

KXT11-CA

KTX11-CA DIAGNOSTIC
CZKTCAO

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OCT 1983
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Microfiche grid containing diagnostic data for KXT11-CA. The grid is organized into columns and rows, with each cell containing a small, faint image or text fragment. The data is too small to be legible in this scan.

PARAMETER CODING

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IDENTIFICATION

PRODUCT CODE: AC-T494A-MC
PRODUCT NAME: CZKTCA0 KXT11-CA DIAGNOSTIC
PRODUCT DATE: JULY 25, 1983
MAINTAINER: ISS DIAGNOSTIC SERVICES GROUP
AUTHOR: JACK RICHARDSON

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USER DOCUMENTATION
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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS DIAGNOSTIC HAS BEEN WRITTEN FOR USE WITH THE DIAGNOSTIC RUNTIME SERVICES SOFTWARE (SUPERVISOR). THESE SERVICES PROVIDE THE INTERFACE TO THE OPERATOR AND TO THE SOFTWARE ENVIRONMENT. THIS PROGRAM CAN BE USED WITH XXDP+, ACT, APT, SLIDE AND PAPER TAPE. FOR A COMPLETE DESCRIPTION OF THE RUNTIME SERVICES, REFER TO THE XXDP+ USER'S MANUAL. THERE IS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES IN SECTION 2 OF THIS DOCUMENT.

1.2 SYSTEM REQUIREMENTS

1.3 RELATED DOCUMENTS AND STANDARDS

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

1.5 ASSUMPTIONS

2.0 OPERATING INSTRUCTIONS

THIS SECTION CONTAINS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES. FOR DETAILED INFORMATION, REFER TO THE XXDP+ USER'S MANUAL (CHQUS).

STARTING THE XXDP+ SYSTEM

THE XXDP+ TEST SOFTWARE SYSTEM CONSISTS OF THE XXDP+ MONITOR WITH VARIOUS UTILITY SOFTWARE, THE KXT11-CA IOP TEST SOFTWARE, AND THE DIAGNOSTIC RUNTIME SERVICES (SUPERVISOR) ALL RESIDING ON A BOOTABLE MEDIUM. THE TEST SYSTEM REQUIRES DEDICATION OF THE ENTIRE HARDWARE SYSTEM, I.E., IT CANNOT SHARE WITH ANY OTHER OPERATING SYSTEM.

STARTING PROCEDURES:

1. SHUT OFF POWER TO THE SYSTEM; THIS INCLUDES ALL IOP AND ARBITER POWER.
2. FOR EACH KXT11-CA TO BE TESTED, PLACE THE BOOT/SELFTEST SWITCH TO POSITION 10. THE BOOT/SELFTEST SWITCH RESIDES ON EACH KXT11-CA MODULE. IF LESS THAN THE FULL COMPLEMENT OF KXT11-CA'S ARE TO BE TESTED WITH THIS SOFTWARE, IT IS SUFFICIENT TO CHANGE THE BOOT SWITCHES OF ONLY THE KXT11'S TO BE TESTED. IF THE THREE I/O PORTS ARE TO BE THOROUGHLY TESTED, THE DATA LOOPBACK CONNECTORS SHOULD BE INSTALLED AT THIS TIME.
3. RESTORE POWER TO THE SYSTEM.
4. PLACE THE XXDP+ STORAGE MEDIUM IN THE MAIN SYSTEM DEVICE.
5. BOOT THE SYSTEM.

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6. ENTER THE DATE AND ANSWER THE LSI AND 50HZ QUESTIONS.
7. TYPE 'R CZKTCA' TO LOAD THE KXT11-CA TEST SOFTWARE.
8. AFTER THE PROGRAM IS LOADED INTO ARBITER MEMORY, THE PROMPT 'DS>' WILL APPEAR.
9. TYPE "START"
10. ANSWER THE QUESTION, "CHANGE HW(L)?" QUESTION WITH 'Y'.
11. ANSWER ALL THE HARDWARE QUESTIONS (SEE THE NEXT SECTION, 2.4, FOR VARIATIONS AND COMMANDS ASSOCIATED WITH THE DRS).
12. THE TEST SOFTWARE IS INVOKED IMMEDIATELY AFTER COMPLETING THE HARDWARE SPECIFICATION INPUT.

2.1 COMMANDS

THERE ARE ELEVEN LEGAL COMMANDS FOR THE DIAGNOSTIC RUNTIME SERVICES (SUPERVISOR). THIS SECTION LISTS THE COMMANDS AND GIVES A VERY BRIEF DESCRIPTION OF THEM. THE XXDP+ USER'S MANUAL HAS MORE DETAILS.

COMMAND	EFFECT
START	START THE DIAGNOSTIC FROM AN INITIAL STATE
RESTART	START THE DIAGNOSTIC WITHOUT INITIALIZING
CONTINUE	CONTINUE AT TEST THAT WAS INTERRUPTED (AFTER ^C)
PROCEED	CONTINUE FROM AN ERROR HALT
EXIT	RETURN TO XXDP+ MONITOR (XXDP+ OPERATION ONLY!)
ADD	ACTIVATE A UNIT FOR TESTING (ALL UNITS ARE CONSIDERED TO BE ACTIVE AT START TIME)
DROP	DEACTIVATE A UNIT
PRINT	PRINT STATISTICAL INFORMATION (IF IMPLEMENTED BY THE DIAGNOSTIC - SECTION 4.0)
DISPLAY	TYPE A LIST OF ALL DEVICE INFORMATION
FLAGS	TYPE THE STATE OF ALL FLAGS (SEE SECTION 2.3)
ZFLAGS	CLEAR ALL FLAGS (SEE SECTION 2.3)

A COMMAND CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "STA" INSTEAD OF "START".

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2.2 SWITCHES

THERE ARE SEVERAL SWITCHES WHICH ARE USED TO MODIFY SUPERVISOR OPERATION. THESE SWITCHES ARE APPENDED TO THE LEGAL COMMANDS. ALL OF THE LEGAL SWITCHES ARE TABULATED BELOW WITH A BRIEF DESCRIPTION OF EACH. IN THE DESCRIPTIONS BELOW, A DECIMAL NUMBER IS DESIGNATED BY "DDDDD".

SWITCH	EFFECT
/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE //TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDDD	EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
/UNITS:LIST	TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10-12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0-14)

EXAMPLE OF SWITCH USAGE:

START/TESTS:1-5/PASS:1000/EOP:100

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES, AND 3) THE END OF PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY, FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1-5".

BELOW IS A TABLE THAT SPECIFIES WHICH SWITCHES CAN BE USED BY EACH COMMAND.

	TESTS	PASS	FLAGS	EOP	UNITS
START	X	X	X	X	X
RESTART	X	X	X	X	X
CONTINUE		X	X	X	
PROCEED			X		
DROP					X
ADD					X
PRINT					
DISPLAY					X
FLAGS					
ZFLAGS					
EXIT					

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2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

FLAG	EFFECT
HOE	HALT ON ERROR - CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE
LOE	LOOP ON ERROR
IER*	INHIBIT ALL ERROR REPORTS
IBR*	INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXR*	INHIBIT EXTENDED ERROR REPORTS (THOSE CALLED BY PRINTX MACRO'S)
PRI	DIRECT MESSAGES TO LINE PRINTER
PNT	PRINT TEST NUMBER AS TEST EXECUTES
BOE	'BELL' ON ERROR
UAM	UNATTENDED MODE (NO MANUAL INTERVENTION)
ISR	INHIBIT STATISTICAL REPORTS (DOES NOT APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT STATISTICAL REPORTING)
IDR	INHIBIT PROGRAM DROPPING OF UNITS
ADR	EXECUTE AUTODROP CODE
LOT	LOOP ON TEST
EVL	EXECUTE EVALUATION (ON DIAGNOSTICS WHICH HAVE EVALUATION SUPPORT)

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

SEE THE XXDP+ USER'S MANUAL FOR MORE DETAILS ON FLAGS. YOU MAY SPECIFY MORE THAN ONE FLAG WITH THE FLAG SWITCH. FOR EXAMPLE, TO CAUSE THE PROGRAM TO LOOP ON ERROR, INHIBIT ERROR REPORTS AND TYPE A 'BELL' ON ERROR, YOU MAY USE THE FOLLOWING STRING:

/FLAGS:LOE:IER:BOE

2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 6 OF THE XXDP+ USER'S MANUAL, OR SECTION 2.5 BELOW). WHEN YOU ANSWER THIS QUESTION WITH A "Y", THE RUNTIME SERVICES WILL ASK FOR THE NUMBER OF UNITS (IN DECIMAL). YOU WILL THEN BE ASKED QUESTIONS FOR EACH UNIT.

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH UNIT TO BE TESTED. THIS CAN BECOME TEDIOUS, HOWEVER, SINCE THE ANSWERS FOR EACH UNIT ARE REPETITIOUS.

TO ILLUSTRATE, YOU WISH TO TEST 4 KXT11-CA'S WITH THIS PROGRAM, AND THEIR SBC NUMBERS HAPPEN TO BE 2 THROUGH 5. THERE ARE 5 PARAMETERS THAT MAY VARY AMONG THE UNITS. THESE ARE THE BUS ADDRESS, THE THREE I/O PORT LOOPBACK CONNECTORS, AND WHETHER THE USER ROM TEST SHOULD OR SHOULDN'T BE INVOKED DURING TESTING. NOTE THAT A "UNIT" NUMBER IMPLIES A UNIT UNDER TEST AND DOES NOT HAVE TO HAVE A UNIT NUMBER CORRESPONDING TO A KXT11-CA SBC NUMBER.

UNITS (D) ? 4<CR>

UNIT 0

SBC ID SWITCH SETTING(D) ? 2<CR>
IS IOP'S LSI-11 BUS ADDRESS IN THE LOW ADDRESS RANGE(Y/N) Y ? Y<CR>
LOOP-BACK CONNECTOR ON SERIAL PORT #1 (L) N ? Y<CR>
CHANNEL A LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
CHANNEL B LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
LOOP-BACK CONNECTOR ON PARALLEL PORT (L) N ? Y<CR>
IS SLU2 SERIAL PORT CONFIGURED FOR DMA OPERATION(Y/N) N ?<CR>
TEST USER ROM (L) N ? Y<CR>

UNIT 1

SBC ID SWITCH SETTING(D) ? 2<CR>
IS IOP'S LSI-11 BUS ADDRESS IN THE LOW ADDRESS RANGE(Y/N) Y ? Y<CR>
LOOP-BACK CONNECTOR ON SERIAL PORT #1 (L) Y ? <CR>
CHANNEL A LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
CHANNEL B LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
LOOP-BACK CONNECTOR ON PARALLEL PORT (L) Y ? <CR>
IS SLU2 SERIAL PORT CONFIGURED FOR DMA OPERATION(Y/N) N ?<CR>
TEST USER ROM (L) Y ? <CR>

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UNIT 2

SBC ID SWITCH SETTING(D) ? 2<CR>
IS IOP'S LSI-11 BUS ADDRESS IN THE LOW ADDRESS RANGE(Y/N) Y ? Y<CR>
LOOP-BACK CONNECTOR ON SERIAL PORT #1 (L) Y ? <CR>
CHANNEL A LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
CHANNEL B LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
LOOP-BACK CONNECTOR ON PARALLEL PORT (L) Y ? <CR>
IS SLU2 SERIAL PORT CONFIGURED FOR DMA OPERATION(Y/N) N ?<CR>
TEST USER ROM (L) Y ? N<CR>

UNIT 3

SBC ID SWITCH SETTING(D) ? 2<CR>
IS IOP'S LSI-11 BUS ADDRESS IN THE LOW ADDRESS RANGE(Y/N) Y ? Y<CR>
LOOP-BACK CONNECTOR ON SERIAL PORT #1 (L) Y ? N <CR>
CHANNEL A LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
CHANNEL B LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? Y<CR>
LOOP-BACK CONNECTOR ON PARALLEL PORT (L) Y ? N<CR>
IS SLU2 SERIAL PORT CONFIGURED FOR DMA OPERATION(Y/N) N ?<CR>
TEST USER ROM (L) N ? Y<CR>

NOTICE THAT THE DEFAULT VALUES CHANGE WHEN A NON-DEFAULT RESPONSE
IS GIVEN AS IN THE RESPONSES TO THE USER ROM QUESTION FOR UNITS 2 AND 3.
BE CAREFUL WHEN SPECIFYING MULTIPLE UNITS!

AS YOU CAN SEE FROM THE ABOVE EXAMPLE, THE HARDWARE PARAMETERS
DO NOT VARY SIGNIFICANTLY FROM UNIT TO UNIT. THE PROCEDURE SHOWN IS
NOT VERY EFFICIENT.

THE RUNTIME SERVICES WILL ACCEPT MULTIPLE UNIT SPECIFICATIONS, HOWEVER.
LET'S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION
FEATURE AND ACCOMPLISH THE SAME IN ONE SINGLE UNIT ENTRY.

UNITS (D) ? 4<CR>

UNIT 0

SBC ID SWITCH SETTING(D) ? 2<CR>
IS IOP'S LSI-11 BUS ADDRESS IN THE LOW ADDRESS RANGE(Y/N) Y ? Y...<CR>
LOOP-BACK CONNECTOR ON SERIAL PORT #1 (L) Y ? ...N<CR>
CHANNEL A LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? ...N<CR>
CHANNEL B LOOP-BACK CONNECTOR ON SERIAL PORT #2 (L) N ? ...N<CR>
LOOP-BACK CONNECTOR ON PARALLEL PORT (L) Y ? ...N<CR>
IS SLU2 SERIAL PORT CONFIGURED FOR DMA OPERATION(Y/N) N ? ...N<CR>
TEST USER ROM (L) N ? Y,,N,Y<CR>

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THE KEY TO REMEMBER HERE IS THAT EACH UNIT UNDER TEST MUST HAVE A CORRESPONDING RESPONSE ON EACH LINE. AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

THESE HARDWARE QUESTIONS MUST BE ANSWERED EACH TIME THE PROGRAM IS LOADED AND STARTED; HOWEVER, IF THE TEST CONFIGURATION RARELY OR NEVER DIFFERS FOR EACH STARTUP THE XXDP+ UTILITY "SETUP" MAY BE USED TO PERMANENTLY RETAIN THE ANSWERS TO THE HARDWARE QUESTIONS. THE USER WOULD THEN ANSWER 'N' TO THE STARTUP QUESTION, "CHANGE HW?(L)". SETUP MAY BE USED TO REPLACE THE TEST PROGRAM ON THE XXDP+ MEDIUM, OR TO MAKE ADDITIONAL COPIES WITH DIFFERENT FILE NAMES AND HARDWARE CONFIGURATIONS.

TO RUN SETUP, USE THE XXDP+ "RUN" COMMAND. THE FIRST THING THAT SETUP WILL DO IS ASK FOR THE TYPE OF ENVIRONMENT YOU ARE GOING TO BE USING, XXDP+ OR ACT/SLIDE. FOR THIS TEST SOFTWARE, THE ANSWER WILL ALWAYS BE XXDP+. BELOW IS AN EXAMPLE OF STARTING SETUP:

```
.R SETUP
TARGET ENVIRONMENT:    XX(DP) OR AC(T)?  XX
*
```

SETUP IS NOW READY TO ACCEPT COMMANDS. THERE ARE ONLY THREE COMMANDS IN SETUP:

```
SETUP  BUILD TABLES FOR A SPECIFIED DIAGNOSTIC
LIST   PRINT A LIST OF DRS DIAGNOSTICS ON THE XXDP+ MEDIUM.
EXIT   RETURN CONTROL TO XXDP+
```

2.5 SETUP

THE SETUP COMMAND WILL CAUSE THE SPECIFIED DIAGNOSTIC TO BE LOADED INTO MEMORY. SETUP WILL THEN PROCESS THE TABLE BUILDING CODE IN THE TEST SOFTWARE MUCH THE SAME AS IF THE TEST SOFTWARE WERE LOADED AND STARTED. THE USER WILL GO THROUGH THE SAME PROCESS THAT WOULD OCCUR IF ACTUALLY RUNNING THE TEST SOFTWARE AND ISSUING A START COMMAND. THE FORMAT OF THE COMMAND IS:

```
SETUP  [DEVO:]OFIL=[DEVI:]IFILE
```

WHERE,

DEVO - DEVICE TO WHICH FILE IS TO BE WRITTEN; DEFAULT IS SYSTEM DEVICE; DEVICE MUST BE ON LINE.

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OF FILE - NAME OF THE OUTPUT FILE FOR THE TEST SOFTWARE THAT HAS BEEN "SETUP" WITH .BIN OR .BIC EXTENSION.

DEVI - DEVICE FROM WHICH FILE IS TO BE READ; DEFAULT IS SYSTEM DEVICE; DEVICE MUST BE ON LINE.

IF FILE - NAME OF THE FILE FOR THE TEST SOFTWARE THAT IS TO BE "SETUP".

THE OUTPUT FILE MAY BE GIVEN THE SAME NAME AS THE INPUT FILE; HOWEVER, A WARNING MESSAGE WILL BE OUTPUT. THIS IS TO AVOID ACCIDENTAL LOSS OF THE ORIGINAL FILE. FOR EXAMPLE:

DELETE IF FILE? (Y/N/CR=Y)

IF "Y" OR NO ANSWER AT ALL IS TYPED, THE INPUT FILE "IF FILE" WILL BE DELETED AFTER THE SETUP PROCESS, AND THE NEW FILE WILL THEN BE WRITTEN TO THE MEDIUM. IF "N" IS TYPED, SETUP RETURNS TO PROMPT MODE SO THAT A NEW COMMAND OR FILE NAME MAY BE SPECIFIED.

LIST

THE LIST COMMAND IS USED TO OBTAIN A LIST OF ALL DRS-COMPATIBLE TEST SOFTWARE ON THE MEDIUM. THE FORMAT OF THE COMMAND IS:

LIST [DEV:][FILE.EXT]

WHERE,

DEV - DEVICE TO SEARCH FOR DRS-COMPATIBLE FILES; DEFAULT IS THE SYSTEM DEVICE.

FILE.EXT - FILE(S) TO SEARCH; EXTENSION MUST BE BIN OR BIC; WILDCARD SPECIFICATIONS ARE ACCEPTED; DEFAULT IS "*.BI?".

2.6 QUICK START-UP PROCEDURE (XXDP+)

TO START-UP THIS PROGRAM:

1. BOOT XXDP+
2. GIVE THE DATE AND ANSWER THE LSI AND 50HZ (IF THERE IS A CLOCK) QUESTIONS
3. TYPE "R NAME", WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
4. TYPE "START"
5. ANSWER THE "CHANGE HW" QUESTION WITH "Y"
6. ANSWER ALL THE HARDWARE QUESTIONS

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.4.

3.0 ERROR INFORMATION

3.1 TYPES OF ERROR MESSAGES

THERE ARE THREE LEVELS OF ERROR MESSAGES THAT MAY BE ISSUED BY A DIAGNOSTIC: GENERAL, BASIC AND EXTENDED. GENERAL ERROR MESSAGES ARE ALWAYS PRINTED UNLESS THE "IER" FLAG IS SET (SECTION 2.3). THE GENERAL ERROR MESSAGE IS OF THE FORM:

NAME TYPE NUMBER ON UNIT NUMBER TST NUMBER PC:XXXXXX
ERROR MESSAGE

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WHERE; NAME = DIAGNOSTIC NAME
TYPE = ERROR TYPE (SYS FATAL, DEV FATAL, HARD OR SOFT)
NUMBER = ERROR NUMBER
UNIT NUMBER = 0 - N (N IS LAST UNIT IN PTABLE)
TST NUMBER = TEST AND SUBTEST WHERE ERROR OCCURRED
PC:XXXXXX = ADDRESS OF ERROR MESSAGE CALL

BASIC ERROR MESSAGES ARE MESSAGES THAT CONTAIN SOME ADDITIONAL INFORMATION ABOUT THE ERROR. THESE ARE ALWAYS PRINTED UNLESS THE "IER" OR "IBR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL MESSAGE.

EXTENDED ERROR MESSAGES CONTAIN SUPPLEMENTARY ERROR INFORMATION SUCH AS REGISTER CONTENTS OR GOOD/BAD DATA. THESE ARE ALWAYS PRINTED UNLESS THE "IER", "IBR" OR "IXR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL ERROR MESSAGE AND ANY ASSOCIATED BASIC ERROR MESSAGES.

3.2 SPECIFIC ERROR MESSAGES

4.0 PERFORMANCE AND PROGRESS REPORTS

AT THE END OF EACH PASS, THE PASS COUNT IS GIVEN ALONG WITH THE TOTAL NUMBER OF ERRORS REPORTED SINCE THE DIAGNOSTIC WAS STARTED. THE "EOP" SWITCH CAN BE USED TO CONTROL HOW OFTEN THE END OF PASS MESSAGE IS PRINTED. SECTION 2.2 DESCRIBES SWITCHES.

5.0 DEVICE INFORMATION TABLES

6.0 TEST SUMMARIES

USER DOCUMENTATION
IDENTIFICATION

MACRO M1200 26-JUL-83 08:14 PAGE 14

522
523
524 002000
525 000000
526 000000
527 000000
528
529
536
537
538
539
540 002000
002000
541
542
543
544
545
546
547 002000
548
565
566 002000
002000
002000 103
002001 132
002002 113
002003 124
002004 103
002005 101
002006 000
002007 000
002010
002010 101
002011
002011 06C
002012
002012 000016
002014
002014 000120
002016
002016 024454
002020
002020 000000
002022
002022 002162
002024
002024 000000
002026
002026 024670
002030
002030 000000
002032
002032 000000
002034
002034 000000

```

.MCALL SVC
SVC
SVCINS=0
SVCGBL=0
SVCTAG=0
.TITLE PROGRAM HEADER AND TABLES
.SBTTL IDENTIFICATION

.SBTTL PROGRAM HEADER
      BGNMOD MDHEDR
MDHEDR::

:++
: THE PROGRAM HEADER IS THE INTERFACE BETWEEN
: THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
:--

      POINTER BGNRPT,BGNAU,BYNDU,BGNSETUP

      HEADER CZKTCA,A,0,120,0
LSNAME:: ;DIAGNOSTIC NAME
      .ASCII /C/
      .ASCII /Z/
      .ASCII /K/
      .ASCII /T/
      .ASCII /C/
      .ASCII /A/
      .BYTE 0
      .BYTE 0
LSREV:: ;REVISION LEVEL
      .ASCII /A/
LSDEPO:: ;0
      .ASCII /0/
LSUNIT:: ;NUMBER OF UNITS
      .WORD TSPTHV
LSTIML:: ;LONGEST TEST TIME
      .WORD 120
LSHPCP:: ;POINTER TO H.W. QUES.
      .WORD LSHARD
LSSPCP:: ;POINTER TO S.W. QUES.
      .WORD 0
LSHPTP:: ;PTR. TO DEF. H.W. PTABLE
      .WORD LSHW
LSSPTP:: ;PTR. TO S.W. PTABLE
      .WORD 0
LSLADP:: ;DIAG. END ADDRESS
      .WORD L$LAST
LSSTA:: ;RESERVED FOR APT STATS
      .WORD 0
LSCO::
      .WORD 0
LSDTYP:: ;DIAGNOSTIC TYPE
      .WORD 0

```

PROGRAM HEADER AND TABLES
PROGRAM HEADER

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002036		LSAPT::		;APT EXPANSION
002036	000000		.WORD 0	
002040		LSDTP::		;PTR. TO DISPATCH TABLE
002040	002124		.WORD LSDISPAT	CH
002042		LSPRIO::		;DIAGNOSTIC RUN PRIORITY
002042	000000		.WORD 0	
002044		LSENV1::		;FLAGS DESCRIBE HOW IT WAS SETUP
002044	000000		.WORD 0	
002046		L\$EXP1::		;EXPANSION WORD
002046	000000		.WORD 0	
002050		LSMREV::		;SVC REV AND EDIT #
002050	003		.BYTE CSREVISION	
002051	003		.BYTE C\$EDIT	
002052		L\$EF::		;DIAG. EVENT FLAGS
002052	000000		.WORD 0	
002054	000000		.WORD 0	
002056		L\$SPC::		
002056	000000		.WORD 0	
002060		L\$DEVP::		; POINTER TO DEVICE TYPE LIST
002060	014422		.WORD LSDVTYP	
002062		L\$REPP::		;PTR. TO REPORT CODE
002062	017402		.WORD L\$RPT	
002064		L\$EXP4::		
002064	000000		.WORD 0	
002066		L\$EXP5::		
002066	000000		.WORD 0	
002070		L\$AUT::		;PTR. TO ADD UNIT CODE
002070	020050		.WORD L\$AU	
002072		L\$DUT::		;PTR. TO DROP UNIT CODE
002072	020014		.WORD L\$DU	
002074		L\$LUN::		;LUN FOR EXERCISERS TO FILL
002074	000000		.WORD 0	
002076		L\$DESP::		;PTR. TO DIAG. DESCRIPTION
002076	014432		.WORD L\$DESC	
002100		L\$LOAD::		;GENERATE SPECIAL AUTOLOAD EMT
002100	104035		EMT E\$LOAD	
002102		L\$ETP::		;PTR. TO ERR TBL
002102	000000		.WORD 0	
002104		L\$ICP::		;PTR. TO INIT CODE
002104	017412		.WORD L\$INIT	
002106		L\$CCP::		;PTR. TO CLEAN-UP CODE
002106	020006		.WORD L\$CLEAN	
002110		L\$ACP::		;PTR. TO AUTO CODE
002110	017662		.WORD L\$AUTO	
002112		L\$PRT::		;PTR. TO PROTECT TABLE
002112	017404		.WORD L\$PROT	
002114		L\$TEST::		;TEST NUMBER
002114	000000		.WORD 0	
002116		L\$DLY::		;DELAY COUNT
002116	000000		.WORD 0	
002120		L\$HIME::		;PTR. TO HIGH MEM
002120	000000		.WORD 0	
567 002122			WORD ENDMOD	
568				

PROGRAM HEADER AND TABLES
DISPATCH TABLE

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580
581
582
583
584
585
586 002122
002122
587 002122
002122 000016
002124
002124 020056
002126 020216
002130 020420
002132 020640
002134 021074
002136 021314
002140 021540
002142 021776
002144 022256
002146 022516
002150 022750
002152 023212
002154 023474
002156 024256
588 002160

.SBTTL DISPATCH TABLE

```

:++
: THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
: IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
:--

```

```

      BGNMOD  DSPCODE
DSPCODE::
      DISPATCH 14
      .WORD   14
LSDISPATCH::
      .WORD   T1
      .WORD   T2
      .WORD   T3
      .WORD   T4
      .WORD   T5
      .WORD   T6
      .WORD   T7
      .WORD   T8
      .WORD   T9
      .WORD   T10
      .WORD   T11
      .WORD   T12
      .WORD   T13
      .WORD   T14
      ENDMOD

```

PROGRAM HEADER AND TABLES
DEFAULT HARDWARE P-TABLE

MACRO M1200 26-JUL-83 08:14 PAGE 16

```

596          .SBTTL  DEFAULT HARDWARE P-TABLE
597
598          :++
599          : THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
600          : THE TEST-DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
601          : IS IDENTICAL TO THE STRUCTURE OF THE HARDWARE P-TABLES,
602          : AND IS USED AS A "TEMPLATE" FOR BUILDING THE P-TABLES.
603          :--
604
605          002160          BGNHW  DFPTBL
          002160          .WORD  L10000-L$HW/2
          002162          L$HW::
          002162          DFPTBL::
606
607          :+
608          : DUMMY HARDWARE P-TABLE.  THIS JUST LETS THE DRS KNOW WHAT FORMAT
609          : WE WANT.
610          : -
611
612          .WORD  0          : SBC ID SWITCH (2 TO 15.)
613          .WORD  1          : BUS ADDRESS RANGE (LOW IS DEFAULT)
614
615          : FLAG FOR LOOP-BACK CONNECTORS.
616          : 0 = NOT INSTALLED; 1 = INSTALLED
617
618          .WORD  0          : CONNECTOR FOR SLU1
619          .WORD  0          : CONNECTOR FOR SLU2, CHANNEL A
620          .WORD  0          : CONNECTOR FOR SLU2, CHANNEL B
621          .WORD  0          : CONNECTOR FOR PARALLEL I/O
622          .WORD  0          : SLU2 DMA CONFIGURATION
623          .WORD  0          : FLAG FOR USER ROM TESTS (0 = DON'T TEST)
624
625          002162  000000
626          002164  000001
627          002166  000000
628          002170  000000
629          002172  000000
630          002174  000000
631          002176  000000
632          002200  000000
633
634          002202          ENDHW
          002202          L10000:

```

PROGRAM HEADER AND TABLES
SOFTWARE P-TABLE

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```

636          .SBTTL  SOFTWARE P-TABLE
637
638          :++
639          : THE SOFTWARE TABLE CONTAINS VARIOUS DATA USED BY THE
640          : PROGRAM AS OPERATIONAL PARAMETERS.  THESE PARAMETERS ARE
641          : SET UP AT ASSEMBLY TIME AND MAY BE VARIED BY THE OPERATOR
642          : AT RUN TIME.
643          :--
644
645          002202          BGNSW  SFPTBL
          002202          .WORD  L10001-L$$W/2
          002204
          002204
          L$$W::
          SFPTBL::

646
654
655          002204          ENDSW
          002204          L10001:

```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 18
SOFTWARE P-TABLE

```

657          .TITLE GLOBAL AREAS
658          .SBTTL IDENTIFICATION
664
665          .SBTTL GLOBAL EQUATES SECTION
666
667          :++
668          : THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
669          : ARE USED IN MORE THAN ONE TEST.
670          :--
671 002204      BGNMOD  GLBEQAT
           002204      GLBEQAT::
672 002204          EQUALS

          :
          : BIT DIFINITIONS
          :
100000      BIT15== 100000
040000      BIT14== 40000
020000      BIT13== 20000
010000      BIT12== 10000
004000      BIT11== 4000
002000      BIT10== 2000
001000      BIT09== 1000
000400      BIT08== 400
000200      BIT07== 200
000100      BIT06== 100
000040      BIT05== 40
000020      BIT04== 20
000010      BIT03== 10
000004      BIT02== 4
000002      BIT01== 2
000001      BIT00== 1

001000      BIT9==  BIT09
000400      BIT8==  BIT08
000200      BIT7==  BIT07
000100      BIT6==  BIT06
000040      BIT5==  BIT05
000020      BIT4==  BIT04
000010      BIT3==  BIT03
000004      BIT2==  BIT02
000002      BIT1==  BIT01
000001      BIT0==  BIT00

          :
          : EVENT FLAG DEFINITIONS
          : EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
          :
000040      EF.START==      32.      : BIT POSITION IN SECOND STATUS WORD
000037      EF.RESTART==    31.      : (100000) START COMMAND WAS ISSUED
000036      EF.CONTINUE==   30.      : (040000) RESTART COMMAND WAS ISSUED
000035      EF.NEW==        29.      : (020000) CONTINUE COMMAND WAS ISSUED
000034      EF.PWR==        28.      : (010000) A NEW PASS HAS BEEN STARTED
          : (004000) A POWER-FAIL/POWER-UP OCCURRED

