

DL11

DEVICE ROUTINE FOR MPR
MD-11-DTDLA-B

EP DTDLA B DL A

NOV 1976

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FICHE 1 OF 1

MADE IN USA

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DL11-27(732)-2

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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DTCLA-2
 PRODUCT NAME: DL11 DEVICE ROUTINE FOR MP6
 DATE: APRIL 1976
 MAINTAINER: DIAGNOSTIC GROUP
 AUTHOR: W. R. GREENE

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DL11-27(732)-2

DTOLA-B
REVISION HISTORY

DTOLA-B
REVISION HISTORY

.SBTTL REVISION HISTORY

- : APR 76 DTOLA-B RELEASE
- : JAN 76 ADDED MEMORY MANAGEMENT SUPPORT
- : AUG 75 DTOLA-A INITIAL RELEASE

00000000	00000000	00000000	TESTVEC: .WORD	0	:TEST INT VECTOR ROUT BR ACP
00000000	00000000	00000000	RTNINT: .WORD	0	:RETURN FROM INT ROUT BR ACP
00000000	00000000	00000000	GETBYT: .WORD	0	:GET DATA BYTE ROUT BR ACP
00000000	00000000	00000000	PUTBYT: .WORD	0	:PUT DATA BYTE ROUT BR ACP
00000000	00000000	00000000	DVREGS: .WORD	0	:ADR OF DEVICE REGISTER NAMES
00000000	00000000	00000000	DVCMDS: .WORD	0	:ADR OF DEVICE FUNCTIONS
00000000	00000000	00000000	DVPKT: .WORD	0	:ADR OF PACK TBL EXTENSION
00000000	00000000	00000000	DVMVTE: .WORD	0	:ADR OF MODEL VECTOR TBL EXTEN.
00000000	00000000	00000000	DVCFTE: .WORD	0	:ADR OF COMPILER TBL EXTEN.
00000000	00000000	00000000	DVINTS: .WORD	0	:ADR OF DEV INTERFACE WD SYM TBL
00000000	00000000	00000000	DVREGS: .ASCII	/RCSR/	:VALID DEVICE REGISTER NAMES &
00000000	00000000	00000000	.WORD	0	:THEIR POSITIONS RELATIVE TO
00000000	00000000	00000000	.ASCII	/REUF/	:THE DEVICE REGISTERS BASE ADDRESS.
00000000	00000000	00000000	.WORD	2	
00000000	00000000	00000000	.ASCII	/XCSR/	
00000000	00000000	00000000	.WORD	4	
00000000	00000000	00000000	.ASCII	/XBUF/	
00000000	00000000	00000000	.WORD	6	
00000000	00000000	00000000	DVREGE=	.	
00000000	00000000	00000000	DVCMDS: .BYTE	120	:VALID DEVICE FUNCTIONS
00000000	00000000	00000000	.WORD	READ-	FLAG BYTE:
00000000	00000000	00000000	.BYTE	130	BIT 7 = NPR DEV
00000000	00000000	00000000	.WORD	WRITE-	BIT 3 = MASSBUS DEV
00000000	00000000	00000000	.BYTE	160	BIT 0 = 2 WORDS FOR ADR
00000000	00000000	00000000	.WORD	BREAK-	(18 BIT ADRS)
00000000	00000000	00000000	.BYTE	376	
00000000	00000000	00000000	.WORD	CRESET-	
00000000	00000000	00000000	.BYTE	375	
00000000	00000000	00000000	.WORD	NOWAIT-	
00000000	00000000	00000000	.BYTE	374	
00000000	00000000	00000000	.WORD	WAIT-	
00000000	00000000	00000000	.BYTE	373	
00000000	00000000	00000000	.WORD	REPORT-	
00000000	00000000	00000000	.BYTE	372	
00000000	00000000	00000000	.WORD	REPORT-	
00000000	00000000	00000000	.BYTE	371	
00000000	00000000	00000000	.WORD	CALL-	
00000000	00000000	00000000	.BYTE	370	
00000000	00000000	00000000	.WORD	LISTEN-	
00000000	00000000	00000000	.BYTE	367	
00000000	00000000	00000000	.WORD	ANSWER-	
00000000	00000000	00000000	.BYTE	366	
00000000	00000000	00000000	.WORD	HANGUP-	
00000000	00000000	00000000	.BYTE	365	
00000000	00000000	00000000	.WORD	SEND-	
00000000	00000000	00000000	.BYTE	364	
00000000	00000000	00000000	.WORD	RECV-	
00000000	00000000	00000000	.BYTE	363	
00000000	00000000	00000000	.WORD	RDRON-	
00000000	00000000	00000000	.BYTE	362	
00000000	00000000	00000000	.WORD	RDRJFF-	
00000000	00000000	00000000	.WORD	177777	:TABLE TERMINATOR

000250	051103	051505	052105	DVPKTE:	.ASCII	/CRESET/	:PACK TABLE EXTENSION
000256	376	000			.BYTE	376,0	
000260	047516	040527	052111		.ASCII	/NWAIT/	
000266	375	000			.BYTE	375,0	
000270	020040	040527	052111		.ASCII	/WAIT/	
000276	374	000			.BYTE	374,0	
000300	052123	052101	051525		.ASCII	/STATUS/	
000306	373	000			.BYTE	373,0	
000310	047503	047125	051524		.ASCII	/COUNTS/	
000316	372	000			.BYTE	372,0	
000320	020040	040503	046114		.ASCII	/CALL/	
000326	371	000			.BYTE	371,0	
000330	044514	052123	047105		.ASCII	/LISTEN/	
000336	370	000			.BYTE	370,0	
000340	047101	053523	051105		.ASCII	/ANSWER/	
000346	367	000			.BYTE	367,0	
000350	040510	043516	050125		.ASCII	/HANGUP/	
000356	366	000			.BYTE	366,0	
000360	020040	042523	042116		.ASCII	/SEND/	
000366	365	000			.BYTE	365,0	
000370	020040	042522	053103		.ASCII	/RECV/	
000376	364	000			.BYTE	364,0	
000400	051040	051104	047117		.ASCII	/RDRON/	
000406	363	000			.BYTE	363,0	
000410	042122	047522	043106		.ASCII	/RDROFF/	
000416	362	000			.BYTE	362,0	

000420	000376	000632		DVMVTE:	.WORD	376,LCRST-LOCZ	:MODEL VECTOR TABLE EXTENSION
000424	000375	000632			.WORD	375,LNWAIT-LOCZ	
000430	000374	000632			.WORD	374,LWAIT-LOCZ	
000434	000373	000632			.WORD	373,LSTATS-LOCZ	
000440	000372	000632			.WORD	372,LCOUNT-LOCZ	
000444	000371	000632			.WORD	371,LCALL-LOCZ	
000450	000370	000632			.WORD	370,LLISEN-LOCZ	
000454	000367	000632			.WORD	367,LANSWR-LOCZ	
000460	000366	000632			.WORD	366,LHNGUP-LOCZ	
000464	000365	000632			.WORD	365,LSEND-LOCZ	
000470	000364	000632			.WORD	364,LRECV-LOCZ	
000474	000363	000632			.WORD	363,LRDRON-LOCZ	
000500	000362	000632			.WORD	362,LRDROFF-LOCZ	

COMPILER TABLE EXTENSION

000504	003	376		DVCPTE:	.BYTE	3,376	:CONTROL RESET
000506	004537	000012			.WORD	4537,10.	
000512	003	375			.BYTE	3,375	:NO WAIT
000514	004537	000012			.WORD	4537,10.	
000520	003	374			.BYTE	3,374	:WAIT
000522	004537	000012			.WORD	4537,10.	
000526	004	373			.BYTE	4,373	:STATUS
000530	004537	000012	001002		.WORD	4537,10.,1002	
000536	004	372			.BYTE	4,372	:COUNTS
000540	004537	000012	001001		.WORD	4537,10.,1001	
000546	003	371			.BYTE	3,371	:CALL
000550	004537	000012			.WORD	4537,10.	

