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IDENTIFICATION

PRODUCT CODE: AC-E908C-MC
PRODUCT NAME: CXLPECC LPD-11 MODULE
PRODUCT DATE: SEPTEMBER 1978
MAINTAINER: DEC/X11 SUPPORT GROUP

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PROGRAM TO OPERATE

1. ABSTRACT

LPE IS A IOMOD THAT EXERCISES UP TO EIGHT LPD11 PHOTO-COMP INTERFACES. BY USING THE BUILT IN TESTER LOGIC, IT TRANSMITS AND CHECKS ALL POSSIBLE DATA PATTERNS IN ADDITION TO STATUS CHECKING. ALL LPD11'S SELECTED FOR TEST (UP TO 8 LPD'S WITH CONTIGUOUS ADDRESSES AND VECTORS) ARE ACTIVATED AND RUN CONCURRENTLY. ALL STATUS AND DATA ERRORS ARE REPORTED ON THE CONSOLE TTY.

2. REQUIRMENTS

HARDWARE: UP TO EIGHT LPD11 INTERFACE LOGICS

STORAGE:: LPE REQUIRES:

1. DECIMAL WORDS: 560
2. OCTAL WORDS: 1060
3. OCTAL BYTES: 2140

3. PASS DEFINITION

ONE PASS OF THE LPE MODULE CONSISTS OF CONTINUOUSLY SENDING AND CHECKING A COMPLEMENTING BINARY COUNT PATTERN FOR THE TIME PERIOD DEFINED BELOW.

4. EXECUTION TIME

LPE OPERATING BY ITSELF WILL TAKE AN AVERAGE OF ONE MINUTE TO COMPLETE ONE PASS.

5. CONFIGURATION REQUIRMENTS

DEFAULT PRAMETERS:

DEVADR: 172710, VECTOR: 320, BR1: 4

REQUIRED PRAMETERS:

AT CONFIGURATION TIME THE USER MUST SPECIFY:

VCT: VECTOR ADDRESS OF FIRST LPD IF NOT 320
DVC: NO. OF LPD'S IF GREATER THAN 1

6. DEVICE/OPTIONS SETUP

PLACE THE LPD LOGIC(S) IN THE LOCAL TEST MODE. THIS IS ACCOMPLISHED BY SETTING SWITCH 8 OF SWITCH GROUP 2 ON THE M523 MODULE TO THE "ON" POSITION.

7. MODULE OPERATION

7.1 TEST SEQUENCE

- A. START: THIS CODE SETS UP THE BASE ADDRESSES DEFINED BY "ADDR".
- B. SETVEC: THIS CODE CHECKS "DVID1" FOR NON-ZERO SELECTION, AND SETS UP THE VECTORS FOR SELECTED LINES WITH INT SERVICE ADDRESSES AND BR LEVELS.
- C. SELECT: THIS CODE COUNTS THE SELECTED LPD'S AND SETS UP THE PROGRAM STATUS TABLE "LPDSTS."
- D. RESTRT: THIS CODE CLEARS TABLES, INITIALIZES FLAGS & TIMERS AND THEN STARTS OR RESTARTS ALL SELECTED LPD'S BY SENDING DATA & ENABLING THE TESTER INTERRUPT ENABLE.
- E. TIMER: THIS IS AN "END PASS" TIMER LOOP VIA "BREAKS" TO THE MONITOR. FLAG "EOP" IS SET WHEN THIS LOOP EXPIRES (ABOUT 1 MINUTE).
- F. TMOUT: THIS TIMER ALLOWS ENOUGH TIME FOR ALL LPD'S TO COMPLETE THE LAST DATA TRANSFER. IF ANY LPD IS STILL ACTIVE IT IS REPORTED AND THEN DROPPED. IN THE EVENT THAT ALL SELECTED LPD'S FAIL TO INTERRUPT THEN THE MODULE WILL BE DROPPED.
- G. TSPSRV: THE TESTER SERVICE ROUTINE SIMPLY QUEUES UP THE REQUEST FOR SERVICE IN A FIFO QUEUE, UPDATES THE POINTER, AND RETURNS CONTROL BACK TO THE MONITOR WITH A "PIRQ" THE ELEMENT THAT GETS STORED IN THE QUEUE IS THE NUMBER OF THE INTERRUPTING TESTER. ACTUAL SERVICING IS DONE LATER WHEN THE SERVICE CODE IS EXECUTED AT LEVEL ZERO.