          :
          : PRIORITY LEVEL DEFINITIONS
          :
000340      PRI07== 340

```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 18-1
GLOBAL EQUATES SECTION

000300	PRI06== 300
000240	PRI05== 240
000200	PRI04== 200
000140	PRI03== 140
000100	PRI02== 100
000040	PRI01== 40
000000	PRI00== 0
	;
	;OPERATOR FLAG BITS
	;
000004	EVL== 4
000010	LOT== 10
000020	ADR== 20
000040	IDU== 40
000100	ISR== 100
000200	UAM== 200
000400	BOE== 400
001000	PNT== 1000
002000	PRI== 2000
004000	IXE== 4000
010000	IBE== 10000
020000	IER== 20000
040000	LOE== 40000
100000	HOE== 100000

673
688 002204

ENDMOD

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 19
GLOBAL DATA SECTION

```

690      .SBTTL  GLOBAL DATA SECTION
691
692      :++
693      : THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
694      : IN MORE THAN ONE TEST.
695      :--
696 002204      BGNMOD  GLBDAT
002204      GLBDAT::
697
698      : ++
699      :
700      : TWO PORT RAM Q-BUS ADDRESS OFFSETS.
701      :
702      : --
703
704      000000      DPR0==0
705      000002      DPR1==2
706      000004      DPR2==4
707      000006      DPR3==6
708      000010      DPR4==10
709      000012      DPR5==12
710      000014      DPR6==14
711      000016      DPR7==16
712      000020      DPR10==20
713      000022      DPR11==22
714      000024      DPR12==24
715      000026      DPR13==26
716      000030      DPR14==30
717      000032      DPR15==32
718      000034      DPR16==34
719      000036      DPR17==36
720
721 002204 000000      SAVEC:  .WORD  0      ; TEMP SAVE FOR VECTOR CONTENTS
722 002206 000000      DROPUN: .WORD  0      ; IOP UNIT DROPPED FLAG (NON-0 = DROPPED)
723 002210 000000      LUN:      .WORD  0      ; LOGICAL UNIT NUMBER
724 002212 000000      IOPN:   .WORD  0      ; SBC ID SWITCH FROM P-TABLE
725 002214 000000      IOPNN:  .WORD  0      ; SBC ID SWITCH RIGHT JUSTIFIED
726 002216 000000      QBASE:  .WORD  0      ; Q-BUS BASE ADDRESS FROM P-TABLE
727 002220 000000      QIRVEC: .WORD  0      ; VECTOR FOR QIR TEST
728 002222 000000      LOOPB1: .WORD  0      ; LOOPBACK CONN. FLAG FOR SLU1
729 002224 000000      LOOPB2: .WORD  0      ; LOOPBACK CONN. FLAG FOR SLU2 CHANNEL A
730 002226 000000      LOOPB3: .WORD  0      ; LOOPBACK CONN. FLAG FOR CHANNEL B
731 002230 000000      LOOPB4: .WORD  0      ; LOOPBACK CONN. FLAG FOR PL'L I/O
732 002232 000000      SL2DMA: .WORD  0      ; "1" SAYS SLU2 SETUP FOR DMA
733 002234 000000      ROMTST: .WORD  0      ; FLAG FOR USER ROM TESTS (NON-0 = TEST ROM)
734 002236 000000      DELCNT: .WORD  0      ; USED IN RDELAY SUBROUTINE.
735 002240 000000      INTFLG: .WORD  0      ; SOFTWARE FLAG FOR QIR TEST
736 002242 000000      HIMEM:  .WORD  0      ; BASE OF HIGHEST 4KW PAGE FROM L$HIME
737
738      :
739      : THE FOLLOWING ARE THE DATA TO INVOKE INDIVIDUAL ROM TESTS.
740      : EACH XXDP+ TEST MUST WRITE ONE OF THESE WORDS INTO THE IOP'S TWO
741      : PORT REGISTER FILE (TWO-PORT RAM, REGISTER 0). THE IOP BOOT
742      : CODE WILL INTERPRET THE CONTENTS OF DPR0 AND INVOKE THE APPROPRIATE
743      : IOP ROM TEST.
744
745 002244 100001      CSR:    .WORD  100001      ; CSR TEST

```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 19-1
GLOBAL DATA SECTION

746 002246 100002
747 002250 100004
748 002252 100010
749 002254 100020
750 002256 100040
751 002260 100100
752 002262 100200
753 002264 100400
754 002266 101000
755 002270 102000

RAM: .WORD 100002
ROM: .WORD 100004
CPU: .WORD 100010
BVNT: .WORD 100020
SLU1: .WORD 100040
SLU2: .WORD 100100
PLLIO: .WORD 100200
DMA: .WORD 100400
QIR: .WORD 101000
DPR: .WORD 102000

: 16KW RAM TEST
: ROM TEST
: IOP INSTRUCTION TEST
: BEVNT INTERRUPT TEST
: SERIAL PORT #1 TEST (CONSOLE)
: SERIAL PORT #2 TEST (MODEM)
: PARALLEL I/O TEST
: DMA CONTROLLER TEST
: Q-BUS INTERRUPT TEST
: TWO-PORT RAM TEST

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 20
GLOBAL DATA SECTION

757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787

++
THE FOLLOWING ADDRESSES ARE USED TO PRINT FURTHER ERROR INFORMATION WHICH IS PASSED FROM THE KXT11-CA ROM-RESIDENT TESTS TO XXDP+ VIA THE TWO-PORT REGISTER 3. THE FORMAT OF REGISTER 3 IS:

TTEEEE WHERE:

TT = THE TEST NUMBER WHERE THE FAILURE WAS DETECTED, AND
EEEE = DISCRETE ERROR FLAGS IDENTIFYING THE ERROR TYPE.

FOR EXAMPLE: 010004 = TEST 01, ERROR BIT 2
120111 = TEST 12, ERROR BITS 0, 3, AND 6.

THIS FORMAT ALLOWS FOR 17(O) TESTS, AND 12(D) ERROR BITS PER TEST.

THE PROGRAM MUST PRINT A MESSAGE INDICATING THE ROM TEST WHICH FAILED (AFTER PRINTING ITS OWN MESSAGE) AND THEN A MESSAGE FOR EACH ERROR BIT THAT IS SET. THIS IS DONE BY FIRST STRIPPING THE TEST NUMBER FROM BITS 15 THRU 12 AND INDEXING TO A POINTER TO THE PROPER ASCII STRING. THE ERROR BITS (0 THRU 11) ARE THEN TESTED. FOR EACH BIT THAT IS SET, A MESSAGE WILL BE PRINTED. THE PROPER MESSAGE IS DERIVED BY INDEXING TO AN ASCII STRING POINTER. ALL THIS INVOLVES 2 TABLES - ONE WHICH LISTS INDIVIDUAL ADDRESSES EACH POINTING TO AN ENTRY IN THE SECOND TABLE. THE SECOND CONTAINS A POINTER TO THE 'TEST NUMBER' ASCII STRING, FOLLOWED BY UP TO 12 POINTERS TO THE 'ERROR BIT' ASCII STRINGS. THEREFORE, THIS SECOND TABLE WILL CONTAIN 13 ENTRIES FOR EACH OF THE ROM-RESIDENT SELFTESTS.

788 002272 002320
789 002274 002352
790 002276 002404
791 002300 002436
792 002302 002470
793 002304 002522
794 002306 002554
795 002310 002606
796 002312 002640
797 002314 002672
798 002316 002724

```

T1ADR: RT1           : POINTER TO TEST 1 STRINGS
T2ADR: RT2           : POINTER TO TEST 2 STRINGS
T3ADR: RT3           : POINTER TO TEST 3 STRINGS
T4ADR: RT4           : POINTER TO TEST 4 STRINGS
T5ADR: RT5           : POINTER TO TEST 5 STRINGS
T6ADR: RT6           : POINTER TO TEST 6 STRINGS
T7ADR: RT7           : POINTER TO TEST 7 STRINGS
T10ADR: RT10        : POINTER TO TEST 10 STRINGS
T11ADR: RT11        : POINTER TO TEST 11 STRINGS
T12ADR: RT12        : POINTER TO TEST 12 STRINGS
T13ADR: RT13        : POINTER TO TEST 13 STRINGS

```


GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 21
GLOBAL DATA SECTION

```

800
801      : ADD THE NEXT FOUR ADDRESSES WHEN AND IF ADDITIONAL TESTS ARE INSERTED INTO
802      : THE ROM-RESIDENT CODE.
803
804      :T14ADR:      RT14      : POINTER TO TEST 14 STRINGS
805      :T15ADR:      RT15      : POINTER TO TEST 15 STRINGS
806      :T16ADR:      RT16      : POINTER TO TEST 16 STRINGS
807      :T17ADR:      RT17      : POINTER TO TEST 17 STRINGS
808
809
810      :++
811      : HERE IS THE SECOND TABLE WHICH WAS MENTIONED ABOVE.
812      :--
813
814 002320 004721      RT1:      ROMT1      : POINTER TO T1 STRING
815 002322 005524      T1E0      : ERROR BIT:      0
816 002324 005570      T1E1      :                  1
817 002326 005634      T1E2      :                  2
818 002330 005700      T1E3      :                  3
819 002332 005746      T1E4      :                  4
820 002334 006016      T1E5      :                  5
821 002336 006064      T1E6      :                  6
822 002340 006132      T1E7      :                  7
823 002342 000000      .WORD      0      : ADD UP TO 4 MORE ERROR BIT MESSAGE POINTERS.
824 002344 000000      .WORD      0
825 002346 000000      .WORD      0
826 002350 000000      .WORD      0
827
828 002352 004744      RT2:      ROMT2      : POINTER TO T2 ASCII STRING
829 002354 006200      T2E0      : ERROR BIT:      0
830 002356 006253      T2E1      :                  1
831 002360 006323      T2E2      :                  2
832 002362 006374      T2E3      :                  3
833 002364 006457      T2E4      :                  4
834 002366 006542      T2E5      :                  5
835 002370 006613      T2E6      :                  6
836 002372 006661      T2E7      :                  7
837 002374 006725      T2E8      :                  8
838 002376 007003      T2E9      :                  9
839 002400 000000      .WORD      0      : ADD UP TO 2 MORE ERROR BIT MESSAGE POINTERS.
840 002402 000000      .WORD      0

```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 22
 GLOBAL DATA SECTION

842				
843	002404	004767	RT3:	ROMT3
844	002406	007061		T3E0
845	002410	007137		T3E1
846	002412	007215		T3E2
847	002414	007313		T3E3
848	002416	000000		.WORD 0
849	002420	000000		.WORD 0
850	002422	000000		.WORD 0
851	002424	000000		.WORD 0
852	002426	000000		.WORD 0
853	002430	000000		.WORD 0
854	002432	000000		.WORD 0
855	002434	000000		.WORD 0
856				
857	002436	005023	RT4:	ROMT4
858	002440	000000		.WORD 0
859	002442	000000		.WORD 0
860	002444	000000		.WORD 0
861	002446	000000		.WORD 0
862	002450	000000		.WORD 0
863	002452	000000		.WORD 0
864	002454	000000		.WORD 0
865	002456	000000		.WORD 0
866	002460	000000		.WORD 0
867	002462	000000		.WORD 0
868	002464	000000		.WORD 0
869	002466	000000		.WORD 0

: POINTER TO T3 ASCII STRING

: ERROR BIT: 0

: 1

: 2

: 3

: ADD UP TO 8 MORE ERROR BIT MESSAGE POINTERS.

: POINTER TO T4 ASCII STRING

: ***T4 NOT INSTALLED AS YET***

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 23
 GLOBAL DATA SECTION

871				
872	002470	005062	RT5:	ROMT5
873	002472	007411		T5E0
874	002474	007471		T5E1
875	002476	007544		T5E2
876	002500	007607		T5E3
877	002502	000000		.WORD 0
878	002504	000000		.WORD 0
879	002506	000000		.WORD 0
880	002510	000000		.WORD 0
881	002512	000000		.WORD 0
882	002514	000000		.WORD 0
883	002516	000000		.WORD 0
884	002520	000000		.WORD 0
885				
886	002522	005117	RT6:	ROMT6
887	002524	007647		T6E0
888	002526	007745		T6E1
889	002530	010025		T6E2
890	002532	010074		T6E3
891	002534	010154		T6E4
892	002536	010223		T6E5
893	002540	010266		T6E6
894	002542	000000		.WORD 0
895	002544	000000		.WORD 0
896	002546	000000		.WORD 0
897	002550	000000		.WORD 0
898	002552	000000		.WORD 0

```

: POINTER TO T5 ASCII STRING
: ERROR BIT: 0
:           1
:           2
:           3
: ADD UP TO 8 MORE ERROR BIT MESSAGE POINTERS
    
```

```

: POINTER TO T6 ASCII STRING
: ERROR BIT: 0
:           1
:           2
:           3
:           4
:           5
:           6
: ADD UP TO 5 MORE ERROR BIT MESSAGE POINTERS.
    
```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 24
GLOBAL DATA SECTION

```

900
901 002554 000000G
902 002556 010337
903 002560 010417
904 002562 010504
905 002564 010560
906 002566 010634
907 002570 010707
908 002572 010775
909 002574 011054
910 002576 011132
911 002600 011227
912 002602 011320
913 002604 011412
914
915 002606 005267
916 002610 011477
917 002612 011560
918 002614 011621
919 002616 011657
920 002620 011714
921 002622 011767
922 002624 012037
923 002626 012116
924 002630 000000
925 002632 000000
926 002634 000000
927 002636 000000

```

```

RT7:  ROMT7
      T7E0
      T7E1
      T7E2
      T7E3
      T7E4
      T7E5
      T7E6
      T7E7
      T7E8
      T7E9
      T7E10
      T7E11

```

```

RT10: ROMT10
      T10E0
      T10E1
      T10E2
      T10E3
      T10E4
      T10E5
      T10E6
      T10E7
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0

```

```

: POINTER TO T7 ASCII STRING
: ERROR BIT: 0
:             1
:             2
:             3
:             4
:             5
:             6
:             7
:             8
:             9
:            10
:            11

```

```

: POINTER TO T10 ASCII STRING
: ERROR BIT: 0
:             1
:             2
:             3
:             4
:             5
:             6
:             7

```

: ADD UP TO 4 MORE ERROR BIT MESSAGE POINTERS.

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GLOBAL DATA SECTION

```

929
930 002640 005317      RT11:  ROMT11
931 002642 012161      T11E0
932 002644 012260      T11E1
933 002646 012365      T11E2
934 002650 012437      T11E3
935 002652 012524      T11E4
936 002654 012573      T11E5
937 002656 000000      .WORD  0
938 002660 000000      .WORD  0
939 002662 000000      .WORD  0
940 002664 000000      .WORD  0
941 002666 000000      .WORD  0
942 002670 000000      .WORD  0
943
944 002672 005462      RT12:  ROMT12
945 002674 012625      T12E0
946 002676 012721      T12E1
947 002700 012771      T12E2
948 002702 013052      T12E3
949 002704 013132      T12E4
950 002706 013205      T12E5
951 002710 013262      T12E6
952 002712 000000      .WORD  0
953 002714 000000      .WORD  0
954 002716 000000      .WORD  0
955 002720 000000      .WORD  0
956 002722 000000      .WORD  0

```

```

: POINTER TO T11 ASCII STRING
: ERROR BIT: 0
:           1
:           2
:           3
:           4
:           5
: ADD UP TO 6 MORE ERROR BIT MESSAGE POINTERS

```

```

: POINTER TO T12 ASCII STRING
: ERROR BIT: 0
:           1
:           2
:           3
:           4
:           5
:           6
: ADD UP TO 5 MORE ERROR BIT MESSAGE POINTERS.

```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 26
GLOBAL DATA SECTION

958
959 002724 005507
960 002726 013336
961 002730 013404
962 002732 013460
963 002734 013545
964 002736 013653
965 002740 013727
966 002742 014005
967 002744 014105
968 002746 014161
969 002750 014227
970 002752 014277
971 002754 014350
972
973
974
975
976
977
978
979
980 002756
981

RT13:	ROMT13	:	POINTER TO T13 ASCII STRING
	T13E0	:	ERROR BIT: 0
	T13E1	:	1
	T13E2	:	2
	T13E3	:	3
	T13E4	:	4
	T13E5	:	5
	T13E6	:	6
	T13E7	:	7
	T13E8	:	8
	T13E9	:	9
	T13E10	:	10
	T13E11	:	11

... IF (UP TO) 4 MORE TESTS ARE ADDED TO THE ROM-RESIDENT CODE, PLACE THE
... MESSAGE POINTERS HERE. USE IDENTICAL FORMAT AS FOR 1 THRU 13, ABOVE.
... DON'T FORGET TO MODIFY THE TABLE IMMEDIATELY PRECEEDING THIS ONE, ALSO.
...

ENDMOD

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 27
GLOBAL TEXT SECTION

983
984
985
986
987
988
989
990
991
992
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994
995
996
997

.SBTTL GLOBAL TEXT SECTION

:++
: THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
: MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
: MORE THAN ONE TEST.
:--

: ++
:
: GLOBAL MESSAGES -- ERROR AND OTHERWISE
: --

002756	114	123	111
002761	055	061	061
002764	040	102	125
002767	123	040	124
002772	111	115	105
002775	117	125	124
003000	040	055	040
003003	116	117	040
003006	111	117	120
003011	040	120	122
003014	105	123	105
003017	116	124	054
003022	040	117	122
003025	040	113	130
003030	124	061	061
003033	040	111	116
003036	124	105	122
003041	106	101	103
003044	105	040	105
003047	122	122	117
003052	122	000	
003054	116	117	040
003057	122	105	123
003062	120	117	116
003065	123	105	040
003070	106	122	117
003073	115	040	122
003076	117	115	040
003101	123	105	114
003104	106	124	105
003107	123	124	000

NOIOP: .ASCIZ /LSI-11 BUS TIMEOUT - NO IOP PRESENT, OR KXT11 INTERFACE ERROR/

NORES: .ASCIZ /NO RESPONSE FROM ROM SELFTEST/

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 28
 GLOBAL TEXT SECTION

1000	003112	105	122	122	ROMD: .ASCIZ /ERROR DETECTED BY IOP SELFTEST/
	003115	117	122	040	
	003120	104	105	124	
	003123	105	103	124	
	003126	105	104	040	
	003131	102	131	040	
	003134	111	117	120	
	003137	040	123	105	
	003142	114	106	124	
	003145	105	123	124	
	003150	000			
1001	003151	102	117	117	BADSW: .ASCIZ 'BOOT/SELFTEST SWITCH NOT SETUP PROPERLY'
	003154	124	057	123	
	003157	105	114	106	
	003162	124	105	123	
	003165	124	040	123	
	003170	127	111	124	
	003173	103	110	040	
	003176	116	117	124	
	003201	040	123	105	
	003204	124	125	120	
	003207	040	120	122	
	003212	117	120	105	
	003215	122	114	131	
	003220	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 29
 GLOBAL TEXT SECTION

1003	003221	124	105	123	CMND: .ASCIZ /TEST COMMAND STATUS ERROR FROM IOP/
	003224	124	040	103	
	003227	117	115	115	
	003232	101	116	104	
	003235	040	123	124	
	003240	101	124	125	
	003243	123	040	105	
	003246	122	122	117	
	003251	122	040	106	
	003254	122	117	115	
	003257	040	111	117	

1004	003262	120	000		
	003264	124	120	122	NOTRDY: .ASCIZ /TPRO NOT = 000000; IOP IS NOT READY TO ACCEPT COMMANDS/
	003267	060	040	116	
	003272	117	124	040	
	003275	075	040	060	
	003300	060	060	060	
	003303	060	060	073	
	003306	040	111	117	
	003311	120	040	111	
	003314	123	040	116	
	003317	117	124	040	
	003322	122	105	101	
	003325	104	131	040	
	003330	124	117	040	
	003333	101	103	103	
	003336	105	120	124	
	003341	040	103	117	
	003344	115	115	101	
	003347	116	104	123	
	003352	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 30
GLOBAL TEXT SECTION

1006	003353	120	117	123	NOTPR: .ASCIZ /POSSIBLE FATAL IOP ERROR DETECTED/
	003356	123	111	102	
	003361	114	105	040	
	003364	106	101	124	
	003367	101	114	040	
	003372	111	117	120	
	003375	040	105	122	
	003400	122	117	122	
	003403	040	104	105	
	003406	124	105	103	
	003411	124	105	104	
	003414	000			
1007	003415	123	102	103	CCPU: .ASCIZ /SBC ID SWITCH SETTING/
	003420	040	111	104	
	003423	040	123	127	
	003426	111	124	103	
	003431	110	040	123	
	003434	105	124	124	
	003437	111	116	107	
	003442	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 31
 GLOBAL TEXT SECTION

1009	003443	111	123	040	BASE: .ASCIZ 'IS IOP'S LSI-11 BUS ADDRESS IN THE LOW ADDRESS RANGE(Y/N)''
	003446	111	117	120	
	003451	047	123	040	
	003454	114	123	111	
	003457	055	061	061	
	003462	040	102	125	
	003465	123	040	101	
	003470	104	104	122	
	003473	105	123	123	
	003476	040	111	116	
	003501	040	124	110	
	003504	105	040	114	
	003507	117	127	040	
	003512	101	104	104	
	003515	122	105	123	
	003520	123	040	122	
	003523	101	116	107	
	003526	105	050	131	
	003531	057	116	051	
	003534	000			
1010	003535	114	117	117	LOOP1: .ASCIZ /LOOP-BACK CONNECTOR ON SERIAL PORT #1 (CONSOLE PORT)/
	003540	120	055	102	
	003543	101	103	113	
	003546	040	103	117	
	003551	116	116	105	
	003554	103	124	117	
	003557	122	040	117	
	003562	116	040	123	
	003565	105	122	111	
	003570	101	114	040	
	003573	120	117	122	
	003576	124	040	043	
	003601	061	040	050	
	003604	103	117	116	
	003607	123	117	114	
	003612	105	040	120	
	003615	117	122	124	
	003620	051	000		

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 32
 GLOBAL TEXT SECTION

1012	003622	103	110	101	LOOP2: .ASCIZ /CHANNEL A LOOP-BACK CONNECTOR ON SERIAL PORT #2/
	003625	116	116	105	
	003630	114	040	101	
	003633	040	114	117	
	003636	117	120	055	
	003641	102	101	103	
	003644	113	040	103	
	003647	117	116	116	
	003652	105	103	124	
	003655	117	122	040	
	003660	117	116	040	
	003663	123	105	122	
	003666	111	101	114	
	003671	040	120	117	
	003674	122	124	040	
	003677	043	062	000	
1013	003702	103	110	101	LOOP3: .ASCIZ /CHANNEL B LOOP-BACK CONNECTOR ON SERIAL PORT #2/
	003705	116	116	105	
	003710	114	040	102	
	003713	040	114	117	
	003716	117	120	055	
	003721	102	101	103	
	003724	113	040	103	
	003727	117	116	116	
	003732	105	103	124	
	003735	117	122	040	
	003740	117	116	040	
	003743	123	105	122	
	003746	111	101	114	
	003751	040	120	117	
	003754	122	124	040	
	003757	043	062	000	

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 33
 GLOBAL TEXT SECTION

1015	003762	114	117	117	LOOP4: .ASCIZ /LOOP-BACK CONNECTOR ON PARALLEL PORT/
	003765	120	055	102	
	003770	101	103	113	
	003773	040	103	117	
	003776	116	116	105	
	004001	103	124	117	
	004004	122	040	117	
	004007	116	040	120	
	004012	101	122	101	
	004015	114	114	105	
	004020	114	040	120	
	004023	117	122	124	
	004026	000			
1016	004027	111	123	040	SLU2CF: .ASCIZ "IS SLU2 CHANNEL A SERIAL PORT CONFIGURED FOR DMA OPERATION(Y/N)"
	004032	123	114	125	
	004035	062	040	103	
	004040	110	101	116	
	004043	116	105	114	
	004046	040	101	040	
	004051	123	105	122	
	004054	111	101	114	
	004057	040	120	117	
	004062	122	124	040	
	004065	103	117	116	
	004070	106	111	107	
	004073	125	122	105	
	004076	104	040	106	
	004101	117	122	040	
	004104	104	115	101	
	004107	040	117	120	
	004112	105	122	101	
	004115	124	111	117	
	004120	116	050	131	
	004123	057	116	051	
	004126	000			

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GLOBAL TEXT SECTION

1018	004127	124	105	123	UROM: .ASCIZ /TEST USER ROM/
	004132	124	040	125	
	004135	123	105	122	
	004140	040	122	117	
	004143	115	000		
1019					
1020	004145	103	123	122	CSRT: .ASCIZ /CSR/
	004150	000			

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GLOBAL TEXT SECTION

1022	004151	061	066	113	RAMT:	.ASCIZ	/16KW LOCAL RAM/
	004154	127	040	114			
	004157	117	103	101			
	004162	114	040	122			
	004165	101	115	000			
1023	004170	122	117	115	ROMT:	.ASCIZ	/ROM/
	004173	000					

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GLOBAL TEXT SECTION

1025	004174	102	105	126	BEVNT: .ASCIZ /BEVNT/
	004177	116	124	000	
1026	004202	103	117	116	SLU1T: .ASCIZ /CONSOLE SERIAL PORT (SLU1)/
	004205	123	117	114	
	004210	105	040	123	
	004213	105	122	111	
	004216	101	114	040	
	004221	120	117	122	
	004224	124	040	050	
	004227	123	114	125	
	004232	061	051	000	
1027	004235	123	105	122	SLU2A: .ASCIZ /SERIAL PORT (SLU2), CHANNEL A/
	004240	111	101	114	
	004243	040	120	117	
	004246	122	124	040	
	004251	050	123	114	
	004254	125	062	051	
	004257	054	040	103	
	004262	110	101	116	
	004265	116	105	114	
	004270	040	101	000	

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GLOBAL TEXT SECTION

1029	004273	123	105	122	SLU2B: .ASCIZ /SERIAL PORT (SLU2), CHANNEL B/
	004276	111	101	114	
	004301	040	120	117	
	004304	122	124	040	
	004307	050	123	114	
	004312	125	062	051	
	004315	054	040	103	
	004320	110	101	116	
	004323	116	105	114	
	004326	040	102	000	
1030	004331	120	101	122	PLLP: .ASCIZ 'PARALLEL I/O PORT'
	004334	101	114	114	
	004337	105	114	040	
	004342	111	057	117	
	004345	040	120	117	
	004350	122	124	000	

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GLOBAL TEXT SECTION

1032	004353	104	115	101	DMAL: .ASCIZ /DMA CONTROLLER (LOCAL IOP ONLY)/
	004356	040	103	117	
	004361	116	124	122	
	004364	117	114	114	
	004367	105	122	040	
	004372	050	114	117	
	004375	103	101	114	
	004400	040	111	117	
	004403	120	040	117	
	004406	116	114	131	
	004411	051	000		
1033	004413	104	115	101	DMAT: .ASCIZ /DMA CONTROLLER (LSI-11 BUS DMA)/
	004416	040	103	117	
	004421	116	124	122	
	004424	117	114	114	
	004427	105	122	040	
	004432	050	114	123	
	004435	111	055	061	
	004440	061	040	102	
	004443	125	123	040	
	004446	104	115	101	
	004451	051	000		

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 39
GLOBAL TEXT SECTION

1035	004453	114	123	111	QIRT: .ASCIZ /LSI-11 BUS INTERRUPT/
	004456	055	061	061	
	004461	040	102	125	
	004464	123	040	111	
	004467	116	124	105	
	004472	122	122	125	
	004475	120	124	000	
1036	004500	116	117	040	QIRT1: .ASCIZ /NO IOP INTERRUPT FROM FIRST OF 2 ATTEMPTS/
	004503	111	117	120	
	004506	040	111	116	
	004511	124	105	122	
	004514	122	125	120	
	004517	124	040	106	
	004522	122	117	115	
	004525	040	106	111	
	004530	122	123	124	
	004533	040	117	106	
	004536	040	062	040	
	004541	101	124	124	
	004544	105	115	120	
	004547	124	123	000	

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GLOBAL TEXT SECTION

1038	004552	116	117	040	QIRT2: .ASCIZ /NO IOP INTERRUPT FROM SECOND OF 2 ATTEMPTS./
	004555	111	117	120	
	004560	040	111	116	
	004563	124	105	122	
	004566	122	125	120	
	004571	124	040	106	
	004574	122	117	115	
	004577	040	123	105	
	004602	103	117	116	
	004605	104	040	117	
	004610	106	040	062	
	004613	040	101	124	
	004616	124	105	115	
	004621	120	124	123	
	004624	056	000		
1039	004626	124	127	117	DPRT: .ASCIZ /TWO-PORT RAM/
	004631	055	120	117	
	004634	122	124	040	
	004637	122	101	115	
	004642	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 41
GLOBAL TEXT SECTION

1041	004643	103	120	125	CPUT: .ASCIZ /CPU INSTRUCTION/
	004646	040	111	116	
	004651	123	124	122	
	004654	125	103	124	
	004657	111	117	116	
	004662	000			
1042	004663	126	105	122	TST1: .ASCIZ /VERIFY THE IOP IS ADDRESSABLE/
	004666	111	106	131	
	004671	040	124	110	
	004674	105	040	111	
	004677	117	120	040	
	004702	111	123	040	
	004705	101	104	104	
	004710	122	105	123	
	004713	123	101	102	
	004716	114	105	000	

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 42
GLOBAL TEXT SECTION

1044	004721	111	057	117	ROMT1: .ASCIZ "I/O REGISTER CHECK"
	004724	040	122	105	
	004727	107	111	123	
	004732	124	105	122	
	004735	040	103	110	
	004740	105	103	113	
	004743	000			
1045	004744	116	101	124	ROMT2: .ASCIZ /NATIVE OR USER RAM/
	004747	111	126	105	
	004752	040	117	122	
	004755	040	125	123	
	004760	105	122	040	
	004763	122	101	115	
	004766	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 43
GLOBAL TEXT SECTION

1047	004767	116	101	124	ROMT3: .ASCIZ /NATIVE OR USER ROM CHECKSUM/
	004772	111	126	105	
	004775	040	117	122	
	005000	040	125	123	
	005003	105	122	040	
	005006	122	117	115	
	005011	040	103	110	
	005014	105	103	113	
	005017	123	125	115	
	005022	000			
1048	005023	124	061	061	ROMT4: .ASCIZ /T11 CPU INSTRUCTIONS AND TRAPS/
	005026	040	103	120	
	005031	125	040	111	
	005034	116	123	124	
	005037	122	125	103	
	005042	124	111	117	
	005045	116	123	040	
	005050	101	116	104	
	005053	040	124	122	
	005056	101	120	123	
	005061	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 44
GLOBAL TEXT SECTION

1050	005062	114	111	116	ROMT5: .ASCIZ /LINE CLOCK (BEVNT) INTERRUPT/
	005065	105	040	103	
	005070	114	117	103	
	005073	113	040	050	
	005076	102	105	126	
	005101	116	124	051	
	005104	040	111	116	
	005107	124	105	122	
	005112	122	125	120	
	005115	124	000		
1051	005117	103	117	116	ROMT6: .ASCIZ /CONSOLE SERIAL PORT DC319/
	005122	123	117	114	
	005125	105	040	123	
	005130	105	122	111	
	005133	101	114	040	
	005136	120	117	122	
	005141	124	040	104	
	005144	103	063	061	
	005147	071	000		

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 45
 GLOBAL TEXT SECTION

1053	005151	123	105	103	ROMT7A: .ASCIZ /SECOND SERIAL PORT NEC7201 (CHANNEL A)/
	005154	117	116	104	
	005157	040	123	105	
	005162	122	111	101	
	005165	114	040	120	
	005170	117	122	124	
	005173	040	116	105	
	005176	103	067	062	
	005201	060	061	040	
	005204	050	103	110	
	005207	101	116	116	
	005212	105	114	040	
	005215	101	051	000	
1054	005220	123	105	103	ROMT7B: .ASCIZ /SECOND SERIAL PORT NEC7201 (CHANNEL B)/
	005223	117	116	104	
	005226	040	123	105	
	005231	122	111	101	
	005234	114	040	120	
	005237	117	122	124	
	005242	040	116	105	
	005245	103	067	062	
	005250	060	061	040	
	005253	050	103	110	
	005256	101	116	116	
	005261	105	114	040	
	005264	102	051	000	

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GLOBAL TEXT SECTION

1056	005267	120	101	122	ROMT10: .ASCIZ 'PARALLEL I/O PORT Z8036'
	005272	101	114	114	
	005275	105	114	040	
	005300	111	057	117	
	005303	040	120	117	
	005306	122	124	040	
	005311	132	070	060	
	005314	063	066	000	
1057	005317	104	115	101	ROMT11: .ASCIZ /DMA CONTROLLER AMZ8016/
	005322	040	103	117	
	005325	116	124	122	
	005330	117	114	114	
	005333	105	122	040	
	005336	101	115	132	
	005341	070	060	061	
	005344	066	000		

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GLOBAL TEXT SECTION

1059	005346	104	115	101	ROM11A: .ASCIZ /DMA CONTROLLER AMZ8016 (LOCAL IOP ONLY)/
	005351	040	103	117	
	005354	116	124	122	
	005357	117	114	114	
	005362	105	122	040	
	005365	101	115	132	
	005370	070	060	061	
	005373	066	040	050	
	005376	114	117	103	
	005401	101	114	040	
	005404	111	117	120	
	005407	040	117	116	
	005412	114	131	051	
	005415	000			
1060	005416	104	115	101	ROM11B: .ASCIZ /DMA CONTROLLER AMZ8016 (LSI-11 BUS)/
	005421	040	103	117	
	005424	116	124	122	
	005427	117	114	114	
	005432	105	122	040	
	005435	101	115	132	
	005440	070	060	061	
	005443	066	040	050	
	005446	114	123	111	
	005451	055	061	061	
	005454	040	102	125	
	005457	123	051	000	

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GLOBAL TEXT SECTION

1062	005462	114	123	111	ROMT12: .ASCIZ /LSI-11 BUS INTERRUPT/
	005465	055	061	061	
	005470	040	102	125	
	005473	123	040	111	
	005476	116	124	105	
	005501	122	122	125	
	005504	120	124	000	
1063	005507	124	127	117	ROMT13: .ASCIZ /TWO-PORT RAM/
	005512	055	120	117	
	005515	122	124	040	
	005520	122	101	115	
	005523	000			

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GLOBAL TEXT SECTION

1065	005524	105	122	122	T1E0: .ASCIZ /ERROR #0 - BUS ERROR AT CSR ADDRESS/
	005527	117	122	040	
	005532	043	060	040	
	005535	055	040	102	
	005540	125	123	040	
	005543	105	122	122	
	005546	117	122	040	
	005551	101	124	040	
	005554	103	123	122	
	005557	040	101	104	
	005562	104	122	105	
	005565	123	123	000	
1066	005570	105	122	122	T1E1: .ASCIZ /ERROR #1 - BUS ERROR AT QIR ADDRESS/
	005573	117	122	040	
	005576	043	061	040	
	005601	055	040	102	
	005604	125	123	040	
	005607	105	122	122	
	005612	117	122	040	
	005615	101	124	040	
	005620	121	111	122	
	005623	040	101	104	
	005626	104	122	105	
	005631	123	123	000	

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GLOBAL TEXT SECTION

1068	005634	105	122	122	T1E2: .ASCIZ /ERROR #2 - BUS ERROR AT TPR ADDRESS/
	005637	117	122	040	
	005642	043	062	040	
	005645	055	040	102	
	005650	125	123	040	
	005653	105	122	122	
	005656	117	122	040	
	005661	101	124	040	
	005664	124	120	122	
	005667	040	101	104	
	005672	104	122	105	
	005675	123	123	000	
1069	005700	105	122	122	T1E3: .ASCIZ /ERROR #3 - BUS ERROR AT DC319 ADDRESS/
	005703	117	122	040	
	005706	043	063	040	
	005711	055	040	102	
	005714	125	123	040	
	005717	105	122	122	
	005722	117	122	040	
	005725	101	124	040	
	005730	104	103	063	
	005733	061	071	040	
	005736	101	104	104	
	005741	122	105	123	
	005744	123	000		

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GLOBAL TEXT SECTION

1071	005746	105	122	122	T1E4: .ASCIZ /ERROR #4 - BUS ERROR AT NEC7201 ADDRESS/
	005751	117	122	040	
	005754	043	064	040	
	005757	055	040	102	
	005762	125	123	040	
	005765	105	122	122	
	005770	117	122	040	
	005773	101	124	040	
	005776	116	105	103	
	006001	067	062	060	
	006004	061	040	101	
	006007	104	104	122	
	006012	105	123	123	
	006015	000			
1072	006016	105	122	122	T1E5: .ASCIZ /ERROR #5 - BUS ERROR AT I8254 ADDRESS/
	006021	117	122	040	
	006024	043	065	040	
	006027	055	040	102	
	006032	125	123	040	
	006035	105	122	122	
	006040	117	122	040	
	006043	101	124	040	
	006046	111	070	062	
	006051	065	064	040	
	006054	101	104	104	
	006057	122	105	123	
	006062	123	000		

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GLOBAL TEXT SECTION

1074	006064	105	122	122	T1E6: .ASCIZ /ERROR #6 - BUS ERROR AT Z8036 ADDRESS/
	006067	117	122	040	
	006072	043	066	040	
	006075	055	040	102	
	006100	125	123	040	
	006103	105	122	122	
	006106	117	122	040	
	006111	101	124	040	
	006114	132	070	060	
	006117	063	066	040	
	006122	101	104	104	
	006125	122	105	123	
	006130	123	000		
1075	006132	105	122	122	T1E7: .ASCIZ /ERROR #7 - BUS ERROR AT Z8016 ADDRESS/
	006135	117	122	040	
	006140	043	067	040	
	006143	055	040	102	
	006146	125	123	040	
	006151	105	122	122	
	006154	117	122	040	
	006157	101	124	040	
	006162	132	070	060	
	006165	061	066	040	
	006170	101	104	104	
	006173	122	105	123	
	006176	123	000		

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GLOBAL TEXT SECTION

1077	006200	105	122	122	T2E0: .ASCIZ /ERROR #0 - BUS ERROR AT NATIVE RAM ADDRESS/
	006203	117	122	040	
	006206	043	060	040	
	006211	055	040	102	
	006214	125	123	040	
	006217	105	122	122	
	006222	117	122	040	
	006225	101	124	040	
	006230	116	101	124	
	006233	111	126	105	
	006236	040	122	101	
	006241	115	040	101	
	006244	104	104	122	
	006247	105	123	123	
	006252	000			
1078	006253	105	122	122	T2E1: .ASCIZ /ERROR #1 - WRITE-READ ERROR, NATIVE RAM/
	006256	117	122	040	
	006261	043	061	040	
	006264	055	040	127	
	006267	122	111	124	
	006272	105	055	122	
	006275	105	101	104	
	006300	040	105	122	
	006303	122	117	122	
	006306	054	040	116	
	006311	101	124	111	
	006314	126	105	040	
	006317	122	101	115	
	006322	000			

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 GLOBAL TEXT SECTION

1080	006323	105	122	122	T2E2: .ASCIZ /ERROR #2 - READ-MODIFY-WRITE, NATIVE RAM/
	006326	117	122	040	
	006331	043	062	040	
	006334	055	040	122	
	006337	105	101	104	
	006342	055	115	117	
	006345	104	111	106	
	006350	131	055	127	
	006353	122	111	124	
	006356	105	054	040	
	006361	116	101	124	
	006364	111	126	105	
	006367	040	122	101	
	006372	115	000		
1081	006374	105	122	122	T2E3: .ASCIZ /ERROR #3 - READ-MODIFY-WRITE (LO BYTE), NATIVE RAM/
	006377	117	122	040	
	006402	043	063	040	
	006405	055	040	122	
	006410	105	101	104	
	006413	055	115	117	
	006416	104	111	106	
	006421	131	055	127	
	006424	122	111	124	
	006427	105	040	050	
	006432	114	117	040	
	006435	102	131	124	
	006440	105	051	054	
	006443	040	116	101	
	006446	124	111	126	
	006451	105	040	122	
	006454	101	115	000	

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 GLOBAL TEXT SECTION

1083	006457	105	122	122	T2E4: .ASCIZ /ERROR #4 - READ-MODIFY-WRITE (HI BYTE), NATIVE RAM/
	006462	117	122	040	
	006465	043	064	040	
	006470	055	040	122	
	006473	105	101	104	
	006476	055	115	117	
	006501	104	111	106	
	006504	131	055	127	
	006507	122	111	124	
	006512	105	040	050	
	006515	110	111	040	
	006520	102	131	124	
	006523	105	051	054	
	006526	040	116	101	
	006531	124	111	126	
	006534	105	040	122	
	006537	101	115	000	
1084	006542	105	122	122	T2E5: .ASCIZ /ERROR #5 - BUS ERROR AT USER RAM ADDRESS/
	006545	117	122	040	
	006550	043	065	040	
	006553	055	040	102	
	006556	125	123	040	
	006561	105	122	122	
	006564	117	122	040	
	006567	101	124	040	
	006572	125	123	105	
	006575	122	040	122	
	006600	101	115	040	
	006603	101	104	104	
	006606	122	105	123	
	006611	123	000		

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 GLOBAL TEXT SECTION

1086	006613	105	122	122	T2E6: .ASCIZ /ERROR #6 - WRITE-READ ERROR, USER RAM/
	006616	117	122	040	
	006621	043	066	040	
	006624	055	040	127	
	006627	122	111	124	
	006632	105	055	122	
	006635	105	101	104	
	006640	040	105	122	
	006643	122	117	122	
	006646	054	040	125	
	006651	123	105	122	
	006654	040	122	101	
	006657	115	000		
1087	006661	105	122	122	T2E7: .ASCIZ /ERROR #7 - READ-MOD-WRITE, USER RAM/
	006664	117	122	040	
	006667	043	067	040	
	006672	055	040	122	
	006675	105	101	104	
	006700	055	115	117	
	006703	104	055	127	
	006706	122	111	124	
	006711	105	054	040	
	006714	125	123	105	
	006717	122	040	122	
	006722	101	115	000	

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 GLOBAL TEXT SECTION

1089	006725	105	122	122	T2E8: .ASCIZ /ERROR #8 - READ-MOD-WRITE (LO BYTE), USER RAM/
	006730	117	122	040	
	006733	043	070	040	
	006736	055	040	122	
	006741	105	101	104	
	006744	055	115	117	
	006747	104	055	127	
	006752	122	111	124	
	006755	105	040	050	
	006760	114	117	040	
	006763	102	131	124	
	006766	105	051	054	
	006771	040	125	123	
	006774	105	122	040	
	006777	122	101	115	
	007002	000			
1090	007003	105	122	122	T2E9: .ASCIZ /ERROR #9 - READ-MOD-WRITE (HI BYTE), USER RAM/
	007006	117	122	040	
	007011	043	071	040	
	007014	055	040	122	
	007017	105	101	104	
	007022	055	115	117	
	007025	104	055	127	
	007030	122	111	124	
	007033	105	040	050	
	007036	110	111	040	
	007041	102	131	124	
	007044	105	051	054	
	007047	040	125	123	
	007052	105	122	040	
	007055	122	101	115	
	007060	000			

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 GLOBAL TEXT SECTION

1092	007061	105	122	122	T3E0: .ASCIZ /ERROR #0 - LO BYTE CHECKSUM ERROR, NATIVE ROM/
	007064	117	122	040	
	007067	043	060	040	
	007072	055	040	114	
	007075	117	040	102	
	007100	131	124	105	
	007103	040	103	110	
	007106	105	103	113	
	007111	123	125	115	
	007114	040	105	122	
	007117	122	117	122	
	007122	054	040	116	
	007125	101	124	111	
	007130	126	105	040	
	007133	122	117	115	
	007136	000			
1093	007137	105	122	122	T3E1: .ASCIZ /ERROR #1 - HI BYTE CHECKSUM ERROR, NATIVE ROM/
	007142	117	122	040	
	007145	043	061	040	
	007150	055	040	110	
	007153	111	040	102	
	007156	131	124	105	
	007161	040	103	110	
	007164	105	103	113	
	007167	123	125	115	
	007172	040	105	122	
	007175	122	117	122	
	007200	054	040	116	
	007203	101	124	111	
	007206	126	105	040	
	007211	122	117	115	
	007214	000			

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 GLOBAL TEXT SECTION

1095	007215	105	122	122	T3E2: .ASCIZ /ERROR #2 - USER ROM LO BYTE CHECKSUM ERROR OR ROM NOT PRESENT/
	007220	117	122	040	
	007223	043	062	040	
	007226	055	040	125	
	007231	123	105	122	
	007234	040	122	117	
	007237	115	040	114	
	007242	117	040	102	
	007245	131	124	105	
	007250	040	103	110	
	007253	105	103	113	
	007256	123	125	115	
	007261	040	105	122	
	007264	122	117	122	
	007267	040	117	122	
	007272	040	122	117	
	007275	115	040	116	
	007300	117	124	040	
	007303	120	122	105	
	007306	123	105	116	
	007311	124	000		
1096	007313	105	122	122	T3E3: .ASCIZ /ERROR #3 - USER ROM HI BYTE CHECKSUM ERROR OR ROM NOT PRESENT/
	007316	117	122	040	
	007321	043	063	040	
	007324	055	040	125	
	007327	123	105	122	
	007332	040	122	117	
	007335	115	040	110	
	007340	111	040	102	
	007343	131	124	105	
	007346	040	103	110	
	007351	105	103	113	
	007354	123	125	115	
	007357	040	105	122	
	007362	122	117	122	
	007365	040	117	122	
	007370	040	122	117	
	007373	115	040	116	
	007376	117	124	040	
	007401	120	122	105	
	007404	123	105	116	
	007407	124	000		

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GLOBAL TEXT SECTION