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000674' 000000
000676' 000000
000703' 000000
000702' 000000
000704' 000000
000706' 000000
000710' 000000

000712' 000000

000714'
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000001
120000
000002

RICNT: .WORD 0
WICNT: .WORD 0
OVRUN: .WORD 0
FRAMER: .WORD 0
PARERR: .WORD 0
DATAER: .WORD 0
TOECNT: .WORD 0

FLAG: .WORD 0

MSKPEN= .
XXXX= 0
MMVER= 1
PSCONS= 120000
JSMTPS= 2

:CALL, LISTEN, ANSWER, HANGLP, SEND, RECV;
:READ INTERRUPT COUNT
:WRITE INTERRUPT COUNT
:OVERRUN ERRORS COUNT
:FRAMING ERRORS COUNT
:PARITY ERRORS COUNT
:DATA ERROR COUNT
: # OF ENTRIES INTO T/O ERROR ROUT

:FLAGWORD STORAGE

:VALUE TO BE TAILORED BY DEV ROUT

:SYSTEM FLGWD BIT DEF.
:INT SRVC VIRT PAGE BASE
:MTPS INST LEGAL FLAG

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000714 005267 177770
000720 026727 177754 000010
000726 001401
000730 000205
000732 004067 002714
000736 004757 002742
000742 005004
000744 042713 000010
000750 004567 003202
000754 000026
000756 000023
000760 004567 000042
000764 004767 002442
000770 004067 002672
000774 012605
000776 000177 177046

001002 046104 030461 052040
001010 046511 047505 052125
001016 047440 020116 027511
001024 117
001026 001026

.SETTL DL11 FUNCTION ROUTINES
:TIMEOUT ERROR HANDLER
TOUTER: INC TOECNT ;INCR TIME OUT ERROR COUNT
CMP TOECNT, #8 ;EXCEEDED 8 TIMEOUTS?
SEQ 25 ;YES - CONTINUE
RTS R5 ;NO - RETURN
23: JSR RC, SAVREG ;SAVE REGISTERS
JSR PC, SUPTAD ;P TBL ADR TO R3
CLR R4
BIC #WT410T, (R3)
JSR R5, PRINT ;PRINT TIMEOUT ERR MSG
:WORD TOEMSG-
:WORD 19
JSR R5, KILL ;KILL THE PROGRAM
JSR PC, ERDIRG ;DISPLAY STATUS & STMT *
JSR RD, RESREG ;RESTORE REGISTERS
TOUTEX: MOV (SP)+, R5 ;GO DISPLAY DEVICE REGS
JMP @CUPGER

TOEMSG: .ASCII 'DL11 TIMEOUT ON I/O'

:EVEN
:KILL USER PROGRAM ROUTINE
KILL: MOV DREGAD, R2 ;GET DEV REG ADR
BIT #100, 4(R2) ;XMIT INT EBL SET?
BNE CWRINT ;YES-CLEAR
TSRINT: BIT #100, (R2) ;RCV INT SET?
BEQ KILLEX ;NO-EXIT
JSR R5, TRVECT ;TEST READ INT VECTOR
BR CWRINT ;BRANCH IF NOT ME
JSR R5, HANGUP ;DISCONNECT LINE
BIC #100, (R2) ;RESET RD INT EBL
BIC #RDBSY, FLAGWD ;RESET READ BSY IN FLAG WD
JSR PC, RRINTV ;RESET INT VECTOR INFO
CWRINT: JSR R5, TWVECT ;TEST WRITE INT VECTOR
BR TSRINT ;BRANCH IF NOT ME
JSR R5, HANGUP ;DISCONNECT LINE
BIC #100, 4(R2) ;RESET WR INT EBL
BIC #WRBSY, FLAGWD ;RESET WRITE BSY IN FLAG WD
JSR PC, RWINTV ;RESET INT VECTOR INFO
BR TSRINT
KILLEX: CLR ERR ;CLEAR ERROR INDICATOR
RTS R5 ;RETURN

:READ COMMAND HANDLER
READ: MOV R5, STMT ;SAVE R5
SUB #4, STMT ;FOR STMT * REFERENCE
MOV DREGAD, R4 ;DEV REG ADDR TO R4
BIT #100, (R4) ;TEST RCV INT EBL

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351 001164' 001403 BEQ SRDBSY ;CONTINUE IF NOT SET
352 001166' 004577 176654 JSR R5, @CIBSY ;OTHERWISE RELEASE CONTROL
353 001172' 000763 BR READ
354 001174' 052767 020000 176600 SRDBSY: BIS #RDBSY, FLAGWD ;SET READ BUSY
355 001202' 016767 176620 000012 MOV IVCTAD, 10$ ;INT VECTOR ADDR TO CALL
356 001210' 016767 176614 000006 MOV RBUSRQ, 20$ ;ALSO BUS PRIORITY
357 001216' 004577 176644 JSR R5, @SETVEC ;GO SET THE VECTOR
358 001222' 000000 10$: .WORD XXXX
359 001224' 000000 20$: .WORD XXXX
360 001226' 001232 .WORD RDINT-
361 001230' 004767 002450 GTPTBS: JSR PC, SUPTAD ;GET P TBL BASE IN R3
362 001234' 005067 176562 CLR ERR ;CLEAR ERROR INDICATOR
363 001240' 005267 177420 INC RDCNT ;INCR READ CMD COUNT
364 001244' 032763 000200 000002 BIT #SOPER, PPSW(R3) ;TEST MAINT BIT IN OPSW
365 001252' 001404 BEQ RDMNCL
366 001254' 052764 000004 000004 BIS #4, 4(R4) ;SET RCSR BIT TO SAME STATE
367 001262' 000402 BR RDMNST
368 001264' 042714 000004 RDMNCL: BIC #4, (R4)
369 001270' 012500 RDMNST: MOV (R5)+, R0 ;GET ADDRESS
370 001272' 012567 000760 MOV (R5)+, RADDR
371 001276' 012567 000756 MOV (R5)+, RBYTES ;BYTE COUNT AND
372 001302' 012500 MOV (R5)+, R0 ;LINE NBR FROM CALL
373 001304' 052763 000010 000000 SETRSE: BIS #WT4IOT, PFLGWD(R3) ;SET WAIT FOR I/O TERM
374 001312' 052714 000100 BIS #100, (R4) ;SET RECEIVE INT ENABLE
375 001316' 032767 100000 176456 BIT #DRWAIT, FLAGWD ;TEST DEV ROUT NOWAIT
376 001324' 001002 BNE RDNOWT ;BRANCH IF SET
377 001326' 000167 000300 JMP TSTIEB ;OTHERWISE WAIT
378 001332' 042763 000010 000000 RDNOWT: BIC #WT4IOT, PFLGWD(R3) ;CLEAR WAIT FOR I/O TERM
379 001340' 000205 RTS ;RETURN INLINE
380
381 ;WRITE AND BREAK COMMAND HANDLER
382
383 001342' 042767 000010 176432 WRITE: BIC #BRFLG, FLAGWD ;CLEAR BREAK FLAG
384 001350' 000403 BR XMIT
385 001352' 052767 000010 176422 BREAK: BIS #BRFLG, FLAGWD ;SET BREAK FLAG
386 001360' 010567 002162 XMIT: MOV R5, STMNT ;SAVE R5
387 001364' 162767 000004 002154 SUB #4, STMNT ;FOR STMNT * REFERENCE
388 001372' 016704 176426 MOV DRREGAD, R4 ;DEV REG ADDR TO R4
389 001376' 032764 000100 000004 BIT #100, 4(R4) ;TEST XMIT INT EBL
390 001404' 001403 BEQ SETBSY ;CONTINUE IF NOT SET
391 001406' 004577 176434 JSR R5, @CIBSY ;OTHERWISE RELEASE CONTROL
392 001412' 000762 BR XMIT
393 001414' 052767 040000 176360 SETBSY: BIS #WRBSY, FLAGWD ;SET WRITE BUSY
394 001422' 016767 176400 000020 MOV IVCTAD, 10$ ;INT VECTOR ADDR TO CALL
395 001430' 062767 000004 000012 ADD #4, 10$ ;ADJUST FOR WRITE INT
396 001436' 016767 176370 000006 MOV WBUSRQ, 20$ ;ALSO PASS BUS PRIORITY
397 001444' 004577 176416 JSR R5, @SETVEC ;GO SET THE VECTOR
398 001450' 000000 10$: .WORD XXXX
399 001452' 000000 20$: .WORD XXXX
400 001454' 000516 .WORD WRINT-
401 001456' 004767 002222 JSR PC, SUPTAD ;GET P TBL BASE IN R3
402 001462' 005067 176334 CLR ERR ;CLEAR ERROR INDICATOR
403 001466' 032763 000200 000002 BIT #SOPER, PPSW(R3) ;TEST MAINT BIT IN OPSW
404 001474' 001404 BEQ WRMNCL
405 001476' 052764 000004 000004 BIS #4, 4(R4) ;SET XCSR BIT TO SAME STATE
406 001504' 000402 BR WRMNST