- H. TSERV: THIS CODE RETRIEVES THE TESTER NO., CHECKS STATUS AND DATA INFORMATION FOR THIS TESTER, REPORTS ERRORS, ENABLES THE CORRESPONDING LPD INTERRUPT ENABLE, THEN DOES AN "EXIT" BACK TO THE MONITOR.
- I. LSRV: THE LPD SERVICE ROUTINE SIMPLY QUEUES UP THE REQUEST FOR SERVICE IN A FIFO QUEUE, UPDATES THE POINTER AND RETURNS CONTROL BACK TO THE MONITOR WITH A "PIRQ". THE ELEMENT THAT GETS STORED IN THE QUEUE IS THE LPD NO. OF THE INTERRUPTING LPD. ACTUAL SERVICING IS DONE LATER WHERE THE SERVICING CODE IS EXECUTED AT LEVEL ZERO.
- J. LPDSRV: THIS CODE RETRIEVES THE LPD NO., CHECKS STATUS AND DATA INFORMATION FOR THIS LPD, REPORTS ERRORS AND GOES TO ROUTINE "PASSCK".
- K. PASSCK: THIS CODE DETERMINES IF THE CURRENT INTERRUPTING LPD SHOULD BE RESTARTED WITH THE NEXT DATA PATTERN. IF NOT IT IS TIME FOR "END PASS" MESSAGE.
- L. SENDAT: THIS CODE SENDS DATA AND ENABLES THE TESTER INTERRUPT ENABLE FOR ANOTHER TESTER/LPD INTERRUPT SEQUENCE.

7.2 DESCRIPTION OF TABLES AND QUEUES

- A. DATAR: 8 WORD DATA TABLE - CONTAINS THE CURRENT DATA WORDS SENT TO THE LPD TESTER LOGIC.
- B. INTQ: 8 WORD INTERRUPT SERVICE FIFO QUEUE - CONTAINS LPD NUMBERS REQUIRING SERVICE.
- C. LPDSTS: 8 BYTE TABLE WHICH SPECIFIES WHAT EACH LPD IS DOING: NOT SELECTED (0), TESTER/LPD DATA TRANSFER SEQUENCE INPROGRESS (377), TESTER/LPD DATA TRANSFER SEQUENCE COMPLETED (177) - THIS CONDITION IS SET WHEN THE "END PASS" MESSAGE IS DUE.

8. OPERATION OPTIONS

- A. THE USER CAN MODIFY "DVID1" TO SELECT OR DESELECT INDIVIDUAL LPD11'S.
- B. THE USER CAN USE THE "MOD" COMMAND TO DUMP THE TABLES AND QUEUES DESCRIBED IN 7.2 TO OBTAIN MORE DETAILED INFORMATION.

9. NON STANDARD PRINTOUTS

- A. "NO LPD(S) SELECTED" IS TYPED IF THE USER SETS "DVID1" TO ZERO IN ERROR.
- B. IF AN LPD FAILS TO COMPLETE A TESTER/LPD DATA TRANSFER IN THE TIME ALLOTTED BY ROUTINE "TMOUT", IT IS CONSIDERED HUNG. THE MESSAGE "LPD# N WAS DROPPED" IS TYPED WHERE N IS THE LPD NUMBER ACCORDING TO IT'S BUS ADDRESS.

NOTE: THE ABOVE PRINTOUT WILL OCCUR IF THE OPERATOR FAILS TO COMPLY WITH SECTION "6" OF THIS DOCUMENT.

```

202
203 000000
204 000000
205
206
207
208
209
210 000000
211 000000
212 000005 050114 041505 040
213 000006 172710
214 000010 001320
215 000012 000
216 000014 000000
217 000016 000000
218 000020 000000
219 000022 000000
220 000024 000000
221
222 000026 140000
223 000030 000320
224 000032 000224
225 000034 000000
226 000036 000010
227 000040 000000
228 000042 000000
229 000044 000000
230 000046 000000
231 000050 000000
232 000052 000000
233 000054 000000
234 000056 000000
235 000058 000000
236 000060 000000
237 000062 000000
238 000064 000000
239 000066 000000
240 000070 000000
241 000072 000000
242 000074 000000
243 000076 000000
244 000100 000000
245 000102
246 000104
247 000106
248 000108 000000
249 000110
250 000112 000000
251 000114 000000
252 000116 000000
253
254

