

BDV11,
KDF11-B

BDV11/KDF11B BT DIAG
CVM8AE0

AH-B062E-MC
FICHE 1 OF 1

APR 1982
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A large grid of technical data, likely a diagnostic or test results table. The grid is organized into approximately 10 columns and 15 rows. Each cell contains small, dense text, possibly representing test parameters, values, or status indicators. The text is too small to be legible in this image.



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.ENABL ABS,AMA
. =2000
.NLIST CND,MD,MEB,ME
.TITLE USER DOCUMENTATION
.SBTTL IDENTIFICATION

: PRODUCT CODE: AC-B061E-MC
:
: PRODUCT NAME: CVMBAE0 BDV11/KDF11B BT DIAG
:
: PRODUCT DATE: JANUARY 1982
:
: MAINTAINER: DIAGNOSTIC ENGINEERING

:
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FUNCTIONAL DESCRIPTION:

THE BDV11 BOOTSTRAP/TERMINATOR/
DIAGNOSTIC MODULE PROVIDES THE
FOLLOWING FUNCTIONS:

1. ROM RESIDENT HARDWARE DIAGNOSTIC TESTS.
2. PADS FOR ROM RESIDENT BOOTSTRAP ROUTINES FOR THOSE DEVICES WHICH ARE SUPPORTED BY THE LSI-11 SYSTEM.
3. A READ/WRITE STORAGE REGISTER FOR USE BY THE RESIDENT DIAGNOSTIC TESTS.
4. TWELVE DIP ROCKER SWITCHES TO SELECT TESTING AND BOOTSTRAP OPTIONS AT POWER UP.
5. AN ARRAY OF FOUR LED'S TO PROVIDE STATUS INFORMATION.
6. HALT AND REBOOT TOGGLE SWITCHES FOR USE IN SYSTEMS WITHOUT A CONSOLE.
7. SOCKETS FOR 2K WORDS OF EPROM.
8. OPTIONAL REPLACEMENT OF SYSTEM ROM BY 8K WORDS OF EPROM.
9. LINE CLOCK INTERRUPT ENABLE/DISABLE REGISTER

BDV11 ONLY

BDV11 ONLY

BDV11 ONLY

THE KDF11B BOOTSTRAP/DIAGNOSTIC MODULE PROVIDES THE FOLLOWING FUNCTIONS:

1. ABOVE MENTIONED FUNCTIONS 1., 3., 4.(8 SWITCHES), 5., 6., 9.
2. LINE CLOCK CLEARED BY RESET INSTRUCTION
3. PAGE CONTROL REGISTER IS WRITE ONLY
4. PRIORITY LEVEL 6(THE SAME FOR KDF11A)

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.SBTTL GENERAL PROGRAM INFORMATION

: PROGRAM PURPOSE: THIS DIAGNOSTIC WILL BE USED TO ESTABLISH
: CONFIDENCE THAT THE MODULE IS FUNCTIONING
: PROPERLY. IT WILL PROVIDE CHECKSUM VERI-
: FICATION OF THE CONTENTS OF THE DIAGNOSTIC
: ROMS AND ANY ADDITIONAL ROM OR EPROM. IN
: ADDITION, IT WILL VERIFY THAT THE PROPER
: DIAGNOSTIC ROMS ARE INSERTED IN THE MODULE
: BY COMPARING THE ACTUAL CHECKWORDS IN THE
: ROMS TO THOSE SPECIFIED IN THE DIAGNOSTIC
: PROGRAM. IT WILL ALSO ACCEPT CHECKWORDS
: FROM AN OPERATOR FOR USE IN TESTING ANY
: ADDITIONAL ROM/EPROM. THE DIAGNOSTIC WILL
: ALSO TEST THE PROGRAMMABLE REGISTERS AND
: EXERCISE THE LED'S FOR OPERATOR INSPECTION.

: SYSTEM REQUIREMENTS:
: HARDWARE: LSI-11 BUS PROCESSOR:
: 11/03(LSI-11/02),11/23(KDF11-A),11/23B(KDF11-B)
: 16K WORDS OF MEMORY
: CONSOLE TERMINAL
: DIAGNOSTIC PROGRAM LOAD DEVICE

: RELATED DOCUMENTS AND STANDARDS:
: CHQUSB XXDP+/SUPR USER MAN (AC-F348 -MC) TO REFERENCE
: THE DIAGNOSTIC SUPERVISOR COMMAND INSTRUCTIONS.
: DIAGNOSTIC SUPERVISOR FUNCTIONAL SPEC (176-681-001)
: APT/DIAGNOSTIC SUPERVISOR INTERFACE SPEC (176-681-003)

: DIAGNOSTIC HIERARCHY PREREQUISITES: NONE, ALTHOUGH IT IS ASSSUMED THAT
: THE CPU IS FUNCTIONING PROPERLY.

: ASSUMPTIONS:
: --WHEN RUNNING UNDER APT, ALL ROCKER
: SWITCHES ARE IN THE 'ON' POSITION.
: THE EXCEPTION TO THIS OCCURS ONLY
: WHEN AN OPERATOR CHANGES THE HARD-
: WARE P-TABLE TO CORRESPOND TO THE NEW
: SWITCH SETTINGS.
: --THE ADDRESS JUMPERS ARE CONFIGURED
: AND MEMORY CHIPS INSTALLED PROPERLY.
: NO TWO CHIPS CAN RESPOND TO THE SAME
: ADDRESS.
: --THE MODULE UNDER TEST RESIDES IN THE
: SAME BACKPLANE AS THAT FROM WHICH THE
: LINE TIME CLOCK IS GENERATED.
: --THE CPU IS WORKING PROPERLY.

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.SBTTL OPERATING INSTRUCTIONS

:1. LOADING AND STARTING PROCEDURES
: IN SYSTEMS OTHER THAN APT, THE DIAGNOSTIC PROGRAM
: AND THE DIAGNOSTIC SUPERVISOR WILL BE LOCATED ON THE XXDP+ MEDIA
: AS TWO SEPARATE FILES.

I. XXDP+ MEDIA

FOR OPERATING INSTRUCTIONS OF THE SUPERVISOR, PLEASE REFER
TO CHQUSB XXDP+/SUPR USER MAN (AC-F348 -MC).
ISSUE THE COMMAND ".R CVMBAE". THE XXDP+ MONITOR
WILL LOAD THE DIAGNOSTIC AND THE SUPERVISOR FILE
HSAAP?.SYS AND GIVE CONTROL TO THE SUPERVISOR.

II. SUPERVISOR COMMANDS

ONCE THE SUPERVISOR HAS BEEN INVOKED AT LOCATION 200,
THE FOLLOWING COMMANDS SHOULD BE USED SELECTIVELY TO
CONTROL THE RUNNING OF THE DIAGNOSTIC:

:2. TO START

START/TEST:<TESTNOS>/PASS:<PASSCNT>/UNIT:<DEVN>/FLAG:<CF>:<CF>

WHERE:

TEST ::= (DEFINES WHICH TESTS TO EXECUTE, IF NO
SPECIFICATION EXECUTE ALL TESTS)
PASS ::= (INDICATES HOW MANY PASSES TO RUN, IF NO SPEC-
IFICATION RUN UNTIL DIAGNOSTIC ESCAPE SEQUENCE)
UNIT ::= (SPECIFIES WHICH UNIT ENTRIES TO GET FROM THE
CONFIGURATION FILE, IF NO SPECIFICATION USE ALL
APPLICABLE UNIT ENTRIES)
FLAG ::= (SPECIFIES THE ERROR CONTROL/REPORT FLAG OPTIONS
TO BE USED)
<TESTNOS> ::= (LIST FOR UP TO 16 TESTS TO BE EXECUTED IN AN
ASCENDING ORDER.
<PASSCNT> ::= (NUMBER OF PROGRAM PASSES TO EXECUTE)
<DEVN> ::= (UNIQUE, DEC STANDARD, DEVICE SPECIFIER AND
UNIT NUMBER)
<CF> ::= (ANY OF THE FOLLOWING CONTROL FLAGS:
HOE-HALT ON ERROR
LOE-LOOP ON ERROR AND ATTEMPT REPORT
IER-INHIBIT ALL ERROR REPORTS
IBE-INHIBIT BASIC AND EXTENDED ERROR REPORTS
IXE-INHIBIT EXTENDED ERROR REPORTS
PRI-DIRECT ALL ERROR, PASS, AND STATISTICAL
REPORTS TO THE LINE PRINTER.
BOE-AUDIO ERROR INDICATION
UAM-UNATTENDED MODE, NO OPERATOR INTERVENTION
PNT-PRINT NUMBER OF TEST BEING EXECUTED.)

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:3. TO RESTART
: THE RESTART COMMAND IS SIMILAR TO THE START COMMAND EXCEPT
: THAT ALL PARAMETERS ARE ASSUMED TO BE ALREADY DEFINED, AND NO
: OPERATOR DIALOGUE IS PERFORMED PRIOR TO RUNNING THE DIAGNOSTIC.
: IF THE OPERATOR WISHES TO ALTER THE TYPE OF ADDITIONAL MEMORY
: TO TEST, OR CHANGE THE ADDRESSES, LOCATION 'PASS' MUST BE
: CLEARED MANUALLY PRIOR TO RESTARTING, SINCE THIS INFORMATION
: IS SET UP ON THE FIRST PASS OF THE DIAGNOSTIC.
:
: RESTART/TEST:<TESTNOS>/PASS:<PASSCNT>/FLAG:<CF>:<CF>...
:
:4. TO RETURN TO PROGRAM
:
: TO RESUME EXECUTION OF THE DIAGNOSTIC AT THE FIRST INSTRUCTION
: FOLLOWING THE CURRENT SUPERVISOR CALL, AT WHICH TIME NEW FLAGS
: MAY BE ASSIGNED.
:
: CONTINUE/FLAG:<CF>:<CF>:...
:
:5. TO LOAD AND START THE DIAGNOSTIC
: TO LOAD AND START THE DIAGNOSTIC USING DEFAULT PARAMETERS
:
: RUN<FILESPEC>/TEST:<TESTNOS>/PASS:<PASSCNT>/UNIT:<DEVN>/FLAG:<CF>...
:
:NOTE: TEST NUMBERS AND UNIT NUMBERS MAY BE SPECIFIED
: AS SINGLE NUMBERS, RANGES OF NUMBERS (I.E. 1-6),
: OR COMBINATIONS OF BOTH.
:
: SPECIAL ENVIRONMENTS: APT
: TEST 7, THE TEST OF ALL RESIDENT MEMORY, WILL NOT RUN
: UNDER APT, AS IT REQUIRES USER INTERVENTION.
: THIS TEST DOES NOT RUN ON KDF11-B.
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: FOR MORE INFORMATION ON DRS FLAGS REFER TO XXDP+ USER'S
: MANUAL

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: PROGRAM OPTIONS:
: THE HARDWARE PARAMETERS ARE STORED IN A PARAMETER TABLE WITH
: DEFAULT VALUES. THE OPERATOR WILL HAVE THE OPTION OF CHANGING
: THESE PARAMETERS BY RESPONDING TO THE APPROPRIATE QUESTIONS
: GENERATED BY THE DIAGNOSTIC SUPERVISOR. THESE PARAMETERS
: INCLUDE THE UNIT NUMBER, INTERRUPT VECTOR, PRIORITY LEVEL, AND
: ROCKER SWITCH SETTINGS. THE DEFAULT VALUES WILL BE TYPED ALONG
: WITH THE QUESTIONS.
:
: THERE ARE 12 SWITCHES ON BDV11 AND ONLY 8 ON KDF11-B.
: THE ROCKER SWITCH SETTINGS ARE EXAMINED IN THE FOLLOWING
: ORDER:
: B4 B3 B2 B1 A8 A7 A6 A5 A4 A3 A2 A1
: FOR EXAMPLE, IF SWITCHES A1, A2, A6, AND B1 WERE ON, THE SWITCH
: SETTING WOULD BE:
: B4 B3 B2 B1 A8 A7 A6 A5 A4 A3 A2 A1
: 1 1 1 1
: WHICH HAS AN OCTAL VALUE OF 0443.
:
: THE SOFTWARE P-TABLE CONTAINS FOUR TABLES WITH FIRST ONE
: ALL ZEROES FOR MANUAL CHANGES. THE SECOND ONE HAS THE CHECKWORDS FOR
: THE 2KOF DIAGNOSTIC ROM WHICH IS RESIDENT ON THE BDV11A(#23-045E2 AND
: #23-046E2). THE PROGRAM ALSO WILL COMPARE CHECKWORDS FOR ROMS #23-
: 010E2 AND #23-011E2 OR #23-339E2 AND #23-340E2 WHICH ARE IN THE NEXT TWO
: TABLES. TO INPUT DIFFERENT CHECKWORDS, THE OPERATOR MUST RESPOND WITH
: A YES TO THE SUPERVISOR'S QUESTION "CHANGE SW (Y/N)?". ZEROES WILL
: THEN BE PRINTED AS THE QUESTIONS ARE ASKED.
:
: TEST 7(FOR BDV11 ONLY) CHECKS ALL THE ADDITIONAL MEMORY THAT
: IT IS INSTRUCTED TO TEST. THIS TEST IS SET UP BY THE OPERATOR ON THE
: FIRST PASS OF THE DIAGNOSTIC. THE DIAGNOSTIC WILL ASK IF THERE
: IS ANY ADDITIONAL MEMORY TO TEST, AND IF SO WILL ASK WHICH
: TYPE OF MEMORY IT IS. (THE OPERATOR CAN ANSWER THESE QUESTIONS
: WITH LOGICAL Y/N ANSWERS.) IF ANY ADDITIONAL MEMORY IS TO BE
: TESTED, THE OPERATOR MUST SUPPLY THE CHECKWORDS FOR THOSE
: ROMS/EPROMS. IN THE CASE OF SYSTEM ROM/EPROM, THE OPERATOR WILL
: ALSO HAVE TO INDICATE HOW MANY CHECKWORDS WILL BE INPUT (IN DECIMAL).
: NOTE THAT ONCE THIS DATA IS SET UP, THIS MEMORY WILL ALWAYS BE
: TESTED, EVEN IF THE DIAGNOSTIC IS RESTARTED, UNLESS THE LOCATION
: "PASS" IS CLEARED (SEE SEC.3 OF LOADING AND STARTING PROCEDURES).
:
: EXECUTION TIMES: A SINGLE ERROR-FREE PASS WILL REQUIRE
: LESS THAN 1 SEC. TO RUN UNDER APT. WHEN RUN
: IN STAND-ALONE MODE, IT WILL REQUIRE LESS
: THAN 3 SECS. TO RUN.

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.SBTTL ERROR INFORMATION

: ERROR REPORTING PROCEDURES:
: IN GENERAL, ALL ERROR REPORTS WILL CONTAIN THE FOLLOWING
: INFORMATION:
: 1. A HEADER OF TEST IDENTIFICATION INFORMATION.
: THIS INCLUDES THE PROGRAM NAME, TYPE OF ERROR,
: ERROR NUMBER, TEST AND SUBTEST NUMBERS, UNIT
: NUMBER, AND AN OPTIONAL ADDITIONAL MESSAGE.
: 2. BASIC ERROR INFORMATION.
: THIS IS A SPECIFIC STATEMENT OF WHAT THE ERROR
: IS AND WHICH REGISTER OR ROM WAS INVOLVED.
: 3. EXTENDED ERROR INFORMATION.
: THIS IS OPTIONAL INFORMATION WHICH IS USED
: PRIMARILY TO GIVE THE EXPECTED AND ACTUAL
: CONTENTS OF THE APPROPRIATE DEVICE REGISTER
: DURING REGISTER TESTS.

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SBTTL SUBTEST SUMMARIES

TEST NO.	SUBTEST NO.	PURPOSE
1	1	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD ALL ZEROES.
	2	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD ALL ONES.
	3	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD AN ALTERNATING 1'S AND 0'S BIT PATTERN.
	4	TO VERIFY THAT THE READ/WRITE REGISTER IS BYTE ADDRESSABLE.
	5	TO VERIFY THAT THE READ/WRITE REGISTER CAN SWAP BYTES.
	6	TO VERIFY THAT THE READ/WRITE REGISTER CAN HOLD AN ALTERNATING 0' AND 1'S BIT PATTERN.
	7	TO VERIFY THAT THE READ/WRITE REGISTER IS BYTE ADDRESSABLE.
	8	TO VERIFY THAT THE READ/WRITE REGISTER CAN SWAP BYTES.
	9	TO VERIFY THAT THE READ/WRITE REGISTER CAN ROTATE A SET BIT WITHOUT PICKING UP ANY BITS.
	10	TO VERIFY THAT THE READ/WRITE REGISTER CAN ROTATE A CLEAR BIT WITHOUT PICKING UP ANY BITS.
2	1	TEST 2 IS THE SAME AS TEST 1 EXCEPT THAT THE PAGE CONTROL REGISTER IS THE REGISTER UNDER TEST.
	2	SAME AS TEST 1.
	3	SAME AS TEST 1.
	4	SAME AS TEST 1.
	5	SAME AS TEST 1.
	6	SAME AS TEST 1.
	7	SAME AS TEST 1.
	8	SAME AS TEST 1.
	9	SAME AS TEST 1.
	10	SAME AS TEST 1.
3	1	TO VERIFY THAT THE BEVENT CLAMP DISABLE ALLOWS INTERRUPTS WHEN OFF.
	2	TO VERIFY THAT THE BEVENT CLAMP DISABLE INHIBITS INTERRUPTS WHEN ON.
	3	TO VERIFY THAT PRIORITY 5 ALLOWS INTERRUPTS IF PRIORITY OF A DEVICE IS 6 (KDF11-A, KDF11-B)
	4	TO VERIFY THAT PRIORITY 6 DOESN'T ALLOW INTERRUPTS IF PRIORITY OF A DEVICE IS 6 (KDF11-A, KDF11-B)
	5	TO VERIFY THAT RESET WORKS FOR KDF11-B

BDV11 ONLY

370	:	4	1	LIGHT DISPLAY TEST
371	:	5	1	ROCKER SWITCH TEST
372	:	6	1	TO VERIFY THAT THE LOW BYTE
373	:			DIAGNOSTIC ROM HAS GOOD DATA.
374	:		2	TO VERIFY THAT THE HIGH BYTE
375	:			DIAGNOSTIC ROM HAS GOOD DATA.
376	:		3	TO INSURE THAT THE DIAGNOSTIC
377	:		4	ROMS HAVE NOT BEEN INTERCHANGED.
378	:	7	1	TO DETERMINE IF THERE IS ANY
379	:	*BDV11 ONLY*		ADDITIONAL MEMORY TO TEST.
380	:			THIS INFORMATION IS OBTAINED
381	:			THROUGH USER DIALOGUE.
382	:		2	TO TEST THE EXPANDED DIAGNOSTIC
383	:			ROM. FIRST THE REQUIRED CHECK-
384	:			WORDS MUST BE INPUT, AND THE
385	:			STARTING LOCATION IN MEMORY.
386	:			CHECKSUMS AND CHECKWORD
387	:			VERIFICATION CONFIRMS GOOD
388	:			DATA IN ROMS.
389	:		3	TO TEST THE EPROM IN THE
390	:			SOCKETS. TEST PROCEDURE IS AS
391	:			IN SUBTEST 2.
392	:		4	TO TEST SYSTEM ROM. SAME
393	:			TEST PROCEDURE AS IN SUBTEST 2.
394	:		5	TO TEST SYSTEM EPROM. SAME
395	:			TEST PROCEDURE AS IN SUBTEST 2.

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397 002000
398          000000
399          000000
400          000000
401          SVC
402          SVCINS=0
403          SVCGBL=0
404          SVCTAG=0
405          .TITLE PROGRAM HEADER AND TABLES
406          .SBTTL IDENTIFICATION
407          .SBTTL PROGRAM HEADER
408          BGNMOD MDHEDR
409          MDHEDR::
410          :++
411          : THE PROGRAM HEADER IS THE INTERFACE BETWEEN
412          : THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
413          :--
414
415 002000          POINTER BGNSW,BGNSFT
416
417
418 002000          HEADER CVM8A,E,0,7,0,340
419 002000          LSNAME::          ;DIAGNOSTIC NAME
420 002000          103          .ASCII /C/
421 002001          126          .ASCII /V/
422 002002          115          .ASCII /M/
423 002003          070          .ASCII /8/
424 002004          101          .ASCII /A/
425 002005          000          .BYTE 0
426 002006          000          .BYTE 0
427 002007          000          .BYTE 0
428 002010          LSREV::          ;REVISION LEVEL
429 002010          105          .ASCII /E/
430 002011          LSDEPO::          ;0
431 002011          060          .ASCII /O/
432 002012          LSUNIT::          ;NUMBER OF UNITS
433 002012          000000          .WORD 0
434 002014          L$TIML::          ;LONGEST TEST TIME
435 002014          000007          .WORD 7
436 002016          L$HPCP::          ;POINTER TO H.W. QUES.
437 002016          016740          .WORD L$HARD
438 002020          L$SPCP::          ;POINTER TO S.W. QUES.
439 002020          017160          .WORD L$SOFT
440 002022          L$HPTP::          ;PTR. TO DEF. H.W. PTABLE
441 002022          002144          .WORD L$HW
442 002024          L$SPTP::          ;PTR. TO S.W. PTABLE
443 002024          002160          .WORD L$SW
444 002026          L$LADP::          ;DIAG. END ADDRESS
445 002026          017576          .WORD L$LAST
446 002030          L$STA::          ;RESERVED FOR APT STATS
447 002030          000000          .WORD 0
448 002032          L$CO::          .WORD 0
449 002032          000000          .WORD 0
450 002034          L$DTYP::          ;DIAGNOSTIC TYPE
451 002034          000000          .WORD 0

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452	002036		LSAPT::		;APT EXPANSION
453	002036	000000		.WORD 0	
454	002040		LSDTP::		;PTR. TO DISPATCH TABLE
455	002040	002124		.WORD LSDISPATCH	
456	002042		LSPRIO::		;DIAGNOSTIC RUN PRIORITY
457	002042	000340		.WORD 340	
458	002044		LSENV1::		;FLAGS DESCRIBE HOW IT WAS SETUP
459	002044	000000		.WORD 0	
460	002046		LSEXP1::		;EXPANSION WORD
461	002046	000000		.WORD 0	
462	002050		L\$MREV::		;SVC REV AND EDIT #
463	002050	003		.BYTE C\$REVISION	
464	002051	003		.BYTE C\$EDIT	
465	002052		LSEF::		;DIAG. EVENT FLAGS
466	002052	000000		.WORD 0	
467	002054	000000		.WORD 0	
468	002056		L\$SPC::		
469	002056	000000		.WORD 0	
470	002060		LSDEVP::		; POINTER TO DEVICE TYPE LIST
471	002060	003176		.WORD LSDVTYP	
472	002062		LSREPP::		;PTR. TO REPORT CODE
473	002062	000000		.WORD 0	
474	002064		LSEXP4::		
475	002064	000000		.WORD 0	
476	002066		LSEXP5::		
477	002066	000000		.WORD 0	
478	002070		LSAUT::		;PTR. TO ADD UNIT CODE
479	002070	000000		.WORD 0	
480	002072		LSDUT::		;PTR. TO DROP UNIT CODE
481	002072	000000		.WORD 0	
482	002074		LSLUN::		;LUN FOR EXERCISERS TO FILL
483	002074	000000		.WORD 0	
484	002076		LSDESP::		;POINTER TO DIAG. DESCRIPTION
485	002076	003124		.WORD LSDESC	
486	002100		LSLOAD::		;GENERATE SPECIAL AUTOLOAD EMT
487	002100	104035		EMT ESLOAD	
488	002102		LSETP::		;POINTER TO ERR_TBL
489	002102	000000		.WORD 0	
490	002104		LSICP::		;PTR. TO INIT CODE
491	002104	005272		.WORD LSINIT	
492	002106		LS\$CCP::		;PTR. TO CLEAN-UP CODE
493	002106	005352		.WORD L\$CLEAN	
494	002110		LSACP::		;PTR. TO AUTO CODE
495	002110	005350		.WORD L\$AUTO	
496	002112		LSPRT::		;PTR. TO PROTECT TABLE
497	002112	005342		.WORD L\$PROT	
498	002114		L\$TEST::		;TEST NUMBER
499	002114	000000		.WORD 0	
500	002116		LS\$DLY::		;DELAY COUNT
501	002116	000000		.WORD 0	
502	002120		L\$HIME::		;PTR. TO HIGH MEM
503	002120	000000		.WORD 0	
504	002122			ENDMOD	
505					

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.SBTTL DISPATCH TABLE

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 : THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
 : IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
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BGNMOD DSPCODE
 DSPCODE::
 DISPATCH 7
 .WORD 7
 L\$DISPATCH::
 .WORD T1
 .WORD T2
 .WORD T3
 .WORD T4
 .WORD T5
 .WORD T6
 .WORD T7
 ENDMOD

.SBTTL DEFAULT HARDWARE P-TABLE

;++
 : THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
 : THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
 : IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.
 :--

BGNHW DFPTBL
 .WORD L10000-L\$HW/2
 L\$HW::
 DFPTBL::
 :DEFAULT VALUES FOR UP TO SIX UNITS
 .WORD 0 :UNIT NUMBER 0
 .WORD 100 :INTERRUPT VECTOR
 .WORD 7 :PRIORITY LEVEL
 .WORD 7777 :ROCKER SWITCH SETTINGS
 .WORD 0 :BDV11 = 0, KDF11-B = 1

ENDHW
 L10000:

.SBTTL SOFTWARE P-TABLE

;++
 : THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
 : PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
 :--

BGNSW SFPTBL
 .WORD L10001-L\$\$W/2
 L\$\$W::
 SFPTBL::

562
563
564
565
566 002160 000010
567
568 002200 017042
569 002202 020656
570 002204 065162
571 002206 161744
572 002210 124453
573 002212 113667
574 002214 056040
575 002216 044734
576
577
578 002220 031547
579 002222 014036
580 002224 065162
581 002226 124632
582 002230 032040
583 002232 167124
584 002234 155461
585 002236 032257
586
587
588 002240 166020
589 002242 020232
590 002244 045651
591 002246 036474
592 002250 066675
593 002252 163100
594 002254 005407
595 002256 022243
596
597 002260
598 002260
599
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612 002260
613 002260
614 002260
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:THE SOFTWARE P-TABLE IS USED TO STORE THE CHECKWORDS
:FOR THE DIAGNOSTIC ROM WHICH IS TESTED IN TEST 6.