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K01

MAINDEC-11-DTDLH-B
DTDLAB.P11

DL11 DEVICE ROUTINE FOR MPG
DL11: FUNCTION ROUTINES

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SEQ 0041

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407 001506' 042714 000004 WRMNCL: BIC #4,(R4)
408 001512' 012500 WRMNST: MOV (R5)+,R0 ;GET ADDRESS
409 001514' 012567 000542 MOV (R5)+,WADDR
410 001520' 012567 000540 MOV (R5)+,WBYTES ;BYTE COUNT AND
411 001524' 012500 MOV (R5)+,R0 ;LINE NBR FROM CALL
412 001526' 042764 000001 000004 BIC #1,4(R4) ;CLEAR BREAK BIT
413 001534' 032767 000010 176240 BIT #BRFLG,FLAGWD ;TEST BREAK FLAG
414 001542' 001406 BEQ IWC
415 001544' 052764 000001 000004 BIS #1,4(R4) ;SET BREAK IF FLG =1
416 001552' 005267 177112 INC BKCNT ;INCREMENT BREAK CNT
417 001556' 000402 BR SETTSE
418 001560' 005267 177102 IWC: INC WRCNT ;INCREMENT WRITE CNT
419 001564' 052763 000010 000000 SETTSE: BIS #WT4IOT,PFLGWD(R3) ;SET WAIT FOR I/O TERM
420 001572' 052764 000100 000004 BIS #100,4(R4) ;SET XMIT INT EBL
421 001600' 032767 100000 176174 BIT #DRWAIT,FLAGWD ;TEST DEV ROUT NOWAIT
422 001606' 001411 BEQ TSTIEB ;IF RESET TEST INT EBL
423 001610' 042763 000010 000000 BIC #WT4IOT,PFLGWD(R3) ;CLEAR WAIT FOR I/O TERM
424 001616' 000205 RETURN: RTS ;RETURN INLINE
425
426 ;WAIT COMMAND HANDLER
427
428 001620' 042767 100000 176154 WAIT: BIC #DRWAIT,FLAGWD ;CLEAR DEV ROUT NOWAIT
429 001626' 016704 176172 MOV DREGAD,R4 ;POINT R4 AT REG ADDR
430 001632' 032714 000100 TSTIEB: BIT #100,(R4) ;TEST RECV INT
431 001636' 001055 BNE RELEAS ;IF SET, RELEASE CONTROL
432 001640' 032764 000100 000004 BIT #100,4(R4) ;TEST XMIT INT
433 001646' 001051 BNE RELEAS ;IF SET, RELEASE CONTROL
434 001650' 032767 000002 176124 TRMTST: BIT #CLRVCT,FLAGWD ;TEST IF VECTOR CLR REQD
435 001656' 001410 BEQ 10$ ;BRANCH IF NOT
436 001660' 004567 002406 JSR R5,TRVECT ;TEST READ VECTOR
437 001664' 000405 BR 10$ ;BRANCH IF NOT ME
438 001666' 004767 JSR PC,RRINTV ;GO RESET THE VECTOR
439 001672' 042767 000002 176102 BIC #CLRVCT,FLAGWD ;CLEAR THE REQ FLAG
440 001700' 032767 000004 176074 10$: BIT #CLWVCT,FLAGWD ;TEST IF VECTOR CLR REQD
441 001706' 001410 BEQ ERRTST ;BRANCH IF NOT
442 001710' 004567 002406 JSR R5,TWVECT ;TEST WRITE VECTOR
443 001714' 000405 BR ERRTST ;BRANCH IF NOT ME
444 001716' 004767 JSR PC,RWINTV ;GO RESET THE VECTOR
445 001722' 042767 000004 176052 BIC #CLWVCT,FLAGWD ;CLEAR THE REQ FLAG
446 001730' 005767 000334 ERRTST: TST ERRFLG ;TEST FOR ANY ERROR
447 001734' 001730 BEQ RETURN ;RETURN IF NONE
448 001736' 012767 000001 176056 MOV #1,ERR ;SET ERROR INDICATOR
449 001744' 004767 001734 JSR PC,SUPTAD
450 001750' 032763 020000 000002 BIT #PRONER,POPSW(R3) ;TEST DONT PRINT ON ERR BIT
451 001756' 001003 BNE ERREXT ;EXIT IF SET
452 001760' 005004 CLR R4
453 001762' 000167 001342 JMP ERRAPT
454 001766' 000177 176056 ERREXT: JMP @CUPGER
455 001772' 004577 176050 RELEAS: JSR R5,@CIOBSY ;OTHERWISE RELEASE CONTROL
456 001776' 000715 BR TSTIEB
457
458 ;NOWAIT COMMAND HANDLER
459
460 002000' 052767 100000 175774 NOWAIT: BIS #DRWAIT,FLAGWD ;SET NOWAIT FLAG
461 002006' 000703 BR RETURN
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463 ;CRESET COMMAND HANDLER
464
465 002010 016704 176010 CRESET: MOV DREGAD,R4
466 002014 005014 CLR (R4) ;CLEAR ALL CONTROL BITS
467 002016 005054 000004 CLR 4(R4)
468 002022 005067 175774 CLR ERR ;CLEAR ERROR INDICATOR
469 002026 000205 RTS R5 ;RETURN
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MO1

MAINDEC-11-DTDLA-9
DTDLAB.P11

DL11 DEVICE ROUTINE FOR MPG
DL11 FUNCTION ROUTINES

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SEQ 0043

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471
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475 002030' 016704 175770 CALL:
ANSWER: MOV DREGAD,R4
476 002034' 052714 000002 BIS #2,(R4) ;SET DTR
477 002040' 032714 010000 BIT #10000,(R4) ;TEST CARRIER DETECT
478 002044' 001003 BNE CALLOK ;EXIT WHEN DETECTED
479 002046' 004577 175774 JSR R5,ACIOBSY ;ELSE RELEASE CONTROL
480 002052' 000766 BR CALL
481 002054' 005267 176612 CALLOK: INC MISCNT
482 002060' 000205 RTS R5 ;RETURN INLINE
483
484 ;LISTEN COMMAND HANDLER
485
486 002062' 016704 175736 _LISTEN: MOV DREGAD,R4
487 002066' 032714 040000 BIT #40000,(R4) ;TEST RING IND
488 002072' 001003 BNE RANG ;EXIT WHEN DETECTED
489 002074' 004577 175746 JSR R5,ACIOBSY ;ELSE RELEASE CONTROL
490 002100' 000770 BR LISTEN
491 002102' 005267 176564 RANG: INC MISCNT
492 002106' 000205 RTS R5 ;RETURN INLINE
493
494 ;HANGUP COMMAND HANDLER
495
496 002110' 016704 175710 HANGUP: MOV DREGAD,R4
497 002114' 042714 000004 DISCON: BIC #4,(R4) ;LOWER RTS
498 002120' 012700 000017 MOV #15.,R0
499 002124' 012701 000553 HNGDL1: MOV #363.,R1 ;DELAY 15 MS
500 002130' 005301 HNGDL2: DEC R1
501 002132' 001376 BNE HNGDL2
502 002134' 005300 DEC R0
503 002136' 001372 BNE HNGDL1
504 002140' 042714 000002 DISCON: BIC #2,(R4) ;LOWER DTR
505 002144' 005267 176522 INC MISCNT
506 002150' 000205 RTS R5 ;RETURN INLINE
507
508 ;SEND COMMAND HANDLER
509
510 002152' 016704 175646 SEND: MOV DREGAD,R4
511 002156' 052714 000004 BIS #4,(R4) ;RAISE RTS
512 002162' 032714 020000 BIT #20000,(R4) ;TEST CTS
513 002166' 001003 BNE SENDOK ;EXIT WHEN SET
514 002170' 004577 175652 JSR R5,ACIOBSY ;ELSE RELEASE CONTROL
515 002174' 000766 BR SEND
516 002176' 005267 176470 SENDOK: INC MISCNT
517 002202' 000205 RTS R5 ;RETURN INLINE
518
519 ;RCV COMMAND HANDLER
520
521 002204' 016704 175614 RECV: MOV DREGAD,R4
522 002210' 042714 000004 BIC #4,(R4) ;LOWER RTS
523 002214' 005267 176452 RECVOK: INC MISCNT
524 002220' 000205 RTS R5 ;RETURN INLINE
525
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002222' 016704 175576
002226' 052714 000001
002232' 005267 176434
002236' 000205

002240' 016704 175560
002244' 042714 000001
002250' 005267 176416
002254' 000205

002256' 000000
002260' 000000
002262' 000000
002264' 000000
002266' 000000
002270' 000000