```
1098 007411    052    052    040 T5E0:  .ASCIZ  /** ROM IN VECTOR SPACE - SELFTEST #5 SKIPPED **/  
      007414    122    117    115  
      007417    040    111    116  
      007422    040    126    105  
      007425    103    124    117  
      007430    122    040    123  
      007433    120    101    103  
      007436    105    040    055  
      007441    040    123    105  
      007444    114    106    124  
      007447    105    123    124  
      007452    040    043    065  
      007455    040    123    113  
      007460    111    120    120  
      007463    105    104    040  
      007466    052    052    000  
1099 007471    105    122    122 T5E1:  .ASCIZ  /ERROR #1 - CLOCK INTERRUPT LEVEL INCORRECT/  
      007474    117    122    040  
      007477    043    061    040  
      007502    055    040    103  
      007505    114    117    103  
      007510    113    040    111  
      007513    116    124    105  
      007516    122    122    125  
      007521    120    124    040  
      007524    114    105    126  
      007527    105    114    040  
      007532    111    116    103  
      007535    117    122    122  
      007540    105    103    124  
      007543    000
```


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GLOBAL TEXT SECTION

1101	007544	105	122	122	T5E2: .ASCIZ /ERROR #2 - CLOCK DOESN'T INTERRUPT/
	007547	117	122	040	
	007552	043	062	040	
	007555	055	040	103	
	007560	114	117	103	
	007563	113	040	104	
	007566	117	105	123	
	007571	116	047	124	
	007574	040	111	116	
	007577	124	105	122	
	007602	122	125	120	
	007605	124	000		
1102	007607	105	122	122	T5E3: .ASCIZ /ERROR #3 - CAN'T SHUT CLOCK OFF/
	007612	117	122	040	
	007615	043	063	040	
	007620	055	040	103	
	007623	101	116	047	
	007626	124	040	123	
	007631	110	125	124	
	007634	040	103	114	
	007637	117	103	113	
	007642	040	117	106	
	007645	106	000		

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 GLOBAL TEXT SECTION

1104	007647	052	052	040	T6E0: .ASCIZ /** SELFTEST #6 INTERRUPTS NOT TESTED - ROM IN VECTOR SPACE **/
	007652	123	105	114	
	007655	106	124	105	
	007660	123	124	040	
	007663	043	066	040	
	007666	111	116	124	
	007671	105	122	122	
	007674	125	120	124	
	007677	123	040	116	
	007702	117	124	040	
	007705	124	105	123	
	007710	124	105	104	
	007713	040	055	040	
	007716	122	117	115	
	007721	040	111	116	
	007724	040	126	105	
	007727	103	124	117	
	007732	122	040	123	
	007735	120	101	103	
	007740	105	040	052	
	007743	052	000		
1105	007745	105	122	122	T6E1: .ASCIZ /ERROR #1 - XMTR INTERRUPT NOT MASKED AT LEVEL 4/
	007750	117	122	040	
	007753	043	061	040	
	007756	055	040	130	
	007761	115	124	122	
	007764	040	111	116	
	007767	124	105	122	
	007772	122	125	120	
	007775	124	040	116	
	010000	117	124	040	
	010003	115	101	123	
	010006	113	105	104	
	010011	040	101	124	
	010014	040	114	105	
	010017	126	105	114	
	010022	040	064	000	

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GLOBAL TEXT SECTION

1107	010025	105	122	122	T6E2: .ASCIZ /ERROR #2 - XMTR INTERRUPT NOT RECEIVED/
	010030	117	122	040	
	010033	043	062	040	
	010036	055	040	130	
	010041	115	124	122	
	010044	040	111	116	
	010047	124	105	122	
	010052	122	125	120	
	010055	124	040	116	
	010060	117	124	040	
	010063	122	105	103	
	010066	105	111	126	
	010071	105	104	000	
1108	010074	105	122	122	T6E3: .ASCIZ /ERROR #3 - RCVR INTERRUPT NOT MASKED AT LEVEL 4/
	010077	117	122	040	
	010102	043	063	040	
	010105	055	040	122	
	010110	103	126	122	
	010113	040	111	116	
	010116	124	105	122	
	010121	122	125	120	
	010124	124	040	116	
	010127	117	124	040	
	010132	115	101	123	
	010135	113	105	104	
	010140	040	101	124	
	010143	040	114	105	
	010146	126	105	114	
	010151	040	064	000	

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GLOBAL TEXT SECTION

1110	010154	105	122	122	T6E4: .ASCIZ /ERROR #4 - RCVR INTERRUPT NOT RECEIVED/
	010157	117	122	040	
	010162	043	064	040	
	010165	055	040	122	
	010170	103	126	122	
	010173	040	111	116	
	010176	124	105	122	
	010201	122	125	120	
	010204	124	040	116	
	010207	117	124	040	
	010212	122	105	103	
	010215	105	111	126	
	010220	105	104	000	
1111	010223	105	122	122	T6E5: .ASCIZ /ERROR #5 - RECEIVED DATA INCORRECT/
	010226	117	122	040	
	010231	043	065	040	
	010234	055	040	122	
	010237	105	103	105	
	010242	111	126	105	
	010245	104	040	104	
	010250	101	124	101	
	010253	040	111	116	
	010256	103	117	122	
	010261	122	105	103	
	010264	124	000		

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 GLOBAL TEXT SECTION

1113	010266	105	122	122	T6E6: .ASCIZ /ERROR #6 - NO RCVR DONE -- LOOPBACK OPEN/
	010271	117	122	040	
	010274	043	066	040	
	010277	055	040	116	
	010302	117	040	122	
	010305	103	126	122	
	010310	040	104	117	
	010313	116	105	040	
	010316	055	055	040	
	010321	114	117	117	
	010324	120	102	101	
	010327	103	113	040	
	010332	117	120	105	
	010335	116	000		
1114	010337	052	052	040	T7E0: .ASCIZ /** ROM IN VECTOR SPACE - SELFTEST #7 SKIPPED **/
	010342	122	117	115	
	010345	040	111	116	
	010350	040	126	105	
	010353	103	124	117	
	010356	122	040	123	
	010361	120	101	103	
	010364	105	040	055	
	010367	040	123	105	
	010372	114	106	124	
	010375	105	123	124	
	010400	040	043	067	
	010403	040	123	113	
	010406	111	120	120	
	010411	105	104	040	
	010414	052	052	000	

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GLOBAL TEXT SECTION

1116	010417	105	122	122	T7E1: .ASCIZ /ERROR #1 - 18254 TIMER #2 (800 HZ) DOESN'T INTERRUPT/
	010422	117	122	040	
	010425	043	061	040	
	010430	055	040	111	
	010433	070	062	065	
	010436	064	040	124	
	010441	111	115	105	
	010444	122	040	043	
	010447	062	040	050	
	010452	070	060	060	
	010455	040	110	132	
	010460	051	040	104	
	010463	117	105	123	
	010466	116	047	124	
	010471	040	111	116	
	010474	124	105	122	
	010477	122	125	120	
	010502	124	000		
1117	010504	105	122	122	T7E2: .ASCIZ /ERROR #2 - ASYNC MODE, DATA XFER INCOMPLETE/
	010507	117	122	040	
	010512	043	062	040	
	010515	055	040	101	
	010520	123	131	116	
	010523	103	040	115	
	010526	117	104	105	
	010531	054	040	104	
	010534	101	124	101	
	010537	040	130	106	
	010542	105	122	040	
	010545	111	116	103	
	010550	117	115	120	
	010553	114	105	124	
	010556	105	000		

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GLOBAL TEXT SECTION

1119	010560	105	122	122	T7E3: .ASCIZ /ERROR #3 - SYNC MODE, EOF-SDLC NOT RECEIVED/
	010563	117	122	040	
	010566	043	063	040	
	010571	055	040	123	
	010574	131	116	103	
	010577	040	115	117	
	010602	104	105	054	
	010605	040	105	117	
	010610	106	055	123	
	010613	104	114	103	
	010616	040	116	117	
	010621	124	040	122	
	010624	105	103	105	
	010627	111	126	105	
	010632	104	000		
1120	010634	105	122	122	T7E4: .ASCIZ /ERROR #4 - SYNC MODE, DATA XFER INCOMPLETE/
	010637	117	122	040	
	010642	043	064	040	
	010645	055	040	123	
	010650	131	116	103	
	010653	040	115	117	
	010656	104	105	054	
	010661	040	104	101	
	010664	124	101	040	
	010667	130	106	105	
	010672	122	040	111	
	010675	115	103	117	
	010700	115	120	114	
	010703	105	124	105	
	010706	000			

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 GLOBAL TEXT SECTION

1122	010707	105	122	122	T7E5: .ASCIZ 'ERROR #5 - SYNC/ASync MODES - RECEIVED DATA INCORRECT''
	010712	117	122	040	
	010715	043	065	040	
	010720	055	040	123	
	010723	131	116	103	
	010726	057	101	123	
	010731	131	116	103	
	010734	040	115	117	
	010737	104	105	123	
	010742	040	055	040	
	010745	122	105	103	
	010750	105	111	126	
	010753	105	104	040	
	010756	104	101	124	
	010761	101	040	111	
	010764	116	103	117	
	010767	122	122	105	
	010772	103	124	000	
1123	010775	105	122	122	T7E6: .ASCIZ /ERROR #6 - DMA MODE - DATA TRANSFER INCOMPLETE/
	011000	117	122	040	
	011003	043	066	040	
	011006	055	040	104	
	011011	115	101	040	
	011014	115	117	104	
	011017	105	040	055	
	011022	040	104	101	
	011025	124	101	040	
	011030	124	122	101	
	011033	116	123	106	
	011036	105	122	040	
	011041	111	116	103	
	011044	117	115	120	
	011047	114	105	124	
	011052	105	000		

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 GLOBAL TEXT SECTION

1125	011054	105	122	122	T7E7: .ASCIZ /ERROR #7 - DMA MODE - RECEIVED DATA INCORRECT/
	011057	117	122	040	
	011062	043	067	040	
	011065	055	040	104	
	011070	115	101	040	
	011073	115	117	104	
	011076	105	040	055	
	011101	040	122	105	
	011104	103	105	111	
	011107	126	105	104	
	011112	040	104	101	
	011115	124	101	040	
	011120	111	116	103	
	011123	117	122	122	
	011126	105	103	124	
	011131	000			
1126	011132	105	122	122	T7E8: .ASCIZ /ERROR #8 - STATUS WRONG OR NO INTERRUPT WITH REQ-TO-SEND SET/
	011135	117	122	040	
	011140	043	070	040	
	011143	055	040	123	
	011146	124	101	124	
	011151	125	123	040	
	011154	127	122	117	
	011157	116	107	040	
	011162	117	122	040	
	011165	116	117	040	
	011170	111	116	124	
	011173	105	122	122	
	011176	125	120	124	
	011201	040	127	111	
	011204	124	110	040	
	011207	122	105	121	
	011212	055	124	117	
	011215	055	123	105	
	011220	116	104	040	
	011223	123	105	124	
	011226	000			

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 GLOBAL TEXT SECTION

1128	011227	105	122	122	T7E9: .ASCIZ 'ERROR #9 - STATUS WRONG OR NO INTERRUPT WITH TT108/2 SET'
	011232	117	122	040	
	011235	043	071	040	
	011240	055	040	123	
	011243	124	101	124	
	011246	125	123	040	
	011251	127	122	117	
	011254	116	107	040	
	011257	117	122	040	
	011262	116	117	040	
	011265	111	116	124	
	011270	105	122	122	
	011273	125	120	124	
	011276	040	127	111	
	011301	124	110	040	
	011304	124	124	061	
	011307	060	070	057	
	011312	062	040	123	
	011315	105	124	000	
1129	011320	105	122	122	T7E10: .ASCIZ /ERROR #10 - STATUS WRONG OR NO INT. WITH TERM-IN-SERV SET/
	011323	117	122	040	
	011326	043	061	060	
	011331	040	055	040	
	011334	123	124	101	
	011337	124	125	123	
	011342	040	127	122	
	011345	117	116	107	
	011350	040	117	122	
	011353	040	116	117	
	011356	040	111	116	
	011361	124	056	040	
	011364	127	111	124	
	011367	110	040	124	
	011372	105	122	115	
	011375	055	111	116	
	011400	055	123	105	
	011403	122	126	040	
	011406	123	105	124	
	011411	000			

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 GLOBAL TEXT SECTION

1131	011412	105	122	122	T7E11: .ASCIZ /ERROR #11 - STATUS WRONG WITH ALL OPTIONS DESELECTED/
	011415	117	122	040	
	011420	043	061	061	
	011423	040	055	040	
	011426	123	124	101	
	011431	124	125	123	
	011434	040	127	122	
	011437	117	116	107	
	011442	040	127	111	
	011445	124	110	040	
	011450	101	114	114	
	011453	040	117	120	
	011456	124	111	117	
	011461	116	123	040	
	011464	104	105	123	
	011467	105	114	105	
	011472	103	124	105	
	011475	104	000		
1132	011477	052	052	040	T10E0: .ASCIZ /** ROM IN VECTOR SPACE - SELFTEST #10 SKIPPED **/
	011502	122	117	115	
	011505	040	111	116	
	011510	040	126	105	
	011513	103	124	117	
	011516	122	040	123	
	011521	120	101	103	
	011524	105	040	055	
	011527	040	123	105	
	011532	114	106	124	
	011535	105	123	124	
	011540	040	043	061	
	011543	060	040	123	
	011546	113	111	120	
	011551	120	105	104	
	011554	040	052	052	
	011557	000			

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GLOBAL TEXT SECTION

1134	011560	105	122	122	T10E1: .ASCIZ /ERROR #1 - RESET STATE INCORRECT/
	011563	117	122	040	
	011566	043	061	040	
	011571	055	040	122	
	011574	105	123	105	
	011577	124	040	123	
	011602	124	101	124	
	011605	105	040	111	
	011610	116	103	117	
	011613	122	122	105	
	011616	103	124	000	
1135	011621	105	122	122	T10E2: .ASCIZ /ERROR #2 - TIMER DIDN'T START/
	011624	117	122	040	
	011627	043	062	040	
	011632	055	040	124	
	011635	111	115	105	
	011640	122	040	104	
	011643	111	104	116	
	011646	047	124	040	
	011651	123	124	101	
	011654	122	124	000	

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GLOBAL TEXT SECTION

1137	011657	105	122	122	T10E3: .ASCIZ /ERROR #3 - TIMER NEVER STOPS/
	011662	117	122	040	
	011665	043	063	040	
	011670	055	040	124	
	011673	111	115	105	
	011676	122	040	116	
	011701	105	126	105	
	011704	122	040	123	
	011707	124	117	120	
	011712	123	000		
1138	011714	105	122	122	T10E4: .ASCIZ /ERROR #4 - INTERRUPT NOT MASKED AT LEVEL 4/
	011717	117	122	040	
	011722	043	064	040	
	011725	055	040	111	
	011730	116	124	105	
	011733	122	122	125	
	011736	120	124	040	
	011741	116	117	124	
	011744	040	115	101	
	011747	123	113	105	
	011752	104	040	101	
	011755	124	040	114	
	011760	105	126	105	
	011763	114	040	064	
	011766	000			

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GLOBAL TEXT SECTION

1140	011767	105	122	122	T10E5: .ASCIZ /ERROR #5 - TIMER INTERRUPT NOT RECEIVED/
	011772	117	122	040	
	011775	043	065	040	
	012000	055	040	124	
	012003	111	115	105	
	012006	122	040	111	
	012011	116	124	105	
	012014	122	122	125	
	012017	120	124	040	
	012022	116	117	124	
	012025	040	122	105	
	012030	103	105	111	
	012033	126	105	104	
	012036	000			
1141	012037	105	122	122	T10E6: .ASCIZ /ERROR #6 - LOOP TIME-OUT, DATA XFER INCOMPLETE/
	012042	117	122	040	
	012045	043	066	040	
	012050	055	040	114	
	012053	117	117	120	
	012056	040	124	111	
	012061	115	105	055	
	012064	117	125	124	
	012067	054	040	104	
	012072	101	124	101	
	012075	040	130	106	
	012100	105	122	040	
	012103	111	116	103	
	012106	117	115	120	
	012111	114	105	124	
	012114	105	000		

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 GLOBAL TEXT SECTION

1143	012116	105	122	122	T10E7: .ASCIZ /ERROR #7 - RECEIVED DATA INCORRECT/
	012121	117	122	040	
	012124	043	067	040	
	012127	055	040	122	
	012132	105	103	105	
	012135	111	126	105	
	012140	104	040	104	
	012143	101	124	101	
	012146	040	111	116	
	012151	103	117	122	
	012154	122	105	103	
	012157	124	000		
1144	012161	052	052	040	T11E0: .ASCIZ /** SELFTEST #11 INTERRUPTS NOT TESTED - ROM IN VECTOR SPACE **/
	012164	123	105	114	
	012167	106	124	105	
	012172	123	124	040	
	012175	043	061	061	
	012200	040	111	116	
	012203	124	105	122	
	012206	122	125	120	
	012211	124	123	040	
	012214	116	117	124	
	012217	040	124	105	
	012222	123	124	105	
	012225	104	040	055	
	012230	040	122	117	
	012233	115	040	111	
	012236	116	040	126	
	012241	105	103	124	
	012244	117	122	040	
	012247	123	120	101	
	012252	103	105	040	
	012255	052	052	000	

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 GLOBAL TEXT SECTION

1146	012260	052	052	040	T11E1: .ASCIZ /** SELFTEST #11 LSI-11 BUS ACCESS NOT TESTED - NO ADDRESS DEFINED **/
	012263	123	105	114	
	012266	106	124	105	
	012271	123	124	040	
	012274	043	061	061	
	012277	040	114	123	
	012302	111	055	061	
	012305	061	040	102	
	012310	125	123	040	
	012313	101	103	103	
	012316	105	123	123	
	012321	040	116	117	
	012324	124	040	124	
	012327	105	123	124	
	012332	105	104	040	
	012335	055	040	116	
	012340	117	040	101	
	012343	104	104	122	
	012346	105	123	123	
	012351	040	104	105	
	012354	106	111	116	
	012357	105	104	040	
	012362	052	052	000	
1147	012365	105	122	122	T11E2: .ASCIZ /ERROR #2 - CHANNEL INTERRUPT NOT RECEIVED/
	012370	117	122	040	
	012373	043	062	040	
	012376	055	040	103	
	012401	110	101	116	
	012404	116	105	114	
	012407	040	111	116	
	012412	124	105	122	
	012415	122	125	120	
	012420	124	040	116	
	012423	117	124	040	
	012426	122	105	103	
	012431	105	111	126	
	012434	105	104	000	

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 GLOBAL TEXT SECTION

1149	012437	105	122	122	T11E3: .ASCIZ /ERROR #3 - DMA CHANNEL HUNG (TC,EOP BITS BOTH CLEAR)/
	012442	117	122	040	
	012445	043	063	040	
	012450	055	040	104	
	012453	115	101	040	
	012456	103	110	101	
	012461	116	116	105	
	012464	114	040	110	
	012467	125	116	107	
	012472	040	050	124	
	012475	103	054	105	
	012500	117	120	040	
	012503	102	111	124	
	012506	123	040	102	
	012511	117	124	110	
	012514	040	103	114	
	012517	105	101	122	
	012522	051	000		
1150	012524	105	122	122	T11E4: .ASCIZ /ERROR #4 - DMA ABORTED (EOP = 1 = NXM)/
	012527	117	122	040	
	012532	043	064	040	
	012535	055	040	104	
	012540	115	101	040	
	012543	101	102	117	
	012546	122	124	105	
	012551	104	040	050	
	012554	105	117	120	
	012557	040	075	040	
	012562	061	040	075	
	012565	040	116	130	
	012570	115	051	000	

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 GLOBAL TEXT SECTION

1152	012573	105	122	122	T11E5: .ASCIZ /ERROR #5 - DMA DATA ERROR/
	012576	117	122	040	
	012601	043	065	040	
	012604	055	040	104	
	012607	115	101	040	
	012612	104	101	124	
	012615	101	040	105	
	012620	122	122	117	
	012623	122	000		
1153	012625	052	052	040	T12E0: .ASCIZ /** LSI-11 BUS ADDRESS NOT DEFINED - SELFTEST #12 SKIPPED **/
	012630	114	123	111	
	012633	055	061	061	
	012636	040	102	125	
	012641	123	040	101	
	012644	104	104	122	
	012647	105	123	123	
	012652	040	116	117	
	012655	124	040	104	
	012660	105	106	111	
	012663	116	105	104	
	012666	040	055	040	
	012671	123	105	114	
	012674	106	124	105	
	012677	123	124	040	
	012702	043	061	062	
	012705	040	123	113	
	012710	111	120	120	
	012713	105	104	040	
	012716	052	052	000	

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 GLOBAL TEXT SECTION

1155	012721	105	122	122	T12E1: .ASCIZ /ERROR #1 - BREQ (CSR<14>) NEVER GOT SET/
	012724	117	122	040	
	012727	043	061	040	
	012732	055	040	102	
	012735	122	105	121	
	012740	040	050	103	
	012743	123	122	074	
	012746	061	064	076	
	012751	051	040	116	
	012754	105	126	105	
	012757	122	040	107	
	012762	117	124	040	
	012765	123	105	124	
	012770	000			
1156	012771	052	052	040	T12E2: .ASCIZ /** SELFTTEST #12 SKIPPED - ROM IN VECTOR SPACE **/
	012774	123	105	114	
	012777	106	124	105	
	013002	123	124	040	
	013005	043	061	062	
	013010	040	123	113	
	013013	111	120	120	
	013016	105	104	040	
	013021	055	040	122	
	013024	117	115	040	
	013027	111	116	040	
	013032	126	105	103	
	013035	124	117	122	
	013040	040	123	120	
	013043	101	103	105	
	013046	040	052	052	
	013051	000			

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 GLOBAL TEXT SECTION

1158	013052	105	122	122	T12E3: .ASCIZ /ERROR #3 - INTERRUPT-ON-BIACK NOT MASKED AT PR5/
	013055	117	122	040	
	013060	043	063	040	
	013063	055	040	111	
	013066	116	124	105	
	013071	122	122	125	
	013074	120	124	055	
	013077	117	116	055	
	013102	102	111	101	
	013105	103	113	040	
	013110	116	117	124	
	013113	040	115	101	
	013116	123	113	105	
	013121	104	040	101	
	013124	124	040	120	
	013127	122	065	000	
1159	013132	105	122	122	T12E4: .ASCIZ /ERROR #4 - INTERRUPT-ON-BIACK NOT RECEIVED/
	013135	117	122	040	
	013140	043	064	040	
	013143	055	040	111	
	013146	116	124	105	
	013151	122	122	125	
	013154	120	124	055	
	013157	117	116	055	
	013162	102	111	101	
	013165	103	113	040	
	013170	116	117	124	
	013173	040	122	105	
	013176	103	105	111	
	013201	126	105	104	
	013204	000			

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 GLOBAL TEXT SECTION

1161	013205	105	122	122	T12E5: .ASCIZ /ERROR #5 - BIACK DIDN'T CLEAR 9REQ (CSR<14>)/
	013210	117	122	040	
	013213	043	065	040	
	013216	055	040	102	
	013221	111	101	103	
	013224	113	040	104	
	013227	111	104	116	
	013232	047	124	040	
	013235	103	114	105	
	013240	101	122	040	
	013243	102	122	105	
	013246	121	040	050	
	013251	103	123	122	
	013254	074	061	064	
	013257	076	051	000	
1162	013262	105	122	122	T12E6: .ASCIZ /ERROR #6 - BRESET TRAP THRU 24 DIDN'T OCCUR/
	013265	117	122	040	
	013270	043	066	040	
	013273	055	040	102	
	013276	122	105	123	
	013301	105	124	040	
	013304	124	122	101	
	013307	120	040	124	
	013312	110	122	125	
	013315	040	062	064	
	013320	040	104	111	
	013323	104	116	047	
	013326	124	040	117	
	013331	103	103	125	
	013334	122	000		

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 GLOBAL TEXT SECTION

1164	013336	105	122	122	T13E0: .ASCIZ /ERROR #0 - LOCAL TPR WRITE-READ ERROR/
	013341	117	122	040	
	013344	043	060	040	
	013347	055	040	114	
	013352	117	103	101	
	013355	114	040	124	
	013360	120	122	040	
	013363	127	122	111	
	013366	124	105	055	
	013371	122	105	101	
	013374	104	040	105	
	013377	122	122	117	
	013402	122	000		
1165	013404	105	122	122	T13E1: .ASCIZ /ERROR #1 - BUS ERROR ON LSI-11 BUS TPR READ/
	013407	117	122	040	
	013412	043	061	040	
	013415	055	040	102	
	013420	125	123	040	
	013423	105	122	122	
	013426	117	122	040	
	013431	117	116	040	
	013434	114	123	111	
	013437	055	061	061	
	013442	040	102	125	
	013445	123	040	124	
	013450	120	122	040	
	013453	122	105	101	
	013456	104	000		

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 83
 GLOBAL TEXT SECTION

1167	013460	105	122	122	T13E2: .ASCIZ /ERROR #2 - NON-ZERO DATA RETURNED ON LSI-11 BUS READ/
	013463	117	122	040	
	013466	043	062	040	
	013471	055	040	116	
	013474	117	116	055	
	013477	132	105	122	
	013502	117	040	104	
	013505	101	124	101	
	013510	040	122	105	
	013513	124	125	122	
	013516	116	105	104	
	013521	040	117	116	
	013524	040	114	123	
	013527	111	055	061	
	013532	061	040	102	
	013535	125	123	040	
	013540	122	105	101	
	013543	104	000		
1168	013545	052	052	040	T13E3: .ASCIZ "*** TEST #13 BUS WRITES/INTERRUPTS NOT TESTED - ROM IN VECTOR SPACE ***"
	013550	124	105	123	
	013553	124	040	043	
	013556	061	063	040	
	013561	102	125	123	
	013564	040	127	122	
	013567	111	124	105	
	013572	123	057	111	
	013575	116	124	105	
	013600	122	122	125	
	013603	120	124	123	
	013606	040	116	117	
	013611	124	040	124	
	013614	105	123	124	
	013617	105	104	040	
	013622	055	040	122	
	013625	117	115	040	
	013630	111	116	040	
	013633	126	105	103	
	013636	124	117	122	
	013641	040	123	120	
	013644	101	103	105	
	013647	040	052	052	
	013652	000			

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 84
 GLOBAL TEXT SECTION

1170	013653	105	122	122	T13E4: .ASCIZ /ERROR #4 - BUS ERROR ON WRITE TO TPR WORD 0/
	013656	117	122	040	
	013661	043	064	040	
	013664	055	040	102	
	013667	125	123	040	
	013672	105	122	122	
	013675	117	122	040	
	013700	117	116	040	
	013703	127	122	111	
	013706	124	105	040	
	013711	124	117	040	
	013714	124	120	122	
	013717	040	127	117	
	013722	122	104	040	
	013725	060	000		
1171	013727	105	122	122	T13E5: .ASCIZ /ERROR #5 - TPR COMMAND INTERRUPT DIDN'T OCCUR/
	013732	117	122	040	
	013735	043	065	040	
	013740	055	040	124	
	013743	120	122	040	
	013746	103	117	115	
	013751	115	101	116	
	013754	104	040	111	
	013757	116	124	105	
	013762	122	122	125	
	013765	120	124	040	
	013770	104	111	104	
	013773	116	047	124	
	013776	040	117	103	
	014001	103	125	122	
	014004	000			

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 GLOBAL TEXT SECTION

1173	014005	105	122	122	T13E6: .ASCIZ 'ERROR #6 - LSI-11 BUS WRITE AND/OR INTERRUPTS WITH TPR DISABLED''
	014010	117	122	040	
	014013	043	066	040	
	014016	055	040	114	
	014021	123	111	055	
	014024	061	061	040	
	014027	102	125	123	
	014032	040	127	122	
	014035	111	124	105	
	014040	040	101	116	
	014043	104	057	117	
	014046	122	040	111	
	014051	116	124	105	
	014054	122	122	125	
	014057	120	124	123	
	014062	040	127	111	
	014065	124	110	040	
	014070	124	120	122	
	014073	040	104	111	
	014076	123	101	102	
	014101	114	105	104	
	014104	000			
1174	014105	105	122	122	T13E7: .ASCIZ /ERROR #7 - LSI-11 BUS WRITE DIDN'T TIME OUT/
	014110	117	122	040	
	014113	043	067	040	
	014116	055	040	114	
	014121	123	111	055	
	014124	061	061	040	
	014127	102	125	123	
	014132	040	127	122	
	014135	111	124	105	
	014140	040	104	111	
	014143	104	116	047	
	014146	124	040	124	
	014151	111	115	105	
	014154	040	117	125	
	014157	124	000		

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 86
GLOBAL TEXT SECTION

1176	014161	105	122	122	T13E8: .ASCIZ /ERROR #8 - LSI-11 BUS WRITE TIMED OUT/
	014164	117	122	040	
	014167	043	070	040	
	014172	055	040	114	
	014175	123	111	055	
	014200	061	061	040	
	014203	102	125	123	
	014206	040	127	122	
	014211	111	124	105	
	014214	040	124	111	
	014217	115	105	104	
	014222	040	117	125	
	014225	124	000		
1177	014227	105	122	122	T13E9: .ASCIZ /ERROR #9 - TPR INTERRUPT 4 NOT RECEIVED/
	014232	117	122	040	
	014235	043	071	040	
	014240	055	040	124	
	014243	120	122	040	
	014246	111	116	124	
	014251	105	122	122	
	014254	125	120	124	
	014257	040	064	040	
	014262	116	117	124	
	014265	040	122	105	
	014270	103	105	111	
	014273	126	105	104	
	014276	000			

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GLOBAL TEXT SECTION

1179	014277	105	122	122	T13E10: .ASCIZ /ERROR #10 - TPR INTERRUPT 8 NOT RECEIVED/
	014302	117	122	040	
	014305	043	061	060	
	014310	040	055	040	
	014313	124	120	122	
	014316	040	111	116	
	014321	124	105	122	
	014324	122	125	120	
	014327	124	040	070	
	014332	040	116	117	
	014335	124	040	122	
	014340	105	103	105	
	014343	111	126	105	
	014346	104	000		
1180	014350	105	122	122	T13E11: .ASCIZ /ERROR #11 - TPR INTERRUPT 12 NOT RECEIVED/
	014353	117	122	040	
	014356	043	061	061	
	014361	040	055	040	
	014364	124	120	122	
	014367	040	111	116	
	014372	124	105	122	
	014375	122	125	120	
	014400	124	040	061	
	014403	062	040	116	
	014406	117	124	040	
	014411	122	105	103	
	014414	105	111	126	
	014417	105	104	000	

1182				
1183				
1184				
1185				
1186	014422			
	014422			
	014422	113	130	124
	014425	061	061	103
	014430	101	000	

... NAMES OF DEVICES SUPPORTED BY PROGRAM