.BLKW 10 ;RESERVE 8 LOC. FOR INPUT CHWS.
:THE CHECKWORDS CORRESPONDING TO ROM CHIPS #23-045E2 AND #23-046E2 FOLLOW:

.WORD 17042 ;ROMA: PAGE 0,1
.WORD 20656 ;ROMB: PAGE 2,3
.WORD 65162 ;ROMC: PAGE 4,5
.WORD 161744 ;ROMD: PAGE 6,7
.WORD 124453 ;ROME: PAGE 10,11
.WORD 113667 ;ROMF: PAGE 12,13
.WORD 56040 ;ROMG: PAGE 14,15
.WORD 44734 ;ROMH: PAGE 16,17

:THE CHECKWORDS CORRESPONDING TO ROM CHIPS #23-010E2 AND #23-011E2 FOLLOW:

.WORD 31547 ;ROMA: PAGE 0,1
.WORD 14036 ;ROMB: PAGE 2,3
.WORD 65162 ;ROMC: PAGE 4,5
.WORD 124632 ;ROMD: PAGE 6,7
.WORD 32040 ;ROME: PAGE 10,11
.WORD 167124 ;ROMF: PAGE 12,13
.WORD 155461 ;ROMG: PAGE 14,15
.WORD 32257 ;ROMH: PAGE 16,17

:THE CHECKWORDS CORRESPONDING TO ROM CHIPS #23-339E2 AND #23-340E2 FOLLOW:

.WORD 166020 ;ROMA: PAGE 0,1
.WORD 020232 ;ROMB: PAGE 2,3
.WORD 045651 ;ROMC: PAGE 4,5
.WORD 036474 ;ROMD: PAGE 6,7
.WORD 066675 ;ROME: PAGE 10,11
.WORD 163100 ;ROMF: PAGE 12,13
.WORD 005407 ;ROMG: PAGE 14,15
.WORD 022243 ;ROMH: PAGE 16,17

ENDSW

L10001:

.TITLE GLOBAL AREAS
.SBTTL IDENTIFICATION

.SBTTL GLOBAL EQUATES SECTION

::+
: THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
: ARE USED IN MORE THAN ONE TEST.
:--

BGNMOD GLBEQAT
GLBEQAT::
EQUALS

: BIT DIFINITIONS
:
:

618	100000	BIT15== 100000	
619	040000	BIT14== 40000	
620	020000	BIT13== 20000	
621	010000	BIT12== 10000	
622	004000	BIT11== 4000	
623	002000	BIT10== 2000	
624	001000	BIT09== 1000	
625	000400	BIT08== 400	
626	000200	BIT07== 200	
627	000100	BIT06== 100	
628	000040	BIT05== 40	
629	000020	BIT04== 20	
630	000010	BIT03== 10	
631	000004	BIT02== 4	
632	000002	BIT01== 2	
633	000001	BIT00== 1	
634		.	
635	001000	BIT9== BIT09	
636	000400	BIT8== BIT08	
637	000200	BIT7== BIT07	
638	000100	BIT6== BIT06	
639	000040	BIT5== BIT05	
640	000020	BIT4== BIT04	
641	000010	BIT3== BIT03	
642	000004	BIT2== BIT02	
643	000002	BIT1== BIT01	
644	000001	BIT0== BIT00	
645		.	
646		;	
647		;	
648		;	
649	000040	EF.START== 32.	; START COMMAND WAS ISSUED
650	000037	EF.RESTART== 31.	; RESTART COMMAND WAS ISSUED
651	000036	EF.CONTINUE== 30.	; CONTINUE COMMAND WAS ISSUED
652	000035	EF.NEW== 29.	; A NEW PASS HAS BEEN STARTED
653	000034	EF.PWR== 28.	; A POWER-FAIL/POWER-UP OCCURRED
654		.	
655		;	
656		;	
657		;	
658	000340	PRI07== 340	
659	000300	PRI06== 300	
660	000240	PRI05== 240	
661	000200	PRI04== 200	
662	000140	PRI03== 140	
663	000100	PRI02== 100	
664	000040	PRI01== 40	
665	000000	PRI00== 0	
666		.	
667		;	
668		;	
669	000004	EVI== 4	
670	000010	LOT== 10	
671	000020	ADR== 20	
672	000040	IDU== 40	
673	000100	ISR== 100	

GLOBAL AREAS
CVM8AE.P11

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GLOBAL EQUATES SECTION

SEQ 0015

674 000200
 675 000400
 676 001000
 677 002000
 678 004000
 679 010000
 680 020000
 681 040000
 682 100000

UAM== 200
 BOE== 400
 PNT== 1000
 PRI== 2000
 IXE== 4000
 IBE== 10000
 IER== 20000
 LOE== 40000
 HOE== 100000

683
 684 177520
 685 177524

PCR=177520
 LSREG=177524

686 002260

ENDMOD

687

.SBTTL GLOBAL DATA SECTION

688

;++
 ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
 ; IN MORE THAN ONE TEST.
 ;--

689

690

691 002260

BGNMOD GLBDAT
 GLBDAT::

694 002260
 695 002260
 696 002260 000000
 697 002262 000000
 698 002264 000000
 699 002266 000000
 700 002270 000000
 701 002272 000000
 702 002274 000001
 703 002276 000000
 704 002300 000000
 705 002302 000000
 706 002304 000000
 707 002306 000000
 708 002310 000000
 709 002312 000000
 710 002314 000100
 711 002316 000000
 712 002320 000000
 713 002322 000000
 714 002324 000000
 715 002326 000000
 716 002330 000000
 717 002332 000000
 718 002334 000001
 719 002336 000000
 720 002340 000000
 721 002342 000000
 722 002344 000000
 723 002346 000000
 724 002350 000010
 725 002370 000010
 726 002410 000100
 727 002610

KDF11B: .WORD 0
 VRTPCR: .WORD 0
 BCF: .WORD 0
 REAL: .WORD 0
 LOPAG: .WORD 0
 COUNTR: .WORD 0
 ANSR: .WORD 1
 RFLAG: .WORD 0
 EXPSUM: .WORD 0
 ACTSUM: .WORD 0
 PASS: .WORD 0
 PASCT: .WORD 0
 ULIMIT: .WORD 0
 PAGE: .WORD 0
 VECT: .WORD 100
 SWSET: .WORD 0
 STORE: .WORD 0
 WORDCT: .WORD 0
 PRIOR: .WORD 0
 CKWD: .WORD 0
 BADWD: .WORD 0
 RESPND: .WORD 0
 RSET: .WORD 1
 LORANG: .WORD 0
 HIRANG: .WORD 0
 BYTLOC: .WORD 0
 ERRFLG: .WORD 0
 DELCNT: .WORD 0
 EXPDIA: .BLKW 10
 EPROM: .BLKW 10
 SYSROM: .BLKW 100
 ENDMOD

:=1 IF RUNNING ON A KDF11-B
 ;VIRTUAL PAGE CONTROL REGISTER

;EXPANDED DIAG. ROM CHECKWORDS
 ;EPROM CHECKWORDS
 ;SYSTEM ROM/EPROM CHECKWORDS

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.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

RWR: .ASCIZ 'READ/WRITE REGISTER ADDRESS: 177522'

PACR: .ASCIZ /PAGE CONTROL REGISTER ADDRESS: 177520/

CKERR: .ASCIZ /CHECKSUM ERROR/

CWDERR: .ASCIZ /INCORRECT CHECKWORD/

LOBYT: .ASCIZ /ERROR OCCURRED IN A LOW BYTE PAGE/

HIBYT: .ASCIZ /ERROR OCCURRED IN A HIGH BYTE PAGE/

LOADR: .ASCIZ /START OF MEMORY RANGE (K)/

```

786 .EVEN
787
788
789
790 :
791 : NAMES OF DEVICES SUPPORTED BY PROGRAM
792 :
793 :   DESCRIPT      <CVM8AE BDV11\KDF11-B BOOTSTRAP DIAGNOSTIC>
794 L$DESC::
795   .ASCIZ  /CVM8AE BDV11\KDF11-B BOOTSTRAP DIAGNOSTIC/
796
797
798
799
800
801 .EVEN
802 DEVTYP <BDV11\KDF11-B>
803 L$DVTYP::
804   .ASCIZ  /BDV11\KDF11-B/
805
806
807 .EVEN
808
809
810 :
811 : FORMAT STATEMENTS USED IN PRINT CALLS
812 :
813
814
815 003214 040445 042522 044507 ZERR: .ASCIZ  /%AREGISTER CANNOT HOLD ALL ZEROES%/
816 003222 052123 051105 041440
817 003230 047101 047516 020124
818 003236 047510 042114 040440
819 003244 046114 055040 051105
820 003252 042517 022523 000116
821
822 003260 040445 042522 044507 ONERR: .ASCIZ  /%AREGISTER CANNOT HOLD ALL ONES%/
823 003266 052123 051105 041440
824 003274 047101 047516 020124
825 003302 047510 042114 040440
826 003310 046114 047440 042516
827 003316 022523 000116
828
829 003322 040445 042522 044507 BDDAT: .ASCIZ  /%AREGISTER CANNOT HOLD GOOD DATA%/
830 003330 052123 051105 041440
831 003336 047101 047516 020124
832 003344 047510 042114 043440
833 003352 047517 020104 040504
834 003360 040524 047045 000
835
836 003365 045 051101 043505 BYTINS: .ASCIZ  /%AREGISTER IS NOT BYTE ADDRESSABLE%/
837 003372 051511 042524 020122
838 003400 051511 047040 052117
839 003406 041040 052131 020105
840 003414 042101 051104 051505
841 003422 040523 046102 022505

```

```

842 003430 000116
843
844 003432 040445 042522 044507 ROT1: .ASCIZ /%AREGISTER PICKED UP AN EXTRA SET BIT%N/
845 003440 052123 051105 050040
846 003446 041511 042513 020104
847 003454 050125 040440 020116
848 003462 054105 051124 020101
849 003470 042523 020124 044502
850 003476 022524 000116
851
852 003502 040445 042522 044507 ROT0: .ASCIZ /%AREGISTER PICKED UP AN EXTRA CLEAR BIT%N/
853 003510 052123 051105 050040
854 003516 041511 042513 020104
855 003524 050125 040440 020116
856 003532 054105 051124 020101
857 003540 046103 040505 020122
858 003546 044502 022524 000116
859
860 003554 040445 047125 041101 DIAGER: .ASCIZ /%AUNABLE TO LOCATE CORRECT MEMORY PAGE%N/
861 003562 042514 052040 020117
862 003570 047514 040503 042524
863 003576 041440 051117 042522
864 003604 052103 046440 046505
865 003612 051117 020131 040520
866 003620 042507 047045 000
867
868 003625 045 046501 046505 VIRMSG: .ASCIZ /%AMEMORY RANGE: %D2%A - %D2%AK%N/
869 003632 051117 020131 040522
870 003640 043516 035105 022440
871 003646 031104 040445 026440
872 003654 022440 031104 040445
873 003662 022513 000116
874
875 003666 040445 054105 042520 REGDT: .ASCIZ /%AEXPECTED: %06%S5%ARECEIVED: %06%N/
876 003674 052103 042105 020072
877 003702 047445 022466 032523
878 003710 040445 042522 042503
879 003716 053111 042105 020072
880 003724 047445 022466 000116

```

```

881
882 .EVEN
883 .SBTTL GLOBAL ERROR REPORT SECTION
884
885 :++
886 : THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX CALLS
887 : THAT ARE USED IN MORE THAN ONE TEST. IT ALSO INCLUDES THE ASCII MESSAGES
888 : THAT ARE USED BY THE PRINTB AND PRINTX CALLS.
889 :--

```

```

890
891
892
893 003732 BGNMSG RERR1
894 003732 RERR1::
895 003732 PRINTB #ZERR
896 003732 012746 003214 MOV #ZERR,-(SP)
897 003736 012746 000001 MOV #1,-(SP)

```

898	003742	010600		MOV	SP,R0
899	003744	104414		TRAP	C\$PNTB
900	003746	062706	000004	ADD	#4,SP
901	003752			PRINTX	#REGDT,R1,R2
902	003752	010246		MOV	R2,-(SP)
903	003754	010146		MOV	R1,-(SP)
904	003756	012746	003666	MOV	#REGDT,-(SP)
905	003762	012746	000003	MOV	#3,-(SP)
906	003766	010600		MOV	SP,R0
907	003770	104415		TRAP	C\$PNTX
908	003772	062706	000010	ADD	#10,SP
909	003776			ENDMSG	
910	003776			L10002:	
911	003776	104423		TRAP	C\$MSG
912					
913	004000			BGNMSG	RERR2
914	004000			RERR2::	
915	004000			PRINTB	#ONERR
916	004000	012746	003260	MOV	#ONERR,-(SP)
917	004004	012746	000001	MOV	#1,-(SP)
918	004010	010600		MOV	SP,R0
919	004012	104414		TRAP	C\$PNTB
920	004014	062706	000004	ADD	#4,SP
921	004020			PRINTX	#REGDT,R1,R2
922	004020	010246		MOV	R2,-(SP)
923	004022	010146		MOV	R1,-(SP)
924	004024	012746	003666	MOV	#REGDT,-(SP)
925	004030	012746	000003	MOV	#3,-(SP)
926	004034	010600		MOV	SP,R0
927	004036	104415		TRAP	C\$PNTX
928	004040	062706	000010	ADD	#10,SP
929	004044			ENDMSG	
930	004044			L10003:	
931	004044	104423		TRAP	C\$MSG
932					
933	004046			BGNMSG	RERR3
934	004046			RERR3::	
935	004046			PRINTB	#BDDAT
936	004046	012746	003322	MOV	#BDDAT,-(SP)
937	004052	012746	000001	MOV	#1,-(SP)
938	004056	010600		MOV	SP,R0
939	004060	104414		TRAP	C\$PNTB
940	004062	062706	000004	ADD	#4,SP
941	004066			PRINTX	#REGDT,R1,R2
942	004066	010246		MOV	R2,-(SP)
943	004070	010146		MOV	R1,-(SP)
944	004072	012746	003666	MOV	#REGDT,-(SP)
945	004076	012746	000003	MOV	#3,-(SP)
946	004102	010600		MOV	SP,R0
947	004104	104415		TRAP	C\$PNTX
948	004106	062706	000010	ADD	#10,SP
949	004112			ENDMSG	
950	004112			L10004:	
951	004112	104423		TRAP	C\$MSG
952					
953	004114			BGNMSG	RERR4

954	004114			RERR4::	
955	004114			PRINTB	#BYTINS
956	004114	012746	003365		MOV #BYTINS, -(SP)
957	004120	012746	000001		MOV #1, -(SP)
958	004124	010600			MOV SP, R0
959	004126	104414			TRAP C\$PNTB
960	004130	062706	000004		ADD #4, SP
961	004134			PRINTX	#REGDT, R1, R2
962	004134	010246			MOV R2, -(SP)
963	004136	010146			MOV R1, -(SP)
964	004140	012746	003666		MOV #REGDT, -(SP)
965	004144	012746	000003		MOV #3, -(SP)
966	004150	010600			MOV SP, R0
967	004152	104415			TRAP C\$PNTX
968	004154	062706	000010		ADD #10, SP
969	004160			ENDMSG	
970	004160			L10005:	
971	004160	104423			TRAP C\$MSG
972					
973	004162			BGNMSG	RERR5
974	004162			RERR5::	
975	004162			PRINTB	#ROT1
976	004162	012746	003432		MOV #ROT1, -(SP)
977	004166	012746	000001		MOV #1, -(SP)
978	004172	010600			MOV SP, R0
979	004174	104414			TRAP C\$PNTB
980	004176	062706	000004		ADD #4, SP
981	004202			ENDMSG	
982	004202			L10006:	
983	004202	104423			TRAP C\$MSG
984					
985	004204			BGNMSG	RERR6
986	004204			RERR6::	
987	004204			PRINTB	#ROTO
988	004204	012746	003502		MOV #ROTO, -(SP)
989	004210	012746	000001		MOV #1, -(SP)
990	004214	010600			MOV SP, R0
991	004216	104414			TRAP C\$PNTB
992	004220	062706	000004		ADD #4, SP
993	004224			ENDMSG	
994	004224			L10007:	
995	004224	104423			TRAP C\$MSG
996					
997	004226			BGNMSG	PAGERR
998	004226			PAGERR::	
999	004226			PRINTB	#DIAGER
1000	004226	012746	003554		MOV #DIAGER, -(SP)
1001	004232	012746	000001		MOV #1, -(SP)
1002	004236	010600			MOV SP, R0
1003	004240	104414			TRAP C\$PNTB
1004	004242	062706	000004		ADD #4, SP
1005	004246			ENDMSG	
1006	004246			L10010:	
1007	004246	104423			TRAP C\$MSG
1008					
1009					

1010
1011 004250
1012 004250 013746 002340
1013 004254 013746 002336
1014 004260 012746 003625
1015 004264 012746 000003
1016 004270 010600
1017 004272 104417
1018 004274 062706 000010

```
VIPRI: PRINTF #VIRMSG,LORANG,HIRANG
MOV HIRANG,-(SP)
MOV LORANG,-(SP)
MOV #VIRMSG,-(SP)
MOV #3,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #10,SP
```

.EVEN

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1021
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.SBTTL GLOBAL SUBROUTINES SECTION

```
;++
: THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
: THAT ARE USED IN MORE THAN ONE TEST.
:--
```

```
;++
:FUNCTIONAL DESCRIPTION:
:SUBROUTINE TO COMPUTE A CHECKSUM IN A ROM/EPROM
:INPUT: CONTENTS OF BCF
:IMPLICIT INPUTS: CONTENTS OF PCR
:OUTPUT: A CHECKSUM VALUE STORED IN LOCATION ACTSUM
:CALLING SEQUENCE: JSR PC,CHKSUM
:--
```

1042 004300 012701 173776
1043 004304 063701 002264
1044 004310 005037 002302
1045 004314 012702 173000
1046 004320 063702 002264
1047 004324 111204
1048 004326 060437 002302
1049 004332 062702 000002
1050 004336 020201
1051 004340 002771
1052 004342 000207

```
CHKSUM: MOV #173776,R1 ;STORE THE HIGHEST ADDRESS IN THE ROM
ADD BCF,R1 ;FOR EITHER LOW OR HIGH BYTES
CLR ACTSUM ;CLEAR LOCATION WHICH WILL HOLD THE CHECKSUM
MOV #173000,R2 ;COMPUTE THE LOWEST ADDRESS IN THE ROM
ADD BCF,R2 ;WHERE THE DATA WILL START
1$: MOVB (R2),R4 ;GET DATA IN BYTES
ADD R4,ACTSUM ;ADD CONTENTS OF EACH LOCATION TO THE CHECKSUM
ADD #2,R2 ;ADJUST ADDRESS
CMP R2,R1 ;COMPARE CURRENT ADDRESS WITH HIGHEST ADDRESS
BLT 1$ ;BR IF LESS THAN
RTS PC ;RETURN
```

1053
1054
1055
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1058
1059
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1061

```
;++
:SUBROUTINE TO INPUT CHECKWORDS FROM THE OPERATOR
:INPUTS: NUMBER OF CHECKWORDS TO INPUT
: POINTER TO STORAGE AREA
:OUTPUTS: CHECKWORDS STORED IN PROPER TABLE
:CALLING SEQUENCE: JSR PC,INPUT
:--
```

1062 004344
1063 004344 012746 004422
1064 004350 012746 000001
1065 004354 010600

```
INPUT: PRINTF #INSTR ;PRINT INSTRUCTIONS
MOV #INSTR,-(SP)
MOV #1,-(SP)
MOV SP,R0
```