:READER ON COMMAND HANDLER
RDRON: MOV DREGAD,R4
BIS #1,(R4) ;TURN READER ON
INC MISCNT
RTS R5 ;RETURN INLINE

:READER OFF COMMAND HANDLER
RDROFF: MOV DREGAD,R4
BIC #1,(R4) ;TURN READER OFF
INC MISCNT
RTS R5 ;RETURN INLINE

RADDR: .WORD 0
RBYTES: .WORD 0
WADDR: .WORD 0
WBYTES: .WORD 0
RCR: .WORD 0 :RECEIVE CONT REG
ERRFLG: .WORD 0 :ERROR FLAG

.SBTTL DL11 SUPPORT ROUTINES

:DEVICE ROUTINE HOUSEKEEPING

:JSR R5,HSKEEP S/R CALL
:.WORD 0 OR 1 0 = DO HSKP PER OPSW
: R2 = PROG'S OPSW 1 = UNCOND. DO HSKP
:DESTROYS RC,R1

003000 005725
003001 001003
003004 032702 000004
003010 001010
003012 010700
003014 002700 175620
003020 012701 000030
003024 005020
003026 005301
003030 001375
003032 000205

HSKEEP: TST (R5)+
BNE 10\$
BIT #HSKPEP,R2
BNE 30\$
:0\$: MOV PC,R0
ADD #HSKPST-,R0
MOV #HSKPEN-HSKPST/2,R1
:2\$: CLR (R0)+
DEC R1
BNE 20\$
:30\$: RTS R5

:UNCONDITIONALLY DO HSKP?
:N,Y-10\$
:OPSW SPECIFY EACH PASS HSKP?
:Y,N-30\$
:SET UP FIRST WD ADR
:SET UP # OF WORDS
:HSKP ALL NECESSARY AREAS
:EXIT IN-LINE

:DL11 REPORT ROUTINE

:JSR R5,REPORT S/R CALL
:.WORD FLAGWD FLAGWORD
: BIT 15 = CMD MODE CALL
: BIT 9 = PROG STMT CALL
: BIT 1 = DO STATUS REPORT
: BIT 0 = DO COUNTS REPORT

003034 005067 000232
003040 004067 000606
003044 032715 177776
003050 001012
003052 002700 175600
003054 012701 000016
003056 005720
003058 001030
003060 001374
003062 000205
003064 001374 000602
003066 010700
003068 032704 000002
003110 001013
003112 005720 000606
003116 005301
003120 032704 000002
003124 001416
003126 004567 001024
003132 001233
003134 000014

REPORT: CLR ABBREV
JSR RC,SAVEG
BIT #177776,(R5)
BNE 8\$
MOV PC,R0
ADD #BYRC-,R0
MOV #14,R1
:2\$: TST (R0)+
BNE 8\$
DEC R1
BNE 2\$
BR DVREX
:3\$: JSR PC,SUPTAD
MOV (R5)+,R4
BIT #2,R4
BEQ 10\$
JSR R5,STSTAT
:WORD CSTAT-
:0\$: BIT #2,R4
BEQ DISCNT
JSR R5,PRINT
:WORD ATMSG-
:WORD 12.

:CLR ABBREVIATED RPT FLAG
:SAVE REG'S R0 - R5
:DISPLAYING CNTS AT END OF
:PROG PASS? (Y,N-8\$)
:SET UP ADR OF CNTS
:GET # OF CNT WORDS
:THIS CNT WORD = 0
:Y,N-8\$
:DECR WORD CNT
:CHK'ED ALL WORDS? (Y,N-2\$)
:GO TO EXIT -- ALL CNTS ARE 0'S
:SET UP PROG TBL ADR IN R3
:GET FLAGWORD
:GOING TO DO STATUS DISPLAY?
:Y,N-10\$
:GO STORE STATUS REG'S
:DISPLAY DEV STATUS?
:Y,N-DISCNT
:ISSUE 'AT INT' MSG

709	003136	004567	000634	JSR	R5,DISPST	:GO DISPLAY STATUS AT LAST INT
710	003142	175472		.WORD	ISTAT-	
711	003144	004567	001006	JSR	R5,PRINT	:ISSUE 'CURRENTLY' MSG
712	003150	001231		.WORD	CURMSG-	
713	003152	000012		.WORD	10.	
714	003154	004567	000616	JSR	R5,DISPST	:GO DISPLAY CURRENT STATUS
715	003160	175464		.WORD	CSTAT-	
716	003162	032704	000001	DISCNT: BIT	#1,R4	:DISPLAY COUNTS?
717	003166	001431		SEQ	RPTEND	:Y,N-RPTEND
718	003170	012700	000016	MOV	#14,R0	:SET UP # OF WORDS
719	003174	010701		MOV	PC,R1	:SET UP ADR OF CNTS
720	003176	062701	175456	ADD	#BYR-.,R1	
721	003202	010702		MOV	PC,R2	:SET UP TBL ADR
722	003204	062702	000070	ADD	#REPTBL-,R2	
723	003210	012267	000012	RPTLP: MOV	(R2)+,RPTBAS	:MOV MSG ADR TO S/R LINKAGE
724	003214	004067	000432	JSR	RC,SAVEG	:SAVE ALL REG'S
725	003220	011100		MOV	(R1),R0	:GET CURRENT COUNT
726	003222	004577	174630	JSR	R5,2BINASC	:CONVERT IT TO ASCII
727	003226	000000		RPTBAS: .WORD	XXXX	
728	003230	004067	000432	JSR	R0,RESREG	:RESTORE REG'S
729	003234	005721		TST	(R1)+	:POINT AT NXT CNT
730	003236	005300		DEC	R0	:DONE ALL WORDS?
731	003240	001363		BNE	RPTLP	:Y,N-RPTLP
732	003242	004567	000710	JSR	R5,PRINT	:GO ISSUE COUNTS MSG
733	003246	001224		.WORD	CNTSMG-	
734	003250	000330		.WORD	CNTSEN-CNTSMG	
735	003252	004567	000700	RPTEND: JSR	R5,PRINT	:ISSUE "END OF REPORT" MSG
736	003256	001135		.WORD	RENDMG-	
737	003260	177763		.WORD	-13.	
738	003262	004067	000400	DVREX: JSR	R0,RESREG	:RESTORE REGISTERS
739	003266	005725		TST	(R5)+	:SET UP RETURN POINT
740	003270	000205		RTS	R5	:EXIT IN-LINE
741						
742	003272	000000		ABBREV: .WORD	0	
743						
744						
745	003274	001260		REPTBL: .WORD	BCMRD-RPTBAS	
746	003276	001266		.WORD	BCMRD+6-RPTBAS	
747	003300	001302		.WORD	BCMWR-RPTBAS	
748	003302	001310		.WORD	BCMWR+6-RPTBAS	
749	003304	001335		.WORD	CMDCRD-RPTBAS	
750	003306	001350		.WORD	CMDCWR-RPTBAS	
751	003310	001364		.WORD	CMDCBK-RPTBAS	
752	003312	001401		.WORD	CMDCMS-RPTBAS	
753	003314	001432		.WORD	RDINMS-RPTBAS	
754	003316	001445		.WORD	WRINMS-RPTBAS	
755	003320	001500		.WORD	ERCOVR-RPTBAS	
756	003322	001520		.WORD	ERCFRM-RPTBAS	
757	003324	001537		.WORD	ERCPAR-RPTBAS	
758	003326	001566		.WORD	ERCDTA-RPTBAS	

