVI          ;TRY AGAIN
565          ;GET NEW REGISTER ADDRESS

```


001356	012704	007004		PRG:	MOV	#MSG4,R4	
001362	004737	006130			JSR	PC,TTOUT	:TYPE REGISTER ADDR REQUEST
001366	012704	001002		PRG1:	MOV	#PREG,R4	
001372	012703	000006			MOV	#6,R3	
001376	012737	002003	001030		MOV	#3,ROTA	
001404	012705	177770			MOV	#177770,R5	
001410	004737	006226			JSR	PC,READ	:GO READ STARTING REGISTER ADDR
001414	032737	000001	001002		BIT	#1,PREG	:TEST FOR ODD ADDR
001422	001010				BNE	PREG	:IF ODD: BR
001424	022737	160000	001002		CMP	#160000,PREG	:TEST FOR TOO LOW
001432	101004				BHI	PREG	:IF TOO LOW: BR
001434	022737	177600	001002		CMP	#177600,PREG	:TEST FOR TOO HIGH
001442	101005				BHI	PSET	:IF NOT TO HIGH: BR
001444	012704	007046		PREGE:	MOV	#MSG5,R4	
001450	004737	006130			JSR	PC,TTOUT	:TYPE ILLEGAL REGISTER ADDR
001454	000744				BR	PRG1	:TRY AGAIN
001456	013700	001002		PSET:	MOV	PREG,R0	:SET P. S. STATUS ADDR IN R0
001462	012701	001062			MOV	#PCS,R1	:R1=LPD STATUS ADDR
					.REPT 4		
					MOV	R0,(R1)+	:SET REGISTERS
					ADD	#2,R0	
					.ENDR		
							:REQUEST ON LINE/LPD TEST MODE
001516	012704	007103		REQ:	MOV	#MSG6,R4	
001522	004737	006130			JSR	PC,TTOUT	:REQUEST ON LINE/LPD TEST MODE
001526	012704	007222			MOV	#MSG6A,R4	
001532	004737	006130			JSR	PC,TTOUT	:LOCATE SWITCH
001536	012704	001012			MOV	#PGOF,R4	
001542	012703	000001			MOV	#1,R3	
001546	012737	000003	001030		MOV	#3,ROTA	
001554	012705	177770			MOV	#177770,R5	:SET MASK
001560	004737	006226			JSR	PC,READ	:AWAIT GO COMMAND
							:MAINTENANCE MODE CHECK
001564	032777	004000	177264	PSMC:	BIT	#4000,JSWR	:LOOK FOR MAINTENANCE MODE BIT
001572	001402				BEQ	PLCC	:IF NOT: BR
001574	000137	004010			JMP	PSCOP	:ELSE GO TO MAINTENANCE MODE
							:LINE COUNT TEST ENTRY CHECK
001600	032777	000400	177250	PLCC:	BIT	#400,JSWR	:SEE IF SHOULD ENTER LINE COUNT TEST
001606	001402				BEQ	PSDC	:IF NOT: BR
001610	000137	004236			JMP	PLC	:ELSE GO TO LINE COUNT TEST
							:DATA OUTPUT TEST ENTRY CHECK
001614	032777	000100	177234	PSDC:	BIT	#100,JSWR	:LOOK FOR DATA OUTPUT SW
001622	001402				BEQ	PTO	:BR IF NOT SELECTED
001624	000137	004500			JMP	PSC	:ELSE GO TO DATA OUTPUT TEST

```
: THIS PART CONSISTS OF 23(8) TESTS TO
: ASSURE THAT ALL FUNCTIONS OF EACH USABLE
: BIT IN BOTH THE TESTER AND THE CONTROLLER
: STATUS REGISTERS WILL SET AND RESET FROM
: PROPER CONDITIONS AND IN THE PROPER SEQUENCE.
: THE INTERRUPT SYSTEM OF BOTH THE TESTER
: AND CONTROLLER IS ALSO TESTED TO ASSURE
: THAT EACH WILL TRAP TO THE PROPER VECTOR
: AND PRIORITY LEVEL.
```

• *****

```

;LOGIC TEST 00: SEE THAT ERROR BIT SET WHEN LPC IN LOCAL TEST

```

001630	012737	030060	001004	PTO:
001636	005777	177220		
001642	100404			
001644	012703	012444		
001650	000137	005442		

```

MOV      #30060,PTN      :SAVE TEST NO.
TST      DPCS             :LOOK FOR BIT
BMI      PT               :BR IF OK
MOV      #MSG55,R3        :SET ERROR MSG ADDR
JMP      PLE              :GO TYPE ERROR

```

```

:LOGIC TEST 01: CLEAR CONT STATUS

```

001654	005077	177202	
001660	005077	177202	
001664	012737	030460	001004
001672	004737	006452	
001676	032777	077500	177156
001704	001404		
001706	012703	007517	
001712	000137	005442	

```

CLR      0PCS      ;CLEAR CONT STATUS
CLR      0PTS      ;CLEAR TESTER STATUS
MOV      #30460,PTN ;SAVE TEST NO.
JSR      PC,PRSTV   ;RESET VECTORS
BIT      #77500,0PCS ;LOOK FOR CLEAR
BEQ      PT1A1      ;IF OK: BR
MOV      #MSG13,R3   ;SET ERROR MSG ADDR
JMP      PLE         ;GO TYPE ERROR

```

```

;LOGIC TEST_02: CLEAR TESTER STATUS

```

001716	012737	031050	001004	PT:A1:
001724	032777	077577	177134	
001732	001404			
001734	012703	007452		
001740	000137	005442		

```

MOV      #31060,PTN      :SAVE TEST NO.
BIT      #77577,2PTS     :LOOK FOR CLEAR
BEQ      PTIA1A           :IF OK: BR
MOV      #MSG12,R3        :SET ERROR MSG ADDR
JMP      PLE              :GO TYPE ERROR MSG

```

```

660                                     :LOGIC TEST 03: CONT READY RESET FROM INIT
661
662 001744 012737 031460 001004 PT1A1A: MOV      #31460,PTN      :SAVE TEST NO.
663 001752 032777 000200 177102      BIT      #200,APCS      :LOOK FOR CONT READY RESET
664 001760 001404                      BEQ      PT1A1B      :IF OK: BR
665 001762 012703 011014      MOV      #MSG41,R3      :SET ERROR MSG ADDR
666 001766 000137 005442      JMP      PLE      :GO TO ERROR ROUTINE
667
668                                     :LOGIC TEST 04: TESTER READY RESET FROM INIT
669
670 001772 012737 032060 001004 PT1A1E: MOV      #32060,PTN      :SAVE TEST NO.
671 002000 032777 000200 177060      BIT      #200,APTS      :LOOK FOR TESTER READY RESET
672 002006 001404                      BEQ      PT1A2      :IF OK: BR
673 002010 012703 011053      MOV      #MSG42,R3      :SET ERROR MSG ADDR
674 002014 000137 005442      JMP      PLE      :GO TO ERROR ROUTINE
675
676                                     :LOGIC TEST 05: CONT READY RESET FROM CHAR LOAD
677
678 002020 012737 032460 001004 PT1A2: MOV      #32460,PTN      :SAVE TEST NO.
679 002026 012777 000000 177030      MOV      #0,APCB      :CLEAR BUFFER
680 002034 032777 000200 177020      BIT      #200,APCS      :LOOK FOR READY
681 002042 001404                      BEQ      PT1A3      :IF OK: BR
682 002044 012703 007560      MOV      #MSG14,R3      :SET ERROR MSG ADDR
683 002050 000137 005442      JMP      PLE      :GO TYPE ERROR MSG
684
685                                     :LOGIC TEST 06: TESTER READY SET AFTER CHAR LOAD
686
687 002054 012737 033060 001004 PT1A3: MOV      #33060,PTN      :SAVE TEST NO.
688 002062 005037 001014                      CLR      PTIM1      :SET TIMER
689 002066 005337 001014      PT1A3A: DEC      PTIM1      :DELAY
690 002072 001375                      BNE      PT1A3A
691 002074 032777 000200 176764      BIT      #200,APTS      :LOOK FOR TESTER READY
692 002102 001004                      BNE      PT1A4      :IF OK: BR
693 002104 012703 007632      MOV      #MSG15,R3      :SET ERROR MSG ADDR
694 002110 000137 005442      JMP      PLE      :GO TYPE ERROR MSG
695
696                                     :LOGIC TEST 07: ASSURE GO BIT RESET
697
698 002114 012737 034060 001004 PT1A4: MOV      #34060,PTN      :SAVE TEST NO.
699 002122 005277 176740                      INC      APPTS      :SET GO
700 002126 012737 000100 001014      MOV      #100,PTIM1      :SET TIME
701 002134 005337 001014      PT1A: DEC      PTIM1      :DELAY
702 002140 001375                      BNE      PT1A
703 002142 032777 000001 176716      BIT      #1,APTS      :LOOK FOR GO RESET
704 002150 001404                      BEQ      PT1B1      :IF OK: BR
705 002152 012703 007701      MOV      #MSG16,R3      :SET ERROR MSG ADDR
706 002156 000137 005442      JMP      PLE      :GO TYPE ERROR MSG

```

```

737 ;LOGIC TEST 10: TESTER READY NOT RESET BY GO
738
739 002162 012737 030061 001004 PT1B1: MOV #30061,PTN ;SAVE TEST NO.
740 002170 032777 000200 176670 BIT #200,3PTS ;LOOK FOR TESTER READY NOT RESET
741 002176 001004 BNE PT1B2 ;IF OK: BR
742 002200 012703 007731 MOV #MSG17,R3 ;SET ERROR MSG ADDR
743 002204 000137 005442 JMP PLE ;GO TYPE ERROR MSG
744
745 ;LOGIC TEST 11: CONT READY SET FROM GO
746
747 002210 012737 030461 001004 PT1B2: MOV #30461,PTN ;SAVE TEST NO.
748 002216 005037 001014 CLR PTIM1 ;SET TIMER
749 002222 005337 001014 PT1B2A: DEC PTIM1 ;DELAY
750 002226 001375 BNE PT1B2A
751 002230 032777 000200 176624 BIT #200,3PCS ;LOOK FOR CONT READY SET
752 002236 001004 BNE PT1B3 ;IF OK: BR
753 002240 012703 007767 MOV #MSG20,R3 ;SET ERROR MSG ADDR
754 002244 000137 005442 JMP PLE ;GO TYPE ERROR MSG
755
756 ;LOGIC TEST 12: TESTER READY AT END OF CYCLE
757
758 002250 012737 032601 001004 PT1B3: MOV #32601,PTN ;SAVE TEST NO.
759 002256 012777 000000 176600 MOV #0,3PCB ;LOAD CHAR
760 002264 005037 001014 CLR PTIM1 ;SET TIME
761 002270 005337 001014 PT1B: DEC PTIM1 ;DELAY
762 002274 001375 BNE PT1B
763 002276 032777 000200 176562 BIT #200,3PTS ;LOOK FOR TESTER READY
764 002304 001004 BNE PT1C ;IF OK: BR
765 002306 012703 010032 MOV #MSG21,R3 ;SET ERROR MSG ADDR
766 002312 000137 005442 JMP PLE ;GO TYPE ERROR MSG
767
768 ;LOGIC TEST 13: CONT READY RESET AT END OF CYCLE
769
770 002316 012737 031461 001004 PT1C: MOV #31461,PTN ;SAVE TEST NO.
771 002324 005337 001014 DEC PTIM1
772 002330 001372 BNE PT1C ;DELAY
773 002332 032777 000200 176522 BIT #200,3PCS ;LOOK FOR CONT READY
774 002340 001404 BEQ PT1E ;IF OK: BR
775 002342 012703 010101 MOV #MSG22,R3 ;SET ERROR MSG ADDR
776 002346 000137 005442 JMP PLE ;GO TYPE ERROR MSG

```

:LOGIC TEST 14: TESTER INTERRUPT