```

DEV TYP <KXT11CA>
LSDVTYP::
.ASCIZ %KXT11CA%

.EVEN

```

1187				
1193				
1194				
1195				
1196	014432			
	014432			
	014432	103	132	113
	014435	124	103	101
	014440	040	113	130
	014443	124	061	061
	014446	055	103	101
	014451	040	114	123
	014454	111	055	061
	014457	061	040	102
	014462	125	123	040
	014465	104	111	101
	014470	107	116	117
	014473	123	124	111
	014476	103	000	

... TEST DESCRIPTION

```

DESCRIPT <CZKTCA KXT11-CA LSI-11 BUS DIAGNOSTIC>
L$DESC::
.ASCIZ /CZKTCA KXT11-CA LSI-11 BUS DIAGNOSTIC/

```

.EVEN

1197
1204

44

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 89
 GLOBAL TEXT SECTION

```

1206
1207
1208
1209
1210 014500 045 116 045 NOREG: .ASCIZ /%N%ANXM ADDRESS IS %06%N/
      014503 101 116 130
      014506 115 040 101
      014511 104 104 122
      014514 105 123 123
      014517 040 111 123
      014522 040 045 117
      014525 066 045 116
      014530 000
1211 014531 045 116 045 ROMSG: .ASCIZ /%N%T%A ERROR(S):%N%N/
      014534 124 045 101
      014537 040 105 122
      014542 122 117 122
      014545 050 123 051
      014550 072 045 116
      014553 045 116 000
1212 014556 045 101 040 ROMETX: .ASCIZ /%A %T%N/
      014561 040 040 045
      014564 124 045 116
      014567 000
1213 014570 045 116 045 TESTID: .ASCIZ /%N%ATHE %T%A TEST DID NOT COMPLETE ON IOP #%Z2%N%N/
      014573 101 124 110
      014576 105 040 045
      014601 124 045 101
      014604 040 124 105
      014607 123 124 040
      014612 104 111 104
      014615 040 116 117
      014620 124 040 103
      014623 117 115 120
      014626 114 105 124
      014631 105 040 117
      014634 116 040 111
      014637 117 120 040
      014642 043 045 132
      014645 062 045 116
      014650 045 116 000

```

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 GLOBAL TEXT SECTION

1215	014653	045	124	045	TSTERR: .ASCIZ /%T%A TEST FAILED ON IOP #%Z2%N/
	014656	101	040	124	
	014661	105	123	124	
	014664	040	106	101	
	014667	111	114	105	
	014672	104	040	117	
	014675	116	040	111	
	014700	117	120	040	
	014703	043	045	132	
	014706	062	045	116	
	014711	000			
1216	014712	045	116	045	NOINFO: .ASCIZ /%N%A <NO FURTHER ERROR INFORMATION AVAILABLE>%N/
	014715	101	011	074	
	014720	116	117	040	
	014723	106	125	122	
	014726	124	110	105	
	014731	122	040	105	
	014734	122	122	117	
	014737	122	040	111	
	014742	116	106	117	
	014745	122	115	101	
	014750	124	111	117	
	014753	116	040	101	
	014756	126	101	111	
	014761	114	101	102	
	014764	114	105	076	
	014767	045	116	000	

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 GLOBAL TEXT SECTION

1218	014772	045	116	045	DROP: .ASCIZ /%N% KXT11-CA #Z2% DROPPED FROM TESTING.%N/
	014775	101	011	113	
	015000	130	124	061	
	015003	061	055	103	
	015006	101	040	043	
	015011	045	132	062	
	015014	045	101	040	
	015017	104	122	117	
	015022	120	120	105	
	015025	104	040	106	
	015030	122	117	115	
	015033	040	124	105	
	015036	123	124	111	
	015041	116	107	056	
	015044	045	116	000	
1219	015047	045	116	045	SWITCH: .ASCIZ '%N%ABOOT/SELFTEST SWITCH ON IOP #Z2% NOT SET FOR XXDP+%N''
	015052	101	102	117	
	015055	117	124	057	
	015060	123	105	114	
	015063	106	124	105	
	015066	123	124	040	
	015071	123	127	111	
	015074	124	103	110	
	015077	040	117	116	
	015102	040	111	117	
	015105	120	040	043	
	015110	045	132	062	
	015113	045	101	040	
	015116	116	117	124	
	015121	040	123	105	
	015124	124	040	106	
	015127	117	122	040	
	015132	130	130	104	
	015135	120	053	045	
	015140	116	000		

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GLOBAL TEXT SECTION

1221	015142	045	116	045	CMNDR: .ASCIZ /%N%ACOMMAND STATUS ERROR FROM IOP #Z2%A AFTER LAST COMMAND%N/
	015145	101	103	117	
	015150	115	115	101	
	015153	116	104	040	
	015156	123	124	101	
	015161	124	125	123	
	015164	040	105	122	
	015167	122	117	122	
	015172	040	106	122	
	015175	117	115	040	
	015200	111	117	120	
	015203	040	043	045	
	015206	132	062	045	
	015211	101	040	101	
	015214	106	124	105	
	015217	122	040	114	
	015222	101	123	124	
	015225	040	103	117	
	015230	115	115	101	
	015233	116	104	045	
	015236	116	000		
1222	015240	045	116	045	NOTST: .ASCIZ /%N%AIOP #Z2%A %T%N/
	015243	101	111	117	
	015246	120	040	043	
	015251	045	132	062	
	015254	045	101	040	
	015257	045	124	045	
	015262	116	000		

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 GLOBAL TEXT SECTION

1224	015264	045	101	123	SETSW: .ASCIZ /%ASET SWITCH TO POSITION 10./
	015267	105	124	040	
	015272	123	127	111	
	015275	124	103	110	
	015300	040	124	117	
	015303	040	120	117	
	015306	123	111	124	
	015311	111	117	116	
	015314	040	061	060	
	015317	056	000		
1225	015321	045	116	045	NOTCLR: .ASCIZ /%N%AIOP #Z2%A NOT READY TO ACCEPT COMMANDS%/
	015324	101	111	117	
	015327	120	040	043	
	015332	045	132	062	
	015335	045	101	040	
	015340	116	117	124	
	015343	040	122	105	
	015346	101	104	131	
	015351	040	124	117	
	015354	040	101	103	
	015357	103	105	120	
	015362	124	040	103	
	015365	117	115	115	
	015370	101	116	104	
	015373	123	045	116	
	015376	000			

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GLOBAL TEXT SECTION

1227	015377	045	116	045	TPR:	.ASCIZ	/%N%ATWO-PORT RAM ON IOP #Z2%A IS DISABLED./
	015402	101	124	127			
	015405	117	055	120			
	015410	117	122	124			
	015413	040	122	101			
	015416	115	040	117			
	015421	116	040	111			
	015424	117	120	040			
	015427	043	045	132			
	015432	062	045	101			
	015435	040	111	123			
	015440	040	104	111			
	015443	123	101	102			
	015446	114	105	104			
	015451	056	000				
1228	015453	045	116	045	TPR1:	.ASCIZ	/%N%ACHECK LEDS ON IOP #Z2%A FOR ERROR CODE.%N/
	015456	101	103	110			
	015461	105	103	113			
	015464	040	114	105			
	015467	104	123	040			
	015472	117	116	040			
	015475	111	117	120			
	015500	040	043	045			
	015503	132	062	045			
	015506	101	040	106			
	015511	117	122	040			
	015514	105	122	122			
	015517	117	122	040			
	015522	103	117	104			
	015525	105	056	045			
	015530	116	000				

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 GLOBAL TEXT SECTION

1230	015532	045	116	045	SLOT: .ASCIZ /%N%ENSURE BACKPLANE DMA GRANT CONTINUITY%N/
	015535	101	105	116	
	015540	123	125	122	
	015543	105	040	102	
	015546	101	103	113	
	015551	120	114	101	
	015554	116	105	040	
	015557	104	115	101	
	015562	040	107	122	
	015565	101	116	124	
	015570	040	103	117	
	015573	116	124	111	
	015576	116	125	111	
	015601	124	131	045	
	015604	116	000		
1231	015606	045	116	045	INTACK: .ASCIZ /%N%ENSURE BACKPLANE INTERRUPT ACKNOWLEDGE CONTINUITY%N/
	015611	101	105	116	
	015614	123	125	122	
	015617	105	040	102	
	015622	101	103	113	
	015625	120	114	101	
	015630	116	105	040	
	015633	111	116	124	
	015636	105	122	122	
	015641	125	120	124	
	015644	040	101	103	
	015647	113	116	117	
	015652	127	114	105	
	015655	104	107	105	
	015660	040	103	117	
	015663	116	124	111	
	015666	116	125	111	
	015671	124	131	045	
	015674	116	000		

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GLOBAL TEXT SECTION

1233	015676	045	116	045	INITNG: .ASCIZ /%N%AREINITIALIZING IOP #%Z2%A. PLEASE WAIT%N%N/
	015701	101	011	056	
	015704	056	056	056	
	015707	122	105	111	
	015712	116	111	124	
	015715	111	101	114	
	015720	111	132	111	
	015723	116	107	040	
	015726	111	117	120	
	015731	040	043	045	
	015734	132	062	045	
	015737	101	056	040	
	015742	040	120	114	
	015745	105	101	123	
	015750	105	040	127	
	015753	101	111	124	
	015756	045	116	045	

1234	015761	116	000		
	015763	045	101	011	INITOK: .ASCIZ /%A INITIALIZATION COMPLETE... STARTING TESTS.%N%N/
	015766	111	116	111	
	015771	124	111	101	
	015774	114	111	132	
	015777	101	124	111	
	016002	117	116	040	
	016005	103	117	115	
	016010	120	114	105	
	016013	124	105	056	
	016016	056	056	040	
	016021	123	124	101	
	016024	122	124	111	
	016027	116	107	040	
	016032	124	105	123	
	016035	124	123	056	
	016040	045	116	045	

1235	016043	116	000		
	016045	045	101	040	TSTNO: .ASCIZ /%A %T%A - IOP #%Z2/
	016050	045	124	045	
	016053	101	040	055	
	016056	040	111	117	
	016061	120	040	043	
	016064	045	132	062	
	016067	000			

.EVEN

1236
1237
1248
1249

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GLOBAL ERROR REPORT SECTION

```

1258
1259
1260
1261
1262
1263
1264
1265
1266
1267 016070
1268 016070 013704 002214
1269 016074 010446
      016076 010246
      016100 012746 014653
      016104 012746 000003
      016110 010600
      016112 104414
      016114 062706 000010
1270 016120 032703 007777
1271 016124 001507
1272 016126 010304
1273 016130 042704 007777
1274 016134 012702 177772
1275 016140 006104
1276 016142 005202
1277 016144 001375
1278
1279 016146 022704 000022
1280 016152 001010
1281 016154
      016154 012746 015532
      016160 012746 000001
      016164 010600
      016166 104415
      016170 062706 000004
1282
1283 016174 022704 000024
1284 016200 001010
1285 016202
      016202 012746 015606
      016206 012746 000001
      016212 010600
      016214 104415
      016216 062706 000004

.SBTTL GLOBAL ERROR REPORT SECTION

:++
: THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
: USED BY MORE THAN ONE TEST TO OUTPUT ADDITIONAL ERROR INFORMATION. PRINTB
: (BASIC) AND PRINTX (EXTENDED) CALLS ARE USED TO CALL PRINT SERVICES.
:--

RTERR:: BGNMSG RTERR
        MOV IOPNN,R4           : GET SBC ID SWITCH NUMBER
        PRINTB #TSTERR,R2,R4   : PRINT TEST IDENTIFICATION
        MOV R4,-(SP)
        MOV R2,-(SP)
        MOV #TSTERR,-(SP)
        MOV #3,-(SP)
        MOV SP,R0
        TRAP C$PNTB
        ADD #10,SP
        BIT #7777,R3           : CHECK FOR EXTENDED INFO
        BEQ 7$                 : BRANCH, IF NO EXTENDED INFO
        MOV R3,R4              : SAVE ROM TEST # AND ERROR BITS
        BIC #7777,R4           : STRIP OFF THE TEST #
        MOV #-6,R2             : SETUP COUNTER FOR TEST NUMBER
1$:     ROL R4                  : PUT TEST NUMBER IN BITS 3 - 0
        INC R2
        BNE 1$                 : BRANCH, IF NOT DONE SHIFTING
2$:     CMP #22,R4             : IS THE FAILING TEST 'TEST #11'?
        BNE 3$                 : BRANCH, IF NOT TEST 11 (DMA TEST)
        PRINTX #SLOT           : PRINT DMA CONTINUITY MESSAGE
        MOV #SLOT,-(SP)
        MOV #1,-(SP)
        MOV SP,R0
        TRAP C$PNTX
        ADD #4,SP
3$:     CMP #24,R4             : IS THE FAILING TEST 'TEST #12'?
        BNE 4$                 : BRANCH, IF NOT TEST 12 (QIR TEST)
        PRINTX #INTACK         : PRINT INTERRUPT ACK CONTINUITY MESSAGE
        MOV #INTACK,-(SP)
        MOV #1,-(SP)
        MOV SP,R0
        TRAP C$PNTX
        ADD #4,SP

```

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GLOBAL ERROR REPORT SECTION

1287	016222	062704	002270	4\$:	ADD	#T1ADR-2,R4	:	COMPUTE TEST # ASCII STRING ADDRESS
1288	016226	017405	000000		MOV	@(R4),R5	:	GET STRING ADDRESS AND PUT IN R5
1289	016232				PRINTX	#ROMSG,R5	:	PRINT 'ERROR(S):' MESSAGE
	016232	010546			MOV	R5,-(SP)		
	016234	012746	014531		MOV	#ROMSG,-(SP)		
	016240	012746	000002		MOV	#2,-(SP)		
	016244	010600			MOV	SP,R0		
	016246	104415			TRAP	C\$PNTX		
	016250	062706	000006		ADD	#6,SP		
1290	016254	011405			MOV	(R4),R5	:	SETUP R5 FOR LATER USE
1291	016256	010304			MOV	R3,R4	:	GET TEST # AND ERROR BITS AGAIN
1292	016260	042704	170000		BIC	#170000,R4	:	STRIP OFF ERROR BITS
1293	016264	012703	000001		MOV	#1,R3	:	SETUP FOR BIT TESTING
1294	016270	012702	000001		MOV	#1,R2	:	SETUP BIT POSITION COUNTER
1295								
1296	016274	030304		5\$:	BIT	R3,R4	:	CHECK FOR AN ERROR BIT SET
1297	016276	001414			BEQ	6\$:	BR, IF NONE IN THIS POSITION
1298	016300	010201			MOV	R2,R1	:	PUT BIT POSITION COUNT IN R1
1299	016302	006301			ASL	R1	:	MAKE IT WORD ADDRESSABLE
1300	016304	060501			ADD	R5,R1	:	INDEX TO ERROR BIT MESSAGE ADDRESS
1301	016306				PRINTX	#ROMETX,(R1)	:	PRINT ERROR NUMBER AND I.D.
	016306	011146			MOV	(R1),-(SP)		
	016310	012746	014556		MOV	#ROMETX,-(SP)		
	016314	012746	000002		MOV	#2,-(SP)		
	016320	010600			MOV	SP,R0		
	016322	104415			TRAP	C\$PNTX		
	016324	062706	000006		ADD	#6,SP		
1302								
1303	016330	006303		6\$:	ASL	R3	:	SHIFT TO NEXT POSITION..AND
1304	016332	005202			INC	R2	:	INCREMENT BIT POSITION COUNT
1305	016334	020227	000015		CMP	R2,#13.	:	CHECK FOR ALL BITS CHECKED.
1306	016340	001355			BNE	5\$:	BRANCH, IF NOT ALL 12 BITS CHECKED
1307	016342	000410			BR	8\$:	EXIT THE PRINT ROUTINE
1308								
1309	016344			7\$:	PRINTX	#NOINFO	:	PRINT NO MORE INFO AVAILABLE
	016344	012746	014712		MOV	#NOINFO,-(SP)		
	016350	012746	000001		MOV	#1,-(SP)		
	016354	010600			MOV	SP,R0		
	016356	104415			TRAP	C\$PNTX		
	016360	062706	000004		ADD	#4,SP		
1310	016364			8\$:	ENDMSG			
	016364			L10002:				
	016364	104423			TRAP	C\$MSG		

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 99
 GLOBAL ERROR REPORT SECTION

1312					
1313	016366				
	016366				
1314	016366				
	016366	010146			
	016370	012746	014500		
	016374	012746	000002		
	016400	010600			
	016402	104414			
	016404	062706	000006		
1315	016410				
	016410				
	016410	104423			
1316					
1317	016412				
	016412				
1318	016412	013704	002214		
1319	016416				
	016416	010446			
	016420	010246			
	016422	012746	014570		
	016426	012746	000003		
	016432	010600			
	016434	104414			
	016436	062706	000010		
1320	016442				
	016442				
	016442	104423			
1321					
1322	016444				
	016444				
1323	016444	013704	002214		
1324	016450				
	016450	010446			
	016452	010246			
	016454	012746	014653		
	016460	012746	000003		
	016464	010600			
	016466	104414			
	016470	062706	000010		
1325	016474				
	016474	010346			
	016476	012746	014556		
	016502	012746	000002		
	016506	010600			
	016510	104415			
	016512	062706	000006		
1326	016516				
	016516				
	016516	104423			