:DL11 ERROR REPORT ROUTINE

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780 003330 004767 000004 ERRRPT: JSR PC,ERRDIS
781 003334 000177 174510 JMP @CUPGER
782 003340 010701 ERRDIS: MOV PC,R1 ;POINT R1 AT ERR MSG
783 003342 062701 000222 ADD #EMSGBF-. ,R1
784 003346 012767 000014 000054 MOV #12. ,ERMBCT
785 003354 010700 MOV PC,R0 ;POINT R0 AT ERR MSG TBL
786 003356 062700 000144 ADD #ERCDTB-. ,R0
787 003358 135710 15: TSTB (R0)
788 003364 001416 BEQ ERTBEN ;BRANCH IF R0 AT TBL END
789 003366 132067 176676 BITB (R0)+,ERRFLG ;TEST FOR PARTICULAR ERR
790 003372 001003 SNE 3$ ;BRANCH IF FOUND
791 003374 062700 000005 2$: ADD #5,R0
792 003400 000770 BR 1$
793 003402 012702 000005 3$: MOV #5,R2
794 003406 112021 4$: MOVB (R0)+(R1)+ ;MOVE MSG CODE TO ERR MSG
795 003410 005267 000014 INC ERMBCT ;BUMP BYTE COUNT
796 003414 005302 DEC R2
797 003416 001373 BNE 4$
798 003420 000760 BR 1$ ;CHECK IF MORE
799 003422 004567 000530 ERTBEN: JSR R5,PRINT ;PRINT ERROR MSG
800 003426 000122 .WORD EMSGHD-.
801 003430 000014 ERMBCT: .WORD 12.
802 003432 004567 000340 ERDIRG: JSR R5,DISPST ;DISPLAY DEVICE REGS
803 003436 175176 .WORD ISTAT-.
804 003440 016300 000022 ERRSNM: MOV PSRCST(R3),R0 ;GET ADDR OF SRC STMENTS
805 003444 111001 10$: MOVB (R0),R1 ;SAVE STMT LENGTH
806 003446 026067 000004 000072 CMP 4(R0),STMT ;ERROR OCCUR ON THIS STMT?
807 003454 001402 BEQ 20$ ;YES - BRANCH
808 003456 060100 ADD R1,R0 ;POINT AT NEXT STATEMENT
809 003460 000771 BR 10$ ;GO OK NEXT STMT
810 003462 005720 20$: TST (R0)+ ;SET UP ADR OF STMT # DATA
811 003464 010701 MOV PC,R1 ;SET UP DATA OUTPUT ADDR
812 003466 062701 000156 ADD #STMNUM-. ,R1
813 003472 004577 174364 JSR R5,DEASC ;CONVERT IT TO ASCII
814 003476 012767 020040 000144 MOV #20040,STMNUM+4 ;SET 2 LOW DIGITS TO SPACES
815 003504 004567 000446 JSR R5,PRINT ;ISSUE STMT # MSG
816 003510 000124 .WORD STMNUM-.
817 003512 177762 .WORD -14.
818 003514 005067 176550 CLR ERRFLG ;CLEAR ERROR FLAG
819 003520 000207 RTS PC
820
821 003522 020001 050040 051101 ERCDTB: .ASCII <001> PAR/
822 003530 020002 043040 046522 .ASCII <002> FRM/
823 003536 020004 047440 051126 .ASCII <004> OVR/
824 003544 000 .BYTE 0
825 003546 000000 .EVEN
826 003550 046104 030461 042440 STMT: .WORD 0 ;SAVED R5 FOR STMT #
827 003556 051122 051117 020072 EMSGHD: .ASCII /DL11 ERROR:
828 003564 000050 EMSGBF: .BLKB 40.
829 003634 052123 047115 020124 STMNMG: .ASCII /STMT #
830 003642 020043 STMNUM: .ASCII /XXXXXX/
831 003644 054130 054130

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H02

MAINDEC-11-DTDLA-B
DTDLA8.P11

DL11 DEVICE ROUTINE FOR MPG
SUBROUTINES FOR DL11 DEVICE ROUTINE

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SEQ 0051

.SBTTL SUBROUTINES FOR DL11 DEVICE ROUTINE

:SAVE REGISTERS R0 THRU R5

:JSR R0,SAVREG S/R CALL

SAVREG:	MOV	R1,-(SP)	:SAVE R0 THRU R5
	MOV	R2,-(SP)	
	MOV	R3,-(SP)	
	MOV	R4,-(SP)	
	MOV	R5,-(SP)	
	MOV	R0,PC	:EXIT IN-LINE

:RESTORE REGISTERS R0 THRU R5

:JSR R0,RESREG S/R CALL

RESREG:	TST	(SP)+	:RESTORE R4 THRU R0
	MOV	(SP)+,R5	
	MOV	(SP)+,R4	
	MOV	(SP)+,R3	
	MOV	(SP)+,R2	
	MOV	(SP)+,R1	
	RTS	R0	:EXIT IN-LINE

:SET PROGRAM'S PROG TABLE ADR IN R3

:JSR PC,SUPTAD S/R CALL

SUPTAD:	MOV	PC,R3	:SET UP LOCATION ZERO ADR
	ADD	#LOCZ-,R3	
	SUB	-2(R3),R3	:SUBTRACT PROG TBL LENGTH
	MOV	DREGAD,R4	:PUT DEV REG ADR IN R4
	RTS	PC	:EXIT IN-LINE

:STORE DEVICE'S STATUS REGISTERS

:JSR R5,STSTAT S/R CALL
:WORD STADR- REL STORAGE ADR
:DESTROYS R0,R1,R2

STSTAT:	MOV	DREGAD,R1	
	BIC	#2000,(R1)	:SELECT TCR
	MOV	R5,R0	:GET REL STORAGE ADR & MAKE
	ADD	(R5)+,R0	:IT ABSOLUTE
	MOV	#DVREGS-DVREGS/6,-(SP)	:GET # OF REG'S TO STORE
	MOV	PC,R2	:GET ADR OF 1ST REG DISPLACEMENT
	ADD	#DVREGS+4-.,R2	
105:	MOV	(R2),R1	:GET REG DISPLACEMENT
	ADD	DREGAD,R1	:ADD IN REG'S BASE ADR
	MOV	(R1),(R0)+	:STORE REGISTER VALUE
	ADD	#6,R2	:POINT AT NXT DISPLACEMENT
	DEC	(SP)	:DECR REG CNT

003652	010146	
003654	010246	
003656	010346	
003660	010446	
003662	010546	
003664	010007	
003666	005726	
003670	012605	
003672	012504	
003674	012603	
003676	012602	
003700	012501	
003702	000200	
003704	010703	
003706	062703	174072
003712	166303	177776
003716	016704	174102
003722	000207	
003724	016701	174074
003730	042711	002000
003734	010500	
003736	062500	
003740	012746	000004
003744	010702	
003746	062702	174154
003752	011201	
003754	066701	174044
003760	011120	
003762	062702	000006
003766	005316	

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8970 003770' 001370      BNE      10$      ;DONE ALL? (Y,N-10$)
8971 003772' 005726      TST      (SP)+    ;CLEAN UP THE STACK
8972 003774' 000205      RTS       R5      ;EXIT IN-LINE

;TAILOR STATUS MSG & PRINT IT

;JSR      R5,DISPST    S/R CALL
;WORD     STATADR-    REL ADR OF STATUS DATA
;DESTROYS R0,R1,R2

003776' 010502      DISPST: MOV     R5,R2      ;GET REL DATA ADR
004000' 052502      ADD     (R5)+,R2     ;MAKE IT ABS
004002' 010701      MOV     PC,R1       ;SET UP ADR OF REG NAMES IN ASCII
004004' 062701      ADD     #DVRGMS-,R1  ;
004010' 012700      MOV     #DVRGMS-DVRGMS/6,R0 ;GET # OF REGISTERS TO DISPLAY
004014' 012167      10$:  MOV     (R1)+,DVRGMS ;MOVE REG NAME TO MSG
004020' 012167      MOV     (R1)+,DVRGMS+2 ;
004024' 005721      TST     (R1)+      ;BYPASS DISP VALUE
004026' 004067      JSR     R0,SAVREG   ;SAVE REG'S R0 - R5
004032' 011200      MOV     (R2),R0     ;GET REG'S STORED VALUE
004034' 004577      JSR     R5,JBINASC ;CONVERT IT TO ASCII
004040' 000424      .WORD  DVRGMS-    ;
004042' 004567      JSR     R5,PRINT    ;PRINT THE STATUS MSG
004046' 000410      .WORD  DVRGMS-    ;
004050' 000014      .WORD  12.        ;
004052' 004067      JSR     R0,RESREG   ;RESTORE R0 - R4
004056' 005722      TST     (R2)+      ;POINT AT NXT REG VALUE
004060' 005300      DEC     R0         ;DECR REG CNT
004062' 001354      BNE     10$        ;DONE ALL? (Y,N-10$)
004064' 000205      RTS       R5      ;EXIT IN-LINE

;DISPLAY CURRENT UNIT #

;JSR      PC,DISUNM    S/R CALL
;R3 MUST CONTAIN PROG TBL ADR
;DESTROYS R0,R1,R2

004066' 012767      000022 000056  DISUNM: MOV     #18,DISUML ;INIT TO NORM MSG LNTH
004074' 116300      000035      MOVB    PCURDV(R3),R0 ;GET CURRENT UNIT #
004100' 020027      000020      CMP     R0,#16.     ;VALID UNIT #?
004104' 101007      BHI     DISUIV      ;Y,N-DISUIV
004106' 004577      173746      JSR     R5,JBASLZ   ;CONVERT # TO DECIMAL ASCII
004112' 000336      .WORD  UNASCI-    ;
004114' 016767      000334 000326      MOV     UNASCI+4,UNASCI ;MOVE ASCII # TO 1ST TWO DIGITS
004122' 000410      BR      DISUPR      ;
004124' 012767      000026 000020  DISUIV: MOV     #22,DISUML ;SET UP ERR COND MSG LNTH
004132' 042700      177400      BIC     #177400,R0  ;RESET HIGH BYTE
004136' 004577      173714      JSR     R5,JBINASC ;CONVERT BINARY TO ASCII
004142' 000306      .WORD  UNASCI-    ;
004144' 004567      000006      DISUPR: JSR     R5,PRINT ;GO ISSUE UNIT # MSG
004150' 000260      .WORD  UNITMG-    ;
004152' 000020      DISUML: .WORD  16.  ;
004154' 000207      RTS       PC      ;EXIT IN-LINE