```

```

IOMOD <LPEC> 172710,320,4,556,10,63
MODULE 140000,LPEC,172710,4,556,10,63
TITLE LPEC DFC/X11 SYSTEM EXERCISE MODULE
DDICOM VERSION 6 23-MAV-78
-LIST BIN
*****
SECTN:
MODNAM: .ASCII /LPEC /MODULE NAME
XFLAG: .RVTE OPEN ;USED TO KEEP TRACK OF WBUFF USAGE
ADDR: 172710+0 ;1ST DEVICE ADDR
VECTOR: 320+0 ;1ST DEVICE VECTOR.
BR1: .RVTE PRTY4+0 ;1ST BR LEVEL.
BR2: .RVTE PRTY+0 ;2ND BR LEVEL.
DVT01: .I ;DEVICE INDICATOR 1.
SR1: OPEN ;SWITCH REGISTER 1.
SR2: OPEN ;SWITCH REGISTER 2.
SR3: OPEN ;SWITCH REGISTER 3.
SR4: OPEN ;SWITCH REGISTER 4.
*****
STAT: 140000 ;STATUS WORD.
INIT: START ;MODULE START ADDR.
SPOINT: MODSP ;MODULE STACK POINTER.
PASCNT: 0 ;PASS COUNTER.
ICOUNT: 0 ;# OF ITERATIONS PER PASS=10
LOC: 0 ;LOC TO COUNT ITERATIONS
SOFCNT: 0 ;LOC TO SAVE TOTAL SOFT ERRORS
HRDCNT: 0 ;LOC TO SAVE TOTAL HARD ERRORS
SOFPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS
HRDPAS: 0 ;LOC TO SAVE HARD ERRORS PER PASS
SVSCNT: 0 ;# OF SYS ERRORS ACCUMULATED
RANMOD: C ;HOLDS RANDOM # WHEN RAND MACRO IS CALLED
CONFIG:
RES1: C ;RESERVED FOR MONITOR USE
RES2: C ;RESERVED FOR MONITOR USE
RES3: C ;RESERVED FOR MONITOR USE
SVR0: OPEN ;LOC TO SAVE R0.
SVR1: OPEN ;LOC TO SAVE R1.
SVR2: OPEN ;LOC TO SAVE R2.
SVR3: OPEN ;LOC TO SAVE R3.
SVR4: OPEN ;LOC TO SAVE R4.
SVR5: OPEN ;LOC TO SAVE R5.
SVR6: OPEN ;LOC TO SAVE R6.
CSRA: OPEN ;ADDR OF CURRENT CSR.
SBADR: ;ADDR OF GOOD DATA, OR
ACSR: OPEN ;CONTENTS OF CSR.
WASADR: ;ADDR OF BAD DATA, OR
ASADR: OPEN ;STATUS REG CONTENTS.
ERRTYP: ;TYPE OF ERROR
ASB: ;EXPECTED DATA.
AWAS: OPEN ;ACTUAL DATA.
RSTRT: RSTRT ;RESTART ADDRESS AFTER END OF PASS
WDT0: OPEN ;WORDS TO MEMORY PER ITERATION
WDPR: OPEN ;WORDS FROM MEMORY PER ITERATION

```

```

255 000120 000000
256 000122 000063
257 000140
258
259
260
261
262 00224
263

```

```

INTR: OPEN ;# OF INTERRUPTS PER ITERATION
IDNUM: 63 ;MODULE IDENTIFICATION NUMBER=63
      .REPT SPSIZ ;MODULE STACK STARTS HERE.
      .WLIST
      .WORD 0
      .LIST
      .ENDR
MODSP:
*****

```

;SOME POINTERS, VARIABLES AND CONSTANTS UNIQUE TO THIS MODULE

```

264
265
266
267 000224 000000 LPDCSR: 0 ;BASE BUS ADRS OF LPD CSR
268 000226 000000 LPDDR: 0 ;BASE BUS ADRS OF LPD DBR
269 000228 000000 TSRCR: 0 ;BASE BUS ADRS OF TESTER CSR
270 000232 000000 TSRDR: 0 ;BASE BUS ADRS OF TESTER DBR
271 000234 000000 ACTDEV: 0 ;NO. OF LPDS ACTIVE
272 000236 000000 QPTR1: OPEN ;MULTI INT FIFO QUEUE POINTER - LOAD
273 000238 000000 QPTR2: OPEN ;MULTI INT FIFO QUEUE POINTER - UNLOAD
274 000240 000000 CNTR: 0 ;COUNTER FOR "END PASS" & TIMEOUT TIMING
275 000244 000000 EOP: 0 ;SET TO NON-ZERO WHEN DUE FOR "END PASS"
276 000246 000000 TIMOFF: 0 ;NON-ZERO TURNS OFF "END PASS" TIMER DURING ER PRINTOUTS

```

;DATA, ERROR & INTERRUPT FIFO TABLES

```

280 000250 000010 DATAB: .BLKW 8 ;8 WORD DATA TABLE
281 000270 000010 INTQ: .BLKW 8 ;8 WORD INTERRUPT SERVICE QUEUE (FIFO)
282 000310 000004 LPDSTS: .BLKW 4 ;8 BYTE LPD STATUS TABLE