```

NXM::      BGNMSG  NXM
           PRINTB  #NOREG,R1
           MOV     R1,-(SP)
           MOV     #NOREG,-(SP)
           MOV     #2,-(SP)
           MOV     SP,R0
           TRAP   C$PNTB
           ADD    #6,SP
           ENDMSG

L10003:    TRAP   C$MSG

NRES::    BGNMSG  NRES
           MOV     IOPNN,R4
           PRINTB #TESTID,R2,R4
           MOV     R4,-(SP)
           MOV     R2,-(SP)
           MOV     #TESTID,-(SP)
           MOV     #3,-(SP)
           MOV     SP,R0
           TRAP   C$PNTB
           ADD    #10,SP
           ENDMSG

L10004:    TRAP   C$MSG

GENMSG::  BGNMSG  GENMSG
           MOV     IOPNN,R4
           PRINTB #TSTERR,R2,R4
           MOV     R4,-(SP)
           MOV     R2,-(SP)
           MOV     #TSTERR,-(SP)
           MOV     #3,-(SP)
           MOV     SP,R0
           TRAP   C$PNTB
           ADD    #10,SP
           PRINTX #ROMETX,R3
           MOV     R3,-(SP)
           MOV     #ROMETX,-(SP)
           MOV     #2,-(SP)
           MOV     SP,R0
           TRAP   C$PNTX
           ADD    #6,SP
           ENDMSG

L10005:    TRAP   C$MSG

```

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 GLOBAL ERROR REPORT SECTION

1328	016520				BGNMSG	SOFT	
	016520				SOFT::		
1329	016520	013704	002214		MOV	IOPNN,R4	; GET CURRENT IOP NUMBER
1330	016524				PRINTB	#SWITCH,R4	
	016524	010446			MOV	R4,-(SP)	
	016526	012746	015047		MOV	#SWITCH,-(SP)	
	016532	012746	000002		MOV	#2,-(SP)	
	016536	010600			MOV	SP,R0	
	016540	104414			TRAP	C\$PNTB	
	016542	062706	000006		ADD	#6,SP	
1331	016546				PRINTX	#SETSW	
	016546	012746	015264		MOV	#SETSW,-(SP)	
	016552	012746	000001		MOV	#1,-(SP)	
	016556	010600			MOV	SP,R0	
	016560	104415			TRAP	C\$PNTX	
	016562	062706	000004		ADD	#4,SP	
1332	016566				ENDMSG		
	016566				L10006:		
	016566	104423			TRAP	C\$MSG	
1333							
1334	016570				BGNMSG	CMDERR	
	016570				CMDERR::		
1335	016570	013704	002214		MOV	IOPNN,R4	; GET CURRENT IOP NUMBER
1336	016574				PRINTB	#CMNDR,R4	
	016574	010446			MOV	R4,-(SP)	
	016576	012746	015142		MOV	#CMNDR,-(SP)	
	016602	012746	000002		MOV	#2,-(SP)	
	016606	010600			MOV	SP,R0	
	016610	104414			TRAP	C\$PNTB	
	016612	062706	000006		ADD	#6,SP	
1337	016616				ENDMSG		
	016616				L10007:		
	016616	104423			TRAP	C\$MSG	
1338							
1339	016620				BGNMSG	NONO	
	016620				NONO::		
1340	016620	013704	002214		MOV	IOPNN,R4	; GET CURRENT IOP NUMBER
1341	016624				PRINTB	#NOTCLR,R4	
	016624	010446			MOV	R4,-(SP)	
	016626	012746	015321		MOV	#NOTCLR,-(SP)	
	016632	012746	000002		MOV	#2,-(SP)	
	016636	010600			MOV	SP,R0	
	016640	104414			TRAP	C\$PNTB	
	016642	062706	000006		ADD	#6,SP	
1342	016646				ENDMSG		
	016646				L10010:		
	016646	104423			TRAP	C\$MSG	

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 GLOBAL ERROR REPORT SECTION

1344
 1345 016650
 016650
 1346 016650 013704 002214
 1347 016654
 016654 010446
 016656 012746 015377
 016662 012746 000002
 016666 010600
 016670 104414
 016672 062706 000006
 1348 016676
 016676 010446
 016700 012746 015453
 016704 012746 000002
 016710 010600
 016712 104415
 016714 062706 000006
 1349 016720
 016720
 016720 104423
 1350
 1351
 1352
 1353
 1354
 1355
 1356
 1357
 1358
 1359
 1360
 1361
 1362 016722 013704 002214
 1363 016726
 016726 010246
 016730 010446
 016732 012746 015240
 016736 012746 000003
 016742 010600
 016744 104414
 016746 062706 000010
 1364 016752 000205
 1365

```

BGNMSG TPRDIS
TPRDIS::
MOV IOPNN,R4 ; GET CURRENT IOP NUMBER
PRINTB #TPR,R4 ; PRINT TWO-PORT RAM DISABLED
MOV R4,-(SP)
MOV #TPR,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTB
ADD #6,SP
PRINTX #TPR1,R4 ; PRINT CHECK THE LEDS
MOV R4,-(SP)
MOV #TPR1,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTX
ADD #6,SP
ENDMSG
L10011:
TRAP C$MSG

:++
SUBROUTINE TO PRINT MESSAGES FOR TESTS THAT ARE SKIPPED.
THESE MESSAGES ARE NOT ERROR MESSAGES; FOR INFO ONLY.

CALL:
MOV #MSGADDRESS,R2
JSR R5,SKIPED

:--
SKIPED:
MOV IOPNN,R4 ; GET CURRENT IOP NUMBER
PRINTB #NOTST,R4,R2
MOV R2,-(SP)
MOV R4,-(SP)
MOV #NOTST,-(SP)
MOV #3,-(SP)
MOV SP,R0
TRAP C$PNTB
ADD #10,SP
RTS R5 ; RETURN
    
```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 102
 GLOBAL SUBROUTINES SECTION

```

1382      .SBTTL GLOBAL SUBROUTINES SECTION
1383
1384      :++
1385      : THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
1386      : THAT ARE USED IN MORE THAN ONE TEST.
1387      :--
1388
1389      :++
1390      : FUNCTIONAL DESCRIPTION:
1391      :
1392      : SUBROUTINE TO DELAY IN MILLISECONDS.
1393      :
1394      : CALL:
1395      :
1396      : JSR      R5,RDELAY          ; DELAY IN MILLISECONDS
1397      : N.
1398      :--
1399
1400
1401 016754 010146      RDELAY: MOV      R1,-(SP)          ; SAVE REGS 1 & 2 ON STACK
1402 016756 010246      MOV      R2,-(SP)
1403 016760 012502      MOV      (R5)+,R2          ; GET MILLISECOND ARGUMENT
1404 016762 012737 000144 002236 1$: MOV      #100.,DELCNT      ; SETUP COUNT FOR 1 MS LOOP
1405
1406 016770 013701 002236 2$: MOV      DELCNT,R1          ; SETUP R1 FOR 1 MS LOOP
1407 016774          BREAK          ; ALLOWS <CTRL-C> RECOGNITION
1408 016774 104422      TRAP     C$BRK
1409 016776 005301 3$: DEC      R1          ; START OF 1 MS LOOP
1410 017000 001376      BNE     3$          ; BRANCH, IF < 1 MS
1411 017002 005302      DEC     R2          ; DECREMENT MULTIPLIER (WHICH YOU WANT)
1412 017004 001371      BNE     2$          ; DO ANOTHER MS, IF BRANCH
1413 017006 012602      MOV     (SP)+,R2      ; RESTORE R1 AND R2
1414 017010 012601      MOV     (SP)+,R1
1414 017012 000205      RTS      R5          ; RETURN
  
```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 103
 GLOBAL SUBROUTINES SECTION

```

1416
1417
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1419
1420
1421
1422
1423 017014 013701 002216
1424 017020 004537 016754
1425 017024 000372
1426 017026 016102 000000
1427 017032 001416
1428 017034 004537 017210
1429 017040 000413
1430
1431 017042
      017042 104455
      017044 000003
      017046 003264
      017050 016620
1432 017052
      017052 013700 002210
      017056 104451
1433 017060 012737 177777 002206
1434 017066
      017066 104444
1435
1436 017070 016102 000002
1437 017074 042702 177770
1438 017100 022702 000002
1439
1440 017104 001434
1441 017106 004537 017210
1442 017112 000431

      :++
      SUBROUTINE TO CHECK FOR THE CURRENT IOP BEING READY. THIS IS DONE
      BY READING REGISTER 0 OF THE IOP'S TWO-PORT RAM. IF IT IS ALL 0'S,
      THE IOP IS CONSIDERED READY; NOT READY/DEVICE FATAL IF TPRO IS NON-0.
      :--

      CKTPRO: MOV      QBASE,R1          : GET LSI-11 BASE BUS ADDRESS
              JSR      R5,RDELAY       : DELAY A BIT BEFORE READING TPRO
              250.          : ABOUT 250 MILLISECONDS
              MOV      DPR0(R1),R2     : READ TPRO
              BEQ      1$              : BR, IF IOP IS ALL SET FOR TESTING.
              JSR      R5,REINIT       : RE-INITIALIZE THE CURRENT IOP
              BR       1$              : SUCCESS RETURN

              ERRDF 3,NOTRDY,NONO      : PRINT DEVICE FATAL
              TRAP  C$ERDF
              .WORD 3
              .WORD NOTRDY
              .WORD NONO
              DODU  LUN
              MOV   LUN,R0
              TRAP C$DODU
              MOV   #-1,DROPUN
              DOCLN
              TRAP C$DCLN
              : DROP THE UNIT FROM TESTING

              : SET THE DROPPED UNIT FLAG AND GET OUT
              : ABORT THE DIAGNOSTIC FOR THIS UNIT

      1$: MOV      DPR1(R1),R2         : READ BOOT COMMAND STATUS REGISTER
          BIC      #-10,R2            : CLEAR ALL BUT BITS 2-0.
          CMP      #002,R2           : CHECK BOOT SWITCH..IF SET FOR XXDP+,
          : ..COMMAND REGISTER SHOULD = 000002
          BEQ      3$                : BR, IF THE SWITCH IS CORRECT
          JSR      R5,REINIT         : RE-INITIALIZE THE CURRENT IOP
          BR       3$                : SUCCESS RETURN
  
```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 104
GLOBAL SUBROUTINES SECTION

```

1444
1445 017114 016102 000002      MOV      DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
1446 017120 001413              BEQ      2$              : BR, IF TPR IS DISABLED (ERROR)
1447 017122              ERRSOF 1,BADSW,SOFT    : SOFT ERROR. PRINT IT, AND THEN
      017122 104457              TRAP    C$ERSOFT
      017124 000001              .WORD  1
      017126 003151              .WORD  BADSW
      017130 016520              .WORD  SOFT
1448 017132              DODU    LUN              : DROP THIS UNIT
      017132 013700 002210      MOV      LUN,R0
      017136 104451              TRAP    C$DODU
1449 017140 012737 177777 002206  MOV      #-1,DROPUN      : SET DROPPED UNIT FLAG
1450 017146              DOCLN
      017146 104444              TRAP    C$DCLN          : ABORT THE DIAGNOSTIC FOR THIS UNIT
1451
1452 017150              2$:  ERRDF  4,NOTPR,TPRDIS  : FATAL ERROR. TPR IS DISABLED
      017150 104455              TRAP    C$ERDF
      017152 000004              .WORD  4
      017154 003353              .WORD  NOTPR
      017156 016650              .WORD  TPRDIS
1453 017160              DODU    LUN              : DROP THIS UNIT
      017160 013700 002210      MOV      LUN,R0
      017164 104451              TRAP    C$DODU
1454 017166 012737 177777 002206  MOV      #-1,DROPUN      : SET DROPPED UNIT FLAG
1455 017174              DOCLN
      017174 104444              TRAP    C$DCLN          : ABORT THE DIAGNOSTIC FOR THIS UNIT
1456
1457 017176 005061 000004      3$:  CLR      DPR2(R1)    : CLEAR SELFTEST ERROR REGISTER
1458 017202 005061 000006      CLR      DPR3(R1)    : CLEAR SELFTEST EXTENDED ERROR REGISTER
1459 017206 000205      4$:  RTS      R5        : EXIT

```

GLOBAL AREAS MACRO M1200 26-JUL-83 08:14 PAGE 105
GLOBAL SUBROUTINES SECTION

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1461
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1471
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1473
1474 017210 013704 002214
1475 017214 013701 002216
1476 017220
      017220 010446
      017222 012746 015676
      017226 012746 000002
      017232 010600
      017234 104417
      017236 062706 000006
1477 017242 012761 000010 000006
1478 017250 012761 000004 000000
1479 017256 004537 016754
1480 017262 013560
1481 017264 016102 000000
1482 017270 001402
1483
1484 017272 005725
1485 017274 000205
1486
1487 017276 016102 000002
1488 017302 042702 177770
1489 017306 022702 000002
1490 017312 001367
1491 017314
      017314 012746 015763
      017320 012746 000001
      017324 010600
      017326 104417
      017330 062706 000004
1492 017334 000205

```

```

:++
SUBROUTINE REINIT
CALLED WHENEVER TPRO OR TPR1 ARE NOT SETUP PROPERLY.
CALL: JSR R5,REINIT
RETURN: RETURN+4 IF ERROR IN INITIALIZING
        RETURN+2 IF SUCCESSFUL INITIALIZATION
:--
REINIT: MOV IOPNN,R4           : GET CURRENT IOP NUMBER
        MOV QBASE,R1         : GET Q-BUS BASE ADDRESS
        PRINTF #INITNG,R4    : PRINT "...RE-INITIALIZING"
        MOV R4,-(SP)
        MOV #INITNG,-(SP)
        MOV #2,-(SP)
        MOV SP,R0
        TRAP C$PNTF
        ADD #6,SP
        MOV #10,DPR3(R1)     : SETUP SOFTWARE BOOTSELECT CODE
        MOV #4,DPRO(R1)      : SEND INITIALIZE COMMAND
        JSR R5,RDELAY        : DELAY ABOUT 5 SECONDS
        MOV DPR0(R1),R2      : READ TPRO
        BEQ 2$              : TPRO SHOULD NOW BE ALL 0'S
1$: TST (R5)+               : SETUP FOR ERROR RETURN
   RTS R5                  : ERROR RETURN
2$: MOV DPR1(R1),R2         : READ TPR1
   BIC #-10,R2             : CLEAR ALL BUT BITS 2-0.
   CMP #2,R2              : TPR1 SHOULD SAY Q-BUS TESTING MODE.
   BNE 1$                 : BRANCH, IF NOT SETUP FOR XXDP+ (ERROR)
   PRINTF #INITOK         : PRINT "INITIALIZATION COMPLETE..."
   MOV #INITOK,-(SP)
   MOV #1,-(SP)
   MOV SP,R0
   TRAP C$PNTF
   ADD #4,SP
   RTS R5                  : SUCCESS RETURN

```

```

1494
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1499
1500
1501
1502
1503
1504
1505 017336
      017336 104421
      017340 010004
1506 017342 032704 001000
1507 017346 001414
1508 017350 013704 002214
1509 017354
      017354 010446
      017356 010246
      017360 012746 016045
      017364 012746 000003
      017370 010600
      017372 104417
      017374 062706 000010
1510 017400 000205
1511
    
```

```

:++
SUBROUTINE TO APPEND TEST TITLES TO TEST NUMBER IF
OPERATOR HAS SET THE 'PNT' FLAG AT START TIME.

CALL:  MOV    #STRING,R2    ; TEST TITLE ADDRESS
       JSR    R5,PNTFLG

PNTFLG: RFLAGS  R4          ; READ DRS FLAGS
        TRAP  CSRFLA
        MOV   R0,R4
        BIT   #BIT9,R4      ; CHECK DRS BIT 9 FLAG (PNT)
        BEQ   1$           ; RETURN, IF PNT NOT SET
        MOV   IOPNN,R4     ; GET CURRENT IOP NUMBER
        PRINTF #TSTNO,R2,R4 ; PRINT TITLE, IOP # AFTER TEST NUMBER
        MOV   R4,-(SP)
        MOV   R2,-(SP)
        MOV   #TSTNO,-(SP)
        MOV   #3,-(SP)
        MOV   SP,R0
        TRAP  C$PNTF
1$:     ADD   #10,SP
        RTS   R5          ; RETURN TO TEST
    
```

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 GLOBAL SUBROUTINES SECTION

1513
 1520
 1526
 1533
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 1546
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 1560
 1569
 1576
 1582
 1583
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 1590
 1591
 1592
 1593
 1594
 1595
 1596
 1597
 1609
 1621
 1622
 1623
 1624

017402
 017402
 017402
 017402
 017402 104425

.TITLE MISCELLANEOUS SECTIONS
 .SBTTL IDENTIFICATION
 .SBTTL REPORT CODING SECTION

::++
 :: THE REPORT CODING SECTION CONTAINS THE
 :: 'PRINTS' CALLS THAT GENERATE STATISTICAL REPORTS.
 ::--

L\$RPT:: BGNRPT

.EVEN
 L10012: ENDRPT
 TRAP C\$RPT

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 108
PROTECTION TABLE

1626
1627
1628
1629
1630
1631
1632
1633 017404
017404
1634
1635 017404 177777
1636 017406 177777
1637 017410 177777
1638
1639 017412
1640

.SBTTL PROTECTION TABLE

::++
: THIS TABLE IS USED BY THE RUNTIME SERVICES
: TO PROTECT THE LOAD MEDIA.
:--

BGNPROT
L\$PROT::

-1 :OFFSET INTO P-TABLE FOR CSR ADDRESS
-1 :OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
-1 :OFFSET INTO P-TABLE FOR DRIVE NUMBER

ENDPROT

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 109
INITIALIZE SECTION

```

1655
1656
1657
1658
1659
1660
1661
1662 017412
      017412
1663
1687
1688 017412
      017412 012700 000036
      017416 104447
1689 017420
      017420 103517
1690
1691 017422 005037 002206
1692 017426
      017426 012700 000034
      017432 104447
1693 017434
      017434 103510
1694 017436
      017436 012700 000035
      017442 104447
1695 017444
      017444 103011
1696 017446 013737 002120 002242
1697 017454 162737 000377 002242
1698
1699 017462 012737 177777 002210
1700
1701 017470 005237 002210
1702 017474 023737 002210 002012
1703 017502 001465
1704 017504
      017504 013700 002210
      017510 104442
      017512 010001
1705 017514
      017514 103365

      .SBTTL INITIALIZE SECTION
      :++
      : THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
      : AT THE BEGINNING OF EACH PASS.
      :--

      BGNINIT
      LSINIT::

      READEF #EF.CONTINUE           ; CHECK FOR CONTINUED
      MOV    #EF.CONTINUE,RO
      TRAP   C$REFG
      BCOMPLETE      END           ; BRANCH, IF CONTINUED.
      BCS     END

      CLR     DROPUN                ; CLEAR THE DROPPED IOP FLAG
      READEF #EF.PWR                ; CHECK FOR POWER FAIL RESTART
      MOV    #EF.PWR,RO
      TRAP   C$REFG
      BCOMPLETE      ABORT         ; ABORT - NO SENSE TRYING TO GO ON.
      BCS     ABORT
      READEF #EF.NEW                ; CHECK FOR THIS PASS BEING A FIRST
      MOV    #EF.NEW,RO
      TRAP   C$REFG
      BNCOMPLETE     NEXT         ; BRANCH, IF NOT FIRST PASS
      BCC     NEXT
      MOV    L$HIME,HIMEM          ; GET HIGHEST 4KW PAGE FROM DRS.
      SUB    #377,HIMEM           ; ADJUST IT TO = START OF PAGE BEFORE..
                                      ; ...THE I/O PAGE.
      MOV    #-1,LUN              ; SETUP UNIT NUMBER FOR #0 MINUS 1

      NEXT: INC    LUN              ; INCREMENT IOP CPU NUMBER
      CMP    LUN,LSUNIT          ; CHECK CURRENT AS LAST UNIT + 1
      BEQ    ABORT              ; BRANCH, IF DONE ALL IOPS.
      GPHARD LUN,R1              ; GET HW P-TABLE ADDRESS
      MOV    LUN,RO
      TRAP   C$GPHRD
      MOV    RO,R1
      BNCOMPLETE     NEXT         ; BRANCH, IF NO PTABLE FOR THIS LUN
      BCC     NEXT

```

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 110
INITIALIZE SECTION

1707	017516	012137	002212		MOV	(R1)+,IOPN	:	GET IOP CPU NUMBER
1708	017522	001455			BEQ	ABORT	:	BRANCH, IF THIS IS UNIT 0.
1709	017524	013737	002212	002214	MOV	IOPN,IOPNN	:	SAVE FOR PRINTOUTS
1710	017532	012702	177773		MOV	#-5,R2	:	SETUP SHIFT COUNTER
1711								
1712	017536	006237	002214		1\$: ASR	IOPNN	:	SHIFT 5 RIGHT FOR PRINTOUTS
1713	017542	005202			INC	R2		
1714	017544	001374			BNE	1\$:	BRANCH, IF NOT DONE SHIFTING
1715	017546	023727	002212	000340	CMP	IOPN,#340	:	SEE IF IOP NO. IS GREATER THAN 7
1716	017554	003004			BGT	2\$:	BRANCH IF NO. IS 8 OR MORE
1717	017556	012737	160000	002216	MOV	#160000,QBASE	:	SET BASE ADDRESS FOR UNITS 0-7
1718	017564	000406			BR	3\$:	THEN ADD IN IOP NUMBER
1719								
1720	017566	012737	175400	002216	2\$: MOV	#175400,QBASE	:	SET BASE ADDRESS TO UNITS 8-15
1721	017574	042737	000400	002212	BIC	#400,IOPN	:	CLEAR BIT 8 OF NUMBER INPUT
1722								
1723	017602	063737	002212	002216	3\$: ADD	IOPN,QBASE	:	COMBINE IOP # AND BASE ADDRESS
1724	017610	005721			TST	(R1)+	:	CHECK IF HIGH OR LOW RANGE WANTED
1725	017612	001003			BNE	4\$:	BRANCH, IF LOW RANGE WANTED
1726	017614	062737	002000	002216	ADD	#BIT10,QBASE	:	ADD IN 2000 TO GET HIGH RANGE
1727								
1728	017622	012137	002222		4\$: MOV	(R1)+,LOOPB1	:	GET LOOP CONN FLAG FOR SLU1
1729	017626	012137	002224		MOV	(R1)+,LOOPB2	:	GET LOOP CONN FLAG FOR SLU2 CHANNEL A
1730	017632	012137	002226		MOV	(R1)+,LOOPB3	:	GET LOOP CONN FLAG FOR CHANNEL B
1731	017636	012137	002230		MOV	(R1)+,LOOPB4	:	GET LOOP CONN FLAG FOR PARALLEL I/O
1732	017642	012137	002232		MOV	(R1)+,SL2DMA	:	GET SLU2 DMA CONFIGURATION
1733	017646	011137	002234		MOV	(R1),ROMTST	:	GET FLAG FOR USER ROM TEST
1734	017652				EXIT	INIT	:	EXIT THE INIT CODE
	017652	104432			TRAP	C\$EXIT		
	017654	000004			.WORD	L10014-		
1735								
1736	017656				ABORT: DOCLN		:	EXECUTE CLEANUP CODE
	017656	104444			TRAP	C\$DCLN		
1737	017660				END:			
1738								
1750								
1751	017660				L10014: ENDINIT			
	017660				TRAP	C\$INIT		
	017660	104411						

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 111
AUTODROP SECTION

1753			
1754			
1755			
1756			
1757			
1758			
1759			
1760			
1761			
1762	017662		
	017662		
1763			
1770			
1771			
1772	017662		
	017662	012746	017704
	017666	012746	000001
	017672	010600	
	017674	104417	
	017676	062706	000004
1773			
1774	017702		
	017702		
	017702	104461	
1775			
1776	017704	045	116
	017707	101	042
	017712	104	122
	017715	040	123
	017720	111	124
	017723	110	040
	017726	117	124
	017731	123	125
	017734	120	117
	017737	124	105
	017742	056	040
	017745	122	125
	017750	040	124
	017753	123	124
	017756	061	040
	017761	117	122
	017764	122	105
	017767	120	117
	017772	123	105
	017775	103	110
	020000	103	113
	020003	045	116
			000

.SBTTL AUTODROP SECTION

```

:++
: THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
: THE "ADR" FLAG WAS SET. THE UNIT(S) UNDER TEST ARE CHECKED TO
: SEE IF THEY WILL RESPOND. THOSE THAT DON'T ARE IMMEDIATELY
: DROPPED FROM TESTING.
:--

```

BGNAUTO
LSAUTO::

; THIS SECTION IS NOT USED. RUN XXDP+ TEST 1 TO CHECK FOR RESPONSE.

```

PRINTF #NOSEC
MOV #NOSEC,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #4,SP

```

ENDAUTO

L10015: TRAP C\$AUTO

NOSEC: .ASCIZ /%N%A"ADR" SWITCH NOT SUPPORTED. RUN TEST 1 FOR RESPONSE CHECK.%N/

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 112
CLEANUP CODING SECTION

1778
1779
1780
1781
1782
1783
1784
1785 020006
020006

1786
1795
1796 020006 104432
020006 000002
020010

1797
1809
1810
1811
1812 020012
020012 104412
020012

.SBTTL CLEANUP CODING SECTION

::++
: THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
: AFTER THE HARDWARE TESTS HAVE BEEN PERFORMED.
:--

BGNCLN
LSCLEAN::

EXIT CLN
TRAP C\$EXIT
.WORD L10016-

.EVEN

ENDCLN
L10016: TRAP C\$CLEAN

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 113
 DROP UNIT SECTION

```

1814      .SBTTL  DROP UNIT SECTION
1815
1816      :++
1817      : THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
1818      : TO NO LONGER BE TESTED.
1819      :--
1820
1821 020014      BGNDU
1821 020014      LSDU::
1822
1823 020014 013701 002214      MOV      IOPNN,R1      : GET IOP NUMBER
1824 020020      PRINTF #DROP,R1      : PRINT IOP #N DROPPED
1824 020020 010146      MOV      R1,-(SP)
1824 020022 012746 014772      MOV      #DROP,-(SP)
1824 020026 012746 000002      MOV      #2,-(SP)
1824 020032 010600      MOV      SP,R0
1824 020034 104417      TRAP     C$PNTF
1824 020036 062706 000006      ADD      #6,SP
1825
1826 020042      EXIT      DU
1826 020042 000167      .WORD   J$JMP
1826 020044 000000      .WORD   L10017-2-.
1827
1839
1840      .EVEN
1841
1842 020046      ENDDU
1842 020046      L10017: TRAP     C$DU
1842 020046 104453

```

MISCELLANEOUS SECTIONS MACRO M1200 26-JUL-83 08:14 PAGE 114
 ADD UNIT SECTION

1844
 1845
 1846
 1847
 1848
 1849
 1850
 1851
 1852 020050
 020050
 1853
 1862
 1863 020050
 020050 000167
 020052 000000
 1864
 1876
 1877
 1878
 1879 020054
 020054
 020054 104452
 1880

.SBTTL ADD UNIT SECTION

```

:++
: THE ADD-UNIT SECTION CONTAINS ANY CODE THE PROGRAMMER WISHES
: TO BE EXECUTED IN CONJUNCTION WITH THE ADDING OF A UNIT BACK
: TO THE TEST CYCLE.
:--
  
```

```

LSAU::      BGNAU

            EXIT    AU
            .WORD   JSJMP
            .WORD   L10020-2-.

            .EVEN

            ENDAU
L10020:     TRAP    CSAU
  
```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 115
ADD UNIT SECTION

```

1882
1883
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901 020056
1902 020056 012702 004663
1903 020062 004537 017336
1904 020066
      020066 012746 000340
      020072 012746 020142
      020076 012746 000004
      020102 012746 000003
      020106 104437
      020110 062706 000010
1905 020114 012702 177760
1906 020120 013701 002216
1907
1908 020124
      020124 012700 000000
      020130 104441
1909 020132 005721
1910 020134 005202
1911 020136 001372
1912 020140 000414
1913
1914
1915
1916 020142 022626
1917 020144
      020144 104455
      020146 000001
      020150 002756
      020152 016366
1918 020154
      020154 013700 002210
      020160 104451
1919 020162 012737 177777 002206
1920 020170
      020170 104444

```

```

.TITLE HARDWARE TESTS
.SBTTL IDENTIFICATION

.SBTTL TEST 1: VERIFY THAT THE IOP(S) IS ADDRESSABLE

:++
: THE CURRENT IOP IS CHECKED FOR BEING PRESENT ON THE Q BUS BY REFERENCING
: ITS I/O PAGE ADDRESS. THE I/O ADDRESS IS THE LSI-11 BUS BASE ADDRESS PLUS
: THE IOP NUMBER. AN NXM WILL OCCUR IF THE IOP IS NOT PRESENT.
:--

NXMVEC=4

BGNTST
MOV #TST1,R2 ; GET TITLE ADDRESS
JSR R5,PNTFLG ; SEE IF PNT FLAG IS SET
1$: SETVEC #NXMVEC,#3$,#PRI07 ; SETUP NXM VECTOR
MOV #PRI07,-(SP)
MOV #3$,-(SP)
MOV #NXMVEC,-(SP)
MOV #3,-(SP)
TRAP C$SVEC
ADD #10,SP
MOV #-20,R2 ; SETUP TPR REGISTER COUNTER
MOV QBASE,R1 ; IOP BASE ADDRESS TO R1

2$: SETPRI #PRI00 ; LOWER PRIORITY FOR NXM
MOV #PRI00,R0
TRAP C$SPRI
TST (R1)+ ; REFERENCE AN IOP REGISTER
INC R2 ; INCR. COUNTER...NO NXM AS YET
BNE 2$ ; BRANCH, IF NOT DONE
BR 4$ ; ALL REGISTERS ARE THERE.

; A NXM INTERRUPT WILL END UP HERE FROM THE TRAP TO 4.

3$: CMP (SP)+,(SP)+ ; FIX THE STACK, SINCE NO RTI ISSUED
ERRDF 1,NOIOP,NXM ; FATAL DEVICE ERROR
TRAP C$SERDF
.WORD 1
.WORD NOIOP
.WORD NXM
DODU :UN ; DROP THIS IOP
MOV LUN,R0
TRAP C$DODU
MOV #-1,DROPUN ; SET DROPPED UNIT FLAG
DOCLN ; EXIT TEST
TRAP C$DCLN

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 116
 TEST 1: VERIFY THAT THE IOP(S) IS ADDRESSABLE

```

1922
1923      ; NOW MAKE SURE BOOT/SELFTEST SWITCH IS SET PROPERLY.
1924      ;
1925
1926 020172 004537 017210 4$: JSR R5,REINIT      ; INITIALIZE THE CURRENT IOP
1927 020176 000240      NOP      ; NORMALLY A SUCCESS RETURN...WE DON'T
1928      ; CARE IN THIS CASE.
1929 020200 004537 017014      JSR R5,CKTPRO      ; NOW SEE IF THE IOP IS READY
1930
1931 020204      5$: CKLOOP      ; CHECK FOR LOOP ON TEST
      020204 104406      TRAP C$CLP1
1932 020206      CLRVEC #NXMVEC      ; CLEAR AND RESTORE NXM VECTOR
      020206 012700 000004      MOV #NXMVEC,RO
      020212 104436      TRAP C$CVEC
1933 020214      L10021:      ; DONE
      020214      ENDTST
1934 020214 104401      TRAP C$ETST

```


HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 118
 TEST 2: INVOKE ROM - RESIDENT TEST OF THE KXT11'S CSR REGS.