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926                                     :ISSUE MSG TO LIST DEVICE
927
928                                     :JSR   R5,PRINT          S/R CALL
929                                     :.WORD MSGADR-.        REL ADR OF MSG
930                                     :.WORD BYTCNT          MSG BYTE CNT (IF NEGATIVE,
931                                     :                                     RESET PRT DEV DEDICATED.)
932
933                                     :R3 = PROG TBL ADR
934                                     :R4 = FLAGWORD -- IF NEGATIVE, USE CMND MODE PRINT
935                                     :DESTROYS R0,R1,R2
936 004155' 010500 PRINT: MOV R5,R0 ;GET MSG ADR & MAKE IT ABS
937 004167' 062500 ADD (R5)+,R0
938 004162' 012501 MOV (R5)+,R1 ;GET BYTE COUNT
939 004164' 005704 TST R4 ;USE CMND MODE PRINT?
940 004165' 100030 BPL 40$ ;Y,N-40$
941 004170' 010702 MOV PC,R2 ;SET UP LINK INFO ADR
942 004172' 062702 000040 ADD #20$-.,R2
943 004176' 160200 SUB R2,R0 ;MAKE MSG ADR REL
944 004200' 010022 MOV R0,(R2)+ ;STORE MSG ADR
945 004202' 010112 MOV R1,(R2) ;STORE MSG'S BYTE COUNT
946 004204' 100001 BPL 10$ ;CNT NEG? (Y,N-10$)
947 004206' 005412 NEG (R2) ;MAKE IT POSITIVE
948 004210' 016367 000006 000144 10$: MOV PASCIN(R3),PROGNM ;STORE PROG'S # IN MSG
949 004216' 004577 173632 JSR R5,QLIST ;ISSUE PROG #
950 004222' 000136 .WORD PNMMMSG-.
951 004224' 000005 .WORD 5
952 004226' 004577 173622 JSR R5,QLIST ;ISSUE MSG SPECIFIED
953 004232' 000000 20$: .WORD XXXX
954 004234' 000000 .WORD XXXX
955 004236' 004577 173612 JSR R5,QLIST ;ISSUE A <CR> & <LF>
956 004242' 000302 .WORD CRLF-.
957 004244' 000002 .WORD 2
958 004246' 000410 BR PRTEX ;GO TO EXIT
959 004250' 010067 000010 40$: MOV R0,50$ ;STORE MSG'S ABS ADR
960 004254' 010167 000006 MOV R1,60$ ;STORE ITS BYTE CNT
961 004260' 004577 173566 JSR R5,QLIST ;GO TO MPG TO ISSUE THE MSG
962 004264' 000000 50$: .WORD XXXX
963 004266' 000000 60$: .WORD XXXX
964 004270' 000205 PRTEX: RTS R5 ;EXIT IN-LINE
965
966
967                                     ;TEST READ INTERRUPT VECTOR S/R
968
969 004272' 016767 173530 000010 TRVECT: MOV IVCTAD,20$ ;GET CURR INT VECT ADR
970 004300' 016346 000004 MOV PFWADR(R3),-(SP) ;STORE FLGWD ADR TO IDENTIFY ME
971 004304' 004577 173562 JSR R5,QTSTVEC ;DO I HAVE VECTOR CONTROL?
972 004310' 000000 20$: .WORD XXXX ;MPG WILL TELL ME SINCE I CAN'T
973 004312' 176146 .WORD RDINT-. ;GET AT LOWER MEM IF MEM MGMT
974 004314' 000401 BR TRVEXT ;BR IF I DONT HAVE CONTROL
975 004316' 005725 TST (R5)+ ;BYPASS BR INST IN S/R CALL
976 004320' 000205 TRVEXT: RTS R5 ;EXIT IN-LINE
977
978                                     ;TEST WRITE INTERRUPT VECTOR S/R
979
980 004322' 016767 173500 000016 TWVECT: MOV IVCTAD,20$ ;GET CURR INT VECT ADR
981 004330' 062767 000004 000010 ADD #4,20$ ;ADJUST FOR WRITE INT

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K02

MAINDEC-11-DTDLA-B
DTCLAB.P11

DL11 DEVICE ROUTINE FOR MPG
SUBROUTINES FOR DL11 DEVICE ROUTINE

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SEQ 0054

992	004336	016346	000004	MOV	PFWADR(R3),-.SP)	:STORE FLGWD ADR TI IDENTIFY ME
993	004342	004577	173524	JSR	R5, @TSTVEC	:DO I HAVE VECTOR CONTROL?
994	004346	000000		20\$: .WORD	XXXX	: MPG WILL TELL ME SINCE I CAN'T
995	004350	175722		.WORD	WRINT-	: GET AT LOWER MEM IF MEM MGMT
996	004352	000401		BR	TWVEXT	:BR IF I DONT HAVE CONTROL
997	004354	005725		TST	(R5)+	:BYPASS BR INST IN S/R CALL
998	004356	000205		TWVEXT: RTS	R5	:RETURN IN-LINE
999						
950						

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992 .SBTTL MESSAGE STORAGE AREA
993
994
995 .NLIST BEX
996
997 .EVEN
998 004360' 021520 PNMMSG: .ASCII /P#/
999 004362' 054130 011 PROGMM: .ASCII /XX/<011>
1000 004365' 101 020124 040514 ATIMSG: .ASCII /AT LAST INT:/
1001 004401' 103 051125 042522 CURMSG: .ASCII /CURRENTLY:/
1002 004413' 105 042116 047440 RENDMG: .ASCII /END OF REPCRT/
1003 .EVEN
1004 004430' 025052 025052 042040 UNITMG: .ASCII /**** DL11 UNIT: /
1005 004450' 054130 054130 054130 UNASCI: .ASCII /XXXXXX/
1006 004456' 054130 054130 020075 DVRGMG: .ASCII /XXXX= /
1007 004464' 054130 054130 054130 DVRGDT: .ASCII /XXXXXX/
1008
1009 004472' 054502 042524 035123 CNTSMG: .ASCII /BYTES: RD= /
1010 004506' 054130 054130 054130 BCMRD: .ASCII /XXXXXXXXXXXXX WR= /
1011 004530' 054130 054130 054130 BCMWR: .ASCII /XXXXXXXXXXXXX/
1012 004544' 005015 CRLF: .ASCII <015><012>
1013
1014 004546' 041411 047115 051504 .ASCII <011>/CMNDS: RD= /
1015 004563' 130 054130 054130 CMDCRD: .ASCII /XXXXXX WR= /
1016 004576' 054130 054130 054130 CMDCWR: .ASCII /XXXXXX BRK= /
1017 004612' 054130 054130 054130 CMDCBK: .ASCII /XXXXXX MISC= /
1018 004627' 130 054130 054130 CMDCMS: .ASCII /XXXXXX/<015><012>
1019 004637' 011 047111 042524 .ASCII <011>/INTERRUPTS: RD= /
1020 004660' 054130 054130 054130 RDINMS: .ASCII /XXXXXX WR= /
1021 004673' 130 054130 054130 WRINMS: .ASCII /XXXXXX/<015><012>
1022 004703' 011 051105 047522 ERRMSG: .ASCII <011>/ERRORS: OVERRJN= /
1023 004726' 054130 054130 054130 ERCOVR: .ASCII /XXXXXX FRAMING= /
1024 004746' 054130 054130 054130 ERCFRM: .ASCII /XXXXXX PARITY= /
1025 004765' 130 054130 054130 ERCPAR: .ASCII /XXXXXX/<015><012>
1026 004775' 011 040504 040524 .ASCII <011>/DATA ERRORS = /
1027 005014' 054130 054130 054130 ERCDTA: .ASCII /XXXXXX/
1028 005022' CNTSEN=
1029 .EVEN
1030
1031 .LIST BEX
1032
1033 005022' DVRENC=