```

;THIS CODE SETS UP THE BASE ADDRESSES FOR
;THE LPD & LPD TESTER DEVICES

```

288 000320 012767 000011 177572 START: MOV #1,INTR ;1 INTERRUPT/ITERATION
289 000322 012767 000001 177560 MOV #1,WDT0 ;1 WORD TO MEM/ITERATION
290 000324 012767 000001 177554 MOV #1,DFB ;1 WORD FROM MEM/ITERATION
291 000326 012767 177444 MOV #0,R5 ;BASE OF TESTER DBR
292 000328 012767 177452 MOV #5,LPDCSR ;SET UP BASE DEVICE ADDRESSES
293 000330 012767 177460 TST (R5)+ ;POINT TO LPD DBR - 1ST ACCESS TO
294 000332 012767 177468 MOV #5,LPDDR ;DEVICE - IF BUS ER TRAP - CK LPD BUS ADRS
295 000334 012767 177476 TST (R5)+ ;POINT TO TESTER CSR
296 000336 012767 177484 MOV #5,TSRCR ;POINT TO TESTER DBR
297 000338 012767 177492 TST (R5)+
298 000340 012767 177500 MOV #5,TSRDR

```

;THIS CODE CKECKS TO SEE THAT AT LEAST ONE LPD IS
;SELECTED AND THEN SETS UP THE VECTORS FOR THOSE
;WHICH ARE SELECTED

```

300
301
302
303
304 000374 012705 177410 SETVEC: MOV VECTOR,R5 ;SET UP INITIAL VECTOR ADRS
305 000376 012705 001114 MOV #LSRV0,R4 ;GET 1ST LPD SERVICE ADRS
306 000378 012705 001636 MOV #TSRV0,R3 ;GET 1ST TESTER SERVICE ADRS
307 000380 012705 177400 MOV #0,R5 ;GET CONFIGURATION
308 000382 012705 000000 BNE END ;IF SOMETHING SELECTED
309 000384 012705 002056 MSGNS,REGIN,M*BL0 ;ASCII MESSAGE CALL WITH COMMON HEADER
310 000386 012705 000000 DRAF,REGIN ;DRAW NOTHING SELECTED
311 000388 012705 000000 1S: ASR R1 ;SHIFT SELECT BIT INTO "C"
312 000390 012705 000000 BCS 2S ;IF LPD SELECTED
313 000392 012705 000010 ADD #10,R5 ;ADVANCE VECTOR ADRS TO NEXT LPD
314 000394 012705 000000 BR 1S ;GO PREPARE FOR NEXT LPD
315 000396 012705 177342 2S: MOV #34,(R5)+ ;SET VECTOR - LPD
316 000398 012705 177350 MOVB BR1,(R5)+ ;SET BR - LPD TESTER
317 000400 012705 177358 INC R5 ;MOVE POINTER
318 000402 012705 177366 MOV #3,(R5)+ ;SET VECTOR - LPD TESTER
319 000404 012705 177374 MOVB BR1,(R5)+ ;SET BR - TESTER

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320 000460 005205 INC R5 ;MOVE POINTER
321 000462 022704 000006 ADD #6,R4 ;ADVANCE LPD SERVICE ADRS
322 000464 022703 000006 ADD #6,R3 ;ADVANCE TESTER SERVICE ADRS
323 000466 022704 001176 CMP #TSRSRV,R4 ;SEE IF 8 LPDS ARE LOOKED FOR
324 000468 022704 001176 BNE 1S ;IF NOT

```

;THIS CODE COUNTS ALL SELECTED LPDS AND SETS UP
;THE BYTE STATUS TABLE LPDSTS

```

326 000500 005067 177530 SELECT: CLP ACTDEV ;ZERO THE ACTIVE DEVICE COUNT
327 000502 005067 177344 MOV #0,R0 ;GET SELECTION PARAMETER
328 000504 005067 177352 CLR R0 ;ZERO LPDSTS OFFSET
329 000506 005067 177360 1S: ASR R0 ;SHIFT SELECTION PARAMETER INTO "C"
330 000508 005067 177368 BCC 2S ;IF NOT SELECTED
331 000510 005067 177376 INC ACTDEV ;RECORD LPD
332 000512 005067 177384 MOVB #377,LPDSTS(R1) ;#377 MEANS THIS LPD ACTIVE
333 000514 005067 177392 BR 1S ;GO SEE IF MORE LPDS
334 000516 005067 177400 2S: CLR LPDSTS(R1) ;INDICATE THIS LPD INACTIVE
335 000518 005067 177408 3S: INC R1 ;ADVANCE OFFSET
336 000520 005067 177416 CMP #10,R1 ;HAVE WE LOOKED AT ALL 8 LPDS?
337 000522 005067 177424 BNE 1S ;IF NOT