```

1974
1975
1976
1977
1978
1979 020334 016102 000002
1980 020340 100005
1981 020342
      020342 104456
      020344 000003
      020346 003221
      020350 016570
1982 020352 000420
1983
1984 020354 016102 000004
1985 020360 033702 002244
1986 020364 001413
1987 020366 043761 002244 000004
1988 020374 016103 000006
1989 020400 012702 004145
1990 020404
      020404 104456
      020406 000004
      020410 003112
      020412 016070
1991
1992 020414
      020414 104406
1993
1994 020416
      020416
      020416 104401

      : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
      :
4$:  MOV    DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
      BPL    5$              : BR, IF NO COMMAND STATUS ERROR
      ERRHRD 3,CMND,CMDERR   : ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      TRAP   C$ERHRD
      .WORD  3
      .WORD  CMND
      .WORD  CMDERR
      BR     6$              : EXIT TEST

5$:  MOV    DPR2(R1),R2      : READ IOP DPR2
      BIT    CSR,R2          : CHECK FOR ERROR IN CSR TEST
      BEQ    6$              : BRANCH, IF SUCCESSFUL TEST
      BIC    CSR,DPR2(R1)    : CLEAR THE ERROR BIT FOR THIS TIME.
      MOV    DPR3(R1),R3    : READ DPR3 FOR EXTENDED INFO
      MOV    #CSRT,R2       : ERROR MESSAGE POINTER
      ERRHRD 4,ROMD,RTERR   : CSR TEST FAILED
      TRAP   C$ERHRD
      .WORD  4
      .WORD  ROMD
      .WORD  RTERR

6$:  CKLOOP
      TRAP   C$CLP1          : CHECK FOR LOOP ON TEST

      ENDTST
L10022: TRAP   C$SETST

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 119
 TEST 2: INVOKE ROM - RESIDENT TEST OF THE KXT11'S CSR REGS.

1996
 1997
 1998
 1999
 2000
 2001
 2002
 2003
 2004
 2005
 2006
 2007 020420
 2008
 2009 020420 012702 004744
 2010 020424 004537 017336
 2011 020430 005737 002206
 2012 020434 001401
 2013 020436
 020436 104444
 2014
 2015 020440 004537 017014
 2016 020444 013701 002216
 2017 020450 013761 002246 000000
 2018
 2019 020456 012704 140000
 2020 020462 005761 000000
 2021 020466 001423
 2022 020470 004537 016754
 2023 020474 000001
 2024 020476 005204
 2025 020500 001370
 2026 020502 012702 004151
 2027 020506
 020506 104455
 020510 000005
 020512 003054
 020514 016412
 2028 020516
 020516 104406
 2029 020520
 020520 013700 002210
 020524 104451
 2030 020526 012737 177777 002206
 2031 020534
 020534 104444

.SBTTL TEST 3: INVOKE ROM TEST OF THE IOP 16KW LOCAL RAM

:++
 :
 :
 :
 :
 :
 :

IOP SELFTEST #2.

THE 16KW RAM IN THE IOP WILL BE TESTED.

BGNTST

```

MOV #ROMT2,R2      ; GET TITLE ADDRESS
JSR R5,PNTFLG     ; SEE IF PNT FLAG IS SET
TST DROPUN       ; CHECK THIS UNIT FOR BEING DROPPED
BEQ 1$           ; BRANCH, IF NOT DROPPED
DOCLN             ; ABORT THE DIAGNOSTIC FOR THIS UNIT
TRAP C$DCLN

1$: JSR R5,CKTPRO  ; SEE IF THE CURRENT IOP IS READY
MOV QBASE,R1     ; R1 = IOP BASE ADDRESS
MOV RAM,DPRO(R1) ; SEND COMMAND TO DPRO

2$: MOV #140000,R4 ; R4 WILL BE USED AS A COUNTER
TST DPRO(R1)    ; TEST THE IOP'S DPRO REG.
BEQ 4$         ; BRANCH, IF THE TEST HAS COMPLETED
JSR R5,RDELAY   ; DELAY ABOUT 1 MS
1
INC R4         ; ERROR, IF R4 WRAPS TO 0
BNE 2$        ; ERROR, IF NO BRANCH
MOV #RAMT,R2  ; SETUP FOR ERROR REPORTING
ERRDF 5,NORES,NRES ; FATAL ERROR. NO RESPONSE FROM TEST.
TRAP C$ERDF
.WORD 5
.WORD NORES
.WORD NRES
CKLOOP       ; CHECK FOR LOOP ON TEST
TRAP C$CLP1
DODU LUN     ; DROP THIS UNIT
MOV LUN,RO
TRAP C$DODU
MOV #-1,DROPUN ; SET DROPPED UNIT FLAG.
DOCLN       ; ABORT THE DIAGNOSTIC FOR THIS UNIT
TRAP C$DCLN

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 120
 TEST 3: INVOKE ROM TEST OF THE IOP 16KW LOCAL RAM

```

2033
2034
2035      : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
2036      :
2037
2038 020536 016102 000002      4$:  MOV      DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
2039 020542 100005              BPL      5$                : BR, IF NO COMMAND STATUS ERROR
2040 020544              ERRHRD 6,CMD,CMDERR : ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      020544 104456              TRAP    C$ERHRD
      020546 000006              .WORD   6
      020550 003221              .WORD  CMD
      020552 016570              .WORD  CMDERR
2041 020554 000427              BR      6$                : EXIT TEST
2042
2043 020556 016102 000004      5$:  MOV      DPR2(R1),R2      : READ IOP DPR2
2044 020562 033702 002246      BIT      RAM,R2           : CHECK FOR ERROR IN RAM TEST
2045 020566 001422              BEQ     6$                : BRANCH, IF SUCCESSFUL TEST
2046 020570 043761 002246 000004 BIC     RAM,DPR2(R1)      : CLEAR THE ERROR BIT FOR THIS TIME.
2047 020576 016103 000006      MOV     DPR3(R1),R3      : READ DPR3 FOR EXTENDED INFO
2048 020602 012702 004151      MOV     #RAMT,R2        : ERROR MESSAGE POINTER
2049 020606              ERRDF  7,ROMD,RTERR    : RAM TEST FAILED
      020606 104455              TRAP    C$ERDF
      020610 000007              .WORD   7
      020612 003112              .WORD  ROMD
      020614 016070              .WORD  RTERR
2050 020616              DODU   LUN                : DROP THIS UNIT 'CAUSE OF FATAL ERROR
      020616 013700 002210      MOV     LUN,R0
      020622 104451              TRAP    C$DODU
2051 020624 012737 177777 002206 MOV     #-1,DROPUN       : SET DROPPED UNIT FLAG
2052 020632              DOCLN : ABORT THE DIAGNOSTIC FOR THIS UNIT
      020632 104444              TRAP    C$DCLN
2053
2054 020634              6$:  CKLOOP : CHECK FOR LOOP ON TEST
      020634 104406              TRAP    C$CLP1
2055
2056 020636              ENDTST
      020636              L10023:
      020636 104401              TRAP    C$ETST

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 121
 TEST 3: INVOKE ROM TEST OF THE IOP 16KW LOCAL RAM

```

2058
2059
2060      .SBTTL TEST 4: INVOKE THE BOOT/SELFTEST CHECKSUM TEST
2061
2062      :++
2063
2064              IOP SELFTEST #3.
2065
2066      : THE ROM TEST OF THE BOOT/SELFTEST ROM WILL BE INVOKED. THE USER ROM
2067      : WILL BE TESTED HERE IF SO INDICATED BY THE OPERATOR.
2068      :--
2069
2070
2071 020640      BGNSTST
2072
2073 020640 012702 004767      MOV      #ROMT3,R2      : GET TITLE ADDRESS
2074 020644 004537 017336      JSR      R5,PNTFLG      : SEE IF PNT FLAG IS SET
2075 020650 005737 002206      TST      DROPUN        : CHECK THIS UNIT FOR BEING DROPPED
2076 020654 001401      BEQ      1$             : BRANCH, IF NOT DROPPED
2077 020656      DOCLN      : ABORT THE DIAGNOSTIC FOR THIS UNIT
      020656 104444      TRAP     C$DCLN
2078
2079 020660 004537 017014      1$: JSR      R5,CKTPRO      : SEE IF THE CURRENT IOP IS READY
2080 020664 013701 002216      MOV      QBASE,R1      : R1 = IOP BASE ADDRESS
2081 020670 005737 002234      TST      ROMTST        : CHECK IF USER ROM IS TO BE TESTED
2082 020674 001403      BEQ      2$             : BRANCH, IF NOT
2083 020676 012761 177777 000006      MOV      #-1,DPR3(R1)   : DPR 3 MUST BE NON-0 FOR USER ROM...
2084
2085 020704 013761 002250 000000 2$: MOV      ROM,DPRO(R1)    : ...TO BE TESTED
2086 020712 012704 140000      MOV      #140000,R4     : SEND COMMAND TO DPRO
2087 020716 005761 000000      3$: TST      DPRO(R1)     : R4 WILL BE USED AS A COUNTER
2088 020722 001423      BEQ      5$             : TEST THE IOP'S DPRO REG.
2089 020724 004537 016754      JSR      R5,RDELAY      : BRANCH, IF THE TEST HAS COMPLETED
2090 020730 000001      1      : DELAY ABOUT 1 MS
2091 020732 005204      INC      R4             : ERROR, IF R4 WRAPS TO 0
2092 020734 001370      BNE      3$             : ERROR, IF NO BRANCH
2093 020736 012702 004170      MOV      #ROMT,R2      : SETUP FOR ERROR REPORTING
2094 020742      ERRDF      10,NORES,NRES : FATAL ERROR. NO RESPONSE FROM TEST.
      020742 104455      TRAP     C$ERDF
      020744 000012      .WORD   10
      020746 003054      .WORD   NORES
      020750 016412      .WORD   NRES
2095 020752      CKLOOP      : CHECK FOR LOOP ON TEST
      020752 104406      TRAP     C$CLP1
2096 020754      DODU      : DROP THIS UNIT
      020754 013700 002210      MOV      LUN,R0
      020760 104451      TRAP     C$DODU
2097 020762 012737 177777 002206      MOV      #-1,DROPUN    : SET DROPPED UNIT FLAG.
2098 020770      DOCLN      : ABORT THE DIAGNOSTIC FOR THIS UNIT
      020770 104444      TRAP     C$DCLN

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 122
 TEST 4: INVOKE THE BOOT/SELFTEST CHECKSUM TEST

```

2100
2101
2102      : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
2103      :
2104
2105 020772 016102 000002      5$:  MOV    DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
2106 020776 100005              BPL    6$                : BR, IF NO COMMAND STATUS ERROR
2107 021000              ERRHRD 11,CMND,CMDErr : ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      021000 104456              TRAP  C$ERRD
      021002 000013              .WORD 11
      021004 003221              .WORD CMND
      021006 016570              .WORD CMDErr
2108 021010 000427              BR     7$                : EXIT TEST
2109
2110 021012 016102 000004      6$:  MOV    DPR2(R1),R2      : READ IOP DPR2
2111 021016 033702 002250      BIT    ROM,R2           : CHECK FOR ERROR IN ROM TEST
2112 021022 001422              BEQ    7$                : BRANCH, IF SUCCESSFUL TEST
2113 021024 043761 002250 000004 BIC    ROM,DPR2(R1)     : CLEAR THE ERROR BIT FOR THIS TIME.
2114 021032 016103 000006      MOV    DPR3(R1),R3     : READ DPR3 FOR EXTENDED INFO
2115 021036 012702 004170      MOV    #ROMT,R2        : ERROR MESSAGE POINTER
2116 021042              ERRDF 12,ROMD,RTERR   : ROM TEST FAILED
      021042 104455              TRAP  C$ERDF
      021044 000014              .WORD 12
      021046 003112              .WORD ROMD
      021050 016070              .WORD RTERR
2117 021052              DODU  LUN                : FATAL ERROR. DROP THIS UNIT
      021052 013700 002210      MOV    LUN,R0
      021056 104451              TRAP  C$DODU
2118 021060 012737 177777 002206 MOV    #-1,DROPUN      : SET DROPPED UNIT FLAG
2119 021066              DOCLN : ABORT THE DIAGNOSTIC FOR THIS UNIT
      021066 104444              TRAP  C$DCLN
2120
2121 021070              7$:  CKLOOP : CHECK FOR LOOP ON TEST
      021070 104406              TRAP  C$CLP1
2122
2123 021072              L10024: ENDTST
      021072              TRAP  C$ETST
      021072 104401

```

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 TEST 4: INVOKE THE BOOT/SELFTEST CHECKSUM TEST

2125
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.SBTTL TEST 5: IOP CPU INSTRUCTION TEST

```

:++
:
:           IOP SELFTEST #4.
:
: INVOKE THE IOP T11 INSTRUCTION TEST.
:--
    
```

021074				BGNTST	
021074	012702	005023		MOV #ROMT4,R2	: GET TITLE ADDRESS
021100	004537	017336		JSR R5,PNTFLG	: SEE IF PNT FLAG IS SET
021104	005737	002206		TST DROPUN	: CHECK THIS UNIT FOR BEING DROPPED
021110	001401			BEQ 1\$: BRANCH, IF NOT DROPPED
021112				DOCLN	: ABORT THE DIAGNOSTIC FOR THIS UNIT
021112	104444			TRAP C\$DCLN	
021114	004537	017014	1\$:	JSR R5,CKTPRO	: SEE IF THE CURRENT IOP IS READY
021120	013701	002216		MOV QBASE,R1	: R1 = IOP BASE ADDRESS
021124	013761	002252	000000	MOV CPU,DPRO(R1)	: SEND COMMAND TO DPRO
021132	012704	140000		MOV #140000,R4	: R4 WILL BE USED AS A COUNTER
021136	005761	000000	2\$:	TST DPRO(R1)	: TEST THE IOP'S DPRO REG.
021142	001423			BEQ 4\$: BRANCH, IF THE TEST HAS COMPLETED
021144	004537	016754		JSR R5,RDELAY	: DELAY ABOUT 1 MS
021150	000001			1	
021152	005204			INC R4	: ERROR, IF R4 WRAPS TO 0
021154	001370			BNE 2\$: ERROR, IF NO BRANCH
021156	012702	004643		MOV #CPUT,R2	: SETUP FOR ERROR REPORTING.
021162				ERRDF 13,NORES,NRES	: FATAL ERROR. NO RESPONSE FROM TEST.
021162	104455			TRAP C\$ERDF	
021164	000015			.WORD 13	
021166	003054			.WORD NORES	
021170	016412			.WORD NRES	
021172				CKLOOP	: CHECK FOR LOOP ON TEST
021172	104406			TRAP C\$CLP1	
021174				DODU LUN	: DROP THIS UNIT
021174	013700	002210		MOV LUN,R0	
021200	104451			TRAP C\$DODU	
021202	012737	177777	002206	MOV #-1,DROPUN	: SET DROPPED UNIT FLAG.
021210				DOCLN	: ABORT THE DIAGNOSTIC FOR THIS UNIT
021210	104444			TRAP C\$DCLN	

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 TEST 5: IOP CPU INSTRUCTION TEST

```

2162
2163
2164
2165
2166
2167 021212 016102 000002      4$:  MOV    DPR1(R1),R2      ; READ BOOT COMMAND STATUS REGISTER
2168 021216 100005              BPL    5$                ; BR, IF NO COMMAND STATUS ERROR
2169 021220              ERRHRD 14,CMND,CMDERR    ; ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      021220 104456              TRAP  C$ERHRD
      021222 000016              .WORD 14
      021224 003221              .WORD CMND
      021226 016570              .WORD CMDERR
2170 021230 000427              BR     6$                ; EXIT TEST
2171
2172 021232 016102 000004      5$:  MOV    DPR2(R1),R2      ; READ IOP DPR2
2173 021236 033702 002252      BIT    CPU,R2            ; CHECK FOR ERROR IN CPU TEST
2174 021242 001422              BEQ    6$                ; BRANCH, IF SUCCESSFUL TEST
2175 021244 043761 002252 000004 BIC    CPU,DPR2(R1)      ; CLEAR THE ERROR BIT FOR THIS TIME.
2176 021252 016103 000006      MOV    DPR3(R1),R3      ; READ DPR3 FOR EXTENDED INFO
2177 021256 012702 004643      MOV    #CPU1,R2         ; ERROR MESSAGE POINTER
2178 021262              ERRDF 15,ROMD,RTERR    ; CPU TEST FAILED
      021262 104455              TRAP  C$ERDF
      021264 000017              .WORD 15
      021266 003112              .WORD ROMD
      021270 016070              .WORD RTERR
2179 021272              DODU   LUN                ; FATAL ERROR. DROP THIS UNIT
      021272 013700 002210      MOV    LUN,R0
      021276 104451              TRAP  C$DODU
2180 021300 012737 177777 002206 MOV    #-1,DROPUN       ; SET DROPPED UNIT FLAG
2181 021306              DOCLN  C$DCLN           ; ABORT THE DIAGNOSTIC FOR THIS UNIT
      021306 104444              TRAP
2182
2183 021310              6$:  CKLOOP C$CLP1          ; CHECK FOR LOOP ON TEST
      021310 104406              TRAP
2184
2185 021312              L10025: ENDTST
      021312              TRAP  C$SETST
      021312 104401
2186

```


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 TEST 5: IOP CPU INSTRUCTION TEST

2188
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.SBTTL TEST 6: INVOKE THE LINE CLOCK INTERRUPT TEST

:++
 :
 :
 :
 :
 :
 :
 :
 :--

IOP SELFTEST #5.

THE LINE CLOCK (BEVNT) INTERRUPT TEST IS INVOKED IN THE IOP ROM

2200	021314				BGNTST	
2201						
2202	021314	012702	005062		MOV	#ROMT5,R2 ; GET TITLE ADDRESS
2203	021320	004537	017336		JSR	R5,PNTFLG ; SEE IF PNT FLAG IS SET
2204	021324	005737	002206		TST	DROPUN ; CHECK THIS UNIT FOR BEING DROPPED
2205	021330	001401			BEQ	1\$; BRANCH, IF NOT DROPPED
2206	021332				DOCLN	; ABORT THE DIAGNOSTIC FOR THIS UNIT
	021332	104444			TRAP	C\$DCLN
2207						
2208	021334	004537	017014	1\$:	JSR	R5,CKTPRO ; SEE IF THE CURRENT IOP IS READY
2209	021340	013701	002216		MOV	QBASE,R1 ; R1 = IOP BASE ADDRESS
2210	021344	013761	002254	000000	MOV	BVNT,DPRO(R1) ; SEND COMMAND TO DPRO
2211						
2212	021352	012704	140000		MOV	#140000,R4 ; R4 WILL BE USED AS A COUNTER
2213	021356	005761	000000	2\$:	TST	DPRO(R1) ; TEST THE IOP'S DPRO REG.
2214	021362	001423			BEQ	4\$; BRANCH, IF THE TEST HAS COMPLETED
2215	021364	004537	016754		JSR	R5,RDELAY ; DELAY ABOUT 1 MS
2216	021370	000001			1	
2217	021372	005204			INC	R4 ; ERROR, IF R4 WRAPS TO 0
2218	021374	001370			BNE	2\$; ERROR, IF NO BRANCH
2219	021376	012702	004174		MOV	#BEVNT,R2 ; SETUP FOR ERROR REPORTING.
2220	021402				ERRDF	16,NORES,NRES ; FATAL ERROR. NO RESPONSE FROM TEST.
	021402	104455			TRAP	C\$ERDF
	021404	000020			.WORD	16
	021406	003054			.WORD	NORES
	021410	016412			.WORD	NRES
2221	021412				CKLOOP	; CHECK FOR LOOP ON TEST
	021412	104406			TRAP	C\$CLP1
2222	021414				DODU	LUN ; DROP THIS UNIT
	021414	013700	002210		MOV	LUN,R0
	021420	104451			TRAP	C\$DODU
2223	021422	012737	177777	002206	MOV	#-1,DROPUN ; SET DROPPED UNIT FLAG.
2224	021430				DOCLN	; ABORT THE DIAGNOSTIC FOR THIS UNIT
	021430	104444			TRAP	C\$DCLN

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 TEST 6: INVOKE THE LINE CLOCK INTERRUPT TEST

```

2226
2227
2228      :
2229      : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
2230      :
2231 021432 016102 000002      4$:  MOV    DPR1(R1),R2      ; READ BOOT COMMAND STATUS REGISTER
2232 021436 100005                BPL    5$                ; BR, IF NO COMMAND STATUS ERROR
2233 021440                ERRHRD 17,CMND,CMDERR ; ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      021440 104456                TRAP  C$ERRRD
      021442 000021                .WORD 17
      021444 003221                .WORD CMND
      021446 016570                .WORD CMDERR
2234 021450 000431                BR     7$                ; EXIT TEST
2235
2236 021452 016102 000004      5$:  MOV    DPR2(R1),R2      ; READ IOP DPR2
2237 021456 033702 002254      BIT    BVNT,R2          ; CHECK FOR ERROR IN CLOCK TEST
2238 021462 001424                BEQ    7$                ; BRANCH, IF SUCCESSFUL TEST
2239 021464 043761 002254 000004 BIC    BVNT,DPR2(R1)    ; CLEAR THE ERROR BIT FOR THIS TIME.
2240 021472 016103 000006      MOV    DPR3(R1),R3    ; READ DPR3 FOR EXTENDED INFO
2241 021476 032703 000001      BIT    #BIT0,R3       ; CHECK FOR ENTIRE TEST SKIPPED
2242 021502 001406                BEQ    6$                ; BR, IF TEST WASN'T SKIPPED
2243 021504 012702 007411      MOV    #T5E0,R2       ; SETUP MESSAGE ADDRESS FOR PRINTOUT
2244 021510 004537 016722      JSR    R5,SKIPED      ; PRINT THIS TEST SKIPPED
2245 021514                EXIT  TST              ; EXIT THIS TEST
      021514 104432                TRAP  C$EXIT
      021516 000020                .WORD L10026-.
2246
2247 021520 012702 004174      6$:  MOV    #BEVNT,R2      ; ERROR MESSAGE POINTER
2248 021524                ERRHRD 20,ROMD,RTERR ; CLOCK TEST FAILED
      021524 104456                TRAP  C$ERRHRD
      021526 000024                .WORD 20
      021530 003112                .WORD ROMD
      021532 016070                .WORD RTERR
2249
2250 021534                7$:  CKLOOP                ; CHECK FOR LOOP ON TEST
      021534 104406                TRAP  C$CLP1
2251
2252 021536                L10026:  ENDTST
      021536                TRAP  C$SETST
      021536 104401

```

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 TEST 6: INVOKE THE LINE CLOCK INTERRUPT TEST

```

2254
2255      .SBTTL TEST 7: INVOKE SERIAL PORT #1 TEST
2256
2257      :++
2258
2259      : IOP SELFTEST #6.
2260
2261      : INVOKE THE ROM TEST OF THE CONSOLE SERIAL PORT DC319 (SLU1).
2262      :--
2263
2264
2265 021540      BGNTST
2266
2267 021540 012702 005117      MOV      #ROMT6,R2      ; GET TITLE ADDRESS
2268 021544 004537 017336      JSR      R5,PNTFLG      ; SEE IF PNT FLAG IS SET
2269 021550 005737 002206      TST      DROPUN        ; CHECK THIS UNIT FOR BEING DROPPED
2270 021554 001401              BEQ      1$             ; BRANCH, IF NOT DROPPED
2271 021556              DOCLN        ; ABORT THE DIAGNOSTIC FOR THIS UNIT
2272 021556 104444              TRAP     C$DCLN
2273 021560 004537 017014      1$: JSR      R5,CKTPRO      ; SEE IF THE CURRENT IOP IS READY
2274 021564 005737 002222      TST      LOOPB1        ; CHECK FOR LOOPBACK CONNECTOR INSTALLED
2275 021570 001500              BEQ      7$             ; BRANCH, IF NO CONNECTOR INSTALLED
2276 021572 013701 002216      MOV      QBASE,R1       ; R1 = IOP BASE ADDRESS
2277 021576 013761 002256 000000  MOV      SLU1,DPRO(R1)   ; SEND COMMAND TO DPRO
2278
2279 021604 012704 140000      2$: MOV      #140000,R4     ; R4 WILL BE USED AS A COUNTER
2280 021610 005761 000000      TST      DPRO(R1)       ; TEST THE IOP'S DPRO REG.
2281 021614 001423              BEQ      4$             ; BRANCH, IF THE TEST HAS COMPLETED
2282 021616 004537 016754      JSR      R5,RDELAY      ; DELAY ABOUT 1 MS
2283 021622 000001              1
2284 021624 005204              INC      R4             ; ERROR, IF R4 WRAPS TO 0
2285 021626 001370              BNE     2$             ; ERROR, IF NO BRANCH
2286 021630 012702 004202      MOV      #SLU1T,R2      ; SETUP FOR ERROR REPORTING.
2287 021634              ERRDF    21,NORES,NRES ; FATAL ERROR. NO RESPONSE FROM TEST.
2288 021634 104455              TRAP     C$ERDF
2289 021636 000025              .WORD   21
2290 021640 003054              .WORD   NORES
2291 021642 016412              .WORD   NRES
2292 021644              CKLOOP
2293 021644 104406              TRAP     C$CLP1        ; CHECK FOR LOOP ON TEST
2294 021646              DODU     LUN            ; DROP THIS UNIT
2295 021646 013700 002210      MOV      LUN,R0
2296 021652 104451              TRAP     C$DODU
2297 021654 012737 177777 002206  MOV      #-1,DROPUN     ; SET DROPPED UNIT FLAG.
2298 021662              DOCLN        ; ABORT THE DIAGNOSTIC FOR THIS UNIT
2299 021662 104444              TRAP     C$DCLN

```

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 TEST 7: INVOKE SERIAL PORT #1 TEST

```

2293
2294
2295
2296
2297
2298 021664 016102 000002      4$:  MOV      DPR1(R1),R2      ; READ BOOT COMMAND STATUS REGISTER
2299 021670 100005              BPL      5$                  ; BR, IF NO COMMAND STATUS ERROR
2300 021672              ERRHRD  22,CMND,CMDERR      ; ERROR.  BOOT CODE DIDN'T LIKE THE COMMAND
      021672 104456              TRAP    C$ERHRD
      021674 000026              .WORD   22
      021676 003221              .WORD   CMND
      021700 016570              .WORD   CMDERR
2301 021702 000433              BR      7$                  ; EXIT TEST
2302
2303 021704 016102 000004      5$:  MOV      DPR2(R1),R2      ; READ IOP DPR2
2304 021710 033702 002256      BIT     SLU1,R2              ; CHECK FOR ERROR IN SLU1 TEST
2305 021714 001426              BEQ     7$                  ; BRANCH, IF SUCCESSFUL TEST
2306 021716 043761 002256 000004 BIC     SLU1,DPR2(R1)        ; CLEAR THE ERROR BIT FOR THIS TIME.
2307 021724 016103 000006      MOV     DPR3(R1),R3        ; READ DPR3 FOR EXTENDED INFO
2308 021730 032703 000001      BIT     #BIT0,R3           ; CHECK IF INTERRUPTS WERE TESTED
2309 021734 001404              BEQ     6$                  ; BR, IF INTERRUPTS WERE TESTED
2310 021736 012702 007411      MOV     #T5E0,R2           ; SETUP MESSAGE ADDRESS FOR PRINTOUT
2311 021742 004537 016722      JSR    R5,SKIPED           ; PRINT A PORTION OF SELFTEST NOT RUN
2312
2313 021746 042703 000001      6$:  BIC     #BIT0,R3           ; CLEAR BIT 0 FOR NEXT TEST
2314 021752 005703              TST     R3                  ; SEE IF ANY LEGITIMATE ERRORS
2315 021754 001406              BEQ     7$                  ; BRANCH, IF NO ERRORS
2316 021756 012702 004202      MOV     #SLU1T,R2          ; ERROR MESSAGE POINTER
2317 021762              ERRHRD  23,ROMD,RTERR      ; SLU1 TEST FAILED
      021762 104456              TRAP    C$ERHRD
      021764 000027              .WORD   23
      021766 003112              .WORD   ROMD
      021770 016070              .WORD   RTERR
2318
2319 021772              7$:  CKLOOP                    ; CHECK FOR LOOP ON TEST
      021772 104406              TRAP    C$CLP1
2320
2321 021774              ENDTST
      021774              L10027:
      021774 104401              TRAP    C$SETST

```


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 TEST 8: INVOKE ROM TEST OF SERIAL PORT #2 (CHANNEL A) - NEC720