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1035          .SBTTL FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES
1036
1037          : PROGRAM TABLE FORMAT
1038
1039          000342      PTLGTH= 162.      ;PROGRAM TABLE LENGTH - NON MEM MGMNT VERSION OF MPG
1040
1041          ;(PTLGTH= 212. ;PROGRAM TABLE LENGTH - MEM MGMNT VERSION OF MPG)
1042
1043          000000      PFLGWD= +0.      ;PROGRAM FLAG WORD - 1 WORD
1044
1045          000002      URSTOP= 2      ; 1 = USER HAS STOPPED THIS PROGRAM
1046          000004      ERSTOP= 4      ; 1 = AN ERROR HAS STOPPED THIS PROGRAM
1047          000010      WTIOT= 10     ; 1 = WAITING FOR I/O TERMINATION
1048          000020      CTPRIO= 20    ; 1 = CONSOLE OR PRINTER I/O IN PROGRESS
1049          000040      SE*DED= 40    ; 1 = THIS PROG SET THE PRT DEV DEDICATED FLAG
1050          000100      OCPRES= 100   ; 1 = OBJ CODE IS PRESENT
1051          000200      USEUBM= 200   ; 1 = THIS PROG USES THE UNIBUS MAP (MEM MGMNT ONLY)
1052          100000      ACTIVE= 100000 ; 1 = PROGRAM IS ACTIVE (SPECIFIED FOR EXECUTION)
1053
1054          000002      PPOSW= +2.     ;PROGRAM'S OPERATION SWITCHES - 1 WORD
1055
1056          100000      STONER= 100000 ; 1 = STOP PROG EXECUTION UPON ERROR
1057          040000      CYCPRG= 40000  ; 1 = CYCLE PROGRAM (ON CURRENT DEVICE)
1058          020000      PRONER= 20000  ; 1 = DO NOT PRINT ON ERROR
1059          010000      BIT12= 10000   ; 0 = NOT USED
1060          004000      BIT11= 4000    ; 0 = NOT USED
1061          002000      CYCDVL= 2000   ; 1 = CYCLE THE DEVICE LIST
1062          001000      GTNXTD= 1000   ; 1 = CYCLE ON SAME DEVICE UPON ERROR
1063          000400      DOERCK= 400    ; 1 = DON'T DO ERROR CHECKING
1064          000200      SPOPER= 200    ; 1 = DEVICE SPECIAL OPERATION
1065          000100      BIT6= 100      ; 0 = NOT USED
1066          000040      DOIOT= 40      ; 1 = DO NOT PERFORM I/O TIMEOUT
1067          000020      AUTORP= 20     ; 1 = DO NOT AUTOMATICALLY DISPLAY COUNTS
1068          000010      AURPEP= 10     ; 1 = AUTO DISPLAY COUNTS AT END OF FINAL PASS ONLY
1069          000004      HSKPEP= 4      ; 1 = HOUSEKEEP COUNTS ONLY AT RUN COMMAND
1070          000002      PFBBOV= 2      ; 1 = PRINT FIRST BAD BYTE ONLY ON VERIFY
1071          000001      NOCOMP= 1     ; 1 = DO NOT PRINT PROG COMPLETED MSG
1072
1073          000004      PFWADR= +4.     ;*;PROGRAM FLAGWORD ADDRESS - 1 WORD
1074
1075          000006      PASCIN= +6.     ;PROGRAM'S NUMBER IN ASCII - 1 WORD
1076
1077          000010      PNAME= +8.     ;PROGRAM'S NAME IN ASCII - 6 BYTES
1078
1079          000016      PRDIOA= +14.    ;ADDRESS OF READ I/O AREA - 1 WORD
1080
1081          000020      PWRIOA= +16.    ;ADDRESS OF WRITE I/O AREA - 1 WORD
1082
1083          000022      PSRCST= +18.    ;SOURCE STATEMENTS START ADDRESS - 1 WORD
1084
1085          000024      POBJST= +20.    ;OBJECT CODE START ADDRESS - 1 WORD
1086
1087          000026      PLNGTH= +22.    ;PROG AREA LENGTH (OBJ END MINUS PROG TBL START) - 1 WORD
1088
1089          000030      PTCNT= +24.     ;I/O TIMEOUT COUNT - 1 WORD
1090

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1091	000032	PMDLCD= +26.	;DEV ROUT MODEL # CODE - 1 WORD
1092			
1093	000034	PDPNTR= +28.	;CURRENT DEVICE NUMBER POINTER - 1 BYTE
1094			
1095	000035	PCURDV= +29.	;CURRENT DEVICE # - 1 BYTE
1096			
1097	000036	PDNUMS= +30.	;DEVICE NUMBERS - 16 BYTES
1098			
1099	000056	PTEM0= +46.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1100			
1101	000060	PTEM1= +48.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1102			
1103	000062	PTEM2= +50.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1104			
1105	000064	PTEM3= +52.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1106			
1107	000066	PTEM4= +54.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1108			
1109	000070	PTEM5= +56.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1110			
1111	000072	PTEM6= +58.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1112			
1113	000074	PTEM7= +60.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1114			
1115	000076	PTEM8= +62.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1116			
1117	000100	PTEM9= +64.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1118			
1119	000102	PTEM10= +66.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1120			
1121	000104	PTEM11= +68.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1122			
1123	000106	PTEM12= +70.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1124			
1125	000110	PTEM13= +72.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1126			
1127	000112	PTEM14= +74.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1128			
1129	000114	PTEM15= +76.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1130			
1131	000116	FNBR= +78.	;NUMBER OF BYTES TO TRANSFER ON MOVE (NBR) - 1 WORD
1132			
1133	000120	PSRC= +80.	;DATA SOURCE ADDRESS ON MOVE (SRC) - 1 WORD
1134			
1135	000122	PDST= +82.	;DATA DESTINATION ADDRESS ON MOVE (DST) - 1 WORD
1136			
1137	000124	PSTKCT= +84.	;# OF WORDS (X 2) SAVED OFF STACK - 1 WORD
1138			
1139	000126	PSTKSV= +86.	;STACK WORDS STORAGE AREA - 30 WORDS
1140			
1141	000222	PSVREG= +146.	;USER'S R0 THRU R5 REGISTERS STORAGE AREA - 6 WORDS
1142			
1143	000236	PUSRPC= +158.	;USER'S CURRENT PROGRAM COUNTER - 1 WORD
1144			

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000062      DVPDTA= +50.      :CONVERT PACKED DECIMAL TO ASCII BR ADR (DECASC) - 1 WORD
000064      DVSFWD= +52.      :MPG SYSTEM FLAGWORD ADDRESS (CSYSFW) - 1 WORD
000066      DVSVEC= +54.      :SET INTERRUPT VECTOR BR ADR (SETVEC) - 1 WORD
000070      DVCVEC= +56.      :CLEAR INTERRUPT VECTOR BR ADR (CLRVEC) - 1 WORD
000072      DVTVEC= +58.      :TEST INTERRUPT VECTOR BR ADR (TSTVEC) - 1 WORD
000074      DVRINT= +60.      :RETURN FROM INTERRUPT BR ADR (RTNINT) - 1 WORD
000076      DVGETB= +62.      :GET DATA BYTE BR ADR (GETBYT) - 1 WORD
000100      DVPUTB= +64.      :PUT DATA BYTE BR ADR (PUTBYT) - 1 WORD
000102      DEVSTP= +66.      :DEVICE ROUT REL SYMBOL TABLE POINTER - 1 WORD
000104      DEVETP= +68.      :DEVICE ROUT REL ENTRY TABLE POINTER - 1 WORD
000106      DVPTEP= +70.      :PACK TABLE EXTEN. REL POINTER - 1 WORD
000110      DVVTEP= +72.      :VECTOR TABLE EXTEN. REL POINTER - 1 WORD
000112      DVCTEP= +74.      :COMPILER TBL EXTEN. REL POINTER - 1 WORD
000114      DVWSP= +76.      :DEVICE INTERFACE WORD SYMBOL TBL REL POINTER - 1 WORD
000116      DRTEND= +78.      :END OF DEVICE ROUTINE TABLE
000001      .END
  