```

747
748
749 002352 012737 031461 001004 PT1E: MOV #31461,PTN ;SAVE TEST NO.
750 002360 005077 176502 CLR @PTS ;CLEAR TESTER
751 002364 005077 176472 CLR @PCS ;CLEAR CONTROLLER
752 002370 013700 001000 MOV PVEC,R0 ;R0 = STARTING VECTOR
753 002374 022020 CMP (R0)+,(R0)+ ;POINT TO TESTER VECTOR
754 002376 012720 006362 MOV #PINT,(R0)+ ;SET VECTOR ADDR
755 002402 012720 000340 MOV #340,(R0)+ ;SET PSW
756 002406 052777 000100 176452 BIS #100,@PTS ;SET TESTER INTERRUPT ENABLE
757 002414 005037 001014 CLR PTIM1 ;SET TIME
758 002420 012737 000010 001016 MOV #10,PTIM2 ;SET TIME
759 002426 012737 002472 001032 MOV #PT1FA,PINTR ;SET RETURN
760 002434 005077 176420 CLR @PSW ;SET PSW TO LOWEST PRIORITY
761 002440 012777 000000 176416 MOV #0,@PCB ;LOAD CHAR
762 002446 005337 001014 PT1F: DEC PTIM1 ;DELAY
763 002452 001375 BNE PT1F
764 002454 005337 001016 DEC PTIM2 ;DELAY
765 002460 001372 BNE PT1F
766 002462 012703 010150 MOV #MSG24,R3 ;SET ERROR MSG ADDR
767 002466 000137 005442 JMP PLE ;GO TYPE ERROR MSG

```

:LOGIC TEST 15: CONT INTERRUPT

```

768
769
770
771 002472 012737 032461 001004 PT1FA: MOV #32461,PTN ;SAVE TEST NO.
772 002500 005077 176362 CLR @PTS ;CLEAR TESTER INT ENABLE
773 002504 005037 001014 CLR PTIM1
774 002510 005337 001014 PT1FB: DEC PTIM1
775 002514 001375 BNE PT1FB ;AWAIT COMPLETE FROM TESTER INTERRUPT
776 002516 005337 001014 PT1FC: DEC PTIM1
777 002522 001375 BNE PT1FC
778 002524 004737 006452 JSR PC,PASTV ;RESET VECTORS
779 002530 013700 001000 MOV PVEC,R0 ;R0 = STARTING VECTOR
780 002534 012720 006362 MOV #PINT,(R0)+ ;SET VECTOR ADDR
781 002540 012720 000340 MOV #340,(R0)+ ;SET PSW
782 002544 052777 000100 176310 BIS #100,@PCS ;SET CONT INTERRUPT ENABLE
783 002552 012737 000010 001016 MOV #10,PTIM2 ;SET TIME
784 002560 012737 002622 001032 MOV #PT1H,PINTR ;SET RETURN
785 002566 005077 176266 CLR @PSW ;SET PSW TO LOWEST PRIORITY
786 002572 005277 176270 INC @PTS ;SET GO
787 002576 005337 001014 PT1G: DEC PTIM1
788 002602 001375 BNE PT1G ;DELAY
789 002604 005337 001016 DEC PTIM2
790 002610 001372 BNE PT1G ;DELAY
791 002612 012703 010211 MOV #MSG25,R3 ;SET ERROR MSG ADDR
792 002616 000137 005442 JMP PLE ;GO TYPE ERROR MSG

```

;LOGIC TEST 16: TESTER INT ENABLE OFF

```

793
794
795 002622 012737 033061 001004 PT1H: MOV #33061,PTN ;SAVE TEST NO.
796 002630 005077 176226 CLR @PCS
797 002634 005077 176226 CLR @PTS
798 002640 005005 CLR R5 ;CLEAR FLAG
799 002642 012737 002754 001010 MOV #PT1M,PITA ;SET P-INTER
800 002650 012704 002744 MOV #PT1L,R4 ;SET RETURN ADDRESS
801 002654 005003 CLR R3
802 002656 013700 001000 MOV PVEC,R0 ;R0=STARTING VECTOR ADDRESS
803 002662 022020 CMP (R0)+,(R0)+ ;POINT TO TESTER VECTOR
804 002664 012720 006350 PT1HA: MOV #PINTS,(R0)+ ;SET VECTOR TO SERVICE ROUTINE
805 002670 012720 000340 MOV #340,(R0)+ ;SET PSW TO PRIORITY 7
806 002674 010437 001032 PT1HB: MOV R4,PINTR ;SET INTERRUPT RETURN
807 002700 010377 176154 MOV R3,@PSW ;SET PSW
808 002704 005037 001014 CLR PT1M1 ;CLEAR TIMER
809 002710 012777 000000 176146 MOV #0,@PCB ;LOAD CHAR
810 002716 005337 001014 PT1J: DEC PT1M1
811 002722 001375 PT1J: BNE PT1J ;DELAY
812 002724 005337 001014 PT1K: DEC PT1M1
813 002730 001375 PT1K: BNE PT1K ;DELAY
814 002732 012777 000340 176120 MOV #340,@PSW ;RESET PSW TO PRIORITY 7
815 002740 000177 176044 JMP @PITA ;CONTINUE TO NEXT TEST
816 002744 012703 010467 PT1L: MOV #MSG34,R3 ;TYPE ERROR
817 002750 000137 005442 JMP PLE

```

;LOGIC TEST 17: TESTER INT AT HIGHER LEVEL