```

;THIS CODE CLEARS TABLES, INITIALIZES FLAGS & TIMERS
;AND THEN STARTS OR RESTARTS ALL LPD TESTERS

```

340 000540 012784 000250 RESTRT: MOV #DATAB,R4 ;SET UP ADRS OF DATA TABLE
341 000542 012784 000270 1S: CLP (R4) ;CLR DATA LOCATIONS
342 000544 012784 000270 CMP #INTQ,R4 ;SEE IF ALL CLEAR
343 000546 012784 000270 BNE 1S ;IF NOT
344 000548 012784 177460 CLR TIMOFF ;INITIALIZE TIMER ON
345 000550 012784 177468 CLR EOP ;CLR "END PASS" INDICATOR
346 000552 012784 177476 CLR CNTR ;SET UP "END PASS" COUNTER
347 000554 012784 177484 MOV #INTQ,QPTR1 ;SET UP FIFO QUEUE POINTERS
348 000556 012784 177492 MOV #INTQ,QPTR2
349 000558 012784 177500 CLR TSRCR,R0
350 000560 012784 177508 CLR R1 ;CLR LPD STATUS OFFSET ADRS
351 000562 012784 177516 MOV LPDDR,R2
352 000564 012784 177524 CLR R3
353 000566 012784 177532 CLR LPDSTS(R1) ;SEE IF THIS LPD IS SELECTED
354 000568 012784 177540 BR 1S ;IF NOT
355 000570 012784 177548 MOVB #377,LPDSTS(R1) ;INDICATE IN SATUS TABLE THIS LINE ACTIVE
356 000572 012784 177556 MOV DATAB(R3),(R2) ;SEND ZERO
357 000574 012784 177564 3S: INC R1 ;SET TESTER GO & INT ENABLE BITS
358 000576 012784 177572 ADD #10,R2 ;ADVANCE OFFSET TO NEXT LPD BUS ADRS
359 000578 012784 177580 TST (R3)+ ;HAVE WE STARTED ALL LPDS?
360 000580 012784 177588 ADD #10,R0
361 000582 012784 177596 R1,#10
362 000584 012784 177604 CMP R1,#10
363 000586 012784 177612 BNE 2S

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369 ;THIS CODE RETURNS TO THE MONITOR VIA "BREAKS" FOR "END
370 ;OF PASS" TIMING - SETS FLAG "EOP" WHEN DONE
371 000674* 104407 000000*
372 000674* 104407 000000*
373 000704* 005767 177336
374 000704* 005767 177336
375 000719* 001371
376 000719* 001371 177324
377 000716* 001369
378 000720* 012767 177777 177316
379
380 ;THIS CODE ALLOWS ENOUGH TIME FOR ALL LINES TO COMPLETE A DATA TRANSFER
381 ;REPORTS ANY LPD THAT HAS FAILED TO INTERRUPT
382 ;THEN DROPS MODULE IF ALL SELECTED LPD'S HAVE BECOME HUNG
383 ;REPORTS "END PASS"
384
385 000726* 012767 001000 177306
386 000734* 104407 000000*
387 000734* 104407 000000*
388 000744* 005767 177276
389 000744* 005767 177276
390 000750* 001371
391 000752* 005367 177264
392 000754* 001366
393 000764* 016701 177022
394 000764* 016701 177022
395 000770* 002015
396 000772* 004767 000774
397 000776* 002701 000004
398 001002* 004767 000764
399 001002* 004767 000764
400 001012* 005367 177216
401 001016* 001004
402 001020* 104410 000000*
403 001024* 062701 000010
404 001030* 104413 000000*
405 001034* 000753
406
407 001034* 000753
408
409 ;TESTER SERVICE LINKS
410
411 001036* 004567 000134
412 001042* 000000
413
414 001044* 004567 000126
415 001050* 000010
416
417 001052* 004567 000120
418 001056* 000020
419
420 001060* 004567 000111
421 001064* 000030
422
423 001066* 004567 000104
424 001072* 000040