GLOBAL AREAS
CVMBAE.P11

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GLOBAL SUBROUTINES SECTION

SEQ 0022

```

1066 004356 104417          TRAP      C$PNTF
1067 004360 062706 000004  INLP:    ADD      #4,SP
1068 004364          GMANID  INWORD,STORE,0,-1,0,177777,NO
1069 004364 104443          TRAP      C$GMAN
1070 004366 000406          BR       10000$
1071 004370 002320          .WORD   STORE
1072 004372 000022          .WORD   T$CODE
1073 004374 004510          .WORD   INWORD
1074 004376 177777          .WORD   -1
1075 004400 000000          .WORD   T$LOLIM
1076 004402 177777          .WORD   T$HILIM
1077 004404          10000$:
1078 004404 013722 002320          MOV     STORE,(R2)+      ;PUT CHECKWORD IN TABLE
1079 004410 005337 002322          DEC     WORDCT          ;DECREMENT WORD COUNT
1080 004414 001401          BEQ     1$              ;BR IF FINISHED
1081 004416 000762          BR      INLP            ;LOOP UNTIL TABLE IS COMPLETE
1082 004420 000207          1$:      RTS            ;RETURN
1083
1084 004422 040445 054524 042520  INSTR:  .ASCIZ  /%ATYPE IN THE CHECKWORDS AS LISTED IN THE PRINT SET%N/
1085 004430 044440 020116 044124
1086 004436 020105 044103 041505
1087 004444 053513 051117 051504
1088 004452 040440 020123 044514
1089 004460 052123 042105 044440
1090 004466 020116 044124 020105
1091 004474 051120 047111 020124
1092 004502 042523 022524 000116
1093
1094 004510 044103 041505 053513  INWORD: .ASCIZ  /CHECKWORD: /
1095 004516 051117 035104 000040
1096
1097          .EVEN
1098
1099          :++
1100          :SUBROUTINE TO COMPUTE THE VIRTUAL ADDRESS OF A BAD
1101          :PAGE IN MEMORY
1102          :INPUTS: PAGE IN PAGE CONTROL REGISTER
1103          :          BYTE CONTROL FLAG (BCF)
1104          :OUTPUTS: MEMORY RANGE IN WHICH ERROR OCCURRED
1105          :CALLING SEQUENCE: JSR PC,VIRTAD
1106          :--
1107
1108 004524 005001          VIRTAD: CLR     R1          ;START AT BOTTOM OF RANGE
1109 004526 012737 000007 002310          MOV     #7,ULIMIT       ;SET UPPER LIMIT OF PAGE
1110 004534 113737 177520 002312          MOV     PCR,PAGE        ;LOW PAGE ERROR
1111 004542 023737 002312 002310          LPADD:  CMP     PAGE,ULIMIT ;IS PAGE <=ULIMIT
1112 004550 003430          BLE     OUTPUT          ;BR IF YES
1113 004552 022737 000057 002310          CMP     #57,ULIMIT      ;IS ULIMIT = 57
1114 004560 001006          BNE     1$              ;BR IF NO
1115 004562 012737 000207 002310          MOV     #207,ULIMIT     ;CHANGE UPPER LIMIT
1116 004570 012701 000020          MOV     #20,R1          ;ADJUST MEMORY POINTER
1117 004574 000762          BR      LPADD           ;CHECK PAGE AGAIN
1118 004576 062737 000010 002310  1$:    ADD     #10,ULIMIT      ;INCREASE UPPER LIMIT
1119 004604 022737 000377 002310          CMP     #377,ULIMIT     ;HAS THE UPPER LIMIT EXCEEDED THE MAX. PAGE
1120 004612 002004          BGE     2$              ;BR IF NO
1121 004614          ERRDF  40,,PAGERR      ;COULD NOT FIND THE PAGE OF MEMORY

```

```

1122 004614 104455          TRAP    CSERDF
1123 004616 000050          .WORD  40
1124 004620 000000          .WORD  0
1125 004622 004226          .WORD  PAGERR
1126 004624                2$:    CKLOOP
1127 004624 104406          TRAP    CSCLP1
1128 004626 005201          INC     R1                ;ADJUST POINTER
1129 004630 000744          BR     LPADD              ;LOOP UNTIL UPPER LIMIT IS FOUND
1130 004632 010137 002336          OUTPUT: MOV    R1,LORANG    ;PULL THE LOW RANGE OUT OF THE TABLE
1131 004636 013737 002336 002340          MOV    LORANG,HIRANG     ;COPY THE DATA
1132 004644 005237 002340          INC     HIRANG           ;INCREMENT TO OBTAIN 1K RANGE
1133 004650 005737 002276          TST    RFLAG             ;IS IT ROM (2K SEGMENTS)
1134 004654 001402          BEQ    3$                ;BR IF NO
1135 004656 005237 002340          INC     HIRANG           ;OBTAIN 2K RANGE
1136 004662 000207          3$:    RTS     PC         ;RETURN
1137
1138                      :++
1139                      ;SUBROUTINE TO VERIFY THE CHECKSUM VALUE OF A PAGE
1140                      ;OF EXISTENT MEMORY AND ALSO TEST FOR THE PROPER CHECKWORD.
1141                      ;INPUTS: PAGE CONTROL REGISTER, PAGE CHECKWORD.
1142                      ;OUTPUTS: ERROR FLAGS WHICH POINT TO THE PROPER ERROR MESSAGE
1143                      ;SUBORDINATE ROUTINES USED: CHKSUM
1144                      ;CALLING SEQUENCE: JSR PC,MENTST
1145                      ;--
1146
1147 004664 005037 002266          MEMTST: CLR    REAL                ;CLEAR MEMORY INDICATOR
1148 004670 005037 002264          LOBYTE: CLR    BCF                 ;SIGNAL LOW BYTES ARE BEING CHECKED
1149 004674 122737 177777 173774          CMPB   #-1,@#173774           ;DOES THE ROM EXIST
1150 004702 001421          BEQ    HIBYTE                ;BR IF NO
1151 004704 005237 002266          INC     REAL                 ;INDICATE THAT MEMORY EXISTS
1152 004710 004737 004300          JSR    PC,CHKSUM             ;COMPUTE THE ACTUAL CHECKSUM
1153 004714 113737 173776 002300          MOVB   @#173776,EXPSUM       ;GET THE STORED CHECKSUM
1154 004722 063737 002302 002300          ADD    ACTSUM,EXPSUM        ;ADD THE EXPECTED AND ACTUAL CHECKSUMS
1155 004730 105737 002300          TSTB   EXPSUM               ;TEST RESULTING CHECKBYTE
1156 004734 001404          BEQ    1$                    ;BR IF NO ERROR
1157 004736 012737 000001 002344          MOV    #1,ERRFLG           ;SET CHECKSUM ERROR FLAG
1158 004744 000207          RTS     PC                   ;RETURN
1159 004746                1$:
1160
1161 004746 012737 000001 002264          HIBYTE: MOV    #1,BCF           ;SET BCF TO DENOTE HIGH BYTES
1162 004754 122737 177777 173775          CMPB   #-1,@#173775           ;DOES THE ROM EXIST
1163 004762 001427          BEQ    TSTCKW                ;BR IF NO
1164 004764 005737 002266          TST    REAL                 ;WAS THERE A LOW ROM?
1165 004770 001003          BNE    2$                    ;BR IF YES
1166 004772 005037 002266          CLR    REAL                 ;DENOTE NON-EXISTENT LOW ROM
1167 004776 000207          RTS     PC                   ;RETURN FOR ERROR MESSAGE
1168 005000 005237 002266          2$:    INC     REAL           ;INDICATE MEMORY EXISTS
1169 005004 004737 004300          JSR    PC,CHKSUM             ;COMPUTE CHECKSUM
1170 005010 113737 173777 002300          MOVB   @#173777,EXPSUM       ;GET EXPECTED CHECKSUM
1171 005016 063737 002302 002300          ADD    ACTSUM,EXPSUM        ;ADD THE EXPECTED AND ACTUAL CHECKSUMS
1172 005024 105737 002300          TSTB   EXPSUM               ;TEST RESULTING CHECKBYTE
1173 005030 001404          BEQ    TSTCKW                ;BR IF EQUAL
1174 005032 012737 000001 002344          MOV    #1,ERRFLG           ;SET CHECKSUM ERROR FLAG
1175 005040 000207          RTS     PC                   ;RETURN
1176
1177 005042 005737 002266          TSTCKW: TST    REAL           ;ANY MEMORY?

```



```

1178 005046 001434          BEQ      5$          :BR IF NO
1179 005050 022737 000001 002266    CMP      #1,REAL    :SINGLE ROM?
1180 005056 001016          BNE      3$          :BR IF NO
1181 005060 123737 002326 173776    CMPB    CKWD,@#173776 :COMPARE CHECKBYTE ONLY
1182 005066 001001          BNE      100$       :BR IF ERROR
1183 005070 000207          RTS      PC         :RETURN -- NO ERROR
1184 005072 005037 002330          CLR      BADWD     :CLEAR LOCATION
1185 005076 012737 000002 002344 100$:  MOV      #2,ERRFLG  :DENOTE CHECKSUM ERROR
1186 005104 113737 173776 002330    MOVB    @#173776,BADWD :STORE BAD BYTE
1187 005112 000207          RTS      PC         :RETURN
1188 005114 023737 002326 173776 3$:   CMP      CKWD,@#173776 :COMPARE CHECKWORD
1189 005122 001406          BEQ      5$          :BR IF NO ERROR
1190 005124 012737 000002 002344 4$:   MOV      #2,ERRFLG  :DENOTE CHECKSUM ERROR
1191 005132 013737 173776 002330    MOVB    @#173776,BADWD :STORE WRONG CHECKWORD
1192 005140 000207          RTS      PC         :RETURN

```

```

1193
1194
1195      :++
1196      :SUBROUTINE TO COMPUTE THE ACTUAL STARTING PAGE
1197      :OF MEMORY IN WHICH THE MEMORY CHIP IS TO BE
1198      :ADDRESSED.
1199      :INPUTS: THE LOW NUMBER IN THE MEMORY RANGE
1200      :        (I.E. X IN X-Y K)
1201      :OUTPUT: PAGE NUMBER IN PCR WHICH DENOTES WHERE TESTING
1202      :        SHOULD BEGIN.
1203      :CALLING SEQUENCE: JSR PC,SETADR
1204      :--

```

```

1205 005142 013701 002320    SETADR: MOV      STORE,R1      :COPY DATA
1206 005146 020127 000005    CMP      R1,#5        :IS THE NUMBER <=5?
1207 005152 003006          BGT      1$          :BR IF NO
1208 005154 000241          CLC                    :CLEAR C-BIT FOR ROTATE
1209 005156 006101          ROL      R1          :ROTATE TO MULTIPLY
1210 005160 006101          ROL      R1          : BY 10 (8)
1211 005162 006101          ROL      R1          :
1212 005164 110104          MOVB    R1,R4        :COPY DATA
1213 005166 000413          BR      LOAD         :LOAD THE PCR
1214 005170 012704 000020 1$:   MOV      #20,R4      :START WITH 16 (10)
1215 005174 012705 000200    MOV      #200,R5     :CORRESPONDIGE PAGE IS 200
1216 005200 020104    LOOP:  CMP      R1,R4  :PAGE FOUND?
1217 005202 001404          BEQ      2$          :BR IF YES
1218 005204 005204          INC      R4         :NEXT PAGE
1219 005206 062705 000010    ADD      #10,R5     :NEXT PAGE
1220 005212 000772          BR      LOOP       :LOOP UNTIL PAGE IS FOUND
1221 005214 010504 2$:   MOV      R5,R4      :GET PAGE FOR PCR
1222 005216 110437 002270    LOAD:  MOVB    R4,LOPAG :LOW STARTING PAGE
1223 005222 005204          INC      R4         :INCREMENT
1224 005224 110437 002271    MOVB    R4,LOPAG+1  :HIGH STARTING PAGE
1225 005230 000207          RTS      PC

```

```

1226
1227
1228      :++
1229      :SUBROUTINE TO DELAY IN MSECS
1230      :DELAY IS USED IN TWO TESTS
1231      :TEST 3 - BEVENT CLAMP ENABLE TEST
1232      :TEST 4 - LIGHT DISPLAY TEST
1233      :TIMING LOOP IS NOT CRITICAL FOR TESTS,SO THE SAME

```

```

1234      ;TIMER LOOP IS USED FOR LSI-11 AND 11/23.
1235      ;LOOP WILL BE 2.5 TIMES SLOWER FOR LSI-11
1236
1237      ;CALL
1238      ;      JSR      R5,WDELAY
1239      ;      40.          ;40 MSECS
1240
1241      005232 010146      WDELAY: MOV      R1,-(SP)
1242      005234 010246      MOV      R2,-(SP)
1243      005236 012502      MOV      (R5)+,R2
1244      005240 012737 000502 002346 1$:  MOV      #322.,DELCNT
1245
1246      005246 013701 002346 2$:  MOV      DELCNT,R1
1247      005252 005301      3$:  DEC      R1
1248      005254 001376      BNE     3$
1249      005256 005302      DEC     R2
1250      005260 001372      BNE     2$
1251      005262 012602      MOV     (SP)+,R2
1252      005264 012601      MOV     (SP)+,R1
1253      005266 000205      RTS     R5
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1270      .TITLE MISCELLANEOUS SECTIONS
1271      .SBTTL IDENTIFICATION
1272
1273
1274      .SBTTL REPORT CODING SECTION
1275
1276      005270      BGNRPT
1277      005270      L$RPT::
1278      005270      ENDRPT
1279      005270      L10011:
1280      005270 104425      TRAP   C$RPT
1281
1282
1283      .SBTTL INITIALIZE SECTION
1284
1285      ;++
1286      ; THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
1287      ; AT THE BEGINNING OF EACH PASS.
1288      ;--
1289

```

```

;APPROX. MSEC DELAY
;11/23 APPROX. 1 MSEC LOOP
;10% TOLERANCE

;START APPROX. 1 MSEC LOOP

;CHECK ON MSECS REQUESTED
;BRANCH AND DO ANOTHER MSEC
;SETUP FOR RETURN AFTER DELAY

```

```

1290 005272          BGNINIT
1291 005272          L$INIT::
1292 005272          GPHARD #0,R1          ;GET POINTER TO BASE ADDRESS OF P-TABLE
1293 005272 012700 000000          MOV #0,R0
1294 005276 104442          TRAP C$GPHRD
1295 005300 010001          MOV R0,R1
1296 005302 016137 000002 002314          MOV 2(R1),VECT          ;GET INTERRUPT VECTOR
1297 005310 016137 000004 002324          MOV 4(R1),PRIOR        ;GET PRIORITY LEVEL
1298 005316 016137 000006 002316          MOV 6(R1),SWSET        ;GET ROCKER SWITCH SETTINGS
1299 005324 016137 000010 002260          MOV 10(R1),KDF11B      ;GET KDF11-B INDICATOR
1300 005332          SETPRI #PRI07          ;INHIBIT INTERRUPTS
1301 005332 012700 000340          MOV #PRI07,R0
1302 005336 104441          TRAP C$SPRI

1303
1304
1305 005340          ENDINIT
1306 005340          L10012:
1307 005340 104411          TRAP C$INIT

1308
1309 005342          BGNPROT
1310 005342          L$PROT::
1311 005342 177777          .WORD -1          ;CSR OFFSET
1312 005344 177777          .WORD -1          ;MASS BUS OFFSET
1313 005346 177777          .WORD -1          ;DRIVE OFFSET
1314 005350          ENDPROT

1315
1316 005350          BGNAUTO
1317 005350          L$AUTO::
1318 005350          ENDAUTO
1319 005350          L10014:
1320 005350 104461          TRAP C$AUTO
1321          .SBTTL CLEANUP CODING SECTION

1322
1323          :++
1324          : THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
1325          : AT THE END OF EACH PASS.
1326          :--

1327
1328 005352          BGNCLN
1329 005352          L$CLEAN::
1330
1331 005352 005037 177520          CLR PCR          ;CLEAR PAGE CONTROL REGISTER
1332 005356 005037 177522          CLR RWREG        ;CLEAR READ/WRITE REGISTER
1333 005362 012737 000001 002334          MOV #1,RSET      ;RESTORE DEFAULT VALUE
1334 005370 005037 002332          CLR RESPND       ;RESTORE DEFAULT
1335 005374 005037 016114          CLR ADDON        ;RESTORE DEFAULT
1336 005400 012737 000001 002274          MOV #1,ANSR      ;RESTORE DEFAULT
1337 005406 005237 002304          INC PASS         ;INCREMENT PASS COUNT
1338 005412 005237 002306          INC PASCT        ;INCREMENT TEST 4 PASS COUNT
1339 005416          CLRVEC VECT      ;CLEAR INTERRUPT VECTOR
1340 005416 013700 002314          MOV VECT,R0
1341 005422 104436          TRAP C$CVEC

1342
1343 005424          EXIT CLN
1344 005424 104432          TRAP C$EXIT
1345 005426 000002          .WORD L10015-

```

```

1346
1347
1348
1349 005430          ENDCLN
1350 005430          L10015: TRAP   C$CLEAN
1351 005430 104412
1352
1353          .TITLE  HARDWARE TESTS
1354          .SBTTL  IDENTIFICATION
1355
1356
1357          .SBTTL  TEST 1: READ/WRITE REGISTER TEST
1358          :++
1359          :TEST TO VERIFY THAT THE READ/WRITE REGISTER AT ADDRESS 177522
1360          :IS WORD AND BYTE ADDRESSABLE.
1361          :--
1362
1363          177522          RWREG=177522
1364
1365 005432          BGNTST
1366
1367 005432          BGNSUB
1368 005432 104402          TRAP   C$BSUB
1369 005434 005037 177522          CLR   RWREG          :LOAD ALL ZEROS
1370 005440 001412          BEQ   1$              :BR IF CLEAR
1371 005442 005001          CLR   R1              :EXPECTED DATA
1372 005444 013702 177522          MOV   RWREG,R2        :COPY CONTENTS
1373 005450          ERRDF  1,RWR,RERR1 :REGISTER CANNOT HOLD ALL ZEROS
1374 005450 104455          TRAP   C$ERDF
1375 005452 000001          .WORD 1
1376 005454 002610          .WORD RWR
1377 005456 003732          .WORD RERR1
1378 005460          CKLOOP          :LOOP ON ERROR IF SELECTED
1379 005460 104406          TRAP   C$CLP1
1380 005462          EXIT   TST          :ABORT TEST IF LOOP ON ERROR NOT SELECTED
1381 005462 104432          TRAP   C$EXIT
1382 005464 000610          .WORD L10016-.
1383 005466          1$: CKLOOP          :LOOP ON ERROR IF SELECTED
1384 005466 104406          TRAP   C$CLP1
1385 005470          ENDSUB
1386 005470          L10017:
1387 005470 104403          TRAP   C$ESUB
1388
1389 005472          BGNSUB
1390 005472 104402          TRAP   C$BSUB
1391 005474 012737 177777 177522          MOV   #-1,RWREG        :LOAD ALL ONES
1392 005502 022737 177777 177522          CMP   #177777,RWREG    :CHECK THE REGISTER
1393 005510 001413          BEQ   2$              :BR IF HOLDING GOOD DATA
1394 005512 012701 177777          MOV   #-1,R1          :EXPECTED DATA
1395 005516 013702 177522          MOV   RWREG,R2        :COPY CONTENTS
1396 005522          ERRDF  2,RWR,RERR2 :REGISTER CANNOT HOLD ALL ONES
1397 005522 104455          TRAP   C$ERDF
1398 005524 000002          .WORD 2
1399 005526 002610          .WORD RWR
1400 005530 004000          .WORD RERR2
1401 005532          CKLOOP          :LOOP ON ERROR IF SELECTED
  