```

818
819
820
821 002754 012737 033461 001004 PT1M: MOV #33461,PTN ;SAVE TEST NO.
822 002762 005077 176102 CLR @PTB
823 002766 005077 176074 CLR @PTS
824 002772 005077 176064 CLR @PCS
825 002776 005705 TST R5 ;SEE IF TESTER COMPLETE
826 003000 001025 BNE PT1P ;IF SO:BR
827 003002 005205 INC R5 ;SET FLAG
828 003004 005337 001014 PT1M1: DEC PT1M1
829 003010 001375 PT1M1: BNE PT1M1 ;DELAY
830 003012 005077 176046 CLR @PCB ;LOAD CHAR
831 003016 052777 000100 176042 BIS #100,@PTS ;SET TESTER INTERRUPT ENABLE
832 003024 012777 000200 176026 MOV #200,@PSW ;PSW SETTING = PRIORITY 4
833 003032 012737 003044 001032 MOV #PT1N,PINTR ;LOAD RETURN ADDRESS
834 003040 000137 002716 JMP PT1J ;DELAY FOR INTERRUPT
835 003044 012703 010544 PT1N: MOV #MSG35,R3
836 003050 000137 005442 JMP PLE ;GO TO ERROR ROUTINE
837

```



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838                                     ;LOGIC TEST 20: CONT INT ENABLE OFF
839
840 003054 012737 030062 001004 PT1P: MOV      #30062,PTN      ;SAVE TEST NO.
841 003062 005077 176002                CLR      @PTB
842 003066 005077 175774                CLR      @PTS
843 003072 005077 175764                CLR      @PCS
844 003076 005005                CLR      R5              ;CLEAR FLAG
845 003100 013700 001000                MOV      PVEC,R0      ;R0=VECTOR ADDRESS
846 003104 005003                CLR      R3              ;R3=PSW
847 003106 012704 003154                MOV      #PT1R,R4      ;R4=INTERRUPT RETURN ADDR
848 003112 012737 003164 001010        MOV      #PT1S,P1TA    ;SET CONTINUE ADDR
849 003120 012720 006350                MOV      #PINTS,(R0)+  ;SET VECTOR ADDR
850 003124 012720 000340                MOV      #340,(R0)+  ;SET PSW
851 003130 010437 001032                MOV      R4,P1NTR    ;SET RETURN ADDR
852 003134 010377 175720                MOV      R3,@PSW     ;SET PSW
853 003140 005037 001014                CLR      PT1M1      ;SET TIMER
854 003144 005277 175716                INC      @PTS       ;SET GO
855 003150 000137 002716                JMP      PT1J       ;TEST CONT INTERRUPT
856 003154 012703 010617                PT1R: MOV      #MSG36,R3
857 003160 000137 005442                JMP      PLE        ;GO TO ERROR ROUTINE
858
859                                     ;LOGIC TEST 21: CONT INT AT HIGHER LEVEL
860
861 003164 012737 030462 001004 PT1S: MOV      #30462,PTN      ;SAVE TEST NO.
862 003172 005077 175672                CLR      @PTB
863 003176 005077 175664                CLR      @PTS
864 003202 005077 175654                CLR      @PCS
865 003206 005705                TST      R5              ;SEE IF DONE BOTH TESTS
866 003210 001016                BNE      PEBT       ;IF SO: BR
867 003212 005205                INC      R5              ;SET FLAG
868 003214 052777 000100 175640        BIS      #100,@PCS    ;SET CONTROLLER INTERRUPT ENABLE
869 003222 012703 000200                MOV      #200,R3     ;SET PSW
870 003226 012704 003236                MOV      #PT1T,R4    ;SET INTERRUPT RETURN ADDR
871 003232 000137 003130                JMP      PT1Q        ;TEST CONTROLLER
872 003236 012703 010700                PT1T: MOV      #MSG37,R3
873 003242 000137 005442                JMP      PLE        ;GO TO ERROR ROUTINE
874
875                                     ;LOGIC TEST22: ERROR BIT SET AND RESET
876
877 003246 012737 031062 001004 PEBT: MOV      #31062,PTN      ;SAVE TEST NUMBER
878 003254 004737 006452                JSR      PC,PRSTV    ;RESET VECTORS.
879 003260 032777 002000 175570        BIT      #2000,@SWR  ;SEE IF ERROR BIT TEST
880 003266 001002                BNE      PEBTO      ;IF SO: BR
881 003270 000137 003464                JMP      PIDBT       ;ELSE GO TO 'ID' TEST
882 003274 005037 001034                PEBTO: CLR      PET    ;TEST FOR RESET
883 003300 012704 011141                MOV      #MSG44,R4   ;REQUEST ON LINE - NORMAL MODE
884 003304 004737 006130                JSR      PC,TTOUT
885 003310 012704 007222                MOV      #MSG6A,R4   ;LOCATE SWITCH 8
886 003314 004737 003402                JSR      PC,PEBT1
887 003320 012737 100000 001034        MOV      #100000,PET ;TEST FOR SET
888 003326 012704 011310                MOV      #MSG45,R4   ;REQUEST OFF LINE - NORMAL MODE
889 003332 004737 003402                JSR      PC,PEBT1
890 003336 012704 011464                MOV      #MSG46,R4   ;REQUEST ON LINE - NORMAL MODE - PWR DOWN
891 003342 004737 003402                JSR      PC,PEBT1
892 003346 012704 007103                MOV      #MSG6,R4    ;REQUEST ON LINE - LPD TEST MODE
893 003352 004737 006130                JSR      PC,TTOUT

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894 003356 012704 011674      MOV      #MSG46A,R4      ;REQUEST POWER ON
895 003362 004737 003402      JSR      PC,PEBT1
896 003366 012704 011764      MOV      #MSG47,R4
897 003372 004737 006130      JSR      PC,TTOUT      ;TYPE ERROR BIT OK
898 003376 000137 003464      JMP      PIDBT        ;GO TO 'ID' TEST
899 003402 004737 006130      PEBT1: JSR      PC,TTOUT      ;TYPE MSG
900 003406 013704 001012      MOV      PCOF,R4
901 003412 012703 000001      MOV      #1,R3
902 003416 012737 000003      MOV      #3,ROTA
903 003424 012705 177770      MOV      #177770,R5
904 003430 004737 006226      JSR      PC,READ      ;AWAIT GO REPLY
905 003434 017700 175422      PEBT2: MOV      @PCS,R0      ;SAVE CONTROLLER STATUS
906 003440 042700 077777      BIC      #77777,R0      ;MASK ERROR BIT
907 003444 020037 001034      CMP      R0,PET        ;SEE IF ERROR BIT IN PROPER STATE
908 003450 001404      BEQ      PEBT3        ;IF SO: BR
909 003452 012703 010256      MOV      #MSG26,R3
910 003456 000137 005442      JMP      PLE          ;GO TYPE ERROR MSG
911 003462 000207      PEBT3: RTS      PC
912
913      ;LOGIC TEST 23: READ 'ID' BITS
914
915 003464 012737 031462 001004 PIDBT: MOV      #31462,PTN      ;SAVE TEST NUMBER
916 003472 017703 175364      MOV      @PCS,R3      ;GET STATUS
917 003476 042703 177770      BIC      #177770,R3      ;GET RID OF THE READY & ERROR BITS
918 003502 023703 001036      CMP      ID,R3        ;LOOK AT 'ID' BITS
919 003506 001404      BEQ      PDAT        ;IF OK: GO TO DATA TEST
920 003510 012703 007411      MOV      #MSG11,R3      ;SET ERROR MSG ADRS
921 003514 000137 005442      JMP      PLE          ;GO TO ERROR ROUTINE

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;PART 2: DATA TESTS

;THIS PART CONSISTS OF TWO TESTS TO
;ASSURE THAT ALL COMBINATIONS OF DATA
;CAN BE WRAPPED AROUND FROM CONTROLLER
;BUFFER TO TESTER BUFFER.
;TEST 1 WRAPS ALL ONES, ALL ZEROS, A
;WALKING ONE IN A FIELD OF ZEROS, AND
;A WALKING ZERO IN A FIELD OF ONES.
;TEST 2 WRAPS ALL POSSIBLE BIT COMBINATIONS
;OF THE 8 BIT CHARACTER.
;EACH TEST PATTERN IN TEST ONE WILL BE
;REPEATED 512 TIMES; EACH ALL BIT COMBINATION
;IN TEST TWO WILL BE REPEATED 6 TIMES.
;TO PREVENT REPETITION OF OF PATTERNS
;USE CONSOLE SWITCH 12.

;DATA TEST 1: ONES AND ZEROS WALK

003520	012701	006612		PDAT:	MOV	#PPATS,R1	;R1=START OF DATA TABLE
003524	012737	001000	001020	PDAT0:	MOV	#1000,PIC	
003532	005077	175324			CLR	2PCS	
003536	005077	175324			CLR	2PTS	
003542	005077	175322			CLR	2PTB	
003546	005037	001022			CLR	PCHAR	
003552	022701	006634			CMP	#PPATE,R1	;LOOK FOR END OF DATA TABLE
003556	001437				BEQ	PDAT4	;IF SO:BR
003560	112137	001022			MOVB	(R1)+,PCHAR	;SET CHAR
003564	113777	001022	175272	PDAT1:	MOVB	PCHAR,2PCB	;SET BUFFER
003572	005037	001014			CLR	PTIM1	;SET TIMER
003576	032777	000200	175262	PDAT2:	BIT	#200,2PTS	;AWAIT TESTER READY
003604	001005				BNE	PDAT2A	;IF HAVE: BR
003606	005337	001014			DEC	PTIM1	;DELAY
003612	001371				BNE	PDAT2	
003614	000137	003720			JMP	PDAT7A	;TYPE ERROR
003620	117700	175244		PDAT2A:	MOVB	2PTB,RO	;RO=INPUT CHAR
003624	120037	001022			CMPB	RO,PCHAR	;COMPARE INPUT/OUTPUT
003630	001402				BEQ	PDAT3	;IF OK: BR
003632	004737	005530			JSR	PC,PDE	;GO TYPE ERROR
003636	032777	010000	175212	PDAT3:	BIT	#10000,2SWR	;LOOK FOR INHIBIT ITERATIONS
003644	001327				BNE	PDAT0	;IF SO: BR
003646	005337	001020			DEC	PIC	;DECREMENT ITERATION COUNTER
003652	001344				BNE	PDAT1	;IF NOT DONE: BR
003654	000723				BR	PDAT0	;ELSE GET NEXT PATTERN

K02

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 23

;DATA TEST 2: ALL CHARACTERS

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969
970
971 003656 012737 000006 001020 PDAT4: MOV #6,PIC ;SET ITERATION CNTR
972 003664 005037 001022 PDAT5: CLR PCHAR
973 003670 013777 001022 175166 PDAT6: MOV PCHAR,PCB ;SET BUFFER
974 003676 005037 001014 CLR PTIM1 ;CLEAR TIMER
975 003702 032777 000200 175156 PDAT7: BIT #200,PTS ;LOOK FOR READY BIT SET
976 003710 001011 BNE PDAT7B ;IF OK: BR
977 003712 005337 001014 DEC PTIM1
978 003716 001371 BNE PDAT7 ;AWAIT READY
979 003720 012704 010426 PDAT7A: MOV #MSG33,R4
980 003724 004737 006130 JSR PC,TOUT ;TYPE NO READY IN DATA TEST
981 003730 000137 005702 JMP PEND ;GO TO END ROUTINE
982 003734 117700 175130 PDAT7B: MOVB @PTB,R0 ;R0=INPUT CHAR
983 003740 120037 001022 CMPB R0,PCHAR ;TEST CHAR
984 003744 001402 BEQ PDAT10 ;IF OK: BR
985 003746 004737 005530 JSR PC,PDE ;GO TYPE ERROR
986 003752 005237 001022 PDAT10: INC PCHAR ;SET NEW CHAR
987 003756 032737 000400 001022 BIT #400,PCHAR ;SEE IF DONE ALL
988 003764 001741 BEQ PDAT6 ;IF NOT: BR
989 003766 032777 010000 175062 BIT #10000,PSWR ;LOOK FOR INHIBIT ITERATIONS
990 003774 001003 BNE PDAT11 ;IF SO: BR
991 003776 005337 001020 DEC PIC ;LOOK FOR COMPLETE ITERATIONS
992 004002 001320 BNE PDAT5 ;IF NOT: BR
993 004004 000137 005702 PDAT11: JMP PEND ;GO TO END ROUTINE

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1016 004010 017702 175042 PSCOP: MOV @SWR,R2 ;R2 = DATA FROM SWITCHES
1017 004014 010203 MOV R2,R3
1018 004016 127702 175034 PSCOP0: CMPB @SWR,R2 ;SEE IF NEW DATA
1019 004022 001372 BNE PSCOP ;IF S0: BR
1020 004024 012777 000340 175026 MOV #340,@PSW ;RESET PSW TO PROIRTIY 7
1021 004032 005077 175030 CLR @PTS ;CLEAR STATUS REGISTERS
1022 004036 005077 175020 CLR @PCS
1023 004042 004737 006452 JSR PC,PRSTV ;RESET VECTORS
1024 004046 032777 001000 175002 BIT #1000,@SWR ;SEE IF TESTER INTERUPT
1025 004054 001012 BNE PSCOP1 ;IF S0: BR
1026 004056 013700 001000 MOV PVEC,R0 ;R0 = STARTING VECTOR
1027 004062 012720 006350 MOV #PINTS,(R0)+ ;SET VECTOR FOR MAINTENANCE MODE TRAP
1028 004066 012720 000340 MOV #340,(R0)+
1029 004072 052777 000100 174762 BIS #100,@PCS ;SET CONTROLLER INTERRUPT ENABLE
1030 004100 000412 BR PSCOP2
1031 004102 052777 000100 174756 PSCOP1: BIS #100,@PTS ;SET TESTER INTERRUPT ENABLE
1032 004110 013700 001000 MOV PVEC,R0 ;R0 = STARTING VECTOR
1033 004114 022020 CMP (R0)+,(R0)+ ;POINT TO TESTER VECTOR
1034 004116 012720 006350 MOV #PINTS,(R0)+ ;SET VECTOR ADDR TO MAINTENANCE MODE TRAP
1035 004122 012720 000340 MOV #340,(R0)+
1036 004126 012737 004176 001032 PSCOP2: MOV #PSCOP4,PINTR ;SET RETURN ADDR
1037 004134 012737 000010 001016 MOV #10,PTIM2 ;SET DELAY
1038 004142 005037 001014 CLR PTIM1 ;SET DELAY
1039 004146 110377 174712 MOVB R3,@PCB ;LOAD CHAR
1040 004152 005277 174710 INC @PTS ;SET GO BIT
1041 004156 005077 174676 CLR @PSW ;SET TO PRIORITY 0

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M02

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 25

1042	004162	005337	001014		PSCOP3: DEC	PTIM1	
1043	004166	001375			BNE	PSCOP3	;DELAY FOR INTERRUPT
1044	004170	005337	001016		DEC	PTIM2	
1045	004174	001372			BNE	PSCOP3	
1046	004176	005103			PSCOP4: COM	R3	;COMPLEMENT DATA
1047	004200	032777	001000	174650	BIT	#1000,JSWR	;SEE IF ON TESTER INTERRUPT
1048	004206	001703			BEQ	PSCOP0	;IF NOT: BR
1049	004210	005037	001014		CLR	PTIM1	
1050	004214	032777	000200	174644	PSCOP5: BIT	#200,PTS	;LOOK FOR TESTER READY
1051	004222	001275			BNE	PSCOP0	;IF SO: BR
1052	004224	005337	001014		DEC	PTIM1	
1053	004230	001371			BNE	PSCOP5	;DELAY FOR COMPLETE FROM TESTER
1054	004232	000137	004016		JMP	PSCOP0	;CONTINUE

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1072 004236 005077 174624      PLC:  CLR      QPTS      ;CLEAR TESTER STATUS
1073 004242 005077 174616      CLR      QPCB      ;CLR TESTER FLAG
1074 004246 005077 174610      CLR      QPCS      ;CLEAR CONTROLLER STATUS
1075 004252 005003              CLR      R3          ;CLR CHARACTER COUNTER
1076 004254 012737 000074 004476  MOV      #74,TIME    ;SET TIME FOR 1 SECOND @ 60HZ
1077 004262 032777 000002 174566  BIT      #2,QSWR     ;SEE IF 50HZ
1078 004270 001403              BEQ      1$          ;BR IF NOT
1079 004272 012737 000062 004476  MOV      #62,TIME    ;SET TIME FOR 1 SECOND @ 50HZ
1080 004300 013700 001000      1$:  MOV      PVEC,R0      ;GET VECTOR ADRS
1081 004304 062700 000004      ADD      #4,R0        ;POINT TO TESTER VECTOR ADRS
1082 004310 012720 004400      MOV      #DINT,(R0)+    ;SET UP TESTER INT SERVICE ADRS
1083 004314 012720 000340      MOV      #340,(R0)+    ;SET PSW TO LEVEL 7 WHEN INTERRUPTED
1084 004320 013700 004476      MOV      TIME,R0      ;SET UP 1 SECOND TIMER VALUE
1085 004324 005077 174524      CLR      QLKS      ;CLR LINE CLOCK
1086 004330 032777 000200 174516  2$:  BIT      #200,QLKS    ;SYNC ON LINE FREQ
1087 004336 001774              BEQ      2$          ;WAIT FOR CLOCK TICK
1088 004340 012777 000100 174506  MOV      #100,QLKS   ;CLR TICK AND ENABLE CLOCK INT
1089 004346 052777 000100 174512  BIS      #100,QPTS   ;SET TESTER INT ENABLE
1090 004354 005277 174506      INC      QPTS      ;SET GO BIT (TESTER)
1091 004360 005077 174474      CLR      QPSW     ;ALLOW ALL INTERRUPTS
1092 004364 000001              WAIT             ;AWAIT INTERRUPTS
1093 004366 000137 004364      3$:  JMP      3$          ;RETURNS HERE AFTER INTERRUPT
1094
1095      ;CLOCK TIMER INTERRUPT HANDLER
1096
1097 004372 005300      TINT:  DEC      R0          ;SEE IF DONE 1 SECOND
1098 004374 001407      BEQ      PLCP        ;IF SO: BR
1099 004376 000002      RTI              ;ELSE RETURN
1100
1101      ;DATA INTERRUPT HANDLER
1102
1103 004400 005203      DINT:  INC      R3          ;BUMP CHARACTER COUNTER
1104 004402 010377 174456      MOV      R3,QPCB     ;CLR TESTER FLAG & XMIT CHAR
1105 004406 005277 174454      INC      QPTS      ;SET GO
1106 004412 000002      RTI              ;RETURN

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[illegible]

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FLCP:      CMP      (R6)+, (R6)+
           CLR      2LKS
           CLR      2PTS
           CLR      2PCS
           CLR      R2
           DIV      LINE, R2
           MOV      R2, R3
           MOV      #MSG43, R4
           JSR      PC, TTOUT
           JSR      PC, DECPRT
           BIT      #20000, 2SWR
           BNE      PLCG
           HALT
PLCG:      LMP      PLCC

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:FIX STACK SINCE NO RETURN
:CLEAR CLOCK
:CLEAR TESTER
:CLEAR CONTROLLER
:CLR HIGH ORDER WORD OF 32 BIT DIVIDEND
:DIVIDE R2 & R3 BY CHARACTER PER LINE VALUE
:SET UP FOR DECRYPT ROUTINE

:PRINT HEADER
:PRINT LINE AMOUNT IN DECIMAL
:SEE IF CONTINUOUS MODE
:IF SO: BR

:CONTINUE

:DIVISOR FOR 37 CHARACTER PER LINE
:TIMER VALUE FOR 1 SECOND AT 60 OR 60 HZ

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: TAKES THE CONTENTS OF 'OCTBUF' PREVIOUSLY
: LOADED VIA THE TTY OR TYPESET READER 0
: AND SENDS THIS DATA TO THE PHOTO-COMP MACHINE.
: THE FOLLOWING KEYS ON THE KEYBOARD ARE USED TO
: CONTROL THE TRANSMISSION OF DATA TO THE PHOTO-
: COMP MACHINE:
: 'T'-TRANSMIT THE CONTENTS OF THE BUFFER PREVIOUSLY TYPED.
: 'S'-STOP THE TRANSFER OF DATA.
: 'C'-CONTINUE THE TRANSFER WHERE INTERRUPTED.
: 'I'-INPUT A NEW DATA BUFFER.

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PSD:      MOV      #MSG50,R4      ;SET UP MSG ADRS
          JSR      PC,TTOUT        ;GO IDENTIFY TEST & INSTRUCTIONS