```

2364
2365
2366
2367
2368
2369 022130 016102 000002      4$:  MOV      DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
2370 022134 100005              BPL      5$                  : BR, IF NO COMMAND STATUS ERROR
2371 022136              ERRHRD  25,CMND,CMDERR      : ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      022136 104456              TRAP    C$ERHRD
      022140 000031              .WORD   25
      022142 003221              .WORD   CMND
      022144 016570              .WORD   CMDERR
2372 022146 000441              BR      8$                  : EXIT TEST
2373
2374 022150 016102 000004      5$:  MOV      DPR2(R1),R2      : READ IOP DPR2
2375 022154 033702 002260      BIT      SLU2,R2            : CHECK FOR ERROR IN SLU2 TEST
2376 022160 001434              BEQ     8$                  : BRANCH, IF SUCCESSFUL TEST
2377 022162 043761 002260 000004  BIC     SLU2,DPR2(R1)       : CLEAR THE ERROR BIT FOR THIS TIME.
2378 022170 016103 000006      MOV     DPR3(R1),R3       : READ DPR3 FOR EXTENDED INFO
2379 022174 005737 002232      TST    SL2DMA              : CHECK SLU2 SETUP FOR DMA OPERATION
2380 022200 001002              BNE    6$                  : BRANCH, IF DMA JUMPER IS IN
2381 022202 042703 000300      BIC    #300,R3            : JUMPER IS OUT. FORCE ERRORS 6,7 CLEAR.
2382
2383 022206 032703 000001      6$:  BIT      #BIT0,R3          : CHECK FOR ENTIRE TEST SKIPPED
2384 022212 001406              BEQ     7$                  : BR, IF TEST WASN'T SKIPPED
2385 022214 012702 010337      MOV     #T7E0,R2          : SETUP MESSAGE ADDRESS FOR PRINTOUT
2386 022220 004537 016722      JSR    R5,SKIPED         : PRINT THIS TEST SKIPPED
2387 022224              EXIT    TST                : EXIT THIS TEST
      022224 104432              TRAP   C$EXIT
      022226 000026              .WORD  L10030-.
2388
2389 022230 032703 007777      7$:  BIT      #7777,R3          : CHECK FOR LEGITIMATE ERRORS
2390 022234 001406              BEQ     8$                  : BRANCH IF NO LEGITIMATE ERRORS
2391 022236 012702 004235      MOV     #SLU2A,R2         : ERROR MESSAGE POINTER
2392 022242              ERRHRD  26,ROMD,RTERR      : SLU2 CHANNEL A FAILED
      022242 104456              TRAP   C$ERHRD
      022244 000032              .WORD   26
      022246 003112              .WORD   ROMD
      022250 016070              .WORD   RTERR
2393
2394 022252              8$:  CKLOOP
      022252 104406              TRAP   C$CLP1              : CHECK FOR LOOP ON TEST
2395
2396 022254              L10030:  ENDTST
      022254              TRAP   C$ETST
      022254 104401

```

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 TEST 8: INVOKE ROM TEST OF SERIAL PORT #2 (CHANNEL A) - NEC720

```

2398
2399          .SBTTL TEST 9: INVOKE ROM TEST OF SERIAL PORT #2 (CHANNEL B) - NEC7201
2400
2401          :++
2402          :
2403          :           IOP SELFTEST #7.
2404          :
2405          : INVOKE THE NEC7201 (SERIAL PORT #2), CHANNEL B SELFTEST
2406          :
2407          :--
2408
2409 022256          BGNTST
2410
2411 022256 012702 005220          MOV      #ROMT7B,R2          : GET TITLE ADDRESS
2412 022262 004537 017336          JSR      R5,PNTFLG          : SEE IF PNT FLAG IS SET
2413 022266 005737 002206          TST     DROPUN          : CHECK THIS UNIT FOR BEING DROPPED
2414 022272 001401          BEQ     1$          : BRANCH, IF NOT DROPPED
2415 022274          DOCLN          : ABORT THE DIAGNOSTIC FOR THIS UNIT
2416 022274 104444          TRAP    C$DCLN
2417 022276 004537 017014          1$: JSR      R5,CKTPRO          : SEE IF THE CURRENT IOP IS READY
2418 022302 005737 002226          TST     LOOPB3          : CHECK IF LOOPBACK CONNECTOR INSTALLED
2419 022306 001501          BEQ     7$          : BRANCH, IF NO CONNECTOR INSTALLED
2420
2421 022310 013701 002216          MOV     QBASE,R1          : R1 = IOP BASE ADDRESS
2422 022314 012761 000002 000006          MOV     #2,DPR3(R1)          : SET TEST FLAG FOR CHANNEL B
2423 022322 013761 002260 000000          MOV     SLU2,DPRO(R1)          : SEND COMMAND TO DPRO
2424
2425 022330 012704 140000          MOV     #140000,R4          : R4 WILL BE USED AS A COUNTER
2426 022334 005761 000000          2$: TST     DPRO(R1)          : TEST THE IOP'S DPRO REG.
2427 022340 001423          BEQ     4$          : BRANCH, IF THE TEST HAS COMPLETED
2428 022342 004537 016754          JSR     R5,RDELAY          : DELAY ABOUT 1 MS
2429 022346 000001          1
2430 022350 005204          INC     R4          : ERROR, IF R4 WRAPS TO 0
2431 022352 001370          BNE     2$          : ERROR, IF NO BRANCH
2432 022354 012702 004273          MOV     #SLU2B,R2          : SFTUP FOR ERROR REPORTING.
2433 022360          ERRDF  27,NORES,NRES          : FATAL ERROR. NO RESPONSE FROM TEST.
2434 022360 104455          TRAP    C$ERDF
2435 022362 000033          .WORD  27
2436 022364 003054          .WORD  NORES
2437 022366 016412          .WORD  NRES
2438 022370          CKLOOP          : CHECK FOR LOOP ON TEST
2439 022370 104406          TRAP    C$CLP1
2440 022372          DODU   LUN          : DROP THIS UNIT
2441 022372 013700 002210          MOV     LUN,RO
2442 022376 104451          TRAP    C$DODU
2443 022400 012737 177777 002206          MOV     #-1,DROPUN          : SET DROPPED UNIT FLAG.
2444 022406          DOCLN          : ABORT THE DIAGNOSTIC FOR THIS UNIT
2445 022406 104444          TRAP    C$DCLN

```

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 TEST 9: INVOKE ROM TEST OF SERIAL PORT #2 (CHANNEL B) - NEC720

```

2439
2440
2441      : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
2442      :
2443
2444 022410 016102 000002      4$:  MOV      DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
2445 022414 100005          BPL      5$              : BR, IF NO COMMAND STATUS ERROR
2446 022416          ERRHRD 30,CMND,CMDERR : ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      022416 104456          TRAP   C$ERHRD
      022420 000036          .WORD  30
      022422 003221          .WORD  CMND
      022424 016570          .WORD  CMDERR
2447 022426 000431          BR      7$              : EXIT TEST
2448
2449 022430 016102 000004      5$:  MOV      DPR2(R1),R2      : READ IOP DPR2
2450 022434 033702 002260          BIT     SLU2,R2          : CHECK FOR ERROR IN SLU2 TEST
2451 022440 001424          BEQ     7$              : BRANCH, IF SUCCESSFUL TEST
2452 022442 043761 002260 000004 BIC     SLU2,DPR2(R1)    : CLEAR THE ERROR BIT FOR THIS TIME.
2453 022450 016103 000006          MOV     DPR3(R1),R3    : READ DPR3 FOR EXTENDED INFO
2454 022454 032703 000001          BIT     #BIT0,R3      : CHECK FOR ENTIRE TEST SKIPPED
2455 022460 001406          BEQ     6$              : BR, IF TEST WASN'T SKIPPED
2456 022462 012702 010337          MOV     #T7E0,R2      : SETUP MESSAGE ADDRESS FOR PRINTOUT
2457 022466 004537 016722          JSR     R5,SKIPED     : PRINT THIS TEST SKIPPED
2458 022472          EXIT    TST
      022472 104432          TRAP   C$EXIT
      022474 000020          .WORD  L10031-.
2459
2460 022476 012702 004273      6$:  MOV     #SLU2B,R2      : ERROR MESSAGE POINTER
2461 022502          ERRHRD 31,ROMD,RTERR : SLU2 CHANNEL B FAILED
      022502 104456          TRAP   C$ERHRD
      022504 000037          .WORD  31
      022506 003112          .WORD  ROMD
      022510 016070          .WORD  RTERR
2462
2463 022512          7$:  CKLOOP
      022512 104406          TRAP   C$CLP1      : CHECK FOR LOOP ON TEST
2464
2465 022514          L10031:  ENDTST
      022514          TRAP   C$ETST
      022514 104401

```


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 TEST 9: INVOKE ROM TEST OF SERIAL PORT #2 (CHANNEL B) - NEC720

2467
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 2472
 2473
 2474
 2475
 2476
 2477

.SBTTL TEST 10: INVOKE TEST OF THE PARALLEL I/O PORT, Z8036

:++
 :
 :
 :
 :
 :
 :
 :--

IOP SELFTEST #10.

INVOKE THE ROM TEST OF THE Z8036 (PARALLEL I/O).

2478	022516			BGNTST		
2479						
2480	022516	012702	005267	MOV	#ROMT10,R2	: GET TITLE ADDRESS
2481	022522	004537	017336	JSR	R5,PNTFLG	: SEE IF PNT FLAG IS SET
2482	022526	005737	002206	TST	DROPUN	: CHECK THIS UNIT FOR BEING DROPPED
2483	022532	001401		BEQ	1\$: BRANCH, IF NOT DROPPED
2484	022534			DOCLN		: ABORT THE DIAGNOSTIC FOR THIS UNIT
	022534	104444		TRAP	C\$DCLN	
2485						
2486	022536	004537	017014	1\$: JSR	R5,CKTPRO	: SEE IF THE CURRENT IOP IS READY
2487	022542	005737	002230	TST	LOOPB4	: CHECK LOOPBACK CONNECTOR INSTALLED
2488	022546	001476		BEQ	7\$: BRANCH IF NO CONNECTOR INSTALLED
2489						
2490	022550	013701	002216	MOV	QBASE,R1	: R1 = IOP BASE ADDRESS
2491	022554	013761	002262	MOV	PLLIO,DPRO(R1)	: SEND COMMAND TO DPRO
2492			000000			
2493	022562	012704	140000	MOV	#140000,R4	: R4 WILL BE USED AS A COUNTER
2494	022566	005761	000000	2\$: TST	DPRO(R1)	: TEST THE IOP'S DPRO REG.
2495	022572	001423		BEQ	4\$: BRANCH, IF THE TEST HAS COMPLETED
2496	022574	004537	016754	JSR	R5,RDELAY	: DELAY ABOUT 1 MS
2497	022600	000001		1		
2498	022602	005204		INC	R4	: ERROR, IF R4 WRAPS TO 0
2499	022604	001370		BNE	2\$: ERROR, IF NO BRANCH
2500	022606	012702	004331	MOV	#PLL,R2	: SETUP FOR ERROR REPORTING.
2501	022612			ERRDF	32,NORES,NRES	: FATAL ERROR. NO RESPONSE FROM TEST.
	022612	104455		TRAP	C\$ERDF	
	022614	000040		.WORD	32	
	022616	003054		.WORD	NORES	
	022620	016412		.WORD	NRES	
2502	022622			CKLOOP		: CHECK FOR LOOP ON TEST
	022622	104406		TRAP	C\$CLP1	
2503	022624			DODU	LUN	: DROP THIS UNIT
	022624	013700	002210	MOV	LUN,RO	
	022630	104451		TRAP	C\$DODU	
2504	022632	012737	177777	MOV	#-1,DROPUN	: SET DROPPED UNIT FLAG.
2505	022640		002206	DOCLN		: ABORT THE DIAGNOSTIC FOR THIS UNIT
	022640	104444		TRAP	C\$DCLN	

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 134
 TEST 10: INVOKE TEST OF THE PARALLEL I/O PORT, 28036

```

2507
2508
2509      :
2510      : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
2511      :
2512 022642 016102 000002      4$:  MOV    DPR1(R1),R2      ; READ BOOT COMMAND STATUS REGISTER
2513 022646 100005              BPL    5$                ; BR, IF NO COMMAND STATUS ERROR
2514 022650              ERRHRD 33,CMND,CMDERR ; ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      022650 104456              TRAP  C$ERHRD
      022652 000041              .WORD 33
      022654 003221              .WORD CMND
      022656 016570              .WORD CMDERR
2515 022660 000431              BR     7$                ; EXIT TEST
2516
2517 022662 016102 000004      5$:  MOV    DPR2(R1),R2      ; READ IOP DPR2
2518 022666 033702 002262      BIT    PLLIO,R2          ; CHECK FOR ERROR IN PARALLEL I/O TEST
2519 022672 001424              BEQ    7$                ; BRANCH, IF SUCCESSFUL TEST
2520 022674 043761 002262 000004 BIC    PLLIO,DPR2(R1)    ; CLEAR THE ERROR BIT FOR THIS TIME.
2521 022702 016103 000006      MOV    DPR3(R1),R3      ; READ DPR3 FOR EXTENDED INFO
2522 022706 032703 000001      BIT    #BIT0,R3         ; CHECK FOR ENTIRE TEST SKIPPED
2523 022712 001406              BEQ    6$                ; BR, IF TEST WASN'T SKIPPED
2524 022714 012702 011477      MOV    #T10E0,R2        ; SETUP MESSAGE ADDRESS FOR PRINTOUT
2525 022720 004537 016722      JSR    R5,SKIPED        ; PRINT THIS TEST SKIPPED
2526 022724              EXIT  TST                ; EXIT THIS TEST
      022724 104432              TRAP  C$EXIT
      022726 000020              .WORD L10032-.
2527
2528 022730 012702 004331      6$:  MOV    #PLL,P,R2        ; ERROR MESSAGE POINTER
2529 022734              ERRHRD 34,ROMD,RTERR    ; PARALLEL I/O TEST FAILED
      022734 104456              TRAP  C$ERHRD
      022736 000042              .WORD 34
      022740 003112              .WORD ROMD
      022742 016070              .WORD RTERR
2530
2531 022744              7$:  CKLOOP
      022744 104406              TRAP  C$CLP1            ; CHECK FOR LOOP ON TEST
2532
2533 022746              L10032:  ENDTST
      022746              TRAP  C$SETST
      022746 104401

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 135
 TEST 10: INVOKE TEST OF THE PARALLEL I/O PORT, 28036

```

2535
2536
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2539
2540
2541
2542
2543
2544
2545
2546
2547 022750
2548
2549 022750 012702 005346
2550 022754 004537 017336
2551 022760 005737 002206
2552 022764 001401
2553 022766
      022766 104444
2554
2555 022770 004537 017014
2556 022774 013701 002216
2557 023000 005061 000006
2558 023004 013761 002264 000000
2559
2560 023012 012704 140000
2561 023016 005761 000000
2562 023022 001423
2563 023024 004537 016754
2564 023030 000001
2565 023032 005204
2566 023034 001370
2567 023036 012702 004353
2568 023042
      023042 104455
      023044 000043
      023046 003054
      023050 016412
2569 023052
      023052 104406
2570 023054
      023054 013700 002210
      023060 104451
2571 023062 012737 177777 002206
2572 023070
      023070 104444

```

```

.SBTTL TEST 11: INVOKE THE DMA CONTROLLER TEST OF THE AMZ8016 (LOCAL SIDE)

:++
      IOP SELFTEST #11.
: THE ROM TEST OF THE IOP'S AMZ8C16 DMA CONTROLLER CHIP IS INVOKED.
: DMA TRANSFERS WILL BE DONE ON THE LOCAL SIDE ONLY. NEXT TEST DOES LSI-11.
:--
      BGNTST
      MOV      #ROM11A,R2      : GET TITLE ADDRESS
      JSR      R5,PNTFLG      : SEE IF PNT FLAG IS SET
      TST      DROPUN        : CHECK THIS UNIT FOR BEING DROPPED
      BEQ      1$            : BRANCH, IF NOT DROPPED
      DOCLN
      TRAP     C$DCLN        : ABORT THE DIAGNOSTIC FOR THIS UNIT

1$:   JSR      R5,CKTPRO      : SEE IF THE CURRENT IOP IS READY
      MOV      QBASE,R1      : R1 = IOP BASE ADDRESS
      CLR      DPR3(R1)      : CLEAR TPR3 SO ONLY LOCAL DMA'S DONE.
      MOV      DMA,DPRO(R1)  : SEND COMMAND TO DPRO

2$:   MOV      #140000,R4     : R4 WILL BE USED AS A COUNTER
      TST      DPRO(R1)      : TEST THE IOP'S DPRO REG.
      BEQ      4$            : BRANCH, IF THE TEST HAS COMPLETED
      JSR      R5,RDELAY     : DELAY ABOUT 1 MS

      INC      R4            : ERROR, IF R4 WRAPS TO 0
      BNE      2$            : ERROR, IF NO BRANCH
      MOV      #DMAL,R2      : SETUP FOR ERROR REPORTING.
      ERDF    35,NORES,NRES : FATAL ERROR. NO RESPONSE FROM TEST.
      TRAP     C$ERDF
      .WORD   35
      .WORD   NORES
      .WORD   NRES

      CKLOOP
      TRAP     C$CLP1        : CHECK FOR LOOP ON TEST
      DODU    LUN           : DROP THIS UNIT
      MOV     LUN,R0
      TRAP     C$DODU
      MOV     #-1,DROPUN    : SET DROPPED UNIT FLAG.
      DOCLN
      TRAP     C$DCLN        : ABORT THE DIAGNOSTIC FOR THIS UNIT

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 136
 TEST 11: INVOKE THE DMA CONTROLLER TEST OF THE AMZ8016 (LOCAL

```

2574
2575
2576          : TO HERE IF TEST COMPLETED, AND CHECK DPR2 FOR SUCCESS/FAILURE.
2577          :
2578
2579 023072 016102 000002 4$:  MOV    DPR1(R1),R2          : READ BOOT COMMAND STATUS REGISTER
2580 023076 100005          : BPL    5$              : BR, IF NO COMMAND STATUS ERROR
2581 023100          : ERRHRD 36,CMND,CMDERR : ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
      023100 104456          : TRAP  C$ERHRD
      023102 000044          : .WORD 36
      023104 003221          : .WORD CMND
      023106 016570          : .WORD CMDERR
2582 023110 000436          : BR    8$              : EXIT TEST
2583
2584 023112 016102 000004 5$:  MOV    DPR2(R1),R2          : READ IOP DPR2
2585 023116 033702 002264          : BIT   DMA,R2          : CHECK FOR ERROR IN DMA TEST
2586 023122 001431          : BEQ   8$              : BRANCH, IF SUCCESSFUL TEST
2587 023124 043761 002264 000004 : BIC   DMA,DPR2(R1)    : CLEAR THE ERROR BIT FOR THIS TIME.
2588 023132 016103 000006          : MOV   DPR3(R1),R3    : READ DPR3 FOR EXTENDED INFO
2589 023136 032703 000001          : BIT   #BIT0,R3       : CHECK IF INTERRUPTS WERE TESTED
2590 023142 001406          : BEQ   6$              : BR, IF INTERRUPTS WERE TESTED
2591 023144 013702 012161          : MOV   T11E0,R2       : SETUP MESSAGE ADDRESS
2592 023150 004537 016722          : JSR   R5,SKIPED      : PRINT A PORTION OF SELFTEST NOT RUN
2593 023154 042703 000001          : BIC   #BIT0,R3       : CLEAR IT SO NEXT TEST NOT CONFUSED
2594 023160 042703 000002 6$:  BIC   #BIT1,R3       : THE BIT 1 ERROR DOESN'T APPLY HERE
2595
2596 023164 032703 007777 7$:  BIT   #7777,R3        : SEE IF ANY LEGITIMATE ERRORS EXIST
2597 023170 001406          : BEQ   8$              : BRANCH, IF NO ERRORS
2598 023172 012702 004353          : MOV   #DMAL,R2       : ERROR MESSAGE POINTER
2599 023176          : ERRHRD 37,ROMD,RTERR : DMA TEST FAILED
      023176 104456          : TRAP  C$ERHRD
      023200 000045          : .WORD 37
      023202 003112          : .WORD ROMD
      023204 016070          : .WORD RTERR
2600
2601 023206          : 8$:  CKLOOP          : CHECK FOR LOOP ON TEST
      023206 104406          : TRAP  C$CLP1
2602
2603          : L10033:
      023210          : ENDTST
      023210 104401          : TRAP  C$ETST
    
```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 137
 TEST 11: INVOKE THE DMA CONTROLLER TEST OF THE AMZ8016 (LOCAL

```

2605
2606
2607
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2609
2610
2611
2612
2613
2614
2615
2616
2617
2618 023212
2619
2620 023212 012702 005416
2621 023216 004537 017336
2622 023222 005737 002206
2623 023226 001401
2624 023230
      023230 104444
2625
2626 023232 004537 017014
2627 023236 013701 002216
2628 023242 013761 002242 000006
2629 023250 013761 002264 000000
2630
2631 023256 012704 140000
2632 023262 005761 000000
2633 023266 001423
2634 023270 004537 016754
2635 023274 000001
2636 023276 005204
2637 023300 001370
2638 023302 012702 004413
2639 023306
      023306 104455
      023310 000050
      023312 003054
      023314 016412
2640 023316
      023316 104406
2641 023320
      023320 013700 002210
      023324 104451
2642 023326 012737 177777 002206
2643 023334
      023334 104444

```

```

      .SBTTL TEST 12: INVOKE THE DMA CONTROLLER TEST OF THE AMZ8016 (LSI-11 SIDE)
      :++
      :
      : IOP SELFTEST #11.
      : THE ROM TEST OF THE IOP'S AMZ8016 DMA CONTROLLER CHIP IS INVOKED.
      : TESTS OF DMA TRANSFERS TO AND FROM THE LSI-11 BUS ARE DONE.
      :--
      BGNTST
      MOV #ROM11B,R2 ; GET TITLE ADDRESS
      JSR R5,PNTFLG ; SEE IF PNT FLAG IS SET
      TST DROPUN ; CHECK THIS UNIT FOR BEING DROPPED
      BEQ 1$ ; BRANCH, IF NOT DROPPED
      DOCLN ; ABORT THE DIAGNOSTIC FOR THIS UNIT
      TRAP C$DCLN

      1$: JSR R5,CKTPRO ; SEE IF THE CURRENT IOP IS READY
      MOV QBASE,R1 ; R1 = IOP BASE ADDRESS
      MOV HIMEM,DPR3(R1) ; SEND BASE OF HI 4KW PAGE (PAR FORMAT)
      MOV DMA,DPRO(R1) ; SEND COMMAND TO DPRO

      2$: MOV #140000,R4 ; R4 WILL BE USED AS A COUNTER
      TST DPRO(R1) ; TEST THE IOP'S DPRO REG.
      BEQ 4$ ; BRANCH, IF THE TEST HAS COMPLETED
      JSR R5,RDELAY ; DELAY ABOUT 1 MS
      1 INC R4 ; ERROR, IF R4 WRAPS TO 0
      BNE 2$ ; ERROR, IF NO BRANCH
      MOV #DMAT,R2 ; SETUP FOR ERROR REPORTING.
      ERRDF 40,NRES,NRES ; FATAL ERROR. NO RESPONSE FROM TEST.
      TRAP C$ERDF
      .WORD 40
      .WORD NRES
      .WORD NRES
      CKLOOP ; CHECK FOR LOOP ON TEST
      TRAP C$CLP1 ; DROP THIS UNIT
      DODU LUN
      MOV LUN,R0
      TRAP C$DODU
      MOV #-1,DROPUN ; SET DROPPED UNIT FLAG.
      DOCLN ; ABORT THE DIAGNOSTIC FOR THIS UNIT
      TRAP C$DCLN

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 138
 TEST 12: INVOKE THE DMA CONTROLLER TEST OF THE AM28016 (LSI-11)

```

2645
2646
2647
2648
2649
2650 023336 016102 000002      4$:  MOV      DPR1(R1),R2      : READ BOOT COMMAND STATUS REGISTER
2651 023342 100005              BPL      5$                : BR, IF NO COMMAND STATUS ERROR
2652 023344              ERRHRD  41,CMND,CMDERR      : ERROR.  BOOT CODE DIDN'T LIKE THE COMMAND
      023344 104456              TRAP    C$ERHRD
      023346 000051              .WORD   41
      023350 003221              .WORD   CMND
      023352 016570              .WORD   CMDERR
2653 023354 000445              BR      8$                : EXIT TEST
2654
2655 023356 016102 000004      5$:  MOV      DPR2(R1),R2      : READ IOP DPR2
2656 023362 033702 002264              BIT     DMA,R2            : CHECK FOR ERROR IN DMA TEST
2657 023366 001440              BEQ     8$                : BRANCH, IF SUCCESSFUL TEST
2658 023370 043761 002264 000004      BIC     DMA,DPR2(R1)      : CLEAR THE ERROR BIT FOR THIS TIME.
2659 023376 016103 000006              MOV     DPR3(R1),R3      : READ DPR3 FOR EXTENDED INFO
2660 023402 032703 000001              BIT     #BIT0,R3         : CHECK IF INTERRUPTS WERE TESTED
2661 023406 001406              BEQ     6$                : BR, IF INTERRUPTS WERE TESTED
2662 023410 013702 012161              MOV     T11E0,R2         : SETUP MESSAGE ADDRESS
2663 023414 004537 016722              JSR     R5,SKIPED        : PRINT A PORTION OF SELFTEST NOT RUN
2664 023420 042703 000001              BIC     #BIT0,R3         : CLEAR IT SO NEXT TEST NOT CONFUSED
2665
2666 023424 032703 000002      6$:  BIT     #BIT1,R3         : CHECK IF BUS TESTS WERE RUN
2667 023430 001406              BEQ     7$                : BR, IF BUS TESTS WERE RUN
2668 023432 012702 012260              MOV     #T11E1,R2        : SETUP MESSAGE ADDRESS
2669 023436 004537 016722              JSR     R5,SKIPED        : PRINT BUS TESTS NOT DONE
2670 023442 042703 000002              BIC     #BIT1,R3         : CLEAR IT SO NEXT TEST NOT CONFUSED
2671
2672 023446 032703 007777      7$:  BIT     #7777,R3         : SEE IF ANY LEGITIMATE ERRORS EXIST
2673 023452 001406              BEQ     8$                : BRANCH, IF NO ERRORS
2674 023454 012702 004413              MOV     #DMAT,R2         : ERROR MESSAGE POINTER
2675 023460              ERRHRD  42,ROMD,RTERR    : DMA TEST FAILED
      023460 104456              TRAP    C$ERHRD
      023462 000052              .WORD   42
      023464 003112              .WORD   ROMD
      023466 016070              .WORD   RTERR
2676
2677 023470              8$:  CKLOOP              : CHECK FOR LOOP ON TEST
      023470 104406              TRAP    C$CLP1
2678
2679 023472              ENDTST
      023472              L10034:
      023472 104401              TRAP    C$ETST
  
```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 139
 TEST 12: INVOKE THE DMA CONTROLLER TEST OF THE AMZ8016 (LSI-11)

```

2681
2682
2683           .SBTTL TEST 13: LSI-11 BUS INTERRUPT TEST
2684
2685           :++
2686
2687                   IOP SELFTEST #12.
2688
2689                   INVOKE THE LSI-11 BUS INTERRUPT TEST
2690
2691           :--
2692
2693 023474           BGNTST
2694
2695 023474 012702 005462           MOV      #ROMT12,R2           ; GET TITLE ADDRESS
2696 023500 004537 017336           JSR      R5,PNTFLG           ; SEE IF PNT FLAG IS SET
2697 023504 005737 002206           TST     DROPUN              ; CHECK THIS UNIT FOR BEING DROPPED
2698 023510 001401                   BEQ     1$                   ; BRANCH, IF NOT DROPPED
2699 023512                   DOCLN
2700 023512 104444           TRAP    C$DCLN              ; ABORT THE DIAGNOSTIC FOR THIS UNIT
2701
2701 023514 004537 017014           1$:    JSR      R5,CKTPRO           ; SEE IF THE CURRENT IOP IS READY
2702
2703 023520 013701 002216           2$:    MOV      QBASE,R1           ; R1 = IOP BASE ADDRESS
2704 023524 012737 001770 002220           MOV      #1770,QIRVEC        ; ADDRESS 1770 IS THE INTERRUPT VECTOR
2705 023532 005037 002240           CLR     INTFLG              ; SOFTWARE FLAG INDICATES INT. OCCURED
2706 023536           SETVEC  QIRVEC,#QIRSRV,#PRI07 ; SETUP THE VECTOR; TEMP PRIORITY OF 7
2707 023536 012746 000340           MOV     #PRI07,-(SP)
2708 023542 012746 024244           MOV     #QIRSRV,-(SP)
2709 023546 013746 002220           MOV     QIRVEC,-(SP)
2710 023552 012746 000003           MOV     #3,-(SP)
2711 023556 104437           TRAP    C$SVEC
2712 023560 062706 000010           ADD     #10,SP
2713
2713 023564           SETPRI  #PRI07              ; RAISE CPU SO IOP CAN'T INTERRUPT YET.
2714 023564 012700 000340           MOV     #PRI07,R0
2715 023570 104441           TRAP    C$SPRI
2716 023572 013761 002220 000006           MOV     QIRVEC,DPR3(R1)      ; TELL IOP WHICH VECTOR WE WANT
2717 023600 013761 002266 000000           MOV     QIR,DPRO(R1)        ; SEND QIR TEST COMMAND TO DPRO
2718 023606           SETPRI  #PRI00              ; LOWER PRIORITY SO IOP CAN INTERRUPT
2719 023606 012700 000000           MOV     #PRI00,R0
2720 023612 104441           TRAP    C$SPRI
2721
2721 023614 004537 016754           JSR     R5,RDELAY           ; DELAY, AND THEN CHECK INT. OCCURED
2722 023620 000002           2           ; 2 MILLISECONDS
2723 023622 005737 002240           TST     INTFLG              ; IOP INTERRUPTED, IF INTFLG SET
2724 023626 001060           BNE     6$                   ; BR, IF OK
2725 023630 016102 000002           MOV     DPR1(R1),R2         ; READ BOOT COMMAND STATUS REGISTER
2726 023634 100006           BPL     3$                   ; BR, IF NO COMMAND STATUS ERROR
2727 023636           ERRHRD  43,CMND,CMDERR      ; ERROR. BOOT CODE DIDN'T LIKE THE COMMAND
2728 023636 104456           TRAP    C$ERHRD
2729 023640 000053           .WORD   43
2730 023642 003221           .WORD   CMND
2731 023644 016570           .WORD   CMDERR
2732 023646           EXIT    TST                   ; EXIT TEST
2733 023646 104432           TRAP    C$EXIT
2734 023650 000404           .WORD   L10035-.

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 140
 TEST 13: LSI-11 BUS INTERRUPT TEST

```

2722
2723 023652 016102 000004      3$:  MOV    DPR2(R1),R2      ; READ IOP TPR2
2724 023656 033702 002266      BIT    QIR,R2           ; CHECK FOR A SELFTEST ERROR
2725 023662 001424                BEQ    5$              ; BR, IF NO ERROR.
2726 023664 016103 000006      MOV    DPR3(R1),R3     ; READ SELFTEST EXTENDED ERROR REGISTER
2727 023670 032703 000001      BIT    #BIT0,R3       ; CHECK FOR ENTIRE TEST SKIPPED
2728 023674 001406                BEQ    4$              ; BR, IF TEST WASN'T SKIPPED
2729 023676 012702 012625      MOV    #T12E0,R2      ; SETUP MESSAGE ADDRESS FOR PRINTOUT
2730 023702 004537 016722      JSR    R5,SKIPED      ; PRINT THIS TEST SKIPPED
2731 023706                EXIT   TST             ; EXIT THIS TEST
      023706 104432      TRAP  C$EXIT
      023710 000344      .WORD L10035-.