```

```

1402 005532 104406          TRAP  C$CLP1
1403 005534                EXIT  TST          ;ABORT TEST IF ERROR AND NO LOOPING
1404 005534 104432          TRAP  C$EXIT
1405 005536 000536          .WORD L10016-.
1406 005540                CKLOOP
2$:                          TRAP  C$CLP1          ;LOOP ON ERROR IF SELECTED
1407 005540 104406          TRAP  C$CLP1
1408 005542                ENDSUB
1409 005542                L10020:
1410 005542 104403          TRAP  C$ESUB
1411
1412 005544                BGNSUB
1413 005544 104402          TRAP  C$BSUB
1414 005546 012737 125252 177522  MOV  #125252,RWREG  ;LOAD ALTERNATING 1'S AND 0'S BIT PATTERN
1415 005554 022737 125252 177522  CMP  #125252,RWREG  ;CHECK DATA
1416 005562 001413          BEQ  3$          ;BR IF GOOD
1417 005564 012701 125252      MOV  #125252,R1    ;EXPECTED DATA
1418 005570 013702 177522      MOV  RWREG,R2     ;COPY CONTENTS
1419 005574                ERRDF  3,RWR,RERR3   ;CANNOT HOLD GOOD DATA
1420 005574 104455          TRAP  C$ERDF
1421 005576 000003          .WORD 3
1422 005600 002610          .WORD RWR
1423 005602 004046          .WORD RERR3
1424 005604                CKLOOP
1425 005604 104406          TRAP  C$CLP1          ;LOOP ON ERROR IF SELECTED
1426 005606                EXIT  TST          ;ABORT TEST IF ERROR DETECTED
1427 005606 104432          TRAP  C$EXIT
1428 005610 000464          .WORD L10016-.
1429 005612                CKLOOP
3$:                          TRAP  C$CLP1          ;CHECK FOR LOOP ON ERROR AGAIN
1430 005612 104406          TRAP  C$CLP1
1431 005614                ENDSUB
1432 005614                L10021:
1433 005614 104403          TRAP  C$ESUB
1434
1435 005616                BGNSUB
1436 005616 104402          TRAP  C$BSUB
1437 005620 105037 177522      CLRB RWREG        ;CLEAR THE REGISTER'S LOW BYTE
1438 005624 022737 125000 177522  CMP  #125000,RWREG ;DID IT CLEAR PROPERLY?
1439 005632 001413          BEQ  4$          ;BR IF YES
1440 005634 012701 125000      MOV  #125000,R1   ;EXPECTED DATA
1441 005640 013702 177522      MOV  RWREG,R2    ;COPY CONTENTS
1442 005644                ERRDF  4,RWR,RERR4   ;DID NOT RESPOND PROPERLY TO BYTE INSTRUCTION
1443 005644 104455          TRAP  C$ERDF
1444 005646 000004          .WORD 4
1445 005650 002610          .WORD RWR
1446 005652 004114          .WORD RERR4
1447 005654                CKLOOP
1448 005654 104406          TRAP  C$CLP1          ;LOOP ON ERROR IF SELECTED
1449 005656                EXIT  TST          ;ABORT TEST IF ERROR DETECTED
1450 005656 104432          TRAP  C$EXIT
1451 005660 000414          .WORD L10016-.
1452 005662                CKLOOP
4$:                          TRAP  C$CLP1          ;CHECK FOR LOOP ON ERROR AGAIN
1453 005662 104406          TRAP  C$CLP1
1454 005664                ENDSUB
1455 005664                L10022:
1456 005664 104403          TRAP  C$ESUB
1457

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```

1458 005666          BGNSUB
1459 005666 104402   TRAP    CSBSUB
1460 005670 000337 177522  SWAB    RWREG          ;SWAP BYTES IN THE REGISTER
1461 005674 022737 000252 177522  CMP     #252,RWREG     ;GOOD DATA?
1462 005702 001407          BEQ     5$             ;BR IF YES
1463 005704          ERRDF  5,RWR,RERR4 ;BYTE INSTRUCTION ERROR
1464 005704 104455   TRAP    C$ERDF
1465 005706 000005          .WORD  5
1466 005710 002610          .WORD  RWR
1467 005712 004114          .WORD  RERR4
1468 005714          CKLOOP          ;LOOP ON ERROR IF SELECTED
1469 005714 104406   TRAP    C$CLP1
1470 005716          EXIT    TST           ;ABORT TEST IF ERROR DETECTED
1471 005716 104432   TRAP    C$EXIT
1472 005720 000354          .WORD  L10016-.
1473 005722          5$: CKLOOP          ;CHECK FOR LOOP ON ERROR AGAIN
1474 005722 104406   TRAP    C$CLP1
1475 005724          ENDSUB
1476 005724          L10023:
1477 005724 104403   TRAP    C$ESUB
1478
1479 005726          BGNSUB
1480 005726 104402   TRAP    CSBSUB
1481 005730 012737 052525 177522  MOV     #052525,RWREG ;LOAD AN ALTERNATING 0'S AND 1'S BIT PATTERN
1482 005736 022737 052525 177522  CMP     #052525,RWREG ;CHECK IT
1483 005744 001413          BEQ     6$             ;BR IF GOOD DATA
1484 005746 012701 052525          MOV     #052525,R1    ;EXPECTED DATA
1485 005752 013702 177522          MOV     RWREG,R2      ;COPY CONTENTS
1486 005756          ERRDF  6,RWR,RERR3 ;CANNOT HOLD GOOD DATA
1487 005756 104455   TRAP    C$ERDF
1488 005760 000006          .WORD  6
1489 005762 002610          .WORD  RWR
1490 005764 004046          .WORD  RERR3
1491 005766          CKLOOP          ;LOOP ON ERROR IF SELECTED
1492 005766 104406   TRAP    C$CLP1
1493 005770          EXIT    TST           ;ABORT TEST IF ERROR DETECTED
1494 005770 104432   TRAP    C$EXIT
1495 005772 000302          .WORD  L10016-.
1496 005774          6$: CKLOOP          ;CHECK FOR LOOP ON ERROR AGAIN
1497 005774 104406   TRAP    C$CLP1
1498 005776          ENDSUB
1499 005776          L10024:
1500 005776 104403   TRAP    C$ESUB
1501
1502 006000          BGNSUB
1503 006000 104402   TRAP    CSBSUB
1504 006002 105037 177523  CLRB   RWREG+1        ;CLEAR HIGH BYTE OF REGISTER
1505 006006 022737 000125 177522  CMP     #125,RWREG     ;CHECK THE RESULTING CONTENTS OF THE REGISTER
1506 006014 001413          BEQ     7$             ;BR IF GOOD DATA
1507 006016 012701 000125          MOV     #125,R1       ;EXPECTED DATA
1508 006022 013702 177522          MOV     RWREG,R2      ;COPY CONTENTS
1509 006026          ERRDF  7,RWR,RERR4 ;BYTE INSTRUCTION ERROR
1510 006026 104455   TRAP    C$ERDF
1511 006030 000007          .WORD  7
1512 006032 002610          .WORD  RWR
1513 006034 004114          .WORD  RERR4

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1514 006036          CKLOOP          ;LOOP ON ERROR IF SELECTED
1515 006036 104406   TRAP          C$CLP1
1516 006040          EXIT          TST          ;ABORT TEST IF ERROR DETECTED
1517 006040 104432   TRAP          C$EXIT
1518 006042 000232   .WORD        L10016-.
1519 006044          7$: CKLOOP          ;CHECK FOR LOOP ON ERROR AGAIN
1520 006044 104406   TRAP          C$CLP1
1521 006046          ENDSUB
1522 006046          L10025:
1523 006046 104403   TRAP          C$ESUB
1524
1525 006050          BGNSUB
1526 006050 104402   TRAP          C$BSUB
1527 006052 000337 177522   SWAB          RWREG          ;SWAP BYTES
1528 006056 022737 052400 177522   CMP          #052400,RWREG   ;DATA GOOD?
1529 006064 001413          BEQ          10$          ;BR IF YES
1530 006066 012701 052400   MOV          #52400,R1      ;EXPECTED DATA
1531 006072 013702 177522   MOV          RWREG,R2      ;COPY CONTENTS
1532 006076          ERRDF          10,RWR,RERR4 ;BYTE INSTRUCTION ERROR
1533 006076 104455   TRAP          C$ERDF
1534 006100 000012   .WORD        10
1535 006102 002610   .WORD        RWR
1536 006104 004114   .WORD        RERR4
1537 006106          CKLOOP          ;LOOP ON ERROR IF SELECTED
1538 006106 104406   TRAP          C$CLP1
1539 006110          EXIT          TST          ;ABORT TEST IF ERROR DETECTED
1540 006110 104432   TRAP          C$EXIT
1541 006112 000162   .WORD        L10016-.
1542 006114          10$: CKLOOP          ;CHECK FOR LOOP ON ERROR AGAIN
1543 006114 104406   TRAP          C$CLP1
1544 006116          ENDSUB
1545 006116          L10026:
1546 006116 104403   TRAP          C$ESUB
1547
1548 006120          BGNSUB
1549 006120 104402   TRAP          C$BSUB
1550 006122 005037 177522   CLR          RWREG          ;MAKE SURE THE C-BIT IS CLEAR
1551 006126 052737 100000 177522   BIS          #BIT15,RWREG   ;SET MSB
1552 006134 013703 177522   MOV          RWREG,R3      ;COPY DATA IN RWREG
1553 006140 023703 177522   ROTLP1: CMP          RWREG,R3   ;ARE THEY THE SAME?
1554 006144 001005          BNE          11$          ;BR IF NO
1555 006146 006003          ROR          R3           ;ROTATE THE SET BIT
1556 006150 001412          BEQ          12$          ;BR WHEN FINISHED
1557 006152 006037 177522   ROR          RWREG        ;REPEAT ROTATE
1558 006156 000770          BR          ROTLP1       ;LOOP UNTIL ROTATE IS COMPLETE
1559 006160          11$: ERRDF          11,RWR,RERR5
1560 006160 104455   TRAP          C$ERDF
1561 006162 000013   .WORD        11
1562 006164 002610   .WORD        RWR
1563 006166 004162   .WORD        RERR5
1564 006170          CKLOOP          ;LOOP ON ERROR IF SELECTED
1565 006170 104406   TRAP          C$CLP1
1566 006172          EXIT          TST          ;SKIP REST OF TEST
1567 006172 104432   TRAP          C$EXIT
1568 006174 000100   .WORD        L10016-.
1569 006176          12$: CKLOOP          ;CHECK FOR LOOP ON ERROR

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1570 006176 104406          TRAP  C$CLP1
1571 006200                ENDSUB
1572 006200                L10027: TRAP  C$ESUB
1573 006200 104403
1574
1575 006202                BGNSUB
1576 006202 104402          TRAP  C$BSUB
1577 006204 012737 177777 177522  MOV  #-1,RWREG      ;SET ALL ONES
1578 006212 042737 100000 177522  BIC  #BIT15,RWREG   ;CLEAR MSB
1579 006220 013703 177522          MOV  RWREG,R3       ;COPY DATA
1580 006224 023703 177522  ROTLP2: CMP  RWREG,R3  ;ARE THEY THE SAME?
1581 006230 001010          BNE   13$           ;BR IF NO
1582 006232 000261          SEC                    ;SET C-BIT FOR ROTATE
1583 006234 006037 177522          ROR  RWREG          ;ROTATE CLEAR BIT
1584 006240 006003          ROR  R3              ;REPEAT
1585 006242 022703 077777          CMP  #077777,R3     ;FINISHED?
1586 006246 001366          BNE  ROTLP2         ;BR IF NOT YET
1587 006250 000407          BR   14$           ;SUBTEST FINISHED
1588 006252                13$:  ERRDF 12,RWR,RERR6
1589 006252 104455          TRAP C$ERDF
1590 006254 000014          .WORD 12
1591 006256 002610          .WORD RWR
1592 006260 004204          .WORD RERR6
1593 006262                CKLOOP                ;LOOP ON ERROR IF SELECTED
1594 006262 104406          TRAP C$CLP1
1595 006264                EXIT TST
1596 006264 104432          TRAP C$EXIT
1597 006266 000006          .WORD L10016-.
1598 006270                14$:  CKLOOP
1599 006270 104406          TRAP C$CLP1
1600 006272                ENDSUB
1601 006272                L10030:
1602 006272 104403          TRAP C$ESUB
1603
1604 006274                ENDTST
1605 006274                L10016:
1606 006274 104401          TRAP C$ETST
1607
1608 .SBTTL TEST 2: PAGE CONTROL REGISTER TEST
1609 :++
1610 :TEST TO VERIFY THAT THE PAGE CONTROL REGISTER IS WORD
1611 :AND BYTE ADDRESSABLE.
1612 :--
1613 006276                BGNTST
1614
1615 006276 005737 002260          TST  KDF11B          ;IF THIS IS A KDF11-B...
1616 006302 001402          BEQ  15$
1617 006304                EXIT TST              ;...THEN SKIP THIS TEST
1618 006304 104432          TRAP C$EXIT
1619 006306 000654          .WORD L10031-.
1620
1621 006310                15$:  BGNSUB
1622 006310 104402          TRAP C$BSUB
1623 006312 005037 177520          CLR  PCR
1624 006316 001412          BEQ  1$
1625 006320 005001          CLR  R1              ;LOAD ALL ZEROS
                          ;BR IF CLEARED
                          ;EXPECTED DATA

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1626	006322	013702	177520		MOV	PCR,R2		:COPY CONTENTS
1627	006326				ERRDF	13,PACR,RERR1		:REGISTER CANNOT HOLD ALL ZEROS
1628	006326	104455			TRAP	C\$ERDF		
1629	006330	000015			.WORD	13		
1630	006332	002654			.WORD	PACR		
1631	006334	003732			.WORD	RERR1		
1632	006336				CKLOOP			:LOOP ON ERROR IF SELECTED
1633	006336	104406			TRAP	C\$CLP1		
1634	006340				EXIT	TST		:ABORT TEST IF ERROR DETECTED
1635	006340	104432			TRAP	C\$EXIT		
1636	006342	000620			.WORD	L10031-		
1637	006344			1\$:	CKLOOP			:CHECK FOR LOOP ON ERROR AGAIN
1638	006344	104406			TRAP	C\$CLP1		
1639	006346				ENDSUB			
1640	006346			L10032:				
1641	006346	104403			TRAP	C\$ESUB		
1642								
1643	006350				BGNSUB			
1644	006350	104402			TRAP	C\$BSUB		
1645	006352	012737	177777	177520	MOV	#-1,PCR		:LOAD ALL ONES
1646	006360	022737	177777	177520	CMP	#177777,PCR		:CHECK FOR GOOD DATA
1647	006366	001413			BEQ	2\$:BR IF GOOD
1648	006370	012701	177777		MOV	#-1,R1		:EXPECTED DATA
1649	006374	013702	177520		MOV	PCR,R2		:COPY CONTENTS
1650	006400				ERRDF	14,PACR,RERR2		:REGISTER CANNOT HOLD ALL ONES
1651	006400	104455			TRAP	C\$ERDF		
1652	006402	000016			.WORD	14		
1653	006404	002654			.WORD	PACR		
1654	006406	004000			.WORD	RERR2		
1655	006410				CKLOOP			:LOOP ON ERROR IF SELECTED
1656	006410	104406			TRAP	C\$CLP1		
1657	006412				EXIT	TST		:ABORT TEST IF ERROR DETECTED
1658	006412	104432			TRAP	C\$EXIT		
1659	006414	000546			.WORD	L10031-		
1660	006416			2\$:	CKLOOP			:CHECK FOR LOOP ON ERROR AGAIN
1661	006416	104406			TRAP	C\$CLP1		
1662	006420				ENDSUB			
1663	006420			L10033:				
1664	006420	104403			TRAP	C\$ESUB		
1665								
1666								
1667	006422				BGNSUB			
1668	006422	104402			TRAP	C\$BSUB		
1669	006424	012737	125252	177520	MOV	#125252,PCR		:LOAD AN ALTERNATING 1'S AND 0'S BIT PATTERN
1670	006432	022737	125252	177520	CMP	#125252,PCR		:CHECK THE RESULTS
1671	006440	001413			BEQ	3\$:BR IF GOOD DATA
1672	006442	012701	125252		MOV	#125252,R1		:EXPECTED DATA
1673	006446	013702	177520		MOV	PCR,R2		:COPY CONTENTS
1674	006452				ERRDF	15,PACR,RERR3		:REGISTER CANNOT HOLD GOOD DATA
1675	006452	104455			TRAP	C\$ERDF		
1676	006454	000017			.WORD	15		
1677	006456	002654			.WORD	PACR		
1678	006460	004046			.WORD	RERR3		
1679	006462				CKLOOP			:LOOP ON ERROR IF SELECTED
1680	006462	104406			TRAP	C\$CLP1		
1681	006464				EXIT	TST		:ABORT TEST IF ERROR DETECTED

1682	006464	104432			TRAP	C\$EXIT		
1683	006466	000474			.WORD	L10031-		
1684	006470		3\$:		CKLOOP			:CHECK FOR LOOP ON ERROR AGAIN
1685	006470	104406			TRAP	C\$CLP1		
1686	006472				ENDSUB			
1687	006472				L10034:			
1688	006472	104403			TRAP	C\$ESUB		
1689								
1690	006474				BGNSUB			
1691	006474	104402			TRAP	C\$BSUB		
1692	006476	105037	177520		CLRB	PCR		:CLEAR THE REGISTER'S LOW BYTE
1693	006502	022737	125000	177520	CMP	#125000,PCR		:COMPARE THE RESULTS
1694	006510	001413			BEQ	4\$:BR IF GOOD DATA
1695	006512	012701	125000		MOV	#125000,R1		:EXPECTED DATA
1696	006516	013702	177520		MOV	PCR,R2		:COPY CONTENTS
1697	006522				ERRDF	16,PACR,RERR4		:BYTE INSTRUCTION ERROR
1698	006522	104455			TRAP	C\$ERDF		
1699	006524	000020			.WORD	16		
1700	006526	002654			.WORD	PACR		
1701	006530	004114			.WORD	RERR4		
1702	006532				CKLOOP			:LOOP ON ERROR IF SELECTED
1703	006532	104406			TRAP	C\$CLP1		
1704	006534				EXIT	TST		:ABORT TEST IF ERROR DETECTED
1705	006534	104432			TRAP	C\$EXIT		
1706	006536	000424			.WORD	L10031-		
1707	006540				4\$:	CKLOOP		:CHECK FOR LOOP ON ERROR
1708	006540	104406			TRAP	C\$CLP1		
1709	006542				ENDSUB			
1710	006542				L10035:			
1711	006542	104403			TRAP	C\$ESUB		
1712								
1713	006544				BGNSUB			
1714	006544	104402			TRAP	C\$BSUB		
1715	006546	000337	177520		SWAB	PCR		:SWAP BYTES
1716	006552	022737	000252	177520	CMP	#252,PCR		:CHECK THE RESULTS
1717	006560	001413			BEQ	5\$:BR IF GOOD DATA
1718	006562	012701	000252		MOV	#252,R1		:EXPECTED DATA
1719	006566	013702	177520		MOV	PCR,R2		:COPY CONTENTS
1720	006572				ERRDF	17,PACR,RERR4		:BYTE INSTRUCTION ERROR
1721	006572	104455			TRAP	C\$ERDF		
1722	006574	000021			.WORD	17		
1723	006576	002654			.WORD	PACR		
1724	006600	004114			.WORD	RERR4		
1725	006602				CKLOOP			:LOOP ON ERROR IF SELECTED
1726	006602	104406			TRAP	C\$CLP1		
1727	006604				EXIT	TST		:ABORT TEST IF ERROR DETECTED
1728	006604	104432			TRAP	C\$EXIT		
1729	006606	000354			.WORD	L10031-		
1730	006610				5\$:	CKLOOP		:CHECK FOR LOOP ON ERROR
1731	006610	104406			TRAP	C\$CLP1		
1732	006612				ENDSUB			
1733	006612				L10036:			
1734	006612	104403			TRAP	C\$ESUB		
1735	006614				BGNSUB			
1736	006614	104402			TRAP	C\$BSUB		
1737	006616	012737	052525	177520	MOV	#052525,PCR		:LOAD AN ALTERNATING 0'S AND 1'S BIT PATTERN

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1738 006624 022737 052525 177520      CMP      #052525,PCR      ;CHECK THE RESULTS
1739 006632 001413                      BEQ      6$              ;BR IF GOOD DATA
1740 006634 012701 052525                MOV      #052525,R1     ;EXPECTED DATA
1741 006640 013702 177520                MOV      PCR,R2        ;COPY CONTENTS
1742 006644                      ERRDF    20,PACR,RERR3  ;REGISTER CANNOT HOLD GOOD DATA
1743 006644 104455                TRAP    C$ERDF
1744 006646 000024                .WORD   20
1745 006650 002654                .WORD   PACR
1746 006652 004046                .WORD   RERR3
1747 006654                      CKLOOP
1748 006654 104406                TRAP    C$CLP1         ;LOOP ON ERROR IF SELECTED
1749 006656                      EXIT    TST             ;ABORT TEST IF ERROR DETECTED
1750 006656 104432                TRAP    C$EXIT
1751 006660 000302                .WORD   L10031-.
1752 006662                      6$: CKLOOP
1753 006662 104406                TRAP    C$CLP1         ;CHECK FOR LOOP ON ERROR
1754 006664                      ENDSUB
1755 006664                      L10037:
1756 006664 104403                TRAP    C$ESUB
1757 006666                      BGNSUB
1758 006666 104402                TRAP    C$BSUB
1759 006670 105037 177521 177520      CLRB    PCR+1          ;CLEAR THE HIGH BYTE
1760 006674 022737 000125 177520      CMP      #125,PCR      ;CHECK THE REGISTER CONTENTS
1761 006702 001413                      BEQ      7$              ;BR IF GOOD DATA
1762 006704 012701 000125                MOV      #125,R1       ;EXPECTED DATA
1763 006710 013702 177520                MOV      PCR,R2        ;COPY CONTENTS
1764 006714                      ERRDF    21,PACR,RERR4 ;BYTE INSTRUCTION ERROR
1765 006714 104455                TRAP    C$ERDF
1766 006716 000025                .WORD   21
1767 006720 002654                .WORD   PACR
1768 006722 004114                .WORD   RERR4
1769 006724                      CKLOOP
1770 006724 104406                TRAP    C$CLP1         ;LOOP ON ERROR IF SELECTED
1771 006726                      EXIT    TST             ;ABORT TEST IF ERROR DETECTED
1772 006726 104432                TRAP    C$EXIT
1773 006730 000232                .WORD   L10031-.
1774 006732                      7$: CKLOOP
1775 006732 104406                TRAP    C$CLP1         ;CHECK FOR LOOP ON ERROR
1776 006734                      ENDSUB
1777 006734                      L10040:
1778 006734 104403                TRAP    C$ESUB
1779
1780 006736                      BGNSUB
1781 006736 104402                TRAP    C$BSUB
1782 006740 000337 177520 177520      SWAB    PCR            ;SWAP BYTES
1783 006744 022737 052400 177520      CMP      #052400,PCR   ;CHECK RESULTING CONTENTS
1784 006752 001413                      BEQ      10$             ;BR IF GOOD DATA
1785 006754 012701 052400                MOV      #52400,R1     ;EXPECTED DATA
1786 006760 013702 177520                MOV      PCR,R2        ;COPY CONTENTS
1787 006764                      ERRDF    22,PACR,RERR4 ;BYTE INSTRUCTION ERROR
1788 006764 104455                TRAP    C$ERDF
1789 006766 000026                .WORD   22
1790 006770 002654                .WORD   PACR
1791 006772 004114                .WORD   RERR4
1792 006774                      CKLOOP
1793 006774 104406                TRAP    C$CLP1         ;LOOP ON ERROR IF SELECTED

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1794 006776          EXIT      TST          ;ABORT TEST IF ERROR DETECTED
1795 006776 104432  TRAP      C$EXIT
1796 007000 000162  .WORD    L10031-.
1797 007002          CKLOOP
1798 007002 104406  10$:     TRAP      C$CLP1      ;CHECK FOR LOOP ON ERROR
1799 007004          ENDSUB
1800 007004          L10041:
1801 007004 104403  TRAP      C$ESUB
1802
1803 007006          BGNSUB
1804 007006 104402  TRAP      C$BSUB
1805 007010 005037 177520  CLR      PCR          ;MAKE SURE THE C-BIT IS CLEAR
1806 007014 052737 100000 177520  BIS      #BIT15,PCR  ;SET MSB
1807 007022 013703 177520  MOV      PCR,R3      ;COPY DATA IN PCR
1808 007026 023703 177520  ROTLP3:  CMP      PCR,R3    ;ARE THEY THE SAME?
1809 007032 001005  BNE      11$         ;BR IF NO
1810 007034 006003  ROR      R3          ;ROTATE THE SET BIT
1811 007036 001412  BEQ      12$         ;BR IF FINISHED
1812 007040 006037 177520  ROR      PCR
1813 007044 000770  BR       ROTLP3      ;REPEAT ROTATE
1814 007046          11$:     ERRDF    23,PACR,RERR5 ;LOOP UNTIL ROTATE IS COMPLETE
1815 007046 104455  TRAP      C$ERDF
1816 007050 000027  .WORD    23
1817 007052 002654  .WORD    PACR
1818 007054 004162  .WORD    RERR5
1819 007056          CKLOOP
1820 007056 104406  TRAP      C$CLP1      ;LOOP ON ERROR IF SELECTED
1821 007060          EXIT      TST          ;SKIP REST OF TEST
1822 007060 104432  TRAP      C$EXIT
1823 007062 000100  .WORD    L10031-.
1824 007064          CKLOOP
1825 007064 104406  12$:     TRAP      C$CLP1      ;CHECK FOR LOOP ON ERROR
1826 007066          ENDSUB
1827 007066          L10042:
1828 007066 104403  TRAP      C$ESUB
1829
1830 007070          BGNSUB
1831 007070 104402  TRAP      C$BSUB
1832 007072 012737 177777 177520  MOV      #-1,PCR
1833 007100 042737 100000 177520  BIC      #BIT15,PCR ;SET ALL ONES
1834 007106 013703 177520  MOV      PCR,R3      ;CLEAR MSB
1835 007112 023703 177520  ROTLP4:  CMP      PCR,R3    ;COPY DATA
1836 007116 001010  BNE      13$         ;ARE THEY THE SAME?
1837 007120 000261  SEC      13$         ;BR IF NO
1838 007122 006037 177520  ROR      PCR          ;SET C-BIT FOR ROTATE
1839 007126 006003  ROR      R3          ;ROTATE CLEAR BIT
1840 007130 022703 077777  CMP      #077777,R3  ;REPEAT
1841 007134 001366  BNE      ROTLP4      ;ALL ONES?
1842 007136 000407  BR       14$         ;BR IF NOT YET
1843 007140          13$:     ERRDF    24,PACR,RERR6 ;SUBTEST FINISHED
1844 007140 104455  TRAP      C$ERDF
1845 007142 000030  .WORD    24
1846 007144 002654  .WORD    PACR
1847 007146 004204  .WORD    RERR6
1848 007150          CKLOOP
1849 007150 104406  TRAP      C$CLP1      ;LOOP ON ERROR IF SELECTED

```

1850 007152
 1851 007152 104432
 1852 007154 000006
 1853 007156
 1854 007156 104406
 1855 007160
 1856 007160
 1857 007160 104403
 1858 007162
 1859 007162
 1860 007162 104401
 1861
 1862
 1863
 1864
 1865
 1866
 1867
 1868
 1869
 1870
 1871
 1872 007164
 1873
 1874 177546
 1875
 1876 007164 005737 002304
 1877 007170 001402
 1878 007172
 1879 007172 104432
 1880 007174 001362
 1881 007176 005037 007670
 1882 007202
 1883 007202 104402
 1884 007204
 1885 007204 012746 000340
 1886 007210 012746 007662
 1887 007214 013746 002314
 1888 007220 012746 000003
 1889 007224 104437
 1890 007226 062706 000010
 1891 007232 052737 000100 177546
 1892 007240
 1893 007240 012700 000000
 1894 007244 104441
 1895 007246 004537 005232
 1896 007252 000050
 1897 007254
 1898 007254 012700 000340
 1899 007260 104441
 1900 007262 022737 000002 007670
 1901 007270 003404
 1902 007272
 1903 007272 104455
 1904 007274 000031
 1905 007276 000000

EXIT TST
 TRAP C\$EXIT
 .WORD L10031-.
 14\$: CKLOOP
 TRAP C\$CLP1
 ENDSUB
 L10043: TRAP C\$ESUB
 ENDTST
 L10031: TRAP C\$ETST