SETBUF:    MOV      #OCTBUF,R5    ;SET UP R5 WITH STARTING ADRS OF 'OCTBUF'
          MOV      #1,LINCNT       ;SET UP 'LINCNT' TO 1
          BIT      @SWR,#1         ;IS INPUT TO BE FROM READER?
          BEQ      NXLIN           ;BR IF INPUT FROM TTY

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:THIS CODE GETS THE INPUT DATA FROM THE TYPESET READER 0

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RDRLK1: INC      2PRS      :ADVANCE READER
RDR_k:  TSTB     2TKS      :LOOK FOR A KEY
      BPL       2$        :BR IF NO KEY
      MOV      2TKB,TEMP  :GET AND SAVE COMMAND
      CMP      TEMP,#311  :SEE IF A NEW BUFFER REQUESTED
      BNE      1$        :BR IF NOT
      JSR      PC,TYPECMD :GO TYPE 'I'
      BR       SETBUF     :BR TO GET NEW DATA
1$:    CMP      TEMP,#324  :SEE IF XMIT REQUESTED
      BNE      2$        :BR IF NOT
      JSR      PC,TYPECMD :GO TYPE 'T'
      BR       XFERR1     :GO XMIT DATA
2$:    TSTB     2PRS      :IS READER DONE?
      BPL      RDRLK     :BR IF NOT
      MOV      2PRB,(R5 + :STORE DATA IN BUFFER
      INC      LINCNT     :RECORD THIS DATA
      CMP      #20000,R5  :ARE WE AT THE END OF 4K?
      BNE      RDRLK1    :BR IF NOT
      MOV      #MSG52,R4  :SET UP BUFFER FULL MSG
      JSR      PC,TTOUT   :GO TYPE MSG
      BR       RDRLK1    :SHOULD RESPOND WITH A '...'

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1171      004644 012704 012442      NXLIN: MOV      #MSG54,R4      :SET UP FOR CR/LF TYPE
1172      004650 004737 006130      JSR      PC,TTOUT      :GO SET MARGIN
1173      004654 012702 005434      MOV      #TEMBUF,R2      :SET UP TEMP DIGIT COUNTER
1174      004658 012737 000004 005416  MOV      #4,CCNT      :SET UP DIGIT COUNT
1175      004666 013703 005420      MOV      LINCNT,R3      :GET CURRENT LINE COUNT
1176      004672 004737 005730      JSR      PC,DECPRT      :GO TYPE IT
1177      004676 012737 000240 001024  MOV      #240,T0B      :SET UP FOR 'SPACE'
1178      004704 004737 006210      JSR      PC,T0G      :GO TYPE IT
1179
1180      :GET CHARACTER FROM KEYBOARD
1181
1182      004710 105777 174130      TTI:   TSTB      #TKS      :LOOK FOR CHARACTER
1183      004714 100375      BPL      TTI      :WAIT FOR CHARACTER
1184      004716 017737 174124 001024  MOV      #TKB,T0B      :GET CHAR AND SAVE AT 'T0B'
1185      004724 023727 001024 000260  CMP      T0B,#260      :SEE IF LESS THAN ASCII #260
1186      004732 100424      BMI      CNTRCK      :BR IF SO
1187      004734 023727 001024 000270  CMP      T0B,#270      :SEE IF GREATER THAN ASCII #267
1188      004742 100057      BPL      ENDOCK      :BR IF SO
1189      004744 004737 006210      JSR      PC,T0G      :GO TYPE DIGIT
1190      004750 005337 005416      DEC      CCNT      :SEE IF OVER 3 INPLT DIGITS
1191      004754 001406      BEQ      TYPER      :BR IF SO
1192      004756 042727 177770 001024  BIC      #177770,T0B      :GET RID OF ASCII
1193      004764 013722 001024      MOV      T0B,R2      :SAVE DIGIT IN 'OCTBUF'
1194      004770 000747      BR      TTI      :GO GET NEXT DIGIT

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E03

LPC11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 30

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1197                                     : THIS CODE REPORTS AN INPROPER INPUT RESPONSE
1198
1199 004772 012704 012331          TYPED: MOV      #MSG51,R4          : GO SET UP FOR ??
1200 004776 004737 006130          JSR      PC,TTOUT              : GO TYPE IT
1201 005002 000720                                     BR      NXLIN              : GO GET SAME LINE AGAIN
1202
1203                                     : THIS CODE ASSEMBLES THE 3 DIGIT ASCII INTO
1204                                     : 3 DIGIT OCTAL AND STORES IT IN THE 'OCTBUF'
1205
1206 005004 023727 001024 000215  CNTRCK: CMP      TOB,#215          : IS IT THE LINE TERMINATOR?
1207 005012 001367                                     BNE      TYPED              : BR IF NOT
1208 005014 014237 005422          MOV      -(R2),TEMP              : PUT LSD IN TEMP
1209 005020 006342                                     ASL      -(R2)              : ADJUST FOR MIDDLE DIGIT
1210 005022 006312                                     ASL      (R2)
1211 005024 006312                                     ASL      (R2)
1212 005026 061237 005422          ADD      (R2),TEMP              : ADD MIDDLE DIGIT TO TEMP
1213 005032 022742 000004          CMP      #4,-(R2)              : SEE IF MSD IS LARGER THAN 3
1214 005036 003755                                     BLE      TYPED              : BR IF NUMBER 400 OR OVER
1215 005040 000312                                     SWAB     (R2)              : MAKE MSD EASIER TO SHIFT
1216 005042 006212                                     ASR      (R2)              : ADJUST FOR OVER SHIFT
1217 005044 006212                                     ASR      (R2)
1218 005046 061237 005422          ADD      (R2),TEMP              : ADD MSD TO 'TEMP'
1219 005052 113725 005422          MOVB     TEMP,(R5)+          : STORE OCTAL VALUE TYPED
1220 005056 020527 020000          CMP      R5,#20000          : SEE IF BUFFER FULL
1221 005062 001004                                     BNE      BUFOK              : BR IF NOT
1222 005064 012704 012334          MOV      #MSG52,R4          : SET UP BUFFER FULL MSG
1223 005070 004737 006130          JSR      PC,TTOUT              : GO TYPE IT
1224 005074 005237 005420          INC      LINCNT              : ADVANCE TO NEXT LINE
1225 005100 000661          BR      NXLIN              : GO GET NEXT LINE
1226
1227                                     : THIS CODE LOOKS FOR THE KEYS 'T' OR 'I' DURING THE
1228                                     : OCTAL INPUT ROUTINE AND CHECKS THAT IT FOLLOWED A 'CR'
1229
1230 005102 023727 001024 000311  ENDCK: CMP      TOB,#311          : SEE IF CALLING FOR NEW DATA
1231 005110 001004                                     BNE      IS                : BR IF NOT
1232 005112 004737 006210          JSR      PC,TOG              : INDICATE 'INPUT'
1233 005116 000137 004510          JMP      SETBUF              : GO GET NEW DATA
1234 005122 023727 001024 000324  IS:  CMP      TOB,#324          : SEE IF CALLING FOR XMIT
1235 005130 001320                                     BNE      TYPED              : BR IF NOT
1236 005132 022702 005434          CMP      #TEMBUF,R2          : MAKE SURE THAT LAST LINE WAS TERMINATED
1237 005136 001315                                     BNE      TYPED              : BR IF NOT
1238 005140 004737 006210          JSR      PC,TOG              : INDICATE TRANSMIT

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F03

LPC11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 31

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1239      : THIS CODE TRANSMITS THE CONTENTS OF 'OCTBUF'
1240      : OUT TO THE PHOTO-COMP MACHINE CONTINUOUSLY
1241      : UNTIL A CONTROL CHARACTER IS TYPED.
1242      : SWITCH 13 CONTROLS: LOOP OR SINGLE PASS
1243
1244 005144 005077 173712      XFLR1: CLR      3PCS      ;MAKE SURE INT ENABLE IS OFF
1245 005150 012705 014000      XFER:  MOV      #OCTBUF,R5 ;SET UP STARTING ADRS OF DATA BUFFER
1246 005154 013702 005420      MOV      LINCNT,R2 ;SET UP TOTAL NUMBER OF OUTPUT BYTES
1247 005160 005302      XFER:  DEC      R2      ;MAINTAIN XFER COUNT
1248 005162 001006      BNE      1$      ;BR IF NOT END OF BUFFER
1249 005164 032777 020000 173664 BIT      #20000,2SWR ;SEE IF LOOP SWITCH SET
1250 005172 001366      BNE      XFER      ;BR IF SET
1251 005174 000000      HALT      ;COMPLETED BUFFER OUTPUT TO PHOTO-COMP
1252 005176 000764      BR      XFER      ;GO XFER BUFFER AGAIN
1253 005200 005777 173656      1$:  TST      3PCS      ;MAKE SURE PHOTO-COMP ON LINE
1254 005204 100007      BPL      2$      ;BR IF SO
1255 005206 012704 012372      MOV      #MSG53,R4 ;SET UP ADRS OF MSG
1256 005212 004737 006130      JSR      PC,TTOUT ;GO TYPE PHOTO-COMP OFF LINE
1257 005216 000000      HALT      ;ERROR- PHOTO-COMP BECAME OFF LINE
1258 005220 000137 005200      JMP      1$      ;CHECK IT AGAIN
1259 005224 105777 173632      2$:  TSTB     3PCS      ;LOOK FOR READY INDICATION
1260 005230 100005      BPL      3$      ;BR IF NOT READY
1261 005232 112577 173626      MOVB     (R5)+,3PCB ;SEND OCTAL VALUE TO PHOTO-COMP
1262 005236 005037 005424      CLR      STOP     ;CLR BUM KEY INDICATION
1263 005242 000746      BR      XFER      ;BR FOR NEXT VALUE
1264 005244 105777 173574      3$:  TSTB     3TKS      ;SEE IF KEYBOARD HAS BEEN STRUCK
1265 005250 100365      BPL      2$      ;BR IF NOT
1266 005252 017737 173570 005422 4$:  MOV      3TKB,TEMP ;SAVE KEY TYPED
1267
1268      : THIS CODE CHECKS FOR TTY KEYS 'S' 'C' 'T' 'I'
1269      : FOR I/O CONTROL DURING OUTPUT TO PHOTO-COMP
1270
1271 005260 023727 005422 000324      CMP      TEMP,#324 ;SEE IF AN 'T' HAS BEEN TYPED
1272 005266 001003      BNE      5$      ;BR IF NOT
1273 005270 004737 005372      JSR      PC,TYPCMD ;GO TYPE COMMAND LETTER
1274 005274 000725      BR      XFER      ;XMIT BUFFER STARTING AT LINE #1
1275 005276 023727 005422 000311 5$:  CMP      TEMP,#311 ;SEE IF AN 'I' HAS BEEN TYPED
1276 005304 001004      BNE      6$      ;BR IF NOT
1277 005306 004737 005372      JSR      PC,TYPCMD ;GO TYPE COMMAND LETTER
1278 005312 000137 004510      JMP      SETBUF ;GO GET NEW DATA
1279 005316 023727 005422 000303 6$:  CMP      TEMP,#303 ;SEE IF AN 'C' HAS BEEN TYPED
1280 005324 001003      BNE      7$      ;BR IF NOT
1281 005326 004737 005372      JSR      PC,TYPCMD ;GO TYPE COMMAND LETTER
1282 005332 000734      BR      2$      ;GO CONTINUE WHERE INTERRUPTED
1283 005334 023727 005422 000323 7$:  CMP      TEMP,#323 ;SEE IF AN 'S' HAS BEEN TYPED
1284 005342 001403      BEQ      8$      ;BR IF SO
1285 005344 005737 005424      TST      STOP     ;SEE IF IN THE STOP MODE
1286 005350 001725      BEQ      2$      ;RETURN TO WAIT LOOP IF BUM KEY
1287 005352 004737 005372      8$:  JSR      PC,TYPCMD ;GO TYPE COMMAND LETTER
1288 005356 005237 005424      INC      STOP     ;RECORD GOOD STOP KEY
1289 005362 105777 173456      9$:  TSTB     3TKS      ;LOOK FOR COMMAND
1290 005366 100375      BPL      9$      ;WAIT FOR COMMAND
1291 005370 000730      BR      4$      ;GO SEE WHAT COMMAND

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G03

LPC11 INTERFACE TEST - MAINDEC-11-DZLPJ-8-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 32

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1292                                     : THIS ROUTINE TYPES THE COMMAND RECEIVED DURING TRANSMIT
1293
1294 005372 012704 012442 TPCMD: MOV      MSG54,R4      : SET UP FOR CR/LF TYPE
1295 005376 004737 006130      JSR      PC,TOUT      : GO SET MARGIN
1296 005402 013737 005422      MOV      TEMP,T0B     : SET UP FOR COMMAND ECHO
1297 005410 004737 006210      JSR      PC,T0G      : GO ECHO
1298 005414 000207      RTS      PC      : RETURN
1299
1300                                     : CORE LOCATIONS USED BY THE DATA OUTPUT TEST
1301
1302 005416 000000 CCNT: 0      : MAINTAINS COUNT OF INPUT DIGITS
1303 005420 000000 LINCNT: 0   : CONTAINS NUMBER OF LINES TYPED
1304 005422 000000 TEMP: 0    : INPUT OCTAL DATA ASSEMBLED HERE
1305 005424 000000 STOP: 0    : IGNORES BAD KEY IF ZERO
1306 005426 000000 TEMBOS: 0  : SPACE FOR LEADING ZEROS
1307 005430 000000      :
1308 005432 000000      :
1309 005434 000000 TEMBUF: 0  : START OF ASCII DIGIT BUFFER
1310 005436 000000      :
1311 005440 000000      :

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H03

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 33

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1326 005442 032777 100000 173406 PLE: BIT #100000,DSWR ;SEE IF NO PRINT
1327 005450 001012 BNE PCONTL ;IF SO: BR
1328 005452 012704 006636 MOV #MSG0,R4 ;R4= TEST NUMBER MSG ADRS
1329 005456 013764 001004 000020 MOV PTN,+20(R4) ;SET TEST NUMBER
1330 005464 004737 006130 JSR PC,TTOUT ;GO TYPE TEST NUMBER
1331 005470 010304 MOV R3,R4 ;R4= ERROR MSG ADRS
1332 005472 004737 006130 JSR PC,TTOUT ;PRINT ERROR
1333 005476 032777 040000 173352 PCONTL: BIT #40000,DSWR ;SEE IF HALT ON ERROR
1334 005504 001401 BEQ PGOL ;IF NOT: BR
1335 005506 000000 HALT ;LOGIC TEST ERROR
1336 005510 032777 002000 173340 PGOL: BIT #2000,DSWR ;SEE IF ERROR BIT TEST
1337 005516 001402 BEQ PG0 ;IF NOT: BR
1338 005520 000137 003434 JMP PEBT2 ;RETRY ERROR BIT TEST
1339 005524 000137 001200 PG0: JMP PSKIP ;RESTART
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1356 005530 032777 100000 173320 PDE: BIT #100000,DSWR ;SEE IF NO PRINT
1357 005536 001053 BNE PCONTC ;IF NO PRINT: BR
1358 005540 012704 010344 MOV #MSG27,R4 ;SET ERROR MSG ADDR
1359 005544 004737 006130 JSR PC,TTOUT
1360 005550 012704 010361 MOV #MSG30,R4
1361 005554 004737 006130 JSR PC,TTOUT ;TYPE EXPECTED DATA HEADER
1362 005560 005003 CLR R3
1363 005562 013704 001022 MOV PCHAR,R4 ;R4 = EXPT CHAR
1364 005566 012705 000010 PDE1: MOV #10,R5 ;R5 = NUMBER OF BITS TO TYPE
1365 005572 105777 173252 PDE2: TSTB #TPS
1366 005576 100375 BPL PDE2 ;AWAIT TTY READY
1367 005600 132704 000200 BITB #200,R4 ;SEE IF ONE OR ZERO

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1368 005604 001404      BEQ      PDE3      ;IF ZERO: BR
1369 005606 012777 000061 173236      MOV      #061,ATPB ;TYPE A ONE
1370 005614 000403      BR      PDE4
1371 005616 012777 000060 173226 PDE3: MOV      #060,ATPB ;TYPE A ZERO
1372 005624 006104      PDE4: ROL      R4      ;GET NEXT BIT
1373 005626 005305      DEC      R5      ;SEE IF DONE ALL
1374 005630 001360      SNE      PDE2      ;IF NOT: BR
1375 005632 005703      TST      R3      ;LOOK FOR RECIEVED DONE FLAG
1376 005634 001010      BNE      PDE5      ;IF NOT: BR
1377 005636 012704 010402      MOV      #MSG31,R4
1378 005642 004737 006130      JSR      PC,TTOUT ;TYPE RECIEVED DATA HEADER
1379 005646 005203      INC      R3      ;SET FLAG
1380 005650 010004      MOV      R0,R4      ;SET RECIEVED CHAR IN R4
1381 005652 000137 005566      JMP      PDE1      ;DO RECIEVED
1382 005656 012704 010423      PDE5: MOV      #MSG32,R4
1383 005662 004737 006130      JSR      PC,TTOUT ;TYPE CR/LF
1384 005666 032777 040000 173162 PCONTD: BIT      #40000,ASWR ;SEE IF HALT ON ERROR
1385 005674 001401      BEQ      PG0D      ;IF NO: BR
1386 005676 000000      HALT
1387 005700 000207      PG0D: RTS      PC      ;RETURN
1388
1389
1390      ;*****
1391      ;PROGRAM END ROUTINE
1392
1393      ;THIS ROUTINE IS USED TO PRINT OUT
1394      ;"END OF TEST" AND THEN HALT AT
1395      ;THE END OF A SINGLE PASS OR TO
1396      ;RESTART WITH NO PRINT OUT DEPENDING
1397      ;ON CONSOLE SWITCH 13.
1398      ;*****
1399
1400 005702 032777 020000 173146 PEND: BIT      #20000,ASWR ;LOOK FOR CONTUOUS MODE
1401 005710 001005      BNE      PLOOP      ;IF SO: BR
1402 005712 012704 007347      MOV      #MSG7,R4
1403 005716 004737 006130      JSR      PC,TTOUT ;PRINT END OF TEST
1404 005722 000000      HALT
1405 005724 000137 001200      PLOOP: JMP      PSKIP      ;LOOP
1406
1407
1408      ;*****
1409      ;DECIMAL PINT ROUTINE
1410
1411      ;PRINT THE CONTENTS OF R3 IN DECIMAL
1412      ;*****
1413
1414 005730 012737 177773 006110 DECPRT: MOV      #-5,DIGCNT
1415 005736 012737 006116 006114      MOV      #DECPNT+2,DECPNT
1416 005744 005037 006112      CLR      ZERO
1417 005750 012737 177777 006106 TYPT1: MOV      #-1,DIGIT
1418 005756 005237 006106      TYPT2: INC      DIGIT
1419 005762 167703 000126      SUB      @DECPNT,R3
1420 005766 100373      BPL      TYPT2
1421 005770 067703 000120      ADD      @DECPNT,R3
1422 005774 004737 006020      JSR      PC,DECOU
1423 006000 005237 006110      INC      DIGCNT