```

```

425
426 001074* 004567 000076
427 001100* 000050
428
429 001102* 004567 000070
430 001106* 000060
431
432 001110* 004567 000062
433 001114* 000070
434
435 ;LPD SERVICE LINKS
436
437 001116* 004567 000274
438 001122* 000000
439
440 001124* 004567 000266
441 001130* 000010
442
443 001132* 004567 000260
444 001136* 000020
445
446 001140* 004567 000252
447 001144* 000030
448
449 001146* 004567 000244
450 001152* 000040
451
452 001154* 004567 000236
453 001160* 000050
454
455 001162* 004567 000230
456 001166* 000060
457
458 001170* 004567 000222
459 001174* 000070
460
461 ;TESTER INTERRUPT SERVICE - ENTERED VIA APPROPRIATE JSR TABLE
462 ;ENTRY WITH R5 POINTING TO THE INTERRUPTING TESTER - CONTENTS
463 ;OF R5 GETS QUEUED UP IN THE FIFO QUEUE AND THE ROUTINE RETURNS
464 ;CONTROL BACK TO THE MONITOR VIA A "PIRQ" TO DEFER SERVICING
465 ;THE TESTER AT LEVEL 0
466
467 001176* 011577 177034
468 001202* 000002 177026
469 001210* 000310 177020
470 001216* 001003
471 001220* 0012767 000270 177010
472 001224* 012605
473
474 001230* 000004 000000 001236*
475
476 ;DEFERRED TESTER SERVICE - THIS ROUTINE RETRIEVES THE TESTER NO.
477 ;FROM THE FIFO QUEUE AND SERVICES THE LINE AT LEVEL 0
478
479 001236* 017705 176776

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481 001242 062767 000002 176770 ADD #2,QPTR2 ;UPDATE QUEUE POINTER
482 001250 062767 000310 176770 CMP #INTQ+20,QPTR2 ;POINTER AT END OF QUEUE?
483 001260 062767 000270 176752 BNE 1S ;BR IF NOT
484 001260 062767 000270 176752 MOV #INTQ,QPTR2 ;RESET POINTER
485 001260 062767 176736 176684 JSR CSRA,CSRA ;SET UP ACTIVE DEVICE ADRS
486 001270 060567 176600 176574 ADD R5,CSRA ;MAKE UP CURRENT TESTER ADRS
487 001300 017767 176574 176574 MOV QCSRA,ACSR ;GET TESTER STATUS
488 001300 005077 176566 176566 CLR QCSRA ;CLR TESTER INT EN
489 001310 062767 000320 176556 JSR #0,KOFF ;GO SET UP WORD & BYTE OFFSETS
490 001310 062767 000320 176556 CMP #0,ACSR ;LOOK FOR INT EN & READY
491 001320 001412 176714 176546 BEQ 2S ;BR IF TESTER STATUS OK
492 001320 005267 176714 176546 INC TIMOFF ;TURN OFF END PASS TIMER
493 001332 012767 000025 176546 MOV #25,ERRTYP ;BIT STUCK IN REG
494 ***** ;*****
495 001340 104405 000000 000000 HDRS,REGIN,NULL ;INCORRECT TESTER STATUS
496 ***** ;*****
497 001346 005067 176674 176520 CLR TIMOFF ;TURN ON END PASS TIMER
498 001350 062767 000002 176520 ADD #2,CSRA ;SET UP DBR ADRS
499 001360 004767 000320 176520 JSR PC,CMPDAT ;GO COMPARE DATA
500 001360 001406 176654 176520 BEQ 3S ;BR IF CORRECT
501 001360 005267 176654 176520 INC TIMOFF ;TURN OFF END PASS TIMER
502 ***** ;*****
503 001372 104404 000000 000000 DATERS,REGIN ;DATA ERROR!!!
504 ***** ;*****
505 001376 005067 176644 176509 CLR TIMOFF ;TURN ON END PASS TIMER
506 001406 062710 000140 176509 ADD LPDCSR,R5 ;SET UP FOR LPD INT
507 001412 104400 000000 176509 EXITS,BEGIN ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
508 ***** ;*****
509 ;LPD INTERRUPT SERVICE - ENETRED VIA APPROPRIATE JSR TABLE ENTRY
510 ;WITH R5 POINTING TO THE INTERRUPTING LPD - CONTENTS OF R5
511 ;GET QUEUED UP IN THE FIFO QUEUE AND THE ROUTINE RETURNS CONTROL
512 ;BACK TO THE MONITOR VIA A "PIRG" TO DEFER SERVICING THR LPD
513 ;AT LEVEL 0
514 ***** ;*****
515 001416 011577 176614 LSRV: MOV (R5),QPTR1 ;GET LPD ID