.SBTTL TEST 3: BEVENT CLAMP ENABLE TEST
 :++
 :TEST TO VERIFY THAT THE BEVENT CLAMP CAN BE ENABLED. (IF TESTING A BDV11, THIS
 :TEST ASSUMES THAT SWITCH #5 OF E21 IS IN THE ON POSITION, AND THE M8012
 :MODULE IS LOCATED IN THE SAME BACKPLANE THAT THE LINE TIME CLOCK
 :IS GENERATED FROM.) CHECKS PRIORITY INTERRUPT LEVEL 6 IF IT WAS
 :CHANGED IN HARDWARE TABLE AND IF THE DEVICE UNDER TEST IS KDF11-B.
 :--

BGNTST
 BEVREG=177546
 TST PASS ;IF THIS IS FIRST PASS
 BEQ 1\$;THEN DO THE TEST
 EXIT TST ;ELSE DON'T
 TRAP C\$EXIT
 .WORD L10044-.
 1\$: CLR ICOUNT
 BGNSUB
 TRAP C\$BSUB
 SETVEC VECT,#INTSR,#PRI07 ;SET INTERRUPT VECTOR,INHIBIT INTERRUPTS
 MOV #PRI07,-(SP)
 MOV #INTSR,-(SP)
 MOV VECT,-(SP)
 MOV #3,-(SP)
 TRAP C\$SVEC
 ADD #10,SP
 BIS #BIT06,BEVREG ;REMOVE BEVENT CLAMP
 SETPRI #PRI00 ;ALLOW INTERRUPTS
 MOV #PRI00,R0
 TRAP C\$SPRI
 JSR R5,WDELAY ;DELAY APPROX. 40 MSECS.
 40.
 SETPRI #PRI07 ;INHIBIT FURTHER INTERRUPTS
 MOV #PRI07,R0
 TRAP C\$SPRI
 CMP #2,ICOUNT ;DID THE MINIMUM OF TWO INTERRUPTS OCCUR?
 BLE 2\$;BR IF YES
 ERRDF 25,,BVERR1 ;BEVENT CLAMP ENABLE FAILED
 TRAP C\$ERDF
 .WORD 25
 .WORD 0

1906	007300	007672			.WORD	BVERR1	
1907	007302				2\$: CKLOOP		:CHECK FOR LOOP ON ERROR
1908	007302	104406			TRAP	C\$CLP1	
1909	007304	005037	007670		CLR	ICOUNT	:CLEAR INTERRUPT COUNT
1910	007310				ENDSUB		
1911	007310				L10045:		
1912	007310	104403			TRAP	C\$ESUB	
1913							
1914	007312				BGNSUB		
1915	007312	104402			TRAP	C\$BSUB	
1916	007314	042737	000100	177546	BIC	#BIT06, BEVREG	:SET BEVENT CLAMP
1917	007322				SETPRI	#PRI00	:ALLOW INTERRUPTS
1918	007322	012700	000000		MOV	#PRI00, R0	
1919	007326	104441			TRAP	C\$SPRI	
1920	007330	004537	005232		JSR	R5, WDELAY	:DELAY APPROX. 40 MSECS
1921	007334	000050			40.		:DELAY COUNT
1922	007336				SETPRI	#PRI07	:SET HIGHEST PRIORITY
1923	007336	012700	000340		MOV	#PRI07, R0	
1924	007342	104441			TRAP	C\$SPRI	
1925	007344	022737	000001	007670	CMP	#1, ICOUNT	:CHECK INTERRUPT COUNT
1926	007352	002004			BGE	4\$:BR IF NO INTERRUPTS OCCURRED
1927	007354				ERRDF	26, BVERR2	:BEVENT CLAMP DID NOT PREVENT INTERRUPTS
1928	007354	104455			TRAP	C\$ERDF	
1929	007356	000032			.WORD	26	
1930	007360	000000			.WORD	0	
1931	007362	007740			.WORD	BVERR2	
1932	007364				4\$: CKLOOP		:CHECK FOR LOOP ON ERROR
1933	007364	104406			TRAP	C\$CLP1	
1934	007366	005037	007670		CLR	ICOUNT	:CLEAR INTERRUPT COUNT
1935	007372				ENDSUB		
1936	007372				L10046:		
1937	007372	104403			TRAP	C\$ESUB	
1938							
1939	007374	022737	000006	002324	CMP	#6, PRIOR	:WAS PRIORITY CHANGED?
1940	007402	001405			BEQ	100\$:IF YES, BRANCH
1941	007404	005737	002260		TST	KDF11B	:KDF11B ?
1942	007410	001002			BNE	100\$:IF YES, BRANCH
1943	007412				EXIT	TST	:NO, EXIT
1944	007412	104432			TRAP	C\$EXIT	
1945	007414	001142			.WORD	L10044-	
1946							
1947	007416				100\$: BGNSUB		
1948	007416	104402			TRAP	C\$BSUB	
1949	007420	052737	000100	177546	BIS	#BIT06, BEVREG	:REMOVE BEVENT CLAMP
1950	007426				SETPRI	#PRI05	:ALLOW INTERRUPTS AT 5
1951	007426	012700	000240		MOV	#PRI05, R0	
1952	007432	104441			TRAP	C\$SPRI	
1953	007434	004537	005232		JSR	R5, WDELAY	:DELAY APPROX. 40 MSECS.
1954	007440	000050			40.		
1955	007442				SETPRI	#PRI07	:INHIBIT FURTHER INTERRUPTS
1956	007442	012700	000340		MOV	#PRI07, R0	
1957	007446	104441			TRAP	C\$SPRI	
1958	007450	022737	000002	007670	CMP	#2, ICOUNT	:DID THE MINIMUM OF TWO INTERRUPTS OCCUR?
1959	007456	003404			BLE	101\$:BR IF YES
1960	007460				ERRDF	52, BVERR4	:PRIORITY IS WRONG
1961	007460	104455			TRAP	C\$ERDF	

1962	007462	000064			.WORD	52		
1963	007464	000000			.WORD	0		
1964	007466	010054			.WORD	BVERR4		
1965	007470				101\$: CKLOOP			:CHECK FOR LOOP ON ERROR
1966	007470	104406			TRAP	C\$CLP1		
1967	007472	005037	007670		CLR	ICOUNT		:CLEAR INTERRUPT COUNT
1968	007476				ENDSUB			
1969	007476				L10047:			
1970	007476	104403			TRAP	C\$ESUB		
1971								
1972	007500				BGNSUB			
1973	007500	104402			TRAP	C\$BSUB		
1974	007502	052737	000100	177546	BIS	#BIT06,BEVREG		:REMOVE BEVENT CLAMP
1975	007510				SETPRI	#PRI06		:DON'T ALLOW INTERRUPTS
1976	007510	012700	000300		MOV	#PRI06,R0		
1977	007514	104441			TRAP	C\$SPRI		
1978	007516	004537	005232		JSR	R5,WDELAY		:DELAY APPROX. 40 MSECS
1979	007522	000050			40.			:DELAY COUNT
1980	007524				SETPRI	#PRI07		:SET PRIORITY 7
1981	007524	012700	000340		MOV	#PRI07,R0		
1982	007530	104441			TRAP	C\$SPRI		
1983	007532	022737	000001	007670	CMP	#1,ICOUNT		:CHECK INTERRUPT COUNT
1984	007540	002004			BGE	102\$:BR IF NO INTERRUPTS OCCURRED
1985	007542				ERRDF	53,BVERR5		:PRIOR. 6 DIDN'T PREVENT INTERR.
1986	007542	104455			TRAP	C\$ERDF		
1987	007544	000065			.WORD	53		
1988	007546	000000			.WORD	0		
1989	007550	010122			.WORD	BVERR5		
1990	007552				102\$: CKLOOP			:CHECK FOR LOOP ON ERROR
1991	007552	104406			TRAP	C\$CLP1		
1992	007554	005037	007670		CLR	ICOUNT		:CLEAR INTERRUPT COUNT
1993	007560				ENDSUB			
1994	007560				L10050:			
1995	007560	104403			TRAP	C\$ESUB		
1996								
1997	007562	005737	002260		TST	KDF11B		:KDF11B ?
1998	007566	001002			BNE	5\$		
1999	007570				EXIT	TST		
2000	007570	104432			TRAP	C\$EXIT		
2001	007572	000764			.WORD	L10044-		
2002								
2003	007574				5\$: BGNSUB			:SET INTERRUPTS
2004	007574	104402			TRAP	C\$BSUB		
2005	007576	052737	000100	177546	BIS	#BIT06,BEVREG		
2006	007604				BRESET			:RESET INTERRUPTS
2007	007604	104433			TRAP	C\$RESET		
2008	007606				SETPRI	#PRI00		:WITH LOW PRIORITY
2009	007606	012700	000000		MOV	#PRI00,R0		
2010	007612	104441			TRAP	C\$SPRI		
2011	007614	004537	005232		JSR	R5,WDELAY		:DELAY APPROX. 40 MSECS
2012	007620	000050			40.			
2013	007622				SETPRI	#PRI07		
2014	007622	012700	000340		MOV	#PRI07,R0		
2015	007626	104441			TRAP	C\$SPRI		
2016	007630	005737	007670		TST	ICOUNT		:0 INTERRUPTS ?
2017	007634	001404			BEQ	6\$:IF YES BRANCH

2018	007636			ERRDF	51, BVERR3		:RESET DIDN'T WORK
2019	007636	104455		TRAP	C\$ERDF		
2020	007640	000063		.WORD	51		
2021	007642	000000		.WORD	0		
2022	007644	010006		.WORD	BVERR3		
2023	007646			6\$: CKLOOP			:CHECK FOR LOOP ON ERROR
2024	007646	104406		TRAP	C\$CLP1		
2025	007650	005037	007670	CLR	ICOUNT		
2026	007654			ENDSUB			
2027	007654			L10051:			
2028	007654	104403		TRAP	C\$ESUB		
2029	007656			EXIT	TST		
2030	007656	104432		TRAP	C\$EXIT		
2031	007660	000676		.WORD	L10044-		
2032							
2033	007662			INTSR:			
2034	007662			BGNSRV	BEVENT		:INTERRUPT SERVICE ROUTINE
2035	007662			BEVENT::			
2036	007662	005237	007670	INC	ICOUNT		:INCREMENT COUNTER
2037	007666			ENDSRV			
2038	007666			L10052:			
2039	007666	000002		RTI			
2040							
2041	007670	000000		ICOUNT: .WORD	0		
2042							
2043	007672			BGNMSG	BVERR1		
2044	007672			BVERR1::			
2045	007672			PRINTB	#MSG1		
2046	007672	012746	010170	MOV	#MSG1, -(SP)		
2047	007676	012746	000001	MOV	#1, -(SP)		
2048	007702	010600		MOV	SP, R0		
2049	007704	104414		TRAP	C\$PNTB		
2050	007706	062706	000004	ADD	#4, SP		
2051	007712			PRINTB	#INTCT, ICOUNT		
2052	007712	013746	007670	MOV	ICOUNT, -(SP)		
2053	007716	012746	010244	MOV	#INTCT, -(SP)		
2054	007722	012746	000002	MOV	#2, -(SP)		
2055	007726	010600		MOV	SP, R0		
2056	007730	104414		TRAP	C\$PNTB		
2057	007732	062706	000006	ADD	#6, SP		
2058	007736			ENDMSG			
2059	007736			L10053:			
2060	007736	104423		TRAP	C\$MSG		
2061							
2062	007740			BGNMSG	BVERR2		
2063	007740			BVERR2::			
2064	007740			PRINTB	#MSG2		
2065	007740	012746	010313	MOV	#MSG2, -(SP)		
2066	007744	012746	000001	MOV	#1, -(SP)		
2067	007750	010600		MOV	SP, R0		
2068	007752	104414		TRAP	C\$PNTB		
2069	007754	062706	000004	ADD	#4, SP		
2070	007760			PRINTB	#INTCT, ICOUNT		
2071	007760	013746	007670	MOV	ICOUNT, -(SP)		
2072	007764	012746	010244	MOV	#INTCT, -(SP)		
2073	007770	012746	000002	MOV	#2, -(SP)		

2074	007774	010600		MOV	SP,R0
2075	007776	104414		TRAP	C\$PNTB
2076	010000	062706	000006	ADD	#6,SP
2077	010004			ENDMSG	
2078	010004			L10054:	
2079	010004	104423		TRAP	C\$MSG
2080					
2081	010006			BGNMSG	BVERR3
2082	010006			BVERR3::	
2083	010006			PRINTB	#MSG3
2084	010006	012746	010367	MOV	#MSG3,-(SP)
2085	010012	012746	000001	MOV	#1,-(SP)
2086	010016	010600		MOV	SP,R0
2087	010020	104414		TRAP	C\$PNTB
2088	010022	062706	000004	ADD	#4,SP
2089	010026			PRINTB	#INTCT,ICOUNT
2090	010026	013746	007670	MOV	ICOUNT,-(SP)
2091	010032	012746	010244	MOV	#INTCT,-(SP)
2092	010036	012746	000002	MOV	#2,-(SP)
2093	010042	010600		MOV	SP,R0
2094	010044	104414		TRAP	C\$PNTB
2095	010046	062706	000006	ADD	#6,SP
2096	010052			ENDMSG	
2097	010052			L10055:	
2098	010052	104423		TRAP	C\$MSG
2099					
2100	010054			BGNMSG	BVERR4
2101	010054			BVERR4::	
2102	010054			PRINTB	#MSG4
2103	010054	012746	010434	MOV	#MSG4,-(SP)
2104	010060	012746	000001	MOV	#1,-(SP)
2105	010064	010600		MOV	SP,R0
2106	010066	104414		TRAP	C\$PNTB
2107	010070	062706	000004	ADD	#4,SP
2108	010074			PRINTB	#INTCT,ICOUNT
2109	010074	013746	007670	MOV	ICOUNT,-(SP)
2110	010100	012746	010244	MOV	#INTCT,-(SP)
2111	010104	012746	000002	MOV	#2,-(SP)
2112	010110	010600		MOV	SP,R0
2113	010112	104414		TRAP	C\$PNTB
2114	010114	062706	000006	ADD	#6,SP
2115	010120			ENDMSG	
2116	010120			L10056:	
2117	010120	104423		TRAP	C\$MSG
2118					
2119	010122			BGNMSG	BVERR5
2120	010122			BVERR5::	
2121	010122			PRINTB	#MSG5
2122	010122	012746	010504	MOV	#MSG5,-(SP)
2123	010126	012746	000001	MOV	#1,-(SP)
2124	010132	010600		MOV	SP,R0
2125	010134	104414		TRAP	C\$PNTB
2126	010136	062706	000004	ADD	#4,SP
2127	010142			PRINTB	#INTCT,ICOUNT
2128	010142	013746	007670	MOV	ICOUNT,-(SP)
2129	010146	012746	010244	MOV	#INTCT,-(SP)

2130	010152	012746	000002		MOV	#2,-(SP)
2131	010156	010600			MOV	SP,R0
2132	010160	104414			TRAP	C\$PNTB
2133	010162	062706	000006		ADD	#6,SP
2134	010166				ENDMSG	
2135	010166			L10057:		
2136	010166	104423			TRAP	C\$MSG
2137						
2138	010170	040445	042502	042526	MSG1:	.ASCIZ /%ABEVENT CLAMP FAILED TO ALLOW INTERRUPTS%N/
2139	010176	052116	041440	040514		
2140	010204	050115	043040	044501		
2141	010212	042514	020104	047524		
2142	010220	040440	046114	053517		
2143	010226	044440	052116	051105		
2144	010234	052522	052120	022523		
2145	010242	000116				
2146	010244	040445	052516	041115	INTCT:	.ASCIZ /%ANUMBER OF INTERRUPTS RECEIVED: %03%N/
2147	010252	051105	047440	020106		
2148	010260	047111	042524	051122		
2149	010266	050125	051524	051040		
2150	010274	041505	044505	042526		
2151	010302	035104	022440	031517		
2152	010310	047045	000			
2153	010313	045	041101	053105	MSG2:	.ASCIZ /%ABEVENT CLAMP DID NOT PREVENT INTERRUPTS%N/
2154	010320	047105	020124	046103		
2155	010326	046501	020120	044504		
2156	010334	020104	047516	020124		
2157	010342	051120	053105	047105		
2158	010350	020124	047111	042524		
2159	010356	051122	050125	051524		
2160	010364	047045	000			
2161	010367	045	051101	051505	MSG3:	.ASCIZ /%ARESET DID NOT PREVENT INTERRUPTS%N/
2162	010374	052105	042040	042111		
2163	010402	047040	052117	050040		
2164	010410	042522	042526	052116		
2165	010416	044440	052116	051105		
2166	010424	052522	052120	022523		
2167	010432	000116				
2168	010434	040445	051120	047511	MSG4:	.ASCIZ /%APRIORITY 5 DID NOT ALLOW INTERRUPTS%N/
2169	010442	044522	054524	032440		
2170	010450	042040	042111	047040		
2171	010456	052117	040440	046114		
2172	010464	053517	044440	052116		
2173	010472	051105	052522	052120		
2174	010500	022523	000116			
2175	010504	040445	051120	047511	MSG5:	.ASCIZ /%APRIORITY 6 DID NOT PREVENT INTERRUPTS%N/
2176	010512	044522	054524	033040		
2177	010520	042040	042111	047040		
2178	010526	052117	050040	042522		
2179	010534	042526	052116	044440		
2180	010542	052116	051105	052522		
2181	010550	052120	022523	000116		
2182						
2183	010556				.EVEN	
2184	010556				ENDTST	
2185	010556	104401			L10044:	
					TRAP	C\$ETST

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2186 .SBTTL TEST 4: LIGHT DISPLAY TEST
2187 :++
2188 :TEST TO VERIFY THAT THE FOUR RED LED'S ARE WORKING AND CAN BE
2189 :TURNED ON INDIVIDUALLY.
2190 :--
2191
2192 010560 BGNTST
2193
2194 010560 005037 177524 CLR LSREG ;TURN ON ALL FOUR LED'S
2195 010564 004537 005232 JSR R5,WDELAY ;DELAY APPROX. 200MS
2196 010570 000310 200.
2197 010572 BREAK ;CHECK SUPERVISOR FOR CONTROL REQUESTS
2198 010572 104422 TRAP C$BRK
2199 010574 012737 000017 177524 MOV #17,LSREG ;TURN OFF ALL FOUR LED'S
2200 010602 004537 005232 JSR R5,WDELAY ;DELAY APPROX. 200 MS
2201 010606 000310 200.
2202 010610 MANUAL ;IS MANUAL INTERVENTION ALLOWED?
2203 010610 104450 TRAP C$MANI
2204 010612 BCOMPLETE 2$ ;BR IF YES
2205 010612 103410 BCS 2$
2206 010614 022737 000030 002306 CMP #30,PASCT ;IS PASS COUNT >= 30?
2207 010622 003402 BLE 1$ ;BR IF YES
2208 010624 EXIT TST
2209 010624 104432 TRAP C$EXIT
2210 010626 000100 .WORD L10060-.
2211 010630 005037 002306 1$: CLR PASCT ;EXIT TEST
2212 010634 012737 000016 177524 2$: MOV #16,LSREG ;TURN ON THE LED CORRESPONDING TO THE LSB
2213 010642 004537 005232 JSR R5,WDELAY ;DELAY APPROX. 200MS
2214 010646 000310 200.
2215 010650 BREAK ;CHECK SUPR FOR CONTROL REQUESTS
2216 010650 104422 TRAP C$BRK
2217 010652 012737 000015 177524 MOV #15,LSREG ;TURN ON 2ND LED
2218 010660 004537 005232 JSR R5,WDELAY ;DELAY APPROX 200 MS
2219 010664 000310 200.
2220 010666 BREAK ;CHECK SUPERVISOR FOR CONTROL COMMANDS
2221 010666 104422 TRAP C$BRK
2222 010670 012737 000013 177524 MOV #13,LSREG ;TURN ON 3RD LED
2223 010676 004537 005232 JSR R5,WDELAY ;DELAY APPROX 200MS
2224 010702 000310 200.
2225 010704 BREAK ;CHECK SUPR FOR CONTROL REQUESTS
2226 010704 104422 TRAP C$BRK
2227 010706 012737 000007 177524 MOV #7,LSREG ;TURN ON LED CORRESPONDING TO MSB
2228 010714 004537 005232 JSR R5,WDELAY ;DELAY APPROX 200MS
2229 010720 000310 200.
2230 010722 EXIT TST ;EXIT
2231 010722 104432 TRAP C$EXIT
2232 010724 000002 .WORD L10060-.
2233
2234 010726 ENDTST
2235 010726 L10060:
2236 010726 104401 TRAP C$ETST
2237
2238 .SBTTL TEST 5: ROCKER SWITCHES TEST
2239 :TEST TO CONFIRM THE ROCKER SWITCH SETTINGS. THIS TEST ASSUMES THAT,
2240 :IN MANUFACTURING, THE ROCKER SWITCHES ARE ALL IN THE ON POSITION.
2241 :THIS INCLUDES BOTH E21 AND E15 ON THE BDV11, OR SWITCH E102 ON THE KDF11-B. IN
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 TEST 5: ROCKER SWITCHES TEST

SEQ 0043

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2242                                     :MANUFACTURING, THIS TEST WILL VERIFY THAT ALL SWITCHES CAN BE READ AS ON. IN,
2243                                     :OTHER ENVIRONMENTS THE OPERATOR MAY SPECIFY WHAT THE SWITCH SETTINGS ARE BEFORE
2244                                     :THE DIAGNOSTIC IS STARTED (SEE PROGRAM OPTIONS UNDER OPERATING
2245                                     :INSTRUCTIONS). SWITCHES A1-A8 CORRESPOND TO E15 AND SWITCHES
2246                                     :B1-B4 TO E21 ON THE BDV11.
2247 010730                               BGNTST
2248
2249 010730                               MANUAL                               :IS MANUAL INTERVENTION ALLOWED?
2250 010730 104450                       TRAP C$MANI
2251 010732                               BCOMPLETE PRTSW                               :BR IF YES
2252 010732 103420                       BCS PRTSW
2253 010734 005737 002260                TST KDF11B                               :IF THIS IS A KDF11-B...
2254 010740 001402                       BEQ 3$
2255 010742 105037 002317                CLR B SWSET+1
2256 010746 023737 002316 177524 3$:    CMP SWSET,LSREG                               :...THEN JUST LOOK AT 8 SWITCHES
2257                                     :ALL SWITCHES SHOULD BE ON & BITS 0-11..
2258                                     :... (OR BITS 0-7 IF ON A KDF11-B)...
2259 010754 001404                       BEQ 1$                                     :... SHOULD BE SET.
2260 010756                               ERRDF 27, SWERR                               :BR IF SWITCH READINGS ARE OK
2261 010756 104455                       TRAP C$ERRDF                               :CANNOT READ SWITCHES PROPERLY
2262 010760 000033                       .WORD 27
2263 010762 000000                       .WORD 0
2264 010764 011326                       .WORD SWERR
2265 010766                               1$: CKLOOP
2266 010766 104406                       TRAP C$CLP1                               :CHECK FOR LOOP ON ERROR
2267 010770                               EXIT
2268 010770 104432                       TRAP C$EXIT                               :EXIT
2269 010772 000566                       .WORD L10061-
2270 010774 013737 177524 011322 PRTSW: MOV LSREG,TEMP                               :COPY CONTENTS OF LSREG
2271 011002 005037 011324                CLR SWCHON                               :CLEAR MASK
2272 011006 012737 000014 011320        MOV #14,SWCNT                               :SET SWITCH COUNT
2273 011014 005737 002260                TST KDF11B                               :IF THIS IS A KDF11-B...
2274 011020 001403                       BEQ LP
2275 011022 012737 000010 011320        MOV #10,SWCNT                               :... THEN JUST TEST FOR 8 SWITCHES
2276 011030 032737 000001 011322 LP:   BIT #BIT0,TEMP                               :TEST FOR SWITCH SET
2277 011036 001412                       BEQ 2$                                     :BR IF NOT SET
2278 011040 005737 002260                TST KDF11B                               :SEE IF WE ARE ON A KDF11B
2279 011044 001404                       BEQ 4$                                     :BRANCH IF NOT
2280 011046 052737 004000 011324        BIS #BIT11,SWCHON                          :SET CORRESPONDING BIT IN MASK
2281 011054 000403                       BR 2$
2282 011056 052737 100000 011324 4$:   BIS #BIT15,SWCHON                          :IF SET, THEN SET CORRESPONDING BIT IN MASK
2283 011064 000241                               2$: CLC                                     :CLEAR C-BIT FOR ROTATE
2284 011066 006037 011324                ROR SWCHON                               :ROTATE SWSET
2285 011072 006037 011322                ROR TEMP                               :GET READY TO TEST NEXT SWITCH
2286 011076 005337 011320                DEC SWCNT                               :DECREMENT SWITCH COUNT
2287 011102 001352                       BNE LP                                     :LOOP UNTIL ALL SWITCHES HAVE BEEN CHECKED
2288 011104 000241                               CLC                                     :CLEAR C-BIT FOR ROTATE
2289 011106 006037 011324                ROR SWCHON                               :ROTATE DATA
2290 011112 006037 011324                ROR SWCHON                               :ROTATE DATA
2291 011116 006037 011324                ROR SWCHON                               :ROTATE DATA
2292 011122                               PRINTF #READN,SWCHON                       :PRINT SWITCH SETTINGS
2293 011122 013746 011324                MOV SWCHON,-(SP)
2294 011126 012746 011360                MOV #READN,-(SP)
2295 011132 012746 000002                MOV #2,-(SP)
2296 011136 010600                       MOV SP,R0
2297 011140 104417                       TRAP C$PNTF