```

Address	Hex	Hex	Hex	Hex	Label	Assembly	Comment
1424	006004	001001				BNE	TYPT3
1425	006006	000207				RTS	PC
1426	006010	062737	000002	006114	TYPT3:	ADD	#2,DECPNT
1427	006016	000754				BR	TYPT1
1428	006020	005737	006106		DECOUT:	TST	DIGIT
1429	006024	001010				BNE	DEC1
1430	006026	022737	177777	006110		CMP	#-1,DIGCNT
1431	006034	001404				BEQ	DEC1
1432	006036	013737	006112	006106		MOV	ZERO,DIGIT
1433	006044	000406				BR	DEC2
1434	006046	012737	000260	006112	DEC1:	MOV	#260,ZERO
1435	006054	052737	000260	006106		BIS	#260,DIGIT
1436	006062	005737	006106		DEC2:	TST	DIGIT
1437	006066	001406				BEQ	DEC3
1438	006070	105777	172754			TSTB	ATPS
1439	006074	100372				BPL	DEC2
1440	006076	013777	006106	172746		MOV	DIGIT,ATPB
1441	006104	000207			DEC3:	RTS	PC
1442							
1443	006106	000000			DIGIT:	0	
1444	006110	000000			DIGCNT:	0	
1445	006112	000000			ZERO:	0	
1446	006114	006116			DECPNT:	+.2	
1447	006116	023420				10000.	
1448	006120	001750				1000.	
1449	006122	000144				100.	
1450	006124	000012				10.	
1451	006126	000001				1.	
1452							
1453							
1454							
1455							
1456							
1457							
1458							
1459							
1460	006130	112437	001024		TTOUT:	MOVB	(R4)+,TOB ;TOB = OUTPUT CHAR
1461	006134	122737	000043	001024		CMPB	#43,TOB ;LOOK FOR TERMINATOR
1462	006142	001430				BEQ	TEX ;EXIT
1463	006144	122737	000045	001024		CMPB	#45,TOB ;LOOK FOR CR/LF
1464	006152	001403				BEQ	TCRLF ;IF SO: BR
1465	006154	004737	006210			JSR	PC,TOG ;GO TYPE CHAR
1466	006160	000763				BR	TTOUT ;CONTINUE
1467	006162	112737	000015	001024	TCRLF:	MOVB	#15,TOB ;TOB = CR
1468	006170	004737	006210			JSR	PC,TOG ;GO TYPE CR
1469	006174	112737	000012	001024		MOVB	#12,TOB ;TOB = LF
1470	006202	004737	006210			JSR	PC,TOG ;GO TYPE LF
1471	006206	000750				BR	TTOUT ;CONTINUE
1472	006210	105777	172634		TOG:	TSTB	ATPS ;LOOK FOR DONE
1473	006214	100375				BPL	TOG ;AWAIT FLAG
1474	006216	113777	001024	172626		MOVB	TOB,ATPB ;ECHO CHAR
1475	006224	000207			TEX:	RTS	PC ;EXIT
1476							
1477							
1478							
1479							