2732
2733 023712 032703 000004      4$:  BIT    #BIT2,R3      ; NOW CHECK FOR ROM IN VECTOR SPACE
2734 023716 001406                BEQ    5$              ; BR, IF RAM AND NOT ROM IN VECTOR SPACE
2735 023720 012702 012771      MOV    #T12E2,R2      ; SETUP MESSAGE ADDRESS FOR PRINTOUT
2736 023724 004537 016722      JSR    R5,SKIPED      ; PRINT THIS TEST SKIPPED
2737 023730                EXIT   TST             ; EXIT THIS TEST
      023730 104432      TRAP  C$EXIT
      023732 000322      .WORD L10035-.

2738
2739 023734                5$:  SETPRI #PRI07          ; RESTORE PRIORITY TO 7
      023734 012700 000340      MOV    #PRI07,R0
      023740 104441      TRAP  C$SPRI

2740 023742 012702 004453      MOV    #QIRT,R2       ; ERROR MESSAGE POINTER
2741 023746 012703 004500      MOV    #QIRT1,R3      ; ERROR MESSAGE POINTER
2742 023752      ERRHRD 44,ROMD,GENMSG ; ERROR. NO INTERRUPT FROM IOP
      023752 104456      TRAP  C$ERHRD
      023754 000054      .WORD 44
      023756 003112      .WORD ROMD
      023760 016444      .WORD GENMSG

2743 023762                CKLOOP                ; CHECK FOR LOOP ON TEST
      023762 104406      TRAP  C$CLP1
2744 023764                EXIT   TST             ; EXIT THIS TEST
      023764 104432      TRAP  C$EXIT
      023766 000266      .WORD L10035-.

```


HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 141
 TEST 13: LSI-11 BUS INTERRUPT TEST

2746									
2747	023770			6\$:	SETPRI	#PRI07			: SET CPU TEMPORARILY TO 7
	023770	012700	000340		MOV	#PRI07,R0			
	023774	104441			TRAP	C\$SPRI			
2748	023776	005037	002240		CLR	INTFLG			: CLEAR THE SOFTWARE INT. FLAG
2749	024002				CLRVEC	QIRVEC			: CLEAR THE VECTOR JUST USED
	024002	013700	002220		MOV	QIRVEC,R0			
	024006	104436			TRAP	C\$CVEC			
2750	024010	062737	000004	002220	ADD	#4,QIRVEC			: ADVANCE TO THE NEXT (#1774)
2751	024016				SETVEC	QIRVEC,#QIRSRV,#PRI07			: SETUP VECTOR FOR NEXT TEST
	024016	012746	000340		MOV	#PRI07,-(SP)			
	024022	012746	024244		MOV	#QIRSRV,-(SP)			
	024026	013746	002220		MOV	QIRVEC,-(SP)			
	024032	012746	000003		MOV	#3,-(SP)			
	024036	104437			TRAP	C\$SVEC			
	024040	062706	000010		ADD	#10,SP			
2752	024044				SETPRI	#PRI00			: LOWER PRIORITY TO 0
	024044	012700	000000		MOV	#PRI00,R0			
	024050	104441			TRAP	C\$SPRI			
2753									
2754	024052	012704	140000		MOV	#140000,R4			: R4 WILL BE USED AS A COUNTER
2755	024056	005737	002240	7\$:	TST	INTFLG			: IOP INTERRUPTED, IF INTFLG SET
2756	024062	001023			BNE	8\$: BR, IF OK
2757	024064	004537	016754		JSR	R5,RDELAY			: DELAY, AND THEN TEST THAT INT. OCCURED
2758	024070	000001			1				: 1 MILLISECOND
2759	024072	005204			INC	R4			: WAIT FOR INTERRUPT FROM IOP
2760	024074	001370			BNE	7\$: WAIT. ERROR IF R4 WRAPS TO 0
2761									
2762	024076				SETPRI	#PRI07			: RESTORE PRIORITY TO 7
	024076	012700	000340		MOV	#PRI07,R0			
	024102	104441			TRAP	C\$SPRI			
2763	024104	012702	004453		MOV	#QIRT,R2			: ERROR MESSAGE POINTER
2764	024110	012703	004552		MOV	#QIRT2,R3			: ERROR MESSAGE POINTER
2765	024114				ERRHRD	45,ROMD,GENMSG			: ERROR. NO INTERRUPT FROM IOP...
	024114	104456			TRAP	C\$ERHRD			
	024116	000055			.WORD	45			
	024120	003112			.WORD	ROMD			
	024122	016444			.WORD	GENMSG			
2766	024124				CKLOOP				: CHECK FOR LOOP ON TEST
	024124	104406			TRAP	C\$CLP1			
2767	024126				EXIT	TST			: EXIT THIS TEST
	024126	104432			TRAP	C\$EXIT			
	024130	000124			.WORD	L10035-			

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 142
 TEST 13: LSI-11 BUS INTERRUPT TEST

```

2769
2770 024132 000005      8$:  RESET      : ISSUE A BUS RESET AS PART OF..
2771                                     : ..THE IOP SELFTEST CODE.
2772 024134 004537 016754  JSR    R5,RDELAY : WAIT FOR THE RESET TO COMPLETE
2773 024140 000062      50.                                     : 50 MILLISECONDS
2774 024142 005761 000000  TST    DPR0(R1)  : TEST THE IOP'S DPR0 REGISTER
2775 024146 001413      9$:  BEQ    9$        : BR MEANS TEST COMPLETED
2776 024150 012702 004453  MOV    #QIRT,R2  : QIR TEST MESSAGE ADDRESS
2777
2778 024154      ERRDF  46,NORES,NRES : FATAL ERROR. NO RESPONSE FROM TEST
      024154 104455  TRAP   C$ERDF
      024156 000056  .WORD  46
      024160 003054  .WORD  NORES
      024162 016412  .WORD  NRES
2779 024164      CKLOOP : CHECK FOR LOOP ON TEST
      024164 104406  TRAP   C$CLP1
2780 024166 012737 177777 002206  MOV    #-1,DROPUN : SET DROPPED UNIT FLAG
2781 024174      DOCLN : ABORT THE DIAGNOSTIC FOR THIS UNIT
      024174 104444  TRAP   C$DCLN
2782
2783 024176 016102 000004      9$:  MOV    DPR2(R1),R2 : READ IOP DPR2
2784 024202 033702 002266      BIT    QIR,R2     : CHECK FOR ERROR IN QIR TEST
2785 024206 001413      BEQ    10$        : BR, IF NO ERROR
2786 024210 043761 002266 000004  BIC    QIR,DPR2(R1) : CLEAR THE ERROR BIT FOR THIS TIME.
2787 024216 016103 000006      MOV    DPR3(R1),R3 : READ DPR3 FOR EXTENDED INFO
2788 024222 012702 004453      MOV    #QIRT,R2  : ERROR MESSAGE POINTER
2789 024226      ERRHRD 47,ROMD,RTERR : QIR TEST FAILED
      024226 104456  TRAP   C$ERHRD
      024230 000057  .WORD  47
      024232 003112  .WORD  ROMD
      024234 016070  .WORD  RTERR
2790
2791 024236      10$:  CKLOOP : CHECK FOR LOOP ON TEST
      024236 104406  TRAP   C$CLP1
2792 024240      EXIT  TST    : EXIT THIS TEST
      024240 104432  TRAP   C$EXIT
      024242 000012  .WORD  L10035-.
2793
2794
2795      :++
2796      :
2797      : IOP INTERRUPT SERVICE ROUTINE FOR TEST 12.
2798      :
2799      :--
2800 024244      BGNSRV  QIRSRV
      024244  QIRSRV::
2801
2802 024244 012737 177777 002240  MOV    #-1,INTFLG : SET FLAG TO INDICATE INT. OCCURED
2803 024252      ENDSRV : EXIT SERVICE ROUTINE
      024252  L10036:
      024252 000002      RTI
2804
2805 024254      ENDTST
      024254  L10035:
      024254 104401      TRAP   C$ETST

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 143
 TEST 13: LSI-11 BUS INTERRUPT TEST

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.SBTTL TEST 14: INVOKE THE TWO-PORT RAM TEST

..++

IOP SELFTEST #13.

THE ROM TEST OF THE IOP'S TWO-PORT RAM IS INVOKED. THE TWO-PORT RAM IS ALSO CONSIDERED AS THE LSI-11 BUS INTERFACE.

THE PROTOCOL BETWEEN THIS PROGRAM AND THE IOP BREAKS DOWN FOR THIS PARTICULAR TEST, BECAUSE THE IOP TEST OF THE TWO-PORT RAM MUST DISABLE THE DPR IN ORDER TO TEST IT. THEREFORE, THE STANDARD COMMUNICATION METHOD ISN'T POSSIBLE. THIS TEST SIMPLY INITIATES IOP TEST #13 AND THEN DELAYS ABOUT 1 SECOND; AFTER WHICH, WE MUST ASSUME THAT THE TEST HAS COMPLETED AND THE DPR HAS BEEN RE-ENABLED. DPR2 IS THEN CHECKED FOR ERROR BITS.

..--

2828	024256			BGNTST			
2829							
2830	024256	012702	005507	MOV	#ROMT13,R2	: GET TITLE ADDRESS	
2831	024262	004537	017336	JSR	R5,PNTFLG	: SEE IF PNT FLAG IS SET	
2832	024266	005737	002206	TST	DROPUN	: CHECK THIS UNIT FOR BEING DROPPED	
2833	024272	001401		BEQ	1\$: BRANCH, IF NOT DROPPED	
2834	024274			DOCLN		: ABORT THE DIAGNOSTIC FOR THIS UNIT	
	024274	104444		TRAP	CSDCLN		
2835							
2836	024276	004537	017014	1\$:	JSR	R5,CKTPRO	: SEE IF THE CURRENT IOP IS READY
2837	024302	013701	002216	MOV	QBASE,R1	: R1 = IOP BASE ADDRESS	
2838	024306	013761	002270	MOV	DPR,DPRO(R1)	: SEND COMMAND TO DPRO	
2839	024314	004537	016754	JSR	R5,RDELAY	: DELAY BEFORE CHECKING FOR ERROR.	
2840	024320	011610			5000.	: ABOUT 5 SECONDS.	
2841							
2842	024322	016102	000002	MOV	DPR1(R1),R2	: READ BOOT COMMAND STATUS REGISTER	
2843	024326	100005		BPL	2\$: BR, IF NO COMMAND STATUS ERROR	
2844	024330			ERRHRD	50,CMND,CMDERR	: ERROR. BOOT CODE DIDN'T LIKE THE COMMAND	
	024330	104456		TRAP	C\$ERHRD		
	024332	000062		.WORD	50		
	024334	003221		.WORD	CMND		
	024336	016570		.WORD	CMDERR		
2845	024340	000442		BR	4\$: EXIT TEST	

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 144
 TEST 14: INVOKE THE TWO-PORT RAM TEST

```

2847
2848 024342 016102 000004      2$:  MOV    DPR2(R1),R2      : READ IOP DPR2
2849 024346 033702 002270      BIT    DPR,R2          : CHECK FOR ERROR IN DPR TEST
2850 024352 001435              BEQ    4$              : BRANCH, IF SUCCESSFUL TEST
2851 024354 043761 002270 000004  BIC    DPR,DPR2(R1)    : CLEAR THE ERROR BIT FOR THIS TIME.
2852 024362 016103 000006      MOV    DPR3(R1),R3    : READ DPR3 FOR EXTENDED INFO
2853 024366 032703 000010      BIT    #BIT3,R3       : CHECK IF BUS WRITES/INTERRUPTS RUN
2854 024372 001410              BEQ    3$              : BR, IF THE TESTS WERE RUN
2855 024374 012702 013545      MOV    #T13E3,R2     : SETUP MESSAGE ADDRESS
2856 024400 004537 016722      JSR    R5,SKIPPED     : PRINT THAT THE TESTS WERE NOT RUN
2857 024404 042703 000010      BIC    #BIT3,R3       : CLEAR THE BIT SO NEXT TEST NOT CONFUSED
2858 024410 005703              TST    R3             : CHECK IF LEGITIMATE ERRORS EXIST
2859 024412 001415              BEQ    4$              : BRANCH, IF NO ERRORS
2860
2861 024414 012702 004626      3$:  MOV    #DPRT,R2      : ERROR MESSAGE POINTER
2862 024420      ERRDF 51,ROMD,RTERR  : DPR TEST FAILED
      024420 104455      TRAP  C$ERDF
      024422 000063      .WORD 51
      024424 003112      .WORD ROMD
      024426 016070      .WORD RTERR
2863 024430      DODU  LUN          : FATAL ERROR. DROP THIS UNIT
      024430 013700 002210      MOV    LUN,R0
      024434 104451      TRAP  C$DODU
2864 024436 012737 177777 002206  MOV    #-1,DROPUN    : SET DROPPED UNIT FLAG
2865 024444      DOCLN #-1,DROPUN    : ABORT THE DIAGNOSTIC FOR THIS UNIT
      024444 104444      TRAP  C$DCLN
2866
2867 024446      4$:  CKLOOP          : CHECK FOR LOOP ON TEST
      024446 104406      TRAP  C$CLP1
2868
2869 024450      L10037:  ENDTST
      024450              TRAP  C$SETST
      024450 104401

```

HARDWARE TESTS MACRO M1200 26-JUL-83 08:14 PAGE 145
 TEST 14: INVOKE THE TWO-PORT RAM TEST

```

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2872
2873
2874
2875
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2878
2879
2880
2881
2882
2883
2884
2885
2886 024452
      024452 000033
      024454
      BGNHRD
      .WORD L10040-L$HARD/2
L$HARD::
2887
2888 024454
      024454 000042
      024456 003415
      024460 000740
      024462 000002
      024464 000017
      GPRMD CCPU,0,D,740,2,15.,NO ; GET SBC ID SWITCH
      .WORD T$CODE
      .WORD CCPU
      .WORD 740
      .WORD T$LOLIM
      .WORD T$HILIM
2889
2890 024466
      024466 001130
      024470 003443
      024472 177777
      GPRML BASE,2,-1,YES ; GET LSI-11 BUS BASE ADDR. RANGE
      .WORD T$CODE
      .WORD BASE
      .WORD -1
2891
2892 024474
      024474 002130
      024476 003535
      024500 177777
      GPRML LOOP1,4,-1,YES ; ASK IF LOOPBACK...
      .WORD T$CODE
      .WORD LOOP1
      .WORD -1
2893
2894
2895 024502
      024502 003130
      024504 003622
      024506 177777
      GPRML LOOP2,6,-1,YES ; ...IS INSTALLED FOR SLU1
      .WORD T$CODE ; ASK IF CHANNEL A LOOPBACK INSTALLED
      .WORD LOOP2
      .WORD -1
2896
2897 024510
      024510 004130
      024512 003702
      024514 177777
      GPRML LOOP3,10,-1,YES ; ASK IF CHANNEL B LOOPBACK INSTALLED
      .WORD T$CODE
      .WORD LOOP3
      .WORD -1
2898
2899 024516
      024516 005130
      024520 003762
      024522 177777
      GPRML LOOP4,12,-1,YES ; ASK IF PARALLEL LOOPBACK INSTALLED
      .WORD T$CODE
      .WORD LOOP4
      .WORD -1

```

PARAMETER CODING MACRO M1200 26-JUL-83 08:14 PAGE 146
 HARDWARE PARAMETER CODING SECTION

2901					
2902	024524		GPRML	SLU2CF,14,-1,YES	; IS SLU2 SET FOR DMA?
	024524	006130	.WORD	TSCODE	
	024526	004027	.WORD	SLU2CF	
	024530	177777	.WORD	-1	
2903					
2904	024532		GPRML	UROM,16,-1,YES	; ASK IF USER ROM IS TO...
	024532	007130	.WORD	TSCODE	
	024534	004127	.WORD	UROM	
	024536	177777	.WORD	-1	
2905					; ...BE TESTED.
2906	024540		EXIT	HRD	
	024540	001004	.WORD	TSCODE	
2907	024542		ENDHRD		
			.EVEN		
	024542				
2908					

L10040:

PARAMETER CODING MACRO M1200 26-JUL-83 08:14 PAGE 147
SOFTWARE PARAMETER CODING SECTION

2910
2911
2912
2913
2914
2915
2916
2917
2918
2919
2920
2921 024542
 024542 000000
 024544
2922
2923 024544

 024544
2924
2925 024544
2926 024544
2927
2928 024664

 024664 025320
 024666 000214
 024670

.SBTTL SOFTWARE PARAMETER CODING SECTION

:+
: THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
: THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
: MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
: INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
: MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
: WITH THE OPERATOR.
:--

 BGNSFT
 .WORD L10041-L\$\$SOFT/2
L\$\$SOFT::

 ENDSFT
 .EVEN
L10041:

\$PATCH::
 .BLKW 50

 LASTAD
 .EVEN
 .WORD T\$FREE
 .WORD T\$SIZE
L\$LAST::

PARAMETER CODING MACRO M1200 26-JUL-83 08:14 PAGE 148
SOFTWARE PARAMETER CODING SECTION

```

2930
2931      : ++
2932      : HARD-CODED HARDWARE P-TABLES
2933      :
2934      : THERE ARE 14 HARDWARE P-TABLES HERE; HOWEVER, KEEP IN MIND THAT
2935      : THE MAXIMUM LEGAL NUMBER OF KXT11-CA IOP'S ON ANY ONE SYSTEM IS
2936      : 14(D), AND THE LEGAL UNIT NUMBERS ARE 2 THROUGH 15(D).  IOP UNITS
2937      : 0 AND 1 ARE RESERVED FOR THE NON-MULTIPROCESSING ARBITER OR DMA
2938      : DEVICE AND THE HOST MULTIPROCESSOR ARBITER, RESPECTIVELY, AND SHOULD
2939      : NOT BE USED.  IOPS 0 AND 1 AUTOMATICALLY DISCONNECT THE IOP FROM
2940      : THE LSI-11 BUS.
2941      : --
2942
2943 024670      BGNSETUP      14.
2944
2945      : UNIT 0
2946
2947 024670      BGNPTAB
2948 024670      .WORD      L10043
2949 024672      .WORD      L10044-./2-1
2950 024674      L10042:
2951 024674      .WORD      0
2952 024676      .WORD      1      : BUS ADDRESS RANGE (LOW IS DEFAULT)
2953 024700      .WORD      0      : LOOP-BACK DEFAULT IS NO (SLU1)
2954 024702      .WORD      0      : CHANNEL A LOOP-BACK DEFAULT IS NO (SLU2)
2955 024704      .WORD      0      : CHANNEL B LOOP-BACK DEFAULT IS NO (SLU2)
2956 024706      .WORD      0      : LOOP-BACK DEFAULT IS NO (PARALLEL I/O)
2957 024710      .WORD      0      : SLU2 DMA OPERATION DEFAULT IS NO
2958 024712      .WORD      0      : TEST USER ROM DEFAULT IS NO
2959 024714      .WORD      0
2960 024714      ENDPPTAB
2961 024714      L10044:
2962 024714      : UNIT 1
2963 024716      BGNPTAB
2964 024720      .WORD      L10045
2965 024722      .WORD      L10046-./2-1
2966 024724      L10043:
2967 024726      .WORD      0
2968 024728      .WORD      1      : BUS ADDRESS RANGE (LOW IS DEFAULT)
2969 024730      .WORD      0      : LOOP-BACK DEFAULT IS NO (SLU1)
2970 024732      .WORD      0      : CHANNEL A LOOP-BACK DEFAULT IS NO (SLU2)
2971 024734      .WORD      0      : CHANNEL B LOOP-BACK DEFAULT IS NO (SLU2)
2972 024736      .WORD      0      : LOOP-BACK DEFAULT IS NO (PARALLEL I/O)
2973 024738      .WORD      0      : SLU2 DMA OPERATION DEFAULT IS NO
2974 024740      .WORD      0      : TEST USER ROM DEFAULT IS NO
2975 024740      .WORD      0
2976 024740      ENDPPTAB
2977 024740      L10046:

```


PARAMETER CODING MACRO M1200 26-JUL-83 08:14 PAGE 152
 SOFTWARE PARAMETER CODING SECTION

```

3052
3053
3054
3055 025130
      025130 025160
      025132 000010
      025134
L10061:
3056 025134 000000
3057 025136 000001
3058 025140 000000
3059 025142 000000
3060 025144 000000
3061 025146 000000
3062 025150 000000
3063 025152 000000
3064 025154
      025154
3065
3066
3067
3068 025154
      025154 025204
      025156 000010
      025160
L10063:
3069 025160 000000
3070 025162 000001
3071 025164 000000
3072 025166 000000
3073 025170 000000
3074 025172 000000
3075 025174 000000
3076 025176 000000
3077 025200
      025200

```

```

      : UNIT 8
      BGNPTAB
      .WORD L10063
      .WORD L10064-./2-1
      .WORD 0
      .WORD 1
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      ENDPTAB
L10064:
      : UNIT 9
      BGNPTAB
      .WORD L10065
      .WORD L10066-./2-1
      .WORD 0
      .WORD 1
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      .WORD 0
      ENDPTAB
L10066:

```

```

: BUS ADDRESS RANGE (LOW IS DEFAULT)
: LOOP-BACK DEFAULT IS NO (SLU1)
: CHANNEL A LOOP-BACK DEFAULT IS NO (SLU2)
: CHANNEL B LOOP-BACK DEFAULT IS NO (SLU2)
: LOOP-BACK DEFAULT IS NO (PARALLEL I/O)
: SLU2 DMA OPERATION DEFAULT IS NO
: TEST USER ROM DEFAULT IS NO

```

```

: BUS ADDRESS RANGE (LOW IS DEFAULT)
: LOOP-BACK DEFAULT IS NO (SLU1)
: CHANNEL A LOOP-BACK DEFAULT IS NO (SLU2)
: CHANNEL B LOOP-BACK DEFAULT IS NO (SLU2)
: LOOP-BACK DEFAULT IS NO (PARALLEL I/O)
: SLU2 DMA OPERATION DEFAULT IS NO
: TEST USER ROM DEFAULT IS NO

```


PARAMETER CODING MACRO M1200 26-JUL-83 08:14 PAGE 154
SOFTWARE PARAMETER CODING SECTION

```

3106
3107
3108
3109 025250
      025250 025300
      025252 000010
      025254
3110 025254 000000
3111 025256 000001
3112 025260 000000
3113 025262 000000
3114 025264 000000
3115 025266 000000
3116 025270 000000
3117 025272 000000
3118 025274
      025274
3119
3120
3121
3122 025274
      025274 000000
      025276 000010
      025300
3123 025300 000000
3124 025302 000001
3125 025304 000000
3126 025306 000000
3127 025310 000000
3128 025312 000000
3129 025314 000000
3130 025316 000000
3131 025320
      025320
3132
3133 025320
3134      000001

```

```

      : UNIT 12
      BGNPTAB
      .WORD L10073
      .WORD L10074-./2-1
L10071: .WORD 0
        .WORD 1
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
      ENDPTAB
L10074:
      : UNIT 13
      BGNPTAB
      .WORD 0
      .WORD L10076-./2-1
L10073: .WORD 0
        .WORD 1
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
        .WORD 0
      ENDPTAB
L10076:
      ENDSETUP
      .END

```

```

: BUS ADDRESS RANGE (LOW IS DEFAULT)
: LOOP-BACK DEFAULT IS NO (SLU1)
: CHANNEL A LOOP-BACK DEFAULT IS NO (SLU2)
: CHANNEL B LOOP-BACK DEFAULT IS NO (SLU2)
: LOOP-BACK DEFAULT IS NO (PARALLEL I/O)
: SLU2 DMA OPERATION DEFAULT IS NO
: TEST USER ROM DEFAULT IS NO

```

```

: BUS ADDRESS RANGE (LOW IS DEFAULT)
: LOOP-BACK DEFAULT IS NO (SLU1)
: CHANNEL A LOOP-BACK DEFAULT IS NO (SLU2)
: CHANNEL B LOOP-BACK DEFAULT IS NO (SLU2)
: LOOP-BACK DEFAULT IS NO (PARALLEL I/O)
: SLU2 DMA OPERATION DEFAULT IS NO
: TEST USER ROM DEFAULT IS NO

```


PARAMETER CODING
SYMBOL TABLE

MACRO M1200 26-JUL-83 08:14 PAGE 154-2

L10016	020012	NOTPR	003353	ROMT7B	005220	TSPCNT=	000000	T11E4	012524
L10017	020046	NOTRDY	003264	ROM11A	005346	TSPTAB=	010075	T11E5	012573
L10020	020054	NOTST	015240	ROM11B	005416	TSPTHV=	000016	T12	023212 G
L10021	020214	NRES	016412 G	RTERR	016070 G	TSPTNU=	000016	T12ADR	002314
L10022	020416	NXM	016366 G	RT1	002320	TSSAVL=	177777	T12E0	012625
L10023	020636	NXMVEC=	000004	RT10	002606	TSSEGL=	177777	T12E1	012721
L10024	021072	OSAPTS=	000000	RT11	002640	TSSIZE=	000214	T12E2	012771
L10025	021312	OSAU =	000001	RT12	002672	TSSUBN=	000000	T12E3	013052
L10026	021536	OSBGNR=	000001	RT13	002724	TSTAGL=	177777	T12E4	013132
L10027	021774	OSBGNS=	000000	RT2	002352	TSTAGN=	010077	T12E5	013205
L10030	022254	OSDU =	000001	RT3	002404	TSTEMP=	000005	T12E6	013262
L10031	022514	OSERRT=	000000	RT4	002436	TSTEST=	000016	T13	023474 G
L10032	022746	OSGNSW=	000000	RT5	002470	TSTSTM=	177777	T13ADR	002316
L10033	023210	OSPOIN=	000001	RT6	002522	TSTSTS=	000001	T13E0	013336
L10034	023472	OSSETU=	000001	RT7	002554	TSSAU =	010020	T13E1	013404
L10035	024254	PLL IO	002262	SAVEC	002204	TSSAUT=	010015	T13E10	014277
L10036	024252	PLL P	004331	SETSW	015264	TSSCLE=	010016	T13E11	014350
L10037	024450	PNT =	001000 G	SFPTBL	002204 G	TSSDAT=	010076	T13E2	013460
L10040	024542	PNTFLG	017336	SKIPED	016722	TSSDU =	010017	T13E3	013545
L10041	024544	PRI =	002000 G	SLOT	015532	TSSHAR=	010040	T13E4	013653
L10042	024674	PRI00 =	000000 G	SLU1	002256	TSSHW =	010000	T13E5	013727
L10043	024720	PRI01 =	000040 G	SLU1T	004202	TSSINI=	010014	T13E6	014005
L10044	024714	PRI02 =	000100 G	SLU2	002260	TSSMSG=	010011	T13E7	014105
L10045	024744	PRI03 =	000140 G	SLU2A	004235	TSSPC =	000016	T13E8	014161
L10046	024740	PRI04 =	000200 G	SLU2B	004273	TSSPRO=	010013	T13E9	014227
L10047	024770	PRI05 =	000240 G	SLU2CF	004027	TSSPTA=	010075	T14	024256 G
L10050	024764	PRI06 =	000300 G	SL2DMA	002232	TSSRPT=	010012	T2	020216 G
L10051	025014	PRI07 =	000340 G	SOFT	016520 G	TSSSOFT=	010041	T2ADR	002274
L10052	025010	QBASE	002216	SVCGBL=	000000	TSSSRV=	010036	T2E0	006200
L10053	025040	QIR	002266	SVCINS=	000000	TSSSW =	010001	T2E1	006253
L10054	025034	QIRSRV	024244 G	SVCSUB=	177777	TSSTES=	010037	T2E2	006323
L10055	025064	QIRT	004453	SVCTAG=	000000	T1	020056 G	T2E3	006374
L10056	025060	QIRT1	004500	SVCTST=	177777	T1ADR	002272	T2E4	006457
L10057	025110	QIRT2	004552	SWITCH	015047	T1E0	005524	T2E5	006542
L10060	025104	QIRVEC	002220	SLSYM=	010000	T1E1	005570	T2E6	006613
L10061	025134	RAM	002246	TESTID	014570	T1E2	005634	T2E7	006661
L10062	025130	RAMT	004151	TPR	015377	T1E3	005700	T2E8	006725
L10063	025160	RDELAY	016754	TPRDIS	016650 G	T1E4	005746	T2E9	007003
L10064	025154	REINIT	017210	TPR1	015453	T1E5	006016	T3	020420 G
L10065	025204	ROM	002250	TSTERR	014653	T1E6	006064	T3ADR	002276
L10066	025200	ROMD	003112	TSTNO	016045	T1E7	006132	T3E0	007061
L10067	025230	ROMETX	014556	TST1	004663	T10	022516 G	T3E1	007137
L10070	025224	ROMSG	014531	TSARGC=	000002	T10ADR	002310	T3E2	007215
L10071	025254	ROMT	004170	TSCODE=	001004	T10E0	011477	T3E3	007313
L10072	025250	ROMTST	002234	TSERRN=	000063	T10E1	011560	T4	020640 G
L10073	025300	ROMT1	004721	TSEXCP=	000000	T10E2	011621	T4ADR	002300
L10074	025274	ROMT10	005267	T\$FLAG=	000041	T10E3	011657	T5	021074 G
L10076	025320	ROMT11	005317	T\$FREE=	025320	T10E4	011714	T5ADR	002302
MDHEDR	002000 G	ROMT12	005462	T\$GMAN=	000000	T10E5	011767	T5E0	007411
NEXT	017470	ROMT13	005507	T\$HILI=	000017	T10E6	012037	T5E1	007471
NOINFO	014712	ROMT2	004744	T\$LAST=	000001	T10E7	012116	T5E2	007544
NOIOP	002756	ROMT3	004767	T\$LOLI=	000002	T11	022750 G	T5E3	007607
NONO	016620 G	ROMT4	005023	T\$LSYM=	010000	T11ADR	002312	T6	021314 G
NOREG	014500	ROMT5	005062	T\$LTNO=	000016	T11E0	012161	T6ADR	002304
NORES	003054	ROMT6	005117	T\$NEST=	177777	T11E1	012260	T6E0	007647
NOSEC	017704	ROMT7 =	***** GX	T\$NSO =	000005	T11E2	012365	T6E1	007745
NOTCLR	015321	ROMT7A	005151	T\$NS1 =	000010	T11E3	012437	T6E2	010025

PARAMETER CODING
SYMBOL TABLE

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T6E3	010074	T7E0	010337	T7E4	010634	T7E9	011227	X\$ALWA=	000000
T6E4	010154	T7E1	010417	T7E5	010707	T8	021776 G	X\$FALS=	000040
T6E5	010223	T7E10	011320	T7E6	010775	T9	022256 G	X\$OFFS=	000400
T6E6	010266	T7E11	011412	T7E7	011054	UAM	= 000200 G	X\$TRUE=	000020
T7	021540 G	T7E2	010504	T7E8	011132	UROM	004127	\$PATCH	024544 G
T7ADR	002306	T7E3	010560						

. ABS. 025320 000
000000 001

ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 28581 WORDS (112 PAGES)

DYNAMIC MEMORY: 20060 WORDS (77 PAGES)

ELAPSED TIME: 00:03:34

CZKTCA,CZKTCA/-SP=SVC34/ML,CZKTCA.P11