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2298 011142 062706 000006          ADD    #6,SP
2299
2300 011146 013702 011324          MOV    SWCHON,R2          ;COPY SWITCH SETTINGS
2301 011152 012701 000001          MOV    #1,R1             ;SET SWITCH NUMBER = 1
2302 011156 032702 000001          TAG1: BIT   #BIT0,R2     ;IS THIS SWITCH ON?
2303 011162 001411                   BEQ    TAG2              ;BR IF NO
2304 011164                   PRINTF #MESSG1,R1       ;PRINT SWITCH NUMBER
2305 011164 010146                   MOV    R1,-(SP)
2306 011166 012746 011413          MOV    #MESSG1,-(SP)
2307 011172 012746 000002          MOV    #2,-(SP)
2308 011176 010600                   MOV    SP,R0
2309 011200 104417                   TRAP   C$PNTF
2310 011202 062706 000006          ADD    #6,SP
2311 011206 005201          TAG2: INC    R1             ;INCREMENT SWITCH NUMBER
2312 011210 006002          ROR    R2                 ;ROTATE SWITCH REGISTER
2313 011212 022701 000010          CMP    #10,R1            ;FINISHED WITH E15 ON BDV11
2314                                     ;OR E102 ON KDF11-B?
2315 011216 002357          BGE    TAG1              ;BR IF NO
2316 011220 005737 002260          TST    KDF11B            ;SEE IF WE ARE ON A KDF11-B
2317 011224 001023          BNE    TAG4A             ;BRANCH IF YES
2318 011226 012701 000001          MOV    #1,R1             ;RESET SWITCH NUMBER FOR E21 ON BDV11
2319 011232 032702 000001          TAG3: BIT   #BIT0,R2     ;IS THIS SWITCH SET?
2320 011236 001411                   BEQ    TAG4              ;BR IF NO
2321 011240                   PRINTF #MESSG2,R1       ;PRINT SWITCH NUMBER
2322 011240 010146                   MOV    R1,-(SP)
2323 011242 012746 011426          MOV    #MESSG2,-(SP)
2324 011246 012746 000002          MOV    #2,-(SP)
2325 011252 010600                   MOV    SP,R0
2326 011254 104417                   TRAP   C$PNTF
2327 011256 062706 000006          ADD    #6,SP
2328 011262 005201          TAG4: INC    R1             ;INCREMENT SWITCH NUMBER
2329 011264 006002          ROR    R2                 ;ROTATE SWITCH REGISTER
2330 011266 022701 000004          CMP    #4,R1            ;FINISHED?
2331 011272 002357          BGE    TAG3              ;BR IF NO
2332 011274          TAG4A: PRINTF #NEWLIN
2333 011274 012746 011441          MOV    #NEWLIN,-(SP)
2334 011300 012746 000001          MOV    #1,-(SP)
2335 011304 010600                   MOV    SP,R0
2336 011306 104417                   TRAP   C$PNTF
2337 011310 062706 000004          ADD    #4,SP
2338
2339 011314                   EXIT TST
2340 011314 104432          TRAP   C$EXIT
2341 011316 000242          .WORD  L10061-.
2342
2343 011320 000000          SWCNT: .WORD 0
2344 011322 000000          TEMP:  .WORD 0
2345 011324 000000          SWCHON: .WORD 0
2346
2347 011326                   BGNMSG SWERR
2348 011326          SWERR::
2349 011326          PRINTB #SERR1,SWSET,LSREG
2350 011326 013746 177524          MOV    LSREG,-(SP)
2351 011332 013746 002316          MOV    SWSET,-(SP)
2352 011336 012746 011444          MOV    #SERR1,-(SP)
2353 011342 012746 000003          MOV    #3,-(SP)

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2354 011346 010600          MOV    SP,R0
2355 011350 104414          TRAP  C$PNTB
2356 011352 062706 000010    ADD   #10,SP
2357 011356                ENDMSG
2358 011356                L10062:
2359 011356 104423          TRAP  C$MSG
2360
2361 011360 047045 040445 053523  READN: .ASCIZ  /%N%ASWITCHES ON : %06%A : /
2362 011366 052111 044103 051505
2363 011374 047440 020116 020072
2364 011402 047445 022466 020101
2365 011410 020072      000
2366 011413      045 040501 042045  MESSG1: .ASCIZ  /%AA%D1%, /
2367 011420 022461 026101 000040
2368 011426 040445 022502 030504  MESSG2: .ASCIZ  /%AB%D1%, /
2369 011434 040445 020054      000
2370 011441      045 000116
2371 011444 040445 044504 020104  NEWLIN: .ASCIZ  /%N/
2372 011452 047516 020124 042522  SERR1: .ASCIZ  /%ADID NOT RECOGNIZE ALL SWITCHES AS ON%N/
2373 011460 047503 047107 055111
2374 011466 020105 046101 020114
2375 011474 053523 052111 044103
2376 011502 051505 040440 020123
2377 011510 047117 047045
2378 011514 040445 054105 042520      .ASCIZ  /%AEXPECTED: %06%S5%ARECEIVED:%06%N/
2379 011522 052103 042105 020072
2380 011530 047445 022466 032523
2381 011536 040445 042522 042503
2382 011544 053111 042105 022472
2383 011552 033117 047045      000
2384 011560
2385 011560          .EVEN
2386 011560          ENDTST
2387 011560 104401  L10061:
2388          TRAP  C$ETST
2389          .SBTTL  TEST 6: 2K DIAGNOSTIC ROM
2390          :++
2391          :TEST TO PERFORM CHECKSUM AND CHECKWORD VERIFICATION ON THE 2K
2392          :OF DIAGNOSTIC ROM. IN UNATTENDED MODE, THE ROM WILL BE ADDRESSED
2393          :FROM 0-2K. IN STAND-ALONE MODE, THE OPERATOR MAY CHANGE THE
2394          :ADDRESS BY RESPONDING TO QUESTIONS GENERATED ON THE FIRST PASS.
2395          :--
2396 011562          BGNTST
2397
2398 011562          BGNSUB
2399 011562 104402          TRAP  C$SUB
2400 011564          MANUAL          ;MANUAL INTERVENTION OK?
2401 011564 104450          TRAP  C$MANI
2402 011566          BNCOMPLETE  STRT          ;BR IF NO
2403 011566 103014          BCC   STRT
2404 011570 005737 002304          TST   PASS          ;FIRST PASS?
2405 011574 001032          BNE   RSTRT        ;BR IF NO
2406 011576          GMANIL  DADDR,RSET,1,YES
2407 011576 104443          TRAP  C$GMAN
2408 011600 000404          BR    10000$
2409 011602 002334          .WORD RSET

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2410 011604 000130          .WORD  T$CODE
2411 011606 013774          .WORD  DADDR
2412 011610 000001          .WORD  1
2413 011612          10000$:
2414 011612 005737 002334    TST    RSET          ;STANDARD JUMPERS?
2415 011616 001404          BEQ    GETAD         ;BR IF NO
2416 011620 012737 000400 012564  STRT:  MOV    #400,DRLP  ;STORE STARTING ADDRESS
2417 011626 000415          BR     RSTRT        ;GO PERFORM TEST
2418 011630          GETAD:  GMANID  LOADR,STORE,D,-1,0,24,NO
2419 011630 104443          TRAP  C$GMAN
2420 011632 000406          BR     10001$
2421 011634 002320          .WORD  STORE
2422 011636 000042          .WORD  T$CODE
2423 011640 003072          .WORD  LOADR
2424 011642 177777          .WORD  -1
2425 011644 000000          .WORD  T$LOLIM
2426 011646 000024          .WORD  T$HILIM
2427 011650          10001$:
2428 011650 004737 005142    JSR    PC,SETADR    ;GET STARTING ADDRESS
2429 011654 013737 002270 012564  MOV    LOPAG,DRLP  ;STORE STARTING ADDRESS
2430 011662 013737 012564 002262  RSTRT: MOV    DRLP,VRTPCR ;SET UP PCR
2431 011670 013737 002262 177520  MOV    VRTPCR,PCR
2432 011676 012737 000010 002272  DRTST: MOV    #10,COUNTR ;SET NUMBER OF CHECKWORDS TO CHECK
2433 011704 012705 002160  MOV    #SFPTBL,R5  ;LOCATION OF CHECKWORDS
2434 011710 012737 000001 002276  MOV    #1,RFLAG    ;INDICATE ROM
2435 011716 005037 002264  DLOOP: CLR    BCF     ;SIGNAL LOW BYTES ARE BEING CHECKED
2436 011722 122737 177777 173774  CMPB  #-1,@#173774 ;DOES THE ROM EXIST?
2437 011730 001007          BNE   1$           ;BR IF YES
2438 011732          ERRDF 30,,DERR1  ;LOW BYTE DIAGNOSTIC ROM NOT FOUND
2439 011732 104455          TRAP  C$ERRDF
2440 011734 000036          .WORD 30
2441 011736 000000          .WORD 0
2442 011740 012566          .WORD DERR1
2443 011742          CKLOOP          ;LOOP ON ERROR IF SELECTED
2444 011742 104406          TRAP  C$CLP1
2445 011744          EXIT  TST     ;EXIT TEST,ROM NOT FOUND
2446 011744 104432          TRAP  C$EXIT
2447 011746 002050          .WORD L10063-.
2448 011750          1$:  CKLOOP          ;CHECK FOR LOOP ON ERROR
2449 011750 104406          TRAP  C$CLP1
2450 011752 004737 004300    JSR    PC,CHKSUM   ;COMPUTE THE ACTUAL CHECKSUM
2451 011756 113737 173776 002300  MOVB  @#173776,EXPSUM ;GET THE STORED CHECKSUM
2452 011764 063737 002302 002300  ADD   ACTSUM,EXPSUM ;ADD THE EXPECTED AND ACTUAL CHECKSUMS
2453 011772 105737 002300  TSTB  EXPSUM       ;BYTE RESULT = 0?
2454 011776 001404          BEQ   2$           ;BR IF YES
2455 012000          ERRDF 31,,DERR2  ;CHECKSUM ERROR IN DIAGNOSTIC ROM
2456 012000 104455          TRAP  C$ERRDF
2457 012002 000037          .WORD 31
2458 012004 000000          .WORD 0
2459 012006 012614          .WORD DERR2
2460 012010          2$:  CKLOOP          ;CHECK FOR LOOP ON ERROR
2461 012010 104406          TRAP  C$CLP1
2462 012012          L10064: ENDSUB
2463 012012          TRAP  C$ESUB
2464 012012 104403
2465

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2466
2467 012014          BGNSUB
2468 012014 104402   TRAP      C$BSUB
2469 012016 012737 000001 002264   MOV      #1,BCF      ;SET BCF TO DENOTE HIGH BYTES
2470 012024 122737 177777 173775   CMPB    #-1,@#173775 ;DOES THE ROM EXIST?
2471 012032 001007          BNE      3$        ;BR IF YES
2472 012034          ERRDF    32,,DERR3 ;HIGH BYTE DIAGNOSTIC ROM NOT FOUND
2473 012034 104455   TRAP      C$ERDF
2474 012036 000040   .WORD    32
2475 012040 000000   .WORD    0
2476 012042 012642   .WORD    DERR3
2477 012044          CKLOOP
2478 012044 104406   TRAP      C$CLP1   ;LOOP ON ERROR IF SELECTED
2479 012046          EXIT      TST      ;EXIT TEST, ROM NOT FOUND
2480 012046 104432   TRAP      C$EXIT
2481 012050 001746   .WORD    L10063-.
2482 012052          CKLOOP
2483 012052 104406   TRAP      C$CLP1   ;CHECK FOR LOOP ON ERROR
2484 012054 004737 004300          JSR      PC,CHKSUM ;COMPUTE THE ACTUAL CHECKSUM
2485 012060 113737 173777 002300   MOVB    @#173777,EXPSUM ;GET EXPECTED CHECKSUM
2486 012066 063737 002302 002300   ADD     ACTSUM,EXPSUM ;ADD THE EXPECTED AND ACTUAL CHECKSUMS
2487 012074 105737 002300          TSTB    EXPSUM    ;BYTE RESULT = 0?
2488 012100 001404          BEQ     4$        ;BR IF YES
2489 012102          ERRDF    33,,DERR4 ;CHECKSUM ERROR IN DIAGNOSTIC ROM
2490 012102 104455   TRAP      C$ERDF
2491 012104 000041   .WORD    33
2492 012106 000000   .WORD    0
2493 012110 012670   .WORD    DERR4
2494 012112          CKLOOP
2495 012112 104406   TRAP      C$CLP1   ;LOOP ON ERROR IF SELECTED
2496 012114          ENDSUB
2497 012114          L10065:
2498 012114 104403   TRAP      C$ESUB
2499
2500 012116          BGNSUB
2501 012116 104402   TRAP      C$BSUB
2502 012120 062737 001002 002262   ADD     #1002,VRTPCR ;NEXT PAGE IN PCR
2503 012126 013737 002262 177520   MOV     VRTPCR,PCR
2504 012134 005337 002272          DEC     COUNTR    ;DECREMENT CHECKWORD COUNT
2505 012140 001266          BNE     DLOOP    ;LOOP UNTIL ALL 20 PAGES HAVE BEEN CHECKED
2506 012142          ENDSUB
2507 012142          L10066:
2508 012142 104403   TRAP      C$ESUB
2509
2510
2511          ;GET THE CHECKWORDS FROM THE ROMS AND PUT INTO TABLE 'CHKWRD'
2512 012144          BGNSUB
2513 012144 104402   TRAP      C$BSUB
2514 012146 012702 012744          MOV     #CHKWRD,R2
2515 012152 012737 000001 002262   MOV     #1,VRTPCR
2516 012160 012737 000010 002272   MOV     #10,COUNTR
2517 012166 013737 002262 177520 5$:   MOV     VRTPCR,PCR
2518 012174 013722 173376          MOV     @#173376,(R2)+
2519 012200 062737 000002 002262   ADD     #2,VRTPCR
2520 012206 005337 002272          DEC     COUNTR
2521 012212 001365          BNE     5$
    
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2522 012214          ENDSUB
2523 012214          L10067:
2524 012214 104403   TRAP    C$ESUB
2525
2526
2527                ;TRY TO IDENTIFY THE ROM CHIPS
2528 012216          BGNSUB
2529 012216 104402   TRAP    C$BSUB
2530 012220 013701 012764   MOV    TABLES,R1
2531 012224 012737 002200 012766   MOV    #SFPTBL+20,PNTR
2532 012232 020127 000001 6$:    CMP    R1,#1                ;CHECK IF IS THE LAST TABLE
2533 012236 001455          BEQ    119$                ;YES, GO CKECK WITH OPERATOR'S INPUT
2534 012240 013700 012766   MOV    PNTR,R0
2535 012244 012702 012744   MOV    #CHKWRD,R2
2536 012250 012737 000010 002272   MOV    #10,COUNTR
2537 012256 022022 7$:    CMP    (R0)+,(R2)+        ;ARE THE CHECKWORDS EQUAL?
2538 012260 001071          BNE    9$                  ;BRANCH IF NOT
2539 012262 005337 002272   DEC    COUNTR            ;DONE CHECKING THIS TABLE?
2540 012266 001373          BNE    7$                  ;BRANCH IF NOT
2541 012270 020127 000004   CMP    R1,#4            ;DID THE FIRST TABLE OF CHECKWORDS COMPARE?
2542 012274 001011          BNE    8$                  ;BRANCH IF NOT
2543 012276          PRINTF #TABL1                ;PRINT OUT ROM CHIP NUMBERS
2544 012276 012746 013306   MOV    #TABL1,-(SP)
2545 012302 012746 000001   MOV    #1,-(SP)
2546 012306 010600          MOV    SP,R0
2547 012310 104417          TRAP    C$PNTF
2548 012312 062706 000004   ADD    #4,SP
2549 012316 000517          BR     11$
2550 012320 020127 000003 8$:    CMP    R1,#3            ;DID THE SECOND TABLE OF CHECKWORDS COMPARE?
2551 012324 001011          BNE    20$                ;BRANCH IF NOT
2552 012326          PRINTF #TABL2                ;PRINT OUT ROM CHIP NUMBERS
2553 012326 012746 013405   MOV    #TABL2,-(SP)
2554 012332 012746 000001   MOV    #1,-(SP)
2555 012336 010600          MOV    SP,R0
2556 012340 104417          TRAP    C$PNTF
2557 012342 062706 000004   ADD    #4,SP
2558 012346 000503          BR     11$
2559 012350          PRINTF #TABL3
2560 012350 012746 013504   MOV    #TABL3,-(SP)
2561 012354 012746 000001   MOV    #1,-(SP)
2562 012360 010600          MOV    SP,R0
2563 012362 104417          TRAP    C$PNTF
2564 012364 062706 000004   ADD    #4,SP
2565 012370 000472          BR     11$
2566 012372 012700 002160 119$:  MOV    #SFPTBL,R0        ;PREPARE TO CHECK INPUT TABLE
2567 012376 012702 012744   MOV    #CHKWRD,R2        ;STORE ADDRESS OF INPUT TABLE
2568 012402 012737 000010 002272   MOV    #10,COUNTR        ;DO FOR 8 CHECKWORDS
2569 012410 022022 121$:  CMP    (R0)+,(R2)+        ;COMPARE INPUT AND FOUND CHWS
2570 012412 001014          BNE    9$                  ;IF NOT, BRANCH
2571 012414 005337 002272   DEC    COUNTR            ;ALL DONE?
2572 012420 001373          BNE    121$              ;IF NOT, BRANCH TO CONTINUE
2573 012422          PRINTF #OPTBL            ;PRINT MSG TO INDICATE IT'S OPERATOR'S CHKWRD
2574 012422 012746 013226   MOV    #OPTBL,-(SP)
2575 012426 012746 000001   MOV    #1,-(SP)
2576 012432 010600          MOV    SP,R0
2577 012434 104417          TRAP    C$PNTF
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2578 012436 062706 000004          ADD    #4,SP
2579 012442 000445          BR     11$                ;IF DONE, BRANCH TO EXIT
2580 012444 062737 000020 012766 9$:  ADD    #20,PNTR
2581 012452 005301          DEC    R1                  ;ANY MORE TABLES TO CHECK?
2582 012454 001266          BNE    6$                  ;BRANCH IF YES
2583 012456          MANUAL
2584 012456 104450          TRAP   C$MANI              ;APT MODE?
2585 012460          BCOMPLETE 100$           ;PRINT UNKNOWN
2586 012460 103405          BCS    100$
2587 012462          ERRDF 34,,DERR5         ;CHECKWORD ERROR
2588 012462 104455          TRAP   C$ERDF
2589 012464 000042          .WORD 34
2590 012466 000000          .WORD 0
2591 012470 012716          .WORD DERR5
2592 012472          CKLOOP
2593 012472 104406          TRAP   C$CLP1              ;ROMS DO NOT MATCH
2594 012474          PRINTF #UNKNWN            ;PRINT OUT UNIDENTIFIED ROM CHIPS CHECKWORDS
2595 012474 012746 013603 100$:  MOV    #UNKNWN,-(SP)
2596 012500 012746 000001          MOV    #1,-(SP)
2597 012504 010600          MOV    SP,R0
2598 012506 104417          TRAP   C$PNTF
2599 012510 062706 000004          ADD    #4,SP
2600 012514 012737 000010 002272  MOV    #10,COUNTR
2601 012522 012701 012744          MOV    #CHKWRD,R1
2602 012526          PRINTF #CHECKW,(R1)+
2603 012526 012146          MOV    (R1)+,-(SP)
2604 012530 012746 013667          MOV    #CHECKW,-(SP)
2605 012534 012746 000002          MOV    #2,-(SP)
2606 012540 010600          MOV    SP,R0
2607 012542 104417          TRAP   C$PNTF
2608 012544 062706 000006          ADD    #6,SP
2609 012550 005337 002272          DEC    COUNTR
2610 012554 001364          BNE    10$
2611 012556          ENDSUB
2612 012556          L10070:
2613 012556 104403          TRAP   C$ESUB
2614
2615
2616
2617 012560          EXIT   TST
2618 012560 104432          TRAP   C$EXIT
2619 012562 001234          .WORD L10063-.
2620
2621 012564 000000          DRLP:  .WORD 0
2622
2623 012566          BGNMSG DERR1
2624 012566          DERR1::
2625 012566          PRINTB #LRAERR,#NODR
2626 012566 012746 013750          MOV    #NODR,-(SP)
2627 012572 012746 012770          MOV    #LRAERR,-(SP)
2628 012576 012746 000002          MOV    #2,-(SP)
2629 012602 010600          MOV    SP,R0
2630 012604 104414          TRAP   C$PNTB
2631 012606 062706 000006          ADD    #6,SP
2632 012612          ENDMSG
2633 012612          L10071:
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2634	012612	104423		TRAP	C\$MSG
2635					
2636	012614			BGNMSG	DERR2
2637	012614			DERR2::	
2638	012614			PRINTB	#LOWROM,#CKERR
2639	012614	012746	002722	MOV	#CKERR,-(SP)
2640	012620	012746	013046	MOV	#LOWROM,-(SP)
2641	012624	012746	000002	MOV	#2,-(SP)
2642	012630	010600		MOV	SP,R0
2643	012632	104414		TRAP	C\$PNTB
2644	012634	062706	000006	ADD	#6,SP
2645	012640			ENDMSG	
2646	012640			L10072:	
2647	012640	104423		TRAP	C\$MSG
2648					
2649	012642			BGNMSG	DERR3
2650	012642			DERR3::	
2651	012642			PRINTB	#HRAERR,#NODR
2652	012642	012746	013750	MOV	#NODR,-(SP)
2653	012646	012746	013106	MOV	#HRAERR,-(SP)
2654	012652	012746	000002	MOV	#2,-(SP)
2655	012656	010600		MOV	SP,R0
2656	012660	104414		TRAP	C\$PNTB
2657	012662	062706	000006	ADD	#6,SP
2658	012666			ENDMSG	
2659	012666			L10073:	
2660	012666	104423		TRAP	C\$MSG
2661					
2662	012670			BGNMSG	DERR4
2663	012670			DERR4::	
2664	012670			PRINTB	#HIROM,#CKERR
2665	012670	012746	002722	MOV	#CKERR,-(SP)
2666	012674	012746	013165	MOV	#HIROM,-(SP)
2667	012700	012746	000002	MOV	#2,-(SP)
2668	012704	010600		MOV	SP,R0
2669	012706	104414		TRAP	C\$PNTB
2670	012710	062706	000006	ADD	#6,SP
2671	012714			ENDMSG	
2672	012714			L10074:	
2673	012714	104423		TRAP	C\$MSG
2674					
2675	012716			BGNMSG	DERR5
2676	012716			DERR5::	
2677	012716			PRINTB	#MISTAK
2678	012716	012746	013676	MOV	#MISTAK,-(SP)
2679	012722	012746	000001	MOV	#1,-(SP)
2680	012726	010600		MOV	SP,R0
2681	012730	104414		TRAP	C\$PNTB
2682	012732	062706	000004	ADD	#4,SP
2683	012736	004737	004524	JSR	PC,VIRTAD
2684	012742			ENDMSG	
2685	012742			L10075:	
2686	012742	104423		TRAP	C\$MSG
2687					
2688	012744	000010		CHKWRD:	.BLKW 10
2689					