K03

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 36

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1480
1481
1482
1483
1484
1485 006226 005014
1486 006230 004737 006276
1487 006234 022737 000215 001026
1488 006242 001414
1489 006244 013701 001030
1490 006250 000241
1491 006252 006114
1492 006254 005301
1493 006256 001374
1494 006260 040537 001026
1495 006264 053714 001026
1496 006270 005303
1497 006272 001356
1498 006274 000207
1499
1500
1501
1502 006276 005077 172542
1503 006302 005077 172540
1504 006306 005037 001026
1505 006312 005277 172526
1506 006316 105777 172522
1507 006322 100375
1508 006324 017737 172516 001026
1509 006332 105777 172512
1510 006336 100375
1511 006340 113777 001026 172504
1512 006346 000207
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523 006350 032625
1524 006352 004737 006452
1525 006356 000177 172450

; THIS ROUTINE IS USED TO READ IN THE
; VECTOR AND REGISTER SETTINGS.
; *****

READ: CLR R4 ; CLEAR FOR INPUT
READ1: JSR PC, TTIN ; GO READ KEYBOARD AND ECHO
      CMP #215, TIB ; LOOK FOR CR
      BEQ REX ; IF SO: BR
      MOV ROTA, R1 ; SET ROTATION FACTOR
ROT: CLC
      ROL R4 ; ROTATE INPUT
      DEC R1 ; DECREMENT POSITION FACTOR
      BNE ROT ; DO ALL ROTATIONS
      BIC R5, TIB ; STRIP ASCII
      BIS TIB, R4 ; SET NEW DIGIT
      DEC R3 ; DECREMENT CHAR CNTR
      BNE READ1 ; CONTINUE
REX: RTS PC ; EXIT

; GET CHAR FROM KEYBOARD AND ECHO
TTIN: CLR R4TKS
      CLR R4TKB
      CLR TIB
      INC R4TKS ; SET READER GO BIT
TTIN1: TSTB R4TKS ; AWAIT DONE
      BPL TTIN1
      MOV R4TKB, TIB ; TIB = INPUT CHAR
TTIN2: TSTB R4TPS ; AWAIT PUNCH READY
      BPL TTIN2
      MOV TIB, R4TPB ; SET ECHO
      RTS PC ; EXIT

; *****
; MAINTENANCE MODE INTERRUPT ROUTINE
;
; THIS ROUTINE IS USED TO RESET THE
; STACK POINTER AND TO RESET VECTORS
; TO HALTS THEN RETURN.
; *****