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ABREV	003272R	002	DEVW1 =	000004	002	DVWTEP =	000110	002	LSTATS	000632R	002	PTM9 =	000100	002
ADJUST	003300R	002	DEVW2 =	000006	002	EMSGBF	003564R	002	LWAIT	000632R	002	PTENC =	000242	002
ADJUST	003330R	002	DEVW3 =	000010	002	EMSGHD	003550R	002	MISCONT	000672R	002	PTLGTH =	000242	002
ADJUST	004365R	002	DEVW4 =	000012	002	ERCDTA	005014R	002	MMVER =	000001	002	PTCNT =	000030	002
ADJUST	000010	002	DEVW5 =	000014	002	ERCDTB	003522R	002	NOCOMP =	000001	002	PTSIZE =	000240	002
ADJUST	000020	002	DEVW6 =	000016	002	ERCFRM	004746R	002	NOFERR	002576R	002	PUSAPC =	000236	002
ADJUST	004506R	002	DEVW7 =	000020	002	ERCOVR	004726R	002	NOERR	002616R	002	PUSBYT =	000100R	002
ADJUST	004530R	002	DEVW8 =	000022	002	ERCPAR	004765R	002	NOPERR	002556R	002	PWRIOA =	000020	002
ADJUST	003056R	002	DEVVPS =	000030	002	ERDIRG	003432R	002	NOWAIT	002000R	002	PSCONS =	000000	002
ADJUST	004000	002	DEVRSZ =	000000	002	ERMBCT	003430R	002	CCPRES =	000100	002	RADDR	002256R	002
ADJUST	010000	002	DEVSTP =	000102	002	ERR	000022R	002	QVRRUN	000700R	002	RANG	002102R	002
ADJUST	000100	002	DEVWPS =	000032	002	ERRCIS	003340R	002	PAPER	000700R	002	RBUF	000636R	002
ADJUST	000670R	002	DHMPAD =	000034	002	ERREXT	001766R	002	PASCIN =	000006	002	RBSRQ	000030R	002
ADJUST	000310	002	DISCNT	003162R	002	ERRFLG	002270R	002	PC =	%000007	002	RBYTES	002260R	002
ADJUST	000060R	002	DISCON	002114R	002	ERRMSG	004703R	002	PCURDV =	000035	002	RCR	002266R	002
ADJUST	000654R	002	DISPST	003776R	002	ERRRPT	003330R	002	PNUMS =	000036	002	RCSR	000634R	002
ADJUST	000654R	002	DISUIV	004124R	002	ERRSNM	003440R	002	PDPNTR =	000034	002	RCBSY =	000000	002
ADJUST	000660R	002	DISUML	004152R	002	ERRST	001730R	002	PCST =	000122	002	RCNT	000664R	002
ADJUST	002030R	002	DISUMM	004066R	002	ERSTOP =	000004	002	PFB80V =	000002	002	RDINMS	004660R	002
ADJUST	002054R	002	DISUPR	004144R	002	ERTBEN	003422R	002	PFLGWD =	000000	002	RDINT	002460R	002
ADJUST	000046R	002	DKILAD =	000040	002	FLAG	000712R	002	PFHADR =	000004	002	RCMNL	001264R	002
ADJUST	000054R	002	DOERCK =	000400	002	FLAGWD	000002R	002	PLNGTH =	000026	002	RDMNST	001270R	002
ADJUST	000002	002	DOIOT =	000040	002	FRAMER	000702R	002	PMDLCC =	000032	002	RDNOWT	001332R	002
ADJUST	000070R	002	DREGAD	000024R	002	GETBYT	000076R	002	PNAME =	000010	002	RDRFF	002240R	002
ADJUST	000004	002	DRTEND =	000116	002	GTNXTD =	001000	002	PNBR =	000116	002	RDRON	002222R	002
ADJUST	004612R	002	DRTLTH =	000116	002	GTPTBS	001230R	002	PNMSG	004360R	002	READ	001142R	002
ADJUST	004627R	002	DRWAIT =	100000	002	GVECAD	002442R	002	POBJST =	000024	002	RECV	002204R	002
ADJUST	004563R	002	DTDEAD =	000044	002	HANGUP	002110R	002	POPSW =	000002	002	RECVOK	002214R	002
ADJUST	004576R	002	DVBTD =	000060	002	HNGDL1	002124R	002	PRDIOA =	000016	002	RELEAS	001772R	002
ADJUST	005022R	002	DVCMDS	000145R	002	HNGDL2	002130R	002	PRINT	004156R	002	RENDMG	004413R	002
ADJUST	004472R	002	DVCFT =	000054	002	HSKEEP	003000R	002	PRCGNM	004362R	002	REPORT	003034R	002
ADJUST	002714R	002	DVCPT =	000504R	002	HSKPEN =	000714R	002	PRONER =	000000	002	REPTBL	003274R	002
ADJUST	002010R	002	DVCTEP =	000112	002	HSKPEP =	000004	002	PRTEX	004270R	002	REVEC	002724R	002
ADJUST	004544R	002	DVCTEC =	000070	002	HSKPST =	000634R	002	PSRC =	000120	002	RESREG	003666R	002
ADJUST	000644R	002	DVGETB =	000076	002	INTEXT	002450R	002	PSRCST =	000022	002	RETURN	001616R	002
ADJUST	000064R	002	DVWSP =	000114	002	ISTAT =	000634R	002	PSTKCT =	000124	002	RICNT	000674R	002
ADJUST	000020	002	DVWST	000630R	002	IVCTAC	000026R	002	PSTKSV =	000126	002	RFTBAS	003226R	002
ADJUST	000050R	002	DVMYTE	000420R	002	IWC	001560R	002	PSVREG =	000222	002	RPTEND	003252R	002
ADJUST	004401R	002	DVPDTA =	000062	002	KILL	001026R	002	PTEMO =	000056	002	RPTLP	003210R	002
ADJUST	001100R	002	DVPKTE	000250R	002	KILLEX	001134R	002	PTEM1 =	000060	002	RRTNV	002736R	002
ADJUST	002000	002	DVPTEP =	000106	002	LANSWR	000632R	002	PTEM10 =	000102	002	RTERM	002646R	002
ADJUST	040000	002	DVPLTB =	000100	002	LCALL	000632R	002	PTEM11 =	000104	002	RTNINT	000074R	002
ADJUST	000706R	002	DVREGE =	000146R	002	LCOUNT	000632R	002	PTEM12 =	000106	002	RWINTV	002754R	002
ADJUST	000062R	002	DVREGS	000116R	002	LCRST	000632R	002	PTEM13 =	000110	002	R1 =	000000	002
ADJUST	000042	002	DVREND =	005022R	002	LHNGUP	000632R	002	PTEM14 =	000112	002	R2 =	000001	002
ADJUST	000036	002	DVREX	003262R	002	LISTEN	002062R	002	PTEM15 =	000114	002	R3 =	000002	002
ADJUST	000056	002	DVRGOT	004464R	002	LLISEN	000632R	002	PTEM2 =	000062	002	R4 =	000003	002
ADJUST	000050	002	DVRGMG	004456R	002	LWAIT	000632R	002	PTEM3 =	000064	002	R5 =	000004	002
ADJUST	000024	002	DVRINT =	000074	002	LOCZ	000000R	002	PTEM4 =	000066	002	R6 =	000005	002
ADJUST	000104	002	DVSFWD =	000064	002	LDRDF	000632R	002	PTEM5 =	000070	002	USVREG	003656R	002
ADJUST	000002	002	DVSVEC =	000066	002	LDRON	000632R	002	PTEM6 =	000072	002	USVNO	000156R	002
ADJUST	000046	002	DVTVEC =	000072	002	LRECV	000632R	002	PTEM7 =	000074	002	USVNOX	000156R	002
ADJUST	000026	002	DVUPRT =	000052	002	LSEND	000632R	002	PTEM8 =	000076	002	USVSY	001416R	002

Symbol	Value	Symbol	Value	Symbol	Value	Symbol	Value	Symbol	Value	
SYMNUM	003644R	002	TRVEXT	004320R	002	JSE_LBM=	000200	WRINT	002272R	002
SYJNER=	100000		TSRINT	001342R	002	USMTPS=	000002	WPITE	001342R	002
SYSTAT	003724R	002	TSTIEB	001632R	002	WADDR	002262R	WPMNCL	001506R	002
SUPTAD	003704R	002	TSTVEC	000072R	002	WAIT	001632R	WPMNST	001512R	002
TOECN	000710R	002	TWVECT	004322R	002	WBUSRQ	000032R	WTERM	002266R	002
TOEMSG	001002R	002	TWEXT	004356R	002	WBYTES	002264R	WT4ICT=	000010	002
TOUTER	000714R	002	ULIST	000052R	002	WICNT	000676R	XBUF	000642R	002
TOUTEX	000774R	002	UNASCI	004450R	002	WRBSY =	040000	XCSR	000640R	002
TRMTST	001650R	002	UNITMG	004430R	002	WRCNT	000666R	YMIT	001360R	002
TRVECT	004272R	002	LRSTOP=	000002	002	WRINMS	004673R	XXY =	000000	002
ABS.	000000	000								
	000000	001								
	005022	002								

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0
 * DTDLAB/ML: 700/000=DTDLAB.P11
 RUN-TIME: 3 7 1 SECONDS
 RUN-TIME RATIO: 18 12 1.4
 CORE USED: 5K 19 PAGES
 DOCUMENT PAGES: 31