;TABLE TO STORE THE CHECKWORDS

2690	012764	000004			TABLES: .WORD 4	:NUMBER OF CHECKWORD TABLES
2691	012766	000000			PNTR: .WORD 0	:WILL BE USED AS A POINTER
2692						
2693						
2694	012770	052045	047045	040445	LRAERR: .ASCIZ	/%T%N%ACANNOT ACCESS LOW BYTE DIAGNOSTIC ROM%/
2695	012776	040503	047116	052117		
2696	013004	040440	041503	051505		
2697	013012	020123	047514	020127		
2698	013020	054502	042524	042040		
2699	013026	040511	047107	051517		
2700	013034	044524	020103	047522		
2701	013042	022515	000116			
2702						
2703	013046	052045	047045	040445	LOWROM: .ASCIZ	/%T%N%ALOW BYTE DIAGNOSTIC ROM%/
2704	013054	047514	020127	054502		
2705	013062	042524	042040	040511		
2706	013070	047107	051517	044524		
2707	013076	020103	047522	022515		
2708	013104	000116				
2709						
2710	013106	052045	047045	040445	HRAERR: .ASCIZ	/%T%N%ACANNOT ACCESS HIGH BYTE DIAGNOSTIC ROM%/
2711	013114	040503	047116	052117		
2712	013122	040440	041503	051505		
2713	013130	020123	044510	044107		
2714	013136	041040	052131	020105		
2715	013144	044504	043501	047516		
2716	013152	052123	041511	051040		
2717	013160	046517	047045	000		
2718						
2719	013165	045	022524	022516	HIROM: .ASCIZ	/%T%N%AHIGH BYTE DIAGNOSTIC ROM%/
2720	013172	044101	043511	020110		
2721	013200	054502	042524	042040		
2722	013206	040511	047107	051517		
2723	013214	044524	020103	047522		
2724	013222	022515	000116			
2725						
2726	013226	047045	040445	044103	OPTBL: .ASCIZ	/%N%ACHECKWORDS CORRESPOND TO OPERATOR'S INPUT%/
2727	013234	041505	053513	051117		
2728	013242	051504	041440	051117		
2729	013250	042522	050123	047117		
2730	013256	020104	047524	047440		
2731	013264	042520	040522	047524		
2732	013272	023522	020123	047111		
2733	013300	052520	022524	000116		
2734						
2735	013306	047045	040445	044103	TABL1: .ASCIZ	/%N%ACHECKWORDS CORRESPOND TO ROM CHIPS #23-045E2 & #23-046E2%/
2736	013314	041505	053513	051117		
2737	013322	051504	041440	051117		
2738	013330	042522	050123	047117		
2739	013336	020104	047524	051040		
2740	013344	046517	041440	044510		
2741	013352	051520	021440	031462		
2742	013360	030055	032464	031105		
2743	013366	023040	021440	031462		
2744	013374	030055	033064	031105		
2745	013402	047045	000			

2746					
2747	013405	045	022516	041501	TABL2: .ASCIZ /%N%ACHECKWORDS CORRESPOND TO ROM CHIPS #23-010E2 & #23-011E2%N/
2748	013412	042510	045503	047527	
2749	013420	042122	020123	047503	
2750	013426	051122	051505	047520	
2751	013434	042116	052040	020117	
2752	013442	047522	020115	044103	
2753	013450	050111	020123	031043	
2754	013456	026463	030460	042460	
2755	013464	020062	020046	031043	
2756	013472	026463	030460	042461	
2757	013500	022462	000116		
2758					
2759	013504	047045	040445	044103	TABL3: .ASCIZ /%N%ACHECKWORDS CORRESPOND TO ROM CHIPS #23-339E2 & #23-340E2%N/
2760	013512	041505	053513	051117	
2761	013520	051504	041440	051117	
2762	013526	042522	050123	047117	
2763	013534	020104	047524	051040	
2764	013542	046517	041440	044510	
2765	013550	051520	021440	031462	
2766	013556	031455	034463	031105	
2767	013564	023040	021440	031462	
2768	013572	031455	030064	031105	
2769	013600	047045	000		
2770					
2771	013603	045	022516	052501	UNKNWN: .ASCIZ /%N%AUNKNOWN ROM CHIPS FOUND. THEIR CHECKWORDS ARE:/
2772	013610	045516	047516	047127	
2773	013616	051040	046517	041440	
2774	013624	044510	051520	043040	
2775	013632	052517	042116	020056	
2776	013640	052040	042510	051111	
2777	013646	041440	042510	045503	
2778	013654	047527	042122	020123	
2779	013662	051101	035105	000	
2780					
2781	013667	045	022516	030517	CHECKW: .ASCIZ /%N%012/
2782	013674	000062			
2783					
2784	013676	040445	047111	047503	MISTAK: .ASCIZ /%AINCORRECT CHECKWORD IN DIAGNOSTIC ROM%N/
2785	013704	051122	041505	020124	
2786	013712	044103	041505	053513	
2787	013720	051117	020104	047111	
2788	013726	042040	040511	047107	
2789	013734	051517	044524	020103	
2790	013742	047522	022515	000116	
2791					
2792	013750	047516	026516	054105	NODR: .ASCIZ /NON-EXISTENT MEMORY/
2793	013756	051511	042524	052116	
2794	013764	046440	046505	051117	
2795	013772	000131			
2796					
2797	013774	052123	047101	040504	DADDR: .ASCIZ /STANDARD JUMPERS/
2798	014002	042122	045040	046525	
2799	014010	042520	051522	000	
2800					
2801	014016				.EVEN

2802 014016
2803 014016
2804 014016 104401
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2829 014020
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2831 014020
2832 014020 104402
2833 014022 005737 002260
2834 014026 001402
2835 014030
2836 014030 104432
2837 014032 002702
2838 014034
2839 014034 104450
2840 014036
2841 014036 103112
2842 014040 005037 016114
2843 014044 005737 002304
2844 014050 001422
2845 014052 005737 016120
2846 014056 001153
2847 014060 005737 016122
2848 014064 001402
2849 014066 000137 014762
2850 014072 005737 016124
2851 014076 001402
2852 014100 000137 015336
2853 014104 005737 016126
2854 014110 001465
2855 014112 000137 015702
2856 014116
2857 014116 104443

```
ENDTST
L10063:
TRAP C$ETST
.SBTTL TEST 7: TEST ALL ADDITIONAL MEMORY
:++
:TEST TO LOCATE AND VERIFY CHECKSUMS IN ALL RESIDENT MEMORY
:ON A PAGE BASIS. THERE ARE FOUR STORAGE AREAS ASSOCIATED
:WITH THIS TEST WHICH HOLD THE CHECKWORDS OF ALL THE MEMORY
:THAT IS TO BE TESTED. THESE TABLES WILL HAVE DEFAULT VALUES
:ONLY IF THE ASSOCIATED MEMORY CHIP IS A STANDARD COMPONENT
:ON THE BOARD. IF NO DEFAULT VALUES EXIST, THE OPERATOR MUST
:INPUT THE CHECKWORDS AS LISTED ON THE PRINT SET. THE MEMORY
:WILL BE TESTED IN THE FOLLOWING LOCATIONS BY DEFAULT:
:
:EXPANDABLE DIAGNOSTIC ROM      2-4K
:EPROM IN SOCKETS              4-6K
:SYSTEM ROM                     16-32K
:SYSTEM EPROM                   16-24K
:
:THE TEST WILL FIRST VERIFY THE CHECKSUMS IN ALL RESIDENT ROM,
:THEN COMPARE THE ACTUAL CHECKWORDS. ERROR INFORMATION WILL
:INCLUDE THE SPECIFIC TYPE OF ERROR THAT OCCURS, THE VIRTUAL
:ADDRESS, AND WHETHER IT WAS THE HIGH BYTE OR LOW BYTE ROM/EPROM.
:THIS INFORMATION SHOULD ALLOW A KNOWLEDGEABLE OPERATOR TO ISOLATE
:THE ERROR DOWN TO A SINGLE ROM/EPROM WITH THE AID OF THE
:ADDRESS MAP IN THE PRINT SET.
:--
BGNTST
BGNSUB
TRAP C$BSUB
TST KDF11B ;IF THIS IS A KDF11-B...
BEQ 1$ ;...THEN SKIP THIS TEST
EXIT TST
TRAP C$EXIT
.WORD L10076-.
1$: MANUAL ;UNDER APT?
TRAP C$MANI
BNCOMPLETE DFLTST ;SKIP TEST IF YES
BCC DFLTST
CLR ADDON ;RESTORE DEFAULT
TST PASS ;FIRST PASS?
BEQ GET ;BR IF YES
TST LOD1 ;EXPANDED DIAGNOSTIC ROM?
BNE LD1 ;BR IF YES
TST LOD2 ;EPROM IN SOCKETS?
BEQ P1 ;BR IF NO
JMP LD2 ;TEST EPROM
P1: TST LOD3 ;SYSTEM ROM ?
BEQ P2 ;BR IF NO
JMP LD3 ;TEST ROM
P2: TST LOD4 ;SYSTEM EPROM?
BEQ DFLTST ;EXIT IF NO
JMP LD4 ;TEST EPROM
GET: GMANIL EXEC,ADDON,1,YES
TRAP C$GMAN
```

```
2858 014120 000404 BR 10000$
2859 014122 016114 .WORD ADDON
2860 014124 000130 .WORD T$CODE
2861 014126 016455 .WORD EXEC
2862 014130 000001 .WORD 1
2863 014132 10000$:
2864 014132 005737 016114 TST ADDON ;ADDITIONAL MEMORY?
2865 014136 001452 BEQ DFLTST ;BR IF NO
2866 014140 DIAIN: GMANIL EXPND,RESPND,1,NO
2867 014140 104443 TRAP C$GMAN
2868 014142 000404 BR 10001$
2869 014144 002332 .WORD RESPND
2870 014146 000120 .WORD T$CODE
2871 014150 016504 .WORD EXPND
2872 014152 000001 .WORD 1
2873 014154 10001$:
2874 014154 005737 002332 TST RESPND ;EXPANDED DIAGNOSTIC ROM?
2875 014160 001045 BNE EXPROM ;BR IF YES
2876 014162 EPRIN: GMANIL EPRM,RESPND,1,NO
2877 014162 104443 TRAP C$GMAN
2878 014164 000404 BR 10002$
2879 014166 002332 .WORD RESPND
2880 014170 000120 .WORD T$CODE
2881 014172 016534 .WORD EPRM
2882 014174 000001 .WORD 1
2883 014176 10002$:
2884 014176 005737 002332 TST RESPND ;EPROM IN SOCKETS?
2885 014202 001402 BEQ SYSRIN ;BR IF NO
2886 014204 000137 014630 JMP EPRMT ;JUMP TO ACCEPT INPUT
2887 014210 SYSRIN: GMANIL SYSR,RESPND,1,NO
2888 014210 104443 TRAP C$GMAN
2889 014212 000404 BR 10003$
2890 014214 002332 .WORD RESPND
2891 014216 000120 .WORD T$CODE
2892 014220 016555 .WORD SYSR
2893 014222 000001 .WORD 1
2894 014224 10003$:
2895 014224 005737 002332 TST RESPND ;SYSTEM ROM?
2896 014230 001402 BEQ SYSEIN ;BR IF NO
2897 014232 000137 015176 JMP SYSRT ;INPUT CHECKWORDS
2898 014236 SYSEIN: GMANIL SYSE,RESPND,1,NO
2899 014236 104443 TRAP C$GMAN
2900 014240 000404 BR 10004$
2901 014242 002332 .WORD RESPND
2902 014244 000120 .WORD T$CODE
2903 014246 016570 .WORD SYSE
2904 014250 000001 .WORD 1
2905 014252 10004$:
2906 014252 005737 002332 TST RESPND ;SYSTEM EPROM?
2907 014256 001402 BEQ DFLTST ;BR IF NO
2908 014260 000137 015542 JMP SYSET ;INPUT CHECKWORDS
2909 014264 DFLTST: EXIT TST ;NO ADDTL. MEMORY -- EXIT
2910 014264 104432 TRAP C$EXIT
2911 014266 002446 .WORD L10076-.
2912 014270 ENDSUB
2913 014270 L10077:
```

2914	014270	104403				TRAP	C\$ESUB		
2915									
2916									
2917	014272					BGNSUB			
2918	014272	104402				TRAP	C\$BSUB		
2919	014274	005037	002344		EXPROM:	CLR	ERRFLG		:CLEAR ERROR FLAG
2920	014300	012737	000010	002322		MOV	#10,WORDCT		:COUNT 8 CHECKWORDS
2921	014306	012702	002350			MOV	#EXPDIA,R2		:POINTER TO STORAGE TABLE
2922	014312	004737	004344			JSR	PC,INPUT		:INPUT CHECKWORDS
2923	014316					GMANIL	EXADD,ANSR,1,YES		
2924	014316	104443				TRAP	C\$GMAN		
2925	014320	000404				BR	10000\$		
2926	014322	002274				.WORD	ANSR		
2927	014324	000130				.WORD	T\$CODE		
2928	014326	016605				.WORD	EXADD		
2929	014330	000001				.WORD	1		
2930	014332				10000\$:				
2931	014332	005737	002274			TST	ANSR		:STANDARD MEMORY RANGE?
2932	014336	001020				BNE	1\$:BR IF YES
2933	014340	005237	002274			INC	ANSR		:RESTORE DEFAULT VALUE
2934	014344					GMANID	LOADR,STORE,D,-1,0,30,NO		
2935	014344	104443				TRAP	C\$GMAN		
2936	014346	000406				BR	10001\$		
2937	014350	002320				.WORD	STORE		
2938	014352	000042				.WORD	T\$CODE		
2939	014354	003072				.WORD	LOADR		
2940	014356	177777				.WORD	-1		
2941	014360	000000				.WORD	T\$LOLIM		
2942	014362	000030				.WORD	T\$HILIM		
2943	014364				10001\$:				
2944	014364	004737	005142			JSR	PC,SETADR		:GET FIRST PAGE ADDRESS
2945	014370	013737	002270	016120		MOV	LOPAG,LOD1		:STORE LOW PAGE NO.
2946	014376	000403				BR	LD1		:SKIP NEXT INSTRUCTION
2947	014400	012737	010420	016120	1\$:	MOV	#010420,LOD1		:STANDARD PAGE = 20,21 2-4K RANGE
2948	014406	013737	016120	177520	LD1:	MOV	LOD1,PCR		:LOAD STARTING PAGE
2949	014414	012737	000001	002276		MOV	#1,RFLAG		:INDICATE ROM
2950	014422	012703	002350			MOV	#EXPDIA,R3		:POINTER TO CHECKWORDS
2951	014426	012737	000010	002272		MOV	#10,COUNTR		:PAGE COUNT
2952	014434	012337	002326		EXPTST:	MOV	(R3)+,CKWD		:GET CHECKWORD FOR THIS PAGE
2953	014440	004737	004664			JSR	PC,MEMTST		:TEST MEMORY
2954	014444	005737	002266			TST	REAL		:DOES THE MEMORY EXIST?
2955	014450	001457				BEQ	E3		:BR IF NO
2956	014452	005737	002344			TST	ERRFLG		:ANY OTHER ERRORS?
2957	014456	001421				BEQ	NOERR		:BR IF NO
2958	014460	004737	004524			JSR	PC,VIRTAD		:GET ADDRESS OF ERROR
2959	014464	005737	002264			TST	BCF		:LOW BYTE PAGE?
2960	014470	001004				BNE	HIGH		:BR IF NO
2961	014472	012737	002765	002342		MOV	#LOBYT,BYTLOC		:SET POINTER FOR ERROR MSG.
2962	014500	000403				BR	DATOUT		:PRINT ERROR MESSAGE
2963	014502	012737	003027	002342	HIGH:	MOV	#HIBYT,BYTLOC		:POINTER FOR ERROR MSG.
2964	014510	022737	000001	002344	DATOUT:	CMP	#1,ERRFLG		:CHECKSUM ERROR?
2965	014516	001420				BEQ	E1		:BR IF YES
2966	014520	000425				BR	E2		:ELSE CHECKWORD ERROR
2967	014522	062737	001002	177520	NOERR:	ADD	#1002,PCR		:ADJUST PCR
2968	014530	005337	002272			DEC	COUNTR		:DEC PAGE COUNT
2969	014534	001337				BNE	EXPTST		:LOOP UNTIL ALL PAGES ARE TESTED

2970	014536	005737	002304	MORE:	TST	PASS		:FIRST PASS?
2971	014542	001002			BNE	1\$:BR IF NO
2972	014544	000137	014162		JMP	EPRIN		:TEST ANY ADDITIONAL MEMORY
2973	014550	000137	014072	1\$:	JMP	P1		:FIND ANY ADDITIONAL MEMORY
2974	014554				EXIT	SUB		:END OF SUBTEST
2975	014554	104432			TRAP	C\$EXIT		
2976	014556	000046			.WORD	L10100-		
2977	014560			E1:	ERRDF	35,EXPND,CKSME		
2978	014560	104455			TRAP	C\$ERDF		
2979	014562	000043			.WORD	35		
2980	014564	016504			.WORD	EXPND		
2981	014566	016132			.WORD	CKSME		
2982	014570				CKLOOP			
2983	014570	104406			TRAP	C\$CLP1		
2984	014572	000761			BR	MORE		
2985	014574			E2:	ERRDF	36,EXPND,CWKDE		
2986	014574	104455			TRAP	C\$ERDF		
2987	014576	000044			.WORD	36		
2988	014600	016504			.WORD	EXPND		
2989	014602	016170			.WORD	CWKDE		
2990	014604				CKLOOP			
2991	014604	104406			TRAP	C\$CLP1		
2992	014606	000753			BR	MORE		
2993	014610			E3:	ERRDF	37,EXPND,NONXT		
2994	014610	104455			TRAP	C\$ERDF		
2995	014612	000045			.WORD	37		
2996	014614	016504			.WORD	EXPND		
2997	014616	016252			.WORD	NONXT		
2998	014620				CKLOOP			
2999	014620	104406			TRAP	C\$CLP1		
3000	014622	000745			BR	MORE		
3001	014624				ENDSUB			
3002	014624			L10100:				
3003	014624	104403			TRAP	C\$ESUB		
3004								
3005	014626				BGNSUB			
3006	014626	104402			TRAP	C\$BSUB		
3007	014630	005037	002344	EPRMT:	CLR	ERRFLG		:CLEAR ERROR FLAG
3008	014634				GMANID	RWDCT,WORD,D,-1,1,10,NO		
3009	014634	104443			TRAP	C\$GMAN		
3010	014636	000406			BR	10000\$		
3011	014640	016130			.WORD	WORD		
3012	014642	000042			.WORD	T\$CODE		
3013	014644	016413			.WORD	RWDCT		
3014	014646	177777			.WORD	-1		
3015	014650	000001			.WORD	T\$LOLIM		
3016	014652	000010			.WORD	T\$HILIM		
3017	014654			10000\$:				
3018	014654	013737	016130	002322	MOV	WORD,WORDCT		:STORE CHECKWORD COUNT
3019	014662	012702	002370		MOV	#EPROM,R2		:POINTER TO STORAGE TABLE
3020	014666	004737	004344		JSR	PC,INPUT		:INPUT CHECKWORDS
3021	014672				GMANIL	EPADD,ANSR,1,YES		
3022	014672	104443			TRAP	C\$GMAN		
3023	014674	000404			BR	10001\$		
3024	014676	002274			.WORD	ANSR		
3025	014700	000130			.WORD	T\$CODE		

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3026 014702 016633          .WORD  EPADD
3027 014704 000001          .WORD  1
3028 014706                10001$:
3029 014706 005737 002274    TST    ANSR          ;STANDARD MEMORY RANGE?
3030 014712 001020          BNE    1$           ;BR IF YES
3031 014714 005237 002274    INC    ANSR          ;RESTORE DEFAULT
3032 014720                GMANID  LOADR,STORE,D,-1,0,30,NO
3033 014720 104443          TRAP   C$GMAN
3034 014722 000406          BR     10002$
3035 014724 002320          .WORD  STORE
3036 014726 000042          .WORD  T$CODE
3037 014730 003072          .WORD  LOADR
3038 014732 177777          .WORD  -1
3039 014734 000000          .WORD  T$LOLIM
3040 014736 000030          .WORD  T$HILIM
3041 014740                10002$:
3042 014740 004737 005142    JSR    PC,SETADR     ;GET FIRST PAGE ADDRESS
3043 014744 013737 002270 016122  MOV    LOPAG,LOD2    ;STORE LOW PAGE NO.
3044 014752 000403          BR     LD2          ;SKIP NEXT INSTRUCTION
3045 014754 012737 020440 016122 1$:  MOV    #020440,LOD2  ;STANDARD PAGE = 40,41 4-6K RANGE
3046 014762 013737 016122 177520 LD2:  MOV    LOD2,PCR      ;LOAD STARTING ADDRESS
3047 014770 013737 016130 002272    MOV    WORD,COUNTR  ;PAGE COUNT
3048 014776 005037 002276    CLR    RFLAG        ;INDICATE EPROM
3049 015002 012703 002370    MOV    #EPROM,R3    ;POINT TO CHECKWORDS
3050 015006 012337 002326    EPRTST:MOV (R3)+,CKWD  ;GET CHECKWORD FOR THIS PAGE
3051 015012 004737 004664    JSR    PC,MEMTST    ;TEST MEMORY
3052 015016 005737 002266    TST    REAL         ;DOES THE MEMORY EXIST?
3053 015022 001455          BEQ    E6           ;BR IF NO
3054 015024 005737 002344    TST    ERRFLG       ;ANY OTHER ERRORS?
3055 015030 001421          BEQ    NONE         ;BR IF NO
3056 015032 004737 004524    JSR    PC,VIRTAD    ;GET ADDRESS OF ERROR
3057 015036 005737 002264    TST    BCF          ;LOW BYTE PAGE?
3058 015042 001004          BNE    HIADD        ;BR IF NO
3059 015044 012737 002765 002342  MOV    #LOBYT,BYTLOC ;SET POINTER FOR ERROR MSG.
3060 015052 000403          BR     PRIOUT        ;PRINT ERROR MESSAGE
3061 015054 012737 003027 002342 HIADD:MOV #HIBYT,BYTLOC ;POINTER FOR ERROR MSG.
3062 015062 022737 000001 002344 PRIOUT:CMP #1,ERRFLG  ;CHECKSUM ERROR?
3063 015070 001416          BEQ    E4           ;BR IF YES
3064 015072 000423          BR     E5           ;ELSE CHECKWORD ERROR
3065 015074 062737 001002 177520 NONE:  ADD    #1002,PCR     ;ADJUST PAGE IN PCR
3066 015102 005337 002272          DEC    COUNTR       ;DEC PAGE COUNT
3067 015106 001337          BNE    EPRTST       ;LOOP UNTIL FINISHED
3068 015110 005737 002304    ADDTL: TST    PASS    ;FIRST PASS?
3069 015114 001002          BNE    1$           ;BR IF NO
3070 015116 000137 014210    JMP    SYSRIN        ;TEST ANY ADDITIONAL MEMORY
3071 015122 000137 014104    1$:   JMP    P2            ;FIND ANY ADDITIONAL MEMORY
3072 015126                E4:   ERRDF  40,EPRM,CKSME
3073 015126 104455          TRAP  C$ERDF
3074 015130 000050          .WORD  40
3075 015132 016534          .WORD  EPRM
3076 015134 016132          .WORD  CKSME
3077 015136                CKLOOP
3078 015136 104406          TRAP  C$CLP1
3079 015140 000763          BR     ADDTL
3080 015142                E5:   ERRDF  41,EPRM,CWKDE
3081 015142 104455          TRAP  C$ERDF