PINTS: BIT (SP)+, (SP)+ ; RESET STACK POINTER
      JSR PC, PRSTV ; RESET VECTORS
      JMP R4PINTR ; RETURN

```



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1573 ;*****
1574 ;POWER FAIL ROUTINE
1575 ;
1576 ;THIS ROUTINE IS USED TO SAVE ALL
1577 ;PROCESSOR REGISTERS AND POINT TO
1578 ;THE POWER UP ROUTINE BEFORE
1579 ;HALTING.
1580 ;*****
1581
1582 006476 010046 PWRFAL: MOV R0,-(SP)
1583 006500 010146 MOV R1,-(SP)
1584 006502 010246 MOV R2,-(SP)
1585 006504 010346 MOV R3,-(SP)
1586 006506 010446 MOV R4,-(SP)
1587 006510 010546 MOV R5,-(SP)
1588 006512 013746 000024 MOV 24,-(SP)
1589 006516 010637 001006 MOV SP,PSPS ;SAVE STACK POINTER
1590 006522 012737 006532 000024 MOV #PWRUP,24
1591 006530 000000 HALT
1592
1593 ;*****
1594 ;POWER UP ROUTINE
1595 ;
1596 ;THIS ROUTINE IS USED TO RESTORE
1597 ;ALL PROCESSOR REGISTERS AND TYPE
1598 ;OUT A POWER FAIL MESSAGE BEFORE
1599 ;RESTARTING.
1600 ;*****
1601
1602 006532 012777 000340 172320 PWRUP: MOV #340,2PSW
1603 006540 013706 001006 MOV PSPS,SP
1604 006544 012637 000024 MOV (SP)+,24
1605 006550 012605 MOV (SP)+,R5
1606 006552 012604 MOV (SP)+,R4
1607 006554 012603 MOV (SP)+,R3
1608 006556 012602 MOV (SP)+,R2
1609 006560 012601 MOV (SP)+,R1
1610 006562 012600 MOV (SP)+,R0
1611 006564 005005 CLR R5
1612 006566 005305 DEC R5
1613 006570 001376 BNE .-2
1614 006572 012704 010757 MOV #MSG40,R4 ;TYPE POWER FAIL MESSAGE
1615 006576 004737 006130 JSR PC,TTOUT
1616 006602 005305 DEC R5
1617 006604 001376 BNE .-2
1618 006606 000137 001206 JMP PBEG
1619

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N03

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 39

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1620
1621
1622
1623
1624
1625
1626 006612 000 377 376 PPATS: .EVEN
1627 006615 375 373 367 .BYTE 0,377,376,375,373,367,357,337,277,177
1628 006620 357 337 277
1629 006623 177
1630 006624 001 002 004 .BYTE 1,2,4,10,20,40,100,200
1631 006627 010 020 040
1632 006632 100 200
1633 006634 377 PPATE: .BYTE 377
1634 006636 .EVEN
1635
1636
1637
1638
1639
1640
1641 006636 046045 043517 041511 MSGO: .ASCII /*LOGIC TEST NO. 00*/
1642 006644 052040 051505 020124
1643 006652 047516 020056 030060
1644 006660 043
1645
1646 006661 045 050114 030504 MSG1: .ASCII /*LPD11 INTERFACE TEST*/
1647 006666 020061 047111 042524
1648 006674 043122 041501 020105
1649 006702 042524 052123 021445
1650
1651 006710 042445 052116 051105 MSG2: .ASCII /*ENTER STARTING VECTOR ADDRESS*/
1652 006716 051440 040524 052122
1653 006724 047111 020107 042526
1654 006732 052103 051117 040440
1655 006740 042104 042522 051523
1656 006746 021445
1657
1658 006750 044445 046114 043505 MSG3: .ASCII /*ILLEGAL VECTOR: TRY AGAIN*/
1659 006756 046101 053040 041505
1660 006764 047524 035122 052040
1661 006772 054522 040440 040507
1662 007000 047111 021445
1663
1664 007004 042445 052116 051105 MSG4: .ASCII /*ENTER STARTING REGISTER ADDRESS*/
1665 007012 051440 040524 052122
1666 007020 047111 020107 042522
1667 007026 044507 052123 051105
1668 007034 040440 042104 042522
1669 007042 051523 021445
1670
1671 007046 044445 046114 043505 MSG5: .ASCII /*ILLEGAL ADDRESS: TRY AGAIN*/
1672 007054 046101 040440 042104
1673 007062 042522 051523 020072
1674 007070 051124 020131 043501
1675 007076 044501 022516 043

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16: 007311 0045 042523 020124
17: 007312 0045 020105 050114
18: 007313 0045 020061 047524
19: 007314 0045 020061 046040
20: 007315 0045 020061 045
21: 007316 0045 052125 051440
22: 007317 0045 041524 020110
23: 007318 0045 043117 051440
24: 007319 0045 041524 020110
25: 007320 0045 052517 020120
26: 007321 0045 047524 052040
27: 007322 0045 047524 020116
28: 007323 0045 044523 044524
29: 007324 0045 021445
30: 007325 0045 020105 053523
31: 007326 0045 044103 044440
32: 007327 0045 047514 040503
33: 007328 0045 020104 047117
34: 007329 0045 042510 046440
35: 007330 0045 020063 047515
36: 007331 0045 042514 040440
37: 007332 0045 044124 020105
38: 007333 0045 020104 047514
39: 007334 0045 022503
40: 007335 0045 042520 023440
41: 007336 0045 053440 042510
42: 007337 0045 042522 042101
43: 007338 0045 047524 043440
44: 007339 0045 043
45: 007340 0045 047105 020104
46: 007341 0045 052040 051505
47: 007342 0045 043
48: 007343 0045 047111 042524
49: 007344 0045 050125 020124
50: 007345 0045 043516 052440
51: 007346 0045 045
52: 007347 0045 047111 042524
53: 007348 0045 041501 020105
54: 007349 0045 023504 041440
55: 007350 0045 020105 047516
56: 007351 0045 042522 042101
57: 007352 0045 051117 042522
58: 007353 0045 054514 021445
59: 007354 0045 047101 047516
60: 007355 0045 046103 040505
61: 007356 0045 042524 052123
62: 007357 0045 051440 040524
63: 007358 0045 022523 043
64: 007359 0045 040503 047116
65: 007360 0045 041440 042514

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MSG5: .ASCII .SET THE LPC01 TO 'ON LINE'%/

.ASCII /PUT SWITCH 8 OF SWITCH GROUP 2 TO THE ON POSITION%#/

MSG6A: .ASCII THE SWITCH IS LOCATED ON THE M523 MODULE AT THE LPC LOGIC%#/

.ASCII /TYPE 'G' WHEN READY TO GO%#/

MSG7: .ASCII /%END OF TEST%#/

MSG10: .ASCII /%INTERRUPT HANG UP%#/

MSG11: .ASCII /%INTERFACE 'ID' CODE NOT READ CORRECTLY%#/

MSG12: .ASCII /%CANNOT CLEAR TESTER STATUS%#/

MSG13: .ASCII /%CANNOT CLEAR CONTROLLER STATUS%#/

C04

PD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJ9.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 41

1732	007532	051101	041440	047117	
1733	007540	051124	046117	042514	
1734	007546	020122	052123	052101	
1735	007554	051525	021445		
1736					
1737	007560	041445	047117	051124	MSG14: .ASCII: %CONTROLLER READY NOT RESET BY CHAR LOAD%#
1738	007566	046117	042514	020122	
1739	007574	042522	042101	020131	
1740	007602	047516	020124	042522	
1741	007610	042523	020124	054502	
1742	007616	041440	040510	020122	
1743	007624	047514	042101	021445	
1744					
1745	007632	052045	051505	042524	MSG15: .ASCII: %TESTER READY NOT SET AFTER CHAR LOAD%#
1746	007640	020122	042522	042101	
1747	007646	020131	047516	020124	
1748	007654	042523	020124	043101	
1749	007662	042524	020122	044103	
1750	007670	051101	046040	043517	
1751	007676	022504	043		
1752					
1753	007701	045	047507	041040	MSG16: .ASCII: %GO BIT WILL NOT RESET%#
1754	007706	052111	053440	046111	
1755	007714	020114	047516	020124	
1756	007722	042522	042523	022524	
1757	007730	043			
1758					
1759	007731	045	042524	052123	MSG17: .ASCII: %TESTER READY RESETS FROM GO%#
1760	007736	051105	051040	040505	
1761	007744	054504	051040	051505	
1762	007752	052105	020123	051106	
1763	007760	045517	043440	022517	
1764	007766	043			
1765					
1766	007767	045	047503	052116	MSG20: .ASCII: %CONTROLLER READY NOT SET FROM GO%#
1767	007774	047522	046114	051105	
1768	010002	051040	040505	054504	
1769	010010	047040	052117	051440	
1770	010016	052105	043040	047522	
1771	010024	020115	047507	021445	
1772					
1773	010032	052045	051505	042524	MSG21: .ASCII: %TESTER READY NOT SET AT END OF CYCLE%#
1774	010040	020122	042522	042101	
1775	010046	020131	047516	020124	
1776	010054	042523	020124	052101	
1777	010062	042440	042116	047440	
1778	010070	020106	054503	046103	
1779	010076	022505	043		
1780					
1781	010101	045	047503	052116	MSG22: .ASCII: %CONTROLLER READY SET AT END OF CYCLE%#
1782	010106	047522	046114	051105	
1783	010114	051040	040505	054504	
1784	010122	051440	052105	040440	
1785	010130	020124	047105	020104	
1786	010136	043117	041440	041531	
1787	010144	042514	021445		

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1798
1799 010150 047045 020117 047111 MSG24: .ASCII /%NO INTERRUPT FROM TESTER READY%#/
1800 010156 042524 051122 050125
1801 010164 020124 051106 046511
1802 010172 052040 051505 042524
1803 010200 020122 042522 042101
1804 010206 022531 043
1805
1806 010211 045 047516 044440 MSG25: .ASCII /%NO INTERRUPT FROM CONTROLLER READY%#/
1807 010216 052116 051105 052522
1808 010224 052120 043040 047522
1809 010232 020115 047503 052116
1810 010240 047522 046114 051105
1811 010246 051040 040505 054504
1812 010254 021445
1813
1814 010256 042445 051122 051117 MSG26: .ASCII /%ERROR BIT WILL NOT GO TO PROPER STATE%#/
1815 010264 041040 052111 053440
1816 010272 046111 020114 047516
1817 010300 020124 047507 052040
1818 010306 020117 051120 050117
1819 010314 051105 051440 040524
1820 010322 042524 045
1821 010325 106 051117 052040 .ASCII /FOR THIS MODE%#
1822 010332 044510 020123 047515
1823 010340 042504 021445
1824
1825 010344 042045 052101 020101 MSG27: .ASCII /%DATA ERROR%#
1826 010352 051105 047522 022522
1827 010360 043
1828
1829 010361 045 054105 042520 MSG30: .ASCII /%EXPECTED DATA: %/
1830 010366 052103 042105 042040
1831 010374 052101 035101 021440
1832
1833 010402 051045 041505 044505 MSG31: .ASCII /%RECEIVED DATA: %/
1834 010410 042526 020104 040504
1835 010416 040524 020072 043
1836
1837 010423 045 021445 MSG32: .ASCII /%%#/
1838
1839 010426 047045 020117 042522 MSG33: .ASCII /%NO READY FLAG DURING DATA TEST%#/
1840 010434 042101 020131 046106
1841 010442 043501 042040 051125
1842 010450 047111 020107 040504
1843 010456 040524 052040 051505
1844 010464 022524 043
1845
1846 010467 045 042524 052123 MSG34: .ASCII /%TESTER INTERRUPTS WITH NO INTERRUPT ENABLE%#/
1847 010474 051105 044440 052116
1848 010502 051105 052522 052120
1849 010510 020123 044527 044124
1850 010516 047040 020117 047111
1851 010524 042524 051122 050125
1852 010532 020124 047105 041101

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E04

PC11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 43

1944	010540	042514	021445		
1945					
1946	010544	052045	051505	042524	MSG35: .ASCII %TESTER INTERRUPTS AT HIGHER THAN LEVEL 4%#
1947	010552	020123	047111	042524	
1948	010560	051125	050125	051524	
1949	010566	040440	020124	044510	
1950	010574	044107	051105	052040	
1951	010602	040510	020116	042514	
1952	010610	042526	020114	022464	
1953	010616	043			
1954					
1955	010617	045	047503	052116	MSG36: .ASCII %CONTROLLER INTERRUPTS WITH NO INTERRUPT ENABLE%#
1956	010624	047522	046114	051105	
1957	010632	044440	052116	051105	
1958	010640	052522	052120	020123	
1959	010646	044527	044124	047040	
1960	010654	020117	047111	042524	
1961	010662	051122	050125	020124	
1962	010670	047105	041101	042514	
1963	010676	021445			
1964					
1965	010700	041445	047117	051124	MSG37: .ASCII %CONTROLLER INTERRUPTS AT HIGHER THAN LEVEL 4%#
1966	010706	046117	042514	020122	
1967	010714	047111	042524	051122	
1968	010722	050125	051524	040440	
1969	010730	020124	044510	044107	
1970	010736	051105	052040	040510	
1971	010744	020116	042514	042526	
1972	010752	020114	022464	043	
1973					
1974	010757	045	042522	052123	MSG40: .ASCII %RESTART FROM POWER FAILURE%#
1975	010764	051101	020124	051106	
1976	010772	046517	050040	053517	
1977	011000	051105	043040	044501	
1978	011006	052514	042522	021445	
1979					
1980	011014	041445	047117	020124	MSG41: .ASCII %CONT READY NOT RESET BY INIT%#
1981	011022	042522	042101	020131	
1982	011030	047516	020124	042522	
1983	011036	042523	020124	054502	
1984	011044	044440	044516	022524	
1985	011052	043			
1986					
1987	011053	045	042524	052123	MSG42: .ASCII %TESTER READY NOT RESET BY INIT%#
1988	011060	051105	051040	040505	
1989	011066	054504	047040	052117	
1990	011074	051040	051505	052105	
1991	011102	041040	020131	047111	
1992	011110	052111	021445		
1993					
1994	011114	046045	047111	051505	MSG43: .ASCII %LINES PER SECOND: %#
1995	011122	050040	051105	051440	
1996	011130	041505	047117	035104	
1997	011136	022440	043		
1998					
1999	011141	045	051105	047522	MSG44: .ASCII %ERROR STATUS BIT TEST%#

1900	011146	020122	052123	052101
1901	011154	051525	041040	052111
1902	011162	052040	051505	022524
1903	011170	051445	052105	052040
1904	011176	042510	046040	041520
1905	011204	030460	052040	020117
1906	011212	047447	020116	044514
1907	011220	042516	022447	
1908	011224	052520	020124	053523
1909	011232	052111	044103	034040
1910	011240	047440	020106	053523
1911	011246	052111	044103	043440
1912	011254	047522	050125	031040
1913	011262	052040	020117	044124
1914	011270	020105	043117	020106
1915	011276	047520	044523	044524
1916	011304	047117	021445	
1917				
1918	011310	051445	052105	052040
1919	011316	042510	046040	041520
1920	011324	030460	052040	020117
1921	011332	047447	043106	046040
1922	011340	047111	023505	045
1923	011345	120	052125	051440
1924	011352	044527	041524	020110
1925	011360	020070	043117	051440
1926	011366	044527	041524	020110
1927	011374	051107	052517	020120
1928	011402	020062	047524	052040
1929	011410	042510	047440	043106
1930	011416	050040	051517	052111
1931	011424	047511	022516	
1932	011430	054524	042520	023440
1933	011436	023507	053440	042510
1934	011444	020116	042522	042101
1935	011452	020131	047524	043440
1936	011460	020117	021445	
1937	011464	051445	052105	052040
1938	011472	042510	046040	041520
1939	011500	030460	052040	020117
1940	011506	047447	020116	044514
1941	011514	042516	022447	
1942	011520	052520	020124	053523
1943	011526	052111	044103	034040
1944	011534	047440	020106	053523
1945	011542	052111	044103	043440
1946	011550	047522	050125	031040
1947	011556	052040	020117	044124
1948	011564	020105	043117	020106
1949	011572	047520	044523	044524
1950	011600	047117	045	
1951	011603	123	044527	041524
1952	011610	020110	047520	042527
1953	011616	020122	043117	020106
1954	011624	052101	052040	042510
1955	011632	046040	041520	030460

.ASCII /%SET THE LPC01 TO 'ON LINE'%/

.ASCII /PUT SWITCH 8 OF SWITCH GROUP 2 TO THE OFF POSITION%#/

MSG45: .ASCII /%SET THE LPC01 TO 'OFF LINE'%/

.ASCII /PUT SWITCH 8 OF SWITCH GROUP 2 TO THE OFF POSITION%#/

.ASCII /TYPE 'G' WHEN READY TO GO %#/

MSG46: .ASCII /%SET THE LPC01 TO 'ON LINE'%/

.ASCII /PUT SWITCH 8 OF SWITCH GROUP 2 TO THE OFF POSITION%#/

.ASCII /SWITCH POWER OFF AT THE LPC01%#/

GO4

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 45

1956	011640	045			
1957	011641	124	050131	020105	.ASCII /TYPE 'G' WHEN READY TO GO%#/
1958	011646	043447	020047	044127	
1959	011654	047105	051040	040505	
1960	011662	054504	052040	020117	
1961	011670	047507	021445		
1962					
1963	011674	053523	052111	044103	MSG46A: .ASCII /SWITCH POWER ON AT THE LPCD1%/
1964	011702	050040	053517	051105	
1965	011710	047440	020116	052101	
1966	011716	052040	042510	046040	
1967	011724	041520	030460	045	
1968	011731	124	050131	020105	.ASCII /TYPE 'G' WHEN READY TO GO%#/