516 001420 012767 000002 176606 ADD #1,QPTR1 ;UPDATE QUEUE POINTER
517 001430 022767 000310 176600 CMP #INTQ+20,QPTR1 ;POINTER AT END OF QUEUE?
518 001430 001003 176570 BNE 1S ;BR IF NOT
519 001440 012767 000270 176570 MOV #INTQ,QPTR1 ;RESET POINTER
520 001440 012767 000270 176570 MOV (R6)+,R5 ;RESTORE R5
521 ***** ;*****
522 ;-----
523 ;PIQS,BEGIN,LPDSRV ; QUEUE UP TO CONTINUE AT LPDSRV AND RTI
524 ***** ;*****
525 ;DEFERRED LPD SERVICE - THIS ROUTINE RETRIEVES THE LPD NO.
526 ;FROM THE FIFO QUEUE AND SERVICES THE LPD AT LEVEL 0
527 ***** ;*****
528 001456 012705 176556 LPDSRV: MOV QPTR2,R5 ;GET OLDEST INT OFFSET
529 001460 062767 000002 176550 ADD #2,QPTR2 ;UPDATE QUEUE POINTER
530 001470 022767 000310 176542 CMP #INTQ+20,QPTR2 ;POINTER AT END OF QUEUE?
531 001470 001003 176532 BNE 1S ;BR IF NOT
532 001480 005267 000270 176532 MOV #INTQ,QPTR2 ;RESET QUEUE POINTER
533 001480 012767 176364 176532 MOV LPDCSR,CSRA ;SET UP ACTIVE DEVICE ADRS
534 001490 005267 176364 176532 MOV QCSRA,ACSR ;MAKE UP CURRENT LPDCSR ADRS
535 ***** ;*****

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537 001520 005077 176346 CLR QCSRA ;CLR LPD INT EN
538 001530 004767 000320 176336 JSR #0,KOFF ;GO SET UP WORD & BYTE OFFSETS
539 001540 001412 176336 176336 CMP #0,ACSR ;LOOK AT LPD STATUS
540 001540 001412 176336 176336 BEQ 1S ;BR IF OK
541 001546 005267 176474 176336 INC TIMOFF ;TURN OFF END PASS TIMER
542 001550 012767 000025 176326 MOV #25,ERRTYP ;STUCK BIT
543 ***** ;*****
544 001560 104405 000000 000000 HDRS,REGIN,NULL ;INCORRECT LPD STATUS
545 ***** ;*****
546 001566 005267 176454 176300 CLR TIMOFF ;TURN ON END PASS TIMER
547 001570 062767 000006 176300 ADD #6,CSRA ;SET UP DBR ADRS
548 001600 004767 000101 176300 JSR PC,CMPDAT ;GO MAKE SURE DATA DID NOT CHANGE
549 001600 001406 176434 176300 BEQ PASSCK ;BR IF OK
550 001600 005267 176434 176300 INC TIMOFF ;TURN OFF END PASS TIMER
551 ***** ;*****
552 001612 104404 000000 000000 DATERS,REGIN ;DATA ERROR!!!
553 ***** ;*****
554 001616 005067 176424 176300 CLR TIMOFF ;TURN ON END PASS TIMER
555 ***** ;*****
556 ;THIS CODE CHECKS FOR "END PASS"
557 ;UPDATES THE DATA PATTERN
558 ***** ;*****
559 001622 005767 176416 PASSCK: TST EOP ;SEE IF DUE FOR "END PASS"
560 001626 001406 000310 000310 BEQ 1S ;BR IF NOT
561 001630 104263 000177 000310 MOVB #177,LPDSTS(R3) ;INDICATE IN STATUS TABLE THIS LINE COMPLETED
562 001640 005164 000250 000250 EXITS,BEGIN ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
563 001640 005164 000250 000250 1S: COM DATAB(R4) ;COMPLEMENT DATA PATTERN
564 001640 100402 000250 000250 BMI SFNDAT ;BR IF PATTERN NOT SENT BEFORE
565 001650 005267 000250 000250 INC DATAB(R4) ;ADVANCE TO NEXT PATTERN
566 ***** ;*****
567 ;THIS CODE LOADS THE DATA PATTEPN & ENABLES THE TESTER INT
568 ***** ;*****
569 001654 066705 176346 SENDAT: ADD LPDDBR,R5
570 001660 016415 000250 000250 MOV DATAB(R4),(R5) ;PLACE DATA IN LPD OUTPUT REG
571 001664 166705 176336 SUB LPDDBR,R5
572 001670 066705 176334 ADD TSRCDB,R5
573 001670 012716 000001 176334 MOV #01,(R5) ;PNABLE TESTER INTERRUPT
574 001680 104400 000000 176334 EXITS,BEGIN ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
575 ***** ;*****
576 ;THIS ROUTINE CHECKS THAT THE CORRECT DATA HAS BEEN