1969	011736	043447	020047	044127	
1970	011744	047105	051040	040505	
1971	011752	054504	052040	020117	
1972	011760	047507	021445		
1973					
1974					
1975	011764	042445	051122	051117	MSG47: .ASCII /%ERROR BIT OK%#/
1976	011772	041040	052111	047440	
1977	012000	022513	043		
1978					
1979	012003	045	040504	040524	MSG50: .ASCII /%DATA OUTPUT TEST%/
1980	012010	047440	052125	052520	
1981	012016	020124	042524	052123	
1982	012024	045			
1983					
1984	012025	045	040515	042513	.ASCII /%MAKE SURE THE PHOTO-COMP DEVICE IS 'ON LINE'%/
1985	012032	051440	051125	020105	
1986	012040	044124	020105	044120	
1987	012046	052117	026517	047503	
1988	012054	050115	042040	053105	
1989	012062	041511	020105	051511	
1990	012070	023440	047117	046040	
1991	012076	047111	023505	045	
1992	012103	120	052125	051440	.ASCII /PUT SWITCH 8 OF SWITCH GROUP 2 TO THE OFF POSITION%/
1993	012110	044527	041524	020110	
1994	012116	020070	043117	051440	
1995	012124	044527	041524	020110	
1996	012132	051107	052517	020120	
1997	012140	020062	047524	052040	
1998	012146	042510	047440	043106	
1999	012154	050040	051517	052111	
2000	012162	047511	022516		
2001	012166	044124	020105	053523	.ASCII /THE SWITCH IS LOCATED ON THE M523 MODULE IN THE LPD LOGIC%/
2002	012174	052111	044103	044440	
2003	012202	020123	047514	040503	
2004	012210	042524	020104	047117	
2005	012216	052040	042510	046440	
2006	012224	031065	020063	047515	
2007	012232	052504	042514	044440	
2008	012240	020116	044124	020105	
2009	012246	050114	020104	047514	
2010	012254	044507	022503		
2011	012260	044127	047105	051040	.ASCII /WHEN READY, ENTER OCTAL VALUES: (0-377)%#/

H04

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D
DZLPJB.P11

MACY11 27(732) 08-SEP-76 09:50 PAGE 46

2012	012266	040505	054504	020054	
2013	012274	047105	042524	020122	
2014	012302	041517	040524	020114	
2015	012310	040526	052514	051505	
2016	012316	020072	030050	031455	
2017	012324	033467	022451	043	
2018					
2019	012331	077	021477		MSG51: .ASCII /??#/
2020					
2021	012334	047445	052103	046101	MSG52: .ASCII /%OCTAL OUTPUT BUFFER IS FULL%#/
2022	012342	047440	052125	052520	
2023	012350	020124	052502	043106	
2024	012356	051105	044440	020123	
2025	012364	052506	046114	021445	
2026					
2027	012372	050045	047510	047524	MSG53: .ASCII /%PHOTO-COMP OR INTERFACE NOT 'ON LINE'%#/
2028	012400	041455	046517	020120	
2029	012406	051117	044440	052116	
2030	012414	051105	040506	042503	
2031	012422	047040	052117	023440	
2032	012430	047117	046040	047111	
2033	012436	023505	021445		
2034					
2035	012442	021445			MSG54: .ASCII /%#/
2036					
2037	012444	042445	051122	051117	MSG55: .ASCII /%ERROR BIT NOT SET WITH LPD SWITCHED TO LOCAL TEST%#/
2038	012452	041040	052111	047040	
2039	012460	052117	051440	052105	
2040	012466	053440	052111	020110	
2041	012474	050114	020104	053523	
2042	012502	052111	044103	042105	
2043	012510	052040	020117	047514	
2044	012516	040503	020114	042524	
2045	012524	052123	021445		
2046					
2047					:BUFFER THAT CONTAINS OCTAL OUTPUT CHARACTERS
2048					:FOR THE DATA OUTPUT TEST
2049					
2050		014000			.=14000
2051					
2052	014000	000000			OCTBUF: 0 ;STARTING ADRS OF OCTAL BUFFER
2053					;EXPANDS TO 29k
2054					
2055		000001			.END

BUFOK	005074	1221	1224*						
CCNT	005416	1176*	1192*	1302*					
CNTRCK	005004	1188	1206*						
DECOUT	006020	1422	1428*						
DECPNT	006114	1415*	1419	1421	1426*	1446*			
DECPRT	005730	1118	1178	1414*					
DEC1	006046	1429	1431	1434*					
DEC2	006062	1433	1436*	1439					
DEC3	006104	1437	1441*						
DIGCNT	006110	1414*	1423*	1430	1444*				
DIGIT	006106	1417*	1418*	1428	1432*	1435*	1436	1440	1443*
DINT	004400	1082	1103*						
ENDCK	005102	1190	1230*						
ID	001036	494*	918						
LINCNT	005420	1144*	1165*	1177	1224*	1246	1303*		
LINE	004474	1114	1124*						
LKS	001054	505*	1085*	1086	1089*	1110*			
MSG0	006636	1328	1641*						
MSG1	006661	547	1646*						
MSG10	007365	1552	1711*						
MSG11	007411	920	1716*						
MSG12	007462	658	1724*						
MSG13	007517	650	1730*						
MSG14	007560	682	1737*						
MSG15	007632	693	1745*						
MSG16	007701	705	1753*						
MSG17	007731	712	1759*						
MSG2	006710	549	1651*						
MSG20	007767	723	1766*						
MSG21	010032	735	1773*						
MSG22	010101	745	1781*						
MSG24	010150	766	1789*						
MSG25	010211	791	1796*						
MSG26	010256	909	1804*						
MSG27	010344	1358	1815*						
MSG3	006750	563	1658*						
MSG30	010361	1360	1819*						
MSG31	010402	1377	1823*						
MSG32	010423	1382	1827*						
MSG33	010426	979	1830*						
MSG34	010467	816	1837*						
MSG35	010544	835	1846*						
MSG36	010617	856	1855*						
MSG37	010700	872	1865*						
MSG4	007004	568	1664*						
MSG40	010757	1614	1874*						
MSG41	011014	665	1880*						
MSG42	011053	673	1887*						
MSG43	011114	1116	1894*						
MSG44	011141	883	1899*						
MSG45	011310	888	1918*						
MSG46	011464	890	1937*						
MSG46A	011674	894	1963*						
MSG47	011764	896	1975*						
MSG5	007046	581	1671*						
MSG50	012003	1141	1979*						

[illegible]

LPD11 INTERFACE TEST - MAINDEC-11-DZLPJ-B-D MACY11 27(732) 08-SEP-76 09:50 PAGE 50
DZLPJB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

POL	005510	1334	1336*
PIC	001020	487*	945*
PIDBT	003464	881	898
PINT	006362	754	780
PINTE	006442	1543	1552*
PINTR	001032	492*	759*
PINTS	006350	804	849
PINTI	006416	1547*	1548
PITA	001010	483*	799*
PLC	004236	613	1072*
PLCC	001600	606	611*
PLCG	004470	1120	1122*
PLCP	004414	1098	1109*
PLE	005442	640	651
		792	817
PLOOP	005724	1401	1405*
PPATE	006634	950	1633*
PFATS	006612	944	1626*
PRB	001042	500*	1164
PREG	001002	480*	570
PREGE	001444	576	578
PRG	001356	562	568*
PRGI	001366	570*	583
PRS	001040	499*	1150*
PRSTV	006452	647	778
PSCOP	004010	607	1016*
PSCOP0	004016	1018*	1048
PSCOP1	004102	1025	1031*
PSCOP2	004126	1030	1036*
PSCOP3	004162	1042*	1043
PSCOP4	004176	1036	1046*
PSCOP5	004214	1050*	1053
PSD	004500	619	1141*
PSDC	001614	612	617*
PSET	001456	580	584*
PSKIP	001200	470	527*
PSMC	001564	543	605*
PSPS	001006	482*	1589*
PSTART	001210	528	530*
PSW	001060	507*	531*
		1602*	
PTB	001070	511*	822*
PTIM1	001014	485*	688*
		774*	776*
		1042*	1049*
PTIM2	001016	486*	758*
PTN	001004	481*	636*
		749*	771*
PTS	001066	510*	645*
		797*	823*
		1072*	1089*
PTO	001630	618	636*
PTI	001654	638	644*
PTIA	002134	701*	702
PTIA1	001716	649	655*
PTIA1A	001744	657	662*

PT1A18	001772	664	670*																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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ADD	590	1081	1212	1218	1421	1426									
ASL	1209	1210	1211												
ASR	1216	1217													
BEQ	606	612	618	649	657	664	672	681	704	744	908	919	951	962	984
	988	1049	1078	1087	1098	1146	1193	1284	1286	1334	1337	1368	1385	1431	1437
	1462	1464	1488												
BHI	562	578	580												
BIC	906	917	1194	1494											
BIS	756	792	831	868	1029	1031	1089	1435	1495						
BIT	559	575	605	611	617	648	656	663	671	680	691	703	710	721	733
	743	879	955	964	975	987	989	1024	1047	1050	1077	1086	1119	1145	1249
	1325	1333	1336	1356	1384	1400	1523								
BITB	1367														
BLE	1214														
BMI	638	1188													
BNE	535	541	543	560	576	690	692	702	711	720	722	732	734	742	763
	765	775	777	788	790	811	813	826	829	866	880	956	958	965	967
	976	978	990	992	1019	1025	1043	1045	1051	1053	1120	1155	1159	1167	1207
	1221	1231	1235	1237	1248	1250	1272	1276	1280	1327	1357	1374	1376	1401	1424
	1429	1493	1497	1548	1613	1617									
BPL	1152	1163	1185	1190	1254	1260	1265	1290	1366	1420	1439	1473	1507	1510	
BR	528	565	583	968	1030	1157	1161	1170	1196	1201	1225	1252	1263	1274	1282
	1291	1370	1427	1433	1466	1471									
CLC	1490														
CLR	529	533	538	539	644	645	688	718	730	750	751	757	760	772	773
	785	796	797	798	801	808	822	823	824	830	841	842	843	844	846
	853	862	863	864	882	946	947	948	949	954	972	974	1021	1022	1038
	1041	1049	1072	1073	1074	1075	1085	1091	1110	1111	1112	1113	1244	1262	1362
	1416	1485	1502	1503	1504	1540	1541	1545	1546	1568	1571	1611			
CMP	561	577	579	753	803	907	918	950	1033	1109	1154	1158	1166	1187	1189
	1206	1213	1220	1230	1234	1236	1271	1275	1279	1283	1430	1487	1539	1542	1569
CMPB	961	983	1018	1461	1463										
COM	1046														
DEC	534	540	689	701	719	731	741	762	764	774	776	787	789	810	812
	828	957	966	977	991	1042	1044	1052	1097	1192	1247	1373	1492	1496	1547
	1612	1616													
DIV	1114														
HALT	439	1121	1251	1257	1335	1386	1404	1591							
INC	699	786	827	854	867	986	1040	1090	1103	1105	1150	1165	1224	1288	1379
	1418	1423	1505												
JMP	467	470	607	613	619	640	651	659	666	674	683	694	706	713	724
	736	746	767	792	815	817	834	836	855	857	871	873	881	898	910
	921	959	981	993	1054	1093	1122	1233	1258	1278	1338	1339	1391	1405	1525
	1551	1553	1618												
JSR	548	553	558	564	569	574	582	594	596	601	647	778	878	884	886
	889	891	893	895	897	899	904	963	980	985	1023	1117	1118	1142	1156
	1160	1169	1174	1178	1180	1191	1200	1223	1232	1238	1256	1273	1277	1281	1287
	1295	1297	1330	1332	1359	1361	1378	1383	1403	1422	1465	1468	1470	1486	1524
	1550	1615													
MOV	527	530	531	536	537	547	549	554	555	556	557	563	568	570	571
	572	573	581	584	585	590	593	595	597	598	599	600	636	639	646
	650	655	658	662	665	670	673	678	679	682	687	693	698	700	705
	709	712	717	723	728	729	735	740	745	749	752	754	755	758	759
	761	766	771	779	780	781	783	784	791	795	799	800	802	804	805
	806	807	809	814	816	821	832	833	835	840	845	847	848	849	850
	851	852	856	861	869	870	872	877	883	885	887	888	890	892	894

	900	901	902	903	905	909	915	916	920	944	945	971	973	979
	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044
	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058
	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072
	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086
	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100
	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114
	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128
	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142
	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156
	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170
	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184
	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198
	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212
	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226
	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240
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	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268
	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282
	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296
	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310
	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324
	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338
	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352
	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366
	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380
	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394
	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408
	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422
	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436
	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450
	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464
	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478
	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492
	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506
	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516	1517	1518	1519	1520
	1521	1522	1523	1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534
	1535	1536	1537	1538	1539	1540	1541	1542	1543	1544	1545	1546	1547	1548
	1549	1550	1551	1552	1553	1554	1555	1556	1557	1558	1559	1560	1561	1562
	1563	1564	1565	1566	1567	1568	1569	1570	1571	1572	1573	1574	1575	1576
	1577	1578	1579	1580	1581	1582	1583	1584	1585	1586	1587	1588	1589	1590
	1591	1592	1593	1594	1595	1596	1597	1598	1599	1600	1601	1602	1603	1604
	1605	1606	1607	1608	1609	1610	1611	1612	1613	1614	1615	1616	1617	1618
	1619	1620	1621	1622	1623	1624	1625	1626	1627	1628	1629	1630	1631	1632
	1633	1634	1635	1636	1637	1638	1639	1640	1641	1642	1643	1644	1645	1646
	1647	1648	1649	1650	1651	1652	1653	1654	1655	1656	1657	1658	1659	1660
	1661	1662	1663	1664	1665	1666	1667	1668	1669	1670	1671	1672	1673	1674
	1675	1676	1677	1678	1679	1680	1681	1682	1683	1684	1685	1686	1687	1688
	1689	1690	1691	1692	1693	1694	1695	1696	1697	1698	1699	1700	1701	1702
	1703	1704	1705	1706	1707	1708	1709	1710	1711	1712	1713	1714	1715	1716
	1717	1718	1719	1720	1721	1722	1723	1724	1725	1726	1727	1728	1729	1730
	1731	1732	1733	1734	1735	1736	1737	1738	1739	1740	1741	1742	1743	1744
	1745	1746	1747	1748	1749	1750	1751	1752	1753	1754	1755	1756	1757	1758
	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770	1771	1772
	1773	1774	1775	1776	1777	1778	1779	1780	1781	1782	1783	1784	1785	1786
	1787	1788	1789	1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800
	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814
	1815	1816	1817	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827	1828
	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842
	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856
	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870
	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884
	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898
	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066
	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094
	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108
	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122
	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136
	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150
	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164
	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178
	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192
	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206
	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220
	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234
	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248
	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262
	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276