577 ;RECEIVED BY THE LPD TESTER LOAD
578 ***** ;*****
579 001700 066705 176322 CMPDAT: ADD TSROBR,R5
580 001710 011567 176174 MOV (R5),#AS ;READ AND SAVE DATA THAT WAS XMITTED
581 001710 166705 176312 SUB TSROBR,R5
582 001720 012767 000250 176154 MOV #DATAB,SBADR ;SET UP ADRS OF GOOD DATA
583 001720 008467 176150 176144 ADD R4,SBADR ;SELECT CORRECT DATA LOC
584 001730 012767 000250 176144 MOVB #AS,WASADR ;SET UP ADRS OF BAD DATA
585 001740 012767 000250 176140 WABR #AS,WASADR ;GET DATA THAT WAS SENT
586 001740 026767 176136 176132 CMP #AS,ASR ;CHECKS THAT EQUIV WHAT WAS SENT
587 001750 000250 176132 176132 RTS PC ;RETURN WITH RESULT
588 ***** ;*****
589 ;THIS ROUTINE MAKES UP WORD AND BYTE OFFSET VALUES FROM
590 ;THE DEVICE OFFSET VALUE IN R5 - OFFSETS LEFT IN R4 & R3 RESPECTIVELY
591 ***** ;*****
592 001756 012504 MKOFF: MOV R5,R4 ;GET DEVICE OFFSET

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LPEC DEC/X11 SYSTEM EXERCISER MODULE
XLPECO.P11 12-OCT-78 11:58

MACV11 30A(1052) 12-OCT-78 16:51 PAGE 20
CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0018

DIAGNOSTIC ENGINEERING

digital

DECO DEPO SUBMISSION

FOR RELEASE ENG. USE

NEW CHANGE DELETE

PRODUCT IDENTIFICATION

MD	LIBRARY	PRODUCT NUMBER	REV	PATCH	ECO FULLY	PRODUCT DATE			STATUS	DISTRIBUTION		1ST COPY - RIGHT YEAR	LAST COPY - RIGHT YEAR
						DD	MMM	YY		X	G		
	ZZ	CXLPE	C	1	01	3	APR	79	OBSOLETE	X	G	1975	1979

TITLE **CXLPE1 LPD-11 MODULE**
 AUTHOR **D. BUTENHOF** MAINTAINING GROUP **DEC/X11 SUPT GP** MAINTAINER **D. BUTENHOF** SUBMITTING ENGINEER **D. BUTENHOF**

PRODUCT COMPONENTS

CK	DESCRIPTION	PRODUCT NO.	REV	CK	DESCRIPTION	PRODUCT NO.	REV
	DOCUMENT				INDEX		
	LISTING				SOURCE MEDIA		
	OBJECT MEDIA				TEST MEDIA		
X	DECO	AF-E908C-M1					

PRODUCTS OBSOLETE (other than previous version)

LIBRARY	PRODUCT NUMBER	REV	LIBRARY	PRODUCT NUMBER	REV	LIBRARY	PRODUCT NUMBER	REV
MD			MD			MD		

PRODUCT CHARACTERISTICS

PROCESSORS PRODUCT OPERATES WITH (Enter all applicable 2-digit codes representing the Processor the product operates with. See separate instructions.)

OPERATIONAL CODES (Enter all applicable 2-digit codes that describe the product. See separate instructions.)

ACT/APT/XXDP	EXT	ACT SEQ NUMBER	ACT/XXDP COMPATIBLE?	APT COMPATIBLE?	1ST PASS RUN TIME	SUBSEQUENT PASS RUN TIME
INFORMATION FIELD			<input type="checkbox"/> Y <input type="checkbox"/> N	<input type="checkbox"/> Y <input type="checkbox"/> N	SECONDS	SECONDS

DECO/DEPO INFORMATION

PROBLEM REPORTS CLOSED: _____

DEVICE AFFECTED **DEC/X11** MULTIMEDIA AFFECTED? YES NO

KIT NUMBERS	ZJ130-RB	ZJ240-PB,	RB	ZJ240-FR	ZJ215-FR	
	ZJ129-RZ,	FR	ZJ240-RE,	RZ	ZJ215-RY,	RZ

PROBLEM:
UNABLE TO CORRECTLY HANDLE MULTIPLE DEVICES

SOLUTION:
WILL HANDLE ONLY ONE DEVICE WITH FOLLOWING PATCH

DEPO PATCH AREA

CHANGE LOC	FROM	TO	CHANGE LOC	FROM	TO
722	--	177777	572	5067	177446
			574	177444	240
764	105760	105767			
766	310	177320			
566	5067	12767			
570	177452	140000			

SUBMITTING ENGINEER <i>D. Butenhof</i>	MANUFACTURING ENGINEER <i>John P. Bink</i>	SUPPORT ENGINEER	CHARGE DECO/DEPO TO DISCRETE PROJECT NUMBER
DATE: 3 APR 79	DATE: 25-APR-79	DATE:	Q9805460
MAINTAINER <i>D. Butenhof</i>	FIELD SERVICE	WAIVERING MANAGER	COORDINATION NO. 3066
DATE:	DATE:		