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3082	015144	000051				.WORD	41	
3083	015146	016534				.WORD	EPRM	
3084	015150	016170				.WORD	CWKDE	
3085	015152					CKLOOP		
3086	015152	104406				TRAP	C\$CLP1	
3087	015154	000755				BR	ADDTL	
3088	015156				E6:	ERRDF	42,EPRM,NONXT	
3089	015156	104455				TRAP	C\$ERDF	
3090	015160	000052				.WORD	42	
3091	015162	016534				.WORD	EPRM	
3092	015164	016252				.WORD	NONXT	
3093	015166					CKLOOP		
3094	015166	104406				TRAP	C\$CLP1	
3095	015170	000747				BR	ADDTL	
3096	015172					ENDSUB		
3097	015172				L10101:			
3098	015172	104403				TRAP	C\$ESUB	
3099								
3100	015174					BGNSUB		
3101	015174	104402				TRAP	C\$BSUB	
3102	015176	005037	002344		SYSRT:	CLR	ERRFLG	:CLEAR ERROR FLAG
3103	015202					GMANID	RWDCT,RESPND,D,-1,10,100,NO	
3104	015202	104443				TRAP	C\$GMAN	
3105	015204	000406				BR	10000\$	
3106	015206	002332				.WORD	RESPND	
3107	015210	000042				.WORD	T\$CODE	
3108	015212	016413				.WORD	RWDCT	
3109	015214	177777				.WORD	-1	
3110	015216	000010				.WORD	T\$LOLIM	
3111	015220	000100				.WORD	T\$HILIM	
3112	015222				10000\$:			
3113	015222	013737	002332	016116		MOV	RESPND,PGCT	:STORE PAGE COUNT
3114	015230	013737	002332	002322		MOV	RESPND,WORDCT	:COPY WORD COUNT
3115	015236	012702	002410			MOV	#SYSROM,R2	:POINTER TO STORAGE TABLE
3116	015242	004737	004344			JSR	PC,INPUT	:INPUT CHECKWORDS
3117	015246					GMANIL	SRR,ANSR,1,YES	
3118	015246	104443				TRAP	C\$GMAN	
3119	015250	000404				BR	10001\$	
3120	015252	002274				.WORD	ANSR	
3121	015254	000130				.WORD	T\$CODE	
3122	015256	016652				.WORD	SRR	
3123	015260	000001				.WORD	1	
3124	015262				10001\$:			
3125	015262	005737	002274			TST	ANSR	:STANDARD MEMORY RANGE?
3126	015266	001020				BNE	1\$:BR IF YES
3127	015270	005237	002274			INC	ANSR	:RESTORE DEFAULT VALUE
3128	015274					GMANID	LOADR,STORE,D,-1,0,30,NO	
3129	015274	104443				TRAP	C\$GMAN	
3130	015276	000406				BR	10002\$	
3131	015300	002320				.WORD	STORE	
3132	015302	000042				.WORD	T\$CODE	
3133	015304	003072				.WORD	LOADR	
3134	015306	177777				.WORD	-1	
3135	015310	000000				.WORD	T\$LOLIM	
3136	015312	000030				.WORD	T\$HILIM	
3137	015314				10002\$:			

3138	015314	004737	005142			JSR	PC,SETADR	:GET FIRST PAGE ADDRESS
3139	015320	013737	002270	016124		MOV	LOPAG,LOD3	:STORE LOW PAGE NO.
3140	015326	000403				BR	LD3	:SKIP NEXT INSTRUCTION
3141	015330	012737	100600	016124	1\$:	MOV	#100600,LOD3	:STANDARD PAGE = 200,201 16-32K RANGE
3142	015336	013737	016124	177520	LD3:	MOV	LOD3,PCR	:LOAD STARTING ADDRESS
3143	015344	012737	000001	002276		MOV	#1,RFLAG	:INDICATE ROM
3144	015352	012703	002410			MOV	#SYSROM,R3	:POINT TO CHECKWORDS
3145	015356	013737	016116	002272		MOV	PGCT,COUNTR	:PAGE COUNT
3146	015364	012337	002326		SYRTST:	MOV	(R3)+,CKWD	:GET CHECKWORD FOR THIS PAGE
3147	015370	004737	004664			JSR	PC,MEMTST	:TEST MEMORY
3148	015374	005737	002266			TST	REAL	:DOES THE MEMORY EXIST?
3149	015400	001450				BEQ	E11	:BR IF NO
3150	015402	005737	002344			TST	ERRFLG	:ANY OTHER ERRORS?
3151	015406	001421				BEQ	PASSED	:BR IF NO
3152	015410	004737	004524			JSR	PC,VIRTAD	:GET ADDRESS OF ERROR
3153	015414	005737	002264			TST	BCF	:LOW BYTE PAGE?
3154	015420	001004				BNE	HIGHB	:BR IF NO
3155	015422	012737	002765	002342		MOV	#LOBYT,BYTLOC	:SET POINTER FOR ERROR MSG.
3156	015430	000403				BR	MSGOUT	:PRINT ERROR MESSAGE
3157	015432	012737	003027	002342	HIGHB:	MOV	#HIBYT,BYTLOC	:POINTER FOR ERROR MSG.
3158	015440	022737	000001	002344	MSGOUT:	CMP	#1,ERRFLG	:CHECKSUM ERROR?
3159	015446	001411				BEQ	E7	:BR IF YES
3160	015450	000416				BR	E10	:ELSE CHECKWORD ERROR
3161	015452	062737	001002	177520	PASSED:	ADD	#1002,PCR	:ADJUST PAGE IN PCR
3162	015460	005337	002272			DEC	COUNTR	:DEC PAGE COUNT
3163	015464	001337				BNE	SYRTST	:LOOP UNTIL FINISHED
3164	015466				NEXT:	EXIT	TST	:TEST IS FINISHED
3165	015466	104432				TRAP	C\$EXIT	
3166	015470	001244				.WORD	L10076-	
3167	015472				E7:	ERRDF	43,SYSR,CKSME	
3168	015472	104455				TRAP	C\$ERDF	
3169	015474	000053				.WORD	43	
3170	015476	016555				.WORD	SYSR	
3171	015500	016132				.WORD	CKSME	
3172	015502					CKLOOP		
3173	015502	104406				TRAP	C\$CLP1	
3174	015504	000770				BR	NEXT	
3175	015506				E10:	ERRDF	44,SYSR,CWKDE	
3176	015506	104455				TRAP	C\$ERDF	
3177	015510	000054				.WORD	44	
3178	015512	016555				.WORD	SYSR	
3179	015514	016170				.WORD	CWKDE	
3180	015516					CKLOOP		
3181	015516	104406				TRAP	C\$CLP1	
3182	015520	000762				BR	NEXT	
3183	015522				E11:	ERRDF	45,SYSR,NONXT	
3184	015522	104455				TRAP	C\$ERDF	
3185	015524	000055				.WORD	45	
3186	015526	016555				.WORD	SYSR	
3187	015530	016252				.WORD	NONXT	
3188	015532					CKLOOP		
3189	015532	104406				TRAP	C\$CLP1	
3190	015534	000754				BR	NEXT	
3191	015536					ENDSUB		
3192	015536				L10102:			
3193	015536	104403				TRAP	C\$ESUB	

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3194
3195 015540
3196 015540 104402
3197 015542 005037 002344 SYSET: BGNSUB
3198 015546 GMANID TRAP CSBSUB
3199 015546 104443 TRAP CS$GMAN ;CLEAR ERROR FLAG
3200 015550 000406 BR 10000$ RWDCT,RESPND,D,-1,10,40,NO
3201 015552 002332 .WORD RESPND
3202 015554 000042 .WORD T$CODE
3203 015556 016413 .WORD RWDCT
3204 015560 177777 .WORD -1
3205 015562 000010 .WORD T$LOLIM
3206 015564 000040 .WORD T$HILIM
3207 015566
3208 015566 013737 002332 016116 10000$: MOV RESPND,PGCT ;STORE PAGE COUNT
3209 015574 013737 002332 002322 MOV RESPND,WORDCT ;COPY WORD COUNT
3210 015602 012702 002410 MOV #SYSROM,R2 ;POINTER TO STORAGE TABLE
3211 015606 004737 004344 JSR PC,INPUT ;INPUT CHECKWORDS
3212 015612 GMANIL SYEE,ANSR,1,YES
3213 015612 104443 TRAP CS$GMAN
3214 015614 000404 BR 10001$
3215 015616 002274 .WORD ANSR
3216 015620 000130 .WORD T$CODE
3217 015622 016702 .WORD SYEE
3218 015624 000001 .WORD 1
3219 015626
3220 015626 005737 002274 10001$: TST ANSR ;STANDARD MEMORY RANGE?
3221 015632 001020 BNE 1$ ;BR IF YES
3222 015634 005237 002274 INC ANSR ;RESTORE DEFAULT VALUE
3223 015640 GMANID LOADR,STORE,D,-1,0,30,NO
3224 015640 104443 TRAP CS$GMAN
3225 015642 000406 BR 10002$
3226 015644 002320 .WORD STORE
3227 015646 000042 .WORD T$CODE
3228 015650 003072 .WORD LOADR
3229 015652 177777 .WORD -1
3230 015654 000000 .WORD T$LOLIM
3231 015656 000030 .WORD T$HILIM
3232 015660
3233 015660 004737 005142 10002$: JSR PC,SETADR ;GET FIRST PAGE ADDRESS
3234 015664 013737 002270 016126 MOV LOPAG,LOD4 ;STORE LOW PAGE NO.
3235 015672 000403 BR LD4 ;SKIP NEXT INSTRUCTION
3236 015674 012737 100600 016126 1$: MOV #100600,LOD4 ;STANDARD PAGE = 200,201 16-24K RANGE
3237 015702 013737 016126 177520 LD4: MOV LOD4,PCR ;LOAD STARTING ADDRESS
3238 015710 005037 002276 CLR RFLAG ;INDICATE EPROM
3239 015714 012703 002410 MOV #SYSROM,R3 ;POINT TO CHECKWORDS
3240 015720 013737 016116 002272 SYETST: MOV PGCT,COUNTR ;PAGE COUNT
3241 015726 012337 002326 MOV (R3)+,CKWD ;GET CHECKWORD FOR THIS PAGE
3242 015732 004737 004664 JSR PC,MEMTST ;TEST MEMORY
3243 015736 005737 002266 TST REAL ;DOES THIS MEMORY EXIST?
3244 015742 001452 BEQ E14 ;BR IF NO
3245 015744 005737 002344 TST ERRFLG ;ANY ERRORS?
3246 015750 001421 BEQ CONT ;BR IF NO
3247 015752 004737 004524 JSR PC,VIRTAD ;GET ADDRESS OF ERROR
3248 015756 005737 002264 TST BCF ;LOW BYTE PAGE?
3249 015762 001004 BNE HBYTE ;BR IF NO

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3250 015764 012737 002765 002342      MOV      #LOBYT,BYTLOC      ;SET POINTER FOR ERROR MSG.
3251 015772 000403                    BR       PRIN               ;PRINT ERROR MESSAGE
3252 015774 012737 003027 002342 HBYTE: MOV      #HIBYT,BYTLOC  ;POINTER FOR ERROR MSG.
3253 016002 022737 000001 002344 PRIN:  CMP      #1,ERRFLG        ;CHECKSUM ERROR?
3254 016010 001411                    BEQ      E12                ;BR IF YES
3255 016012 000417                    BR       E13                ;ELSE CHECKWORD ERROR
3256 016014 062737 001002 177520 CONT: ADD      #1002,PCR          ;ADJUST PAGE IN PCR
3257 016022 005337 002272                    DEC      COUNTR            ;DEC PAGE COUNT
3258 016026 001337                    BNE     SYETST             ;LOOP UNTIL FINISHED
3259 016030                    EXIT     TST               ;TEST IS FINISHED
3260 016030 104432                    TRAP    C$EXIT
3261 016032 000702                    .WORD  L10076-.
3262 016034                    E12:  ERRDF 46,SYSE,CKSME
3263 016034 104455                    TRAP    C$ERDF
3264 016036 000056                    .WORD  46
3265 016040 016570                    .WORD  SYSE
3266 016042 016132                    .WORD  CKSME
3267 016044                    CKLOOP
3268 016044 104406                    TRAP    C$CLP1
3269 016046                    EXIT     TST
3270 016046 104432                    TRAP    C$EXIT
3271 016050 000664                    .WORD  L10076-.
3272 016052                    E13:  ERRDF 47,SYSE,CWKDE
3273 016052 104455                    TRAP    C$ERDF
3274 016054 000057                    .WORD  47
3275 016056 016570                    .WORD  SYSE
3276 016060 016170                    .WORD  CWKDE
3277 016062                    CKLOOP
3278 016062 104406                    TRAP    C$CLP1
3279 016064                    EXIT     TST
3280 016064 104432                    TRAP    C$EXIT
3281 016066 000646                    .WORD  L10076-.
3282 016070                    E14:  ERRDF 50,SYSE,NONXT
3283 016070 104455                    TRAP    C$ERDF
3284 016072 000062                    .WORD  50
3285 016074 016570                    .WORD  SYSE
3286 016076 016252                    .WORD  NONXT
3287 016100                    CKLOOP
3288 016100 104406                    TRAP    C$CLP1
3289 016102                    EXIT     TST
3290 016102 104432                    TRAP    C$EXIT
3291 016104 000630                    .WORD  L10076-.
3292 016106                    ENDSUB
3293 016106                    L10103:
3294 016106 104403                    TRAP    C$ESUB
3295 016110                    EXIT     TST
3296 016110 104432                    TRAP    C$EXIT
3297 016112 000622                    .WORD  L10076-.
3298 016112
3299
3300 016114 000000 ADDON: .WORD  0
3301 016116 000000 PGCT:  .WORD  0
3302 016120 000000 LOD1:  .WORD  0
3303 016122 000000 LOD2:  .WORD  0
3304 016124 000000 LOD3:  .WORD  0
3305 016126 000000 LOD4:  .WORD  0

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3306 016130 000000
3307
3308
3309 016132
3310 016132
3311 016132
3312 016132 013746 002342
3313 016136 012746 016334
3314 016142 012746 000002
3315 016146 010600
3316 016150 104414
3317 016152 062706 000006
3318 016156 004737 004524
3319 016162 004737 004250
3320 016166
3321 016166
3322 016166 104423
3323
3324 016170
3325 016170
3326 016170
3327 016170 012746 016304
3328 016174 012746 000001
3329 016200 010600
3330 016202 104414
3331 016204 062706 000004
3332 016210 004737 004524
3333 016214 004737 004250
3334 016220
3335 016220 013746 002330
3336 016224 013746 002326
3337 016230 012746 003666
3338 016234 012746 000003
3339 016240 010600
3340 016242 104414
3341 016244 062706 000010
3342 016250
3343 016250
3344 016250 104423
3345
3346 016252
3347 016252
3348 016252
3349 016252 012746 016363
3350 016256 012746 000001
3351 016262 010600
3352 016264 104414
3353 016266 062706 000004
3354 016272 004737 004524
3355 016276 004737 004250
3356 016302
3357 016302
3358 016302 104423
3359
3360 016304 040445 047111 047503
3361 016312 051122 041505 020124

WORD: .WORD 0
BGNMSG CKSME
CKSME::
PRINTB #ERM6,BYTLOC
MOV BYTLOC,-(SP)
MOV #ERM6,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #6,SP
JSR PC,VIRTAD
JSR PC,VIPRI
ENDMSG
L10104:
TRAP C\$MSG
BGNMSG CWKDE
CWKDE::
PRINTB #ERM5
MOV #ERM5,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #4,SP
JSR PC,VIRTAD
JSR PC,VIPRI
PRINTB #REGDT,CKWD,BADWD
MOV BADWD,-(SP)
MOV CKWD,-(SP)
MOV #REGDT,-(SP)
MOV #3,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #10,SP
ENDMSG
L10105:
TRAP C\$MSG
BGNMSG NONXT
NONXT::
PRINTB #LOST
MOV #LOST,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #4,SP
JSR PC,VIRTAD
JSR PC,VIPRI
ENDMSG
L10106:
TRAP C\$MSG
ERM5: .ASCIZ /%AINCORRECT CHECKWORD%N/

3362	016320	044103	041505	053513	
3363	016326	051117	022504	000116	
3364					
3365	016334	040445	044103	041505	ERM6: .ASCIZ /%ACHECKSUM ERROR%N%T%N/
3366	016342	051513	046525	042440	
3367	016350	051122	051117	047045	
3368	016356	052045	047045	000	
3369					
3370	016363	045	047101	047117	LOST: .ASCIZ /%ANON-EXISTENT MEMORY%N/
3371	016370	042455	044530	052123	
3372	016376	047105	020124	042515	
3373	016404	047515	054522	047045	
3374	016412	000			
3375					
3376	016413	110	053517	046440	RWDCT: .ASCIZ /HOW MANY CHECKWORDS WILL BE INPUT/
3377	016420	047101	020131	044103	
3378	016426	041505	053513	051117	
3379	016434	051504	053440	046111	
3380	016442	020114	042502	044440	
3381	016450	050116	052125	000	
3382					
3383	016455	101	054516	040440	EXEC: .ASCIZ /ANY ADDITIONAL MEMORY /
3384	016462	042104	052111	047511	
3385	016470	040516	020114	042515	
3386	016476	047515	054522	000040	
3387					
3388	016504	054105	040520	042116	EXPND: .ASCIZ /EXPANDED DIAGNOSTIC ROM/
3389	016512	042105	042040	040511	
3390	016520	047107	051517	044524	
3391	016526	020103	047522	000115	
3392					
3393	016534	050105	047522	020115	EPRM: .ASCIZ /EPROM IN SOCKETS/
3394	016542	047111	051440	041517	
3395	016550	042513	051524	000	
3396					
3397	016555	123	051531	042524	SYSR: .ASCIZ /SYSTEM ROM/
3398	016562	020115	047522	000115	
3399					
3400	016570	054523	052123	046505	SYSE: .ASCIZ /SYSTEM EPROM/
3401	016576	042440	051120	046517	
3402	016604	000			
3403					
3404	016605	105	050130	047101	EXADD: .ASCIZ /EXPANDED ROM IN 2-4K /
3405	016612	042504	020104	047522	
3406	016620	020115	047111	031040	
3407	016626	032055	020113	000	
3408					
3409	016633	105	051120	046517	EPADD: .ASCIZ /EPROM IN 4-6K /
3410	016640	044440	020116	026464	
3411	016646	045466	000040		
3412					
3413	016652	054523	052123	046505	SRR: .ASCIZ /SYSTEM ROM START AT 16K/
3414	016660	051040	046517	051440	
3415	016666	040524	052122	040440	
3416	016674	020124	033061	000113	
3417					

3418	016702	054523	052123	046505	SYEE: .ASCIZ /SYSTEM EPROM START AT 16K/
3419	016710	042440	051120	046517	
3420	016716	051440	040524	052122	
3421	016724	040440	020124	033061	
3422	016732	000113			

3423					
3424					
3425					.EVEN
3426	016734				ENDTST
3427	016734				L10076:
3428	016734	104401			TRAP C\$ETST
3429					

3430					
3431					
3432					
3433					
3434					
3435					
3436					
3437					
3438					.TITLE PARAMETER CODING
3439					.SBTTL IDENTIFICATION
3440					
3441					
3442					.SBTTL HARDWARE PARAMETER CODING SECTION
3443					
3444					
3445					

3446					:++
3447					: THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
3448					: THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
3449					: MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
3450					: INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
3451					: MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
3452					: WITH THE OPERATOR.
3453					:--

3454	016736				BGNHRD
3455	016736	000107			.WORD L10107-L\$HARD/2
3456	016740				L\$HARD::
3457					
3458	016740				GPRMD UNIT,0,0,160000,0,16,YES
3459	016740	000032			.WORD T\$CODE
3460	016742	017020			.WORD UNIT
3461	016744	160000			.WORD 160000
3462	016746	000000			.WORD T\$LOLIM
3463	016750	000016			.WORD T\$HILIM
3464	016752				GPRMD INTVEC,2,0,-1,66,100,YES
3465	016752	001032			.WORD T\$CODE
3466	016754	017034			.WORD INTVEC
3467	016756	177777			.WORD -1
3468	016760	000066			.WORD T\$LOLIM
3469	016762	000100			.WORD T\$HILIM
3470	016764				GPRMD LEV,4,0,-1,6,7,YES
3471	016764	002032			.WORD T\$CODE
3472	016766	017065			.WORD LEV
3473	016770	177777			.WORD -1

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3474 016772 000006
3475 016774 000007
3476 016776
3477 016776 003032
3478 017000 017105
3479 017002 177777
3480 017004 000000
3481 017006 007777
3482 017010
3483 017010 004120
3484 017012 017134
3485 017014 000001
3486
3487 017016
3488 017016 060004
3489
3490 017020 047125 052111 047040
3491 017026 046525 042502 000122
3492 017034 047111 042524 051122
3493 017042 050125 020124 042526
3494 017050 052103 051117 040440
3495 017056 042104 042522 051523
3496 017064 000
3497 017065 111 052116 051105
3498 017072 052522 052120 046040
3499 017100 053105 046105 000
3500 017105 122 041517 042513
3501 017112 020122 053523 052111
3502 017120 044103 051440 052105
3503 017126 044524 043516 000123
3504 017134 042524 052123 047111
3505 017142 020107 020101 042113
3506 017150 030506 026461 000102
3507
3508
3509 017156
3510
3511 017156
3512
3513
3514
3515
3516
3517
3518
3519
3520
3521
3522
3523 017156
3524 017156 000161
3525 017160
3526 017160
3527 017160 000032
3528 017162 017302
3529 017164 177777

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```

.WORD T$LOLIM
.WORD T$HILIM
GPRMD RKS,6,0,-1,0,7777,YES
.WORD T$CODE
.WORD RKS
.WORD -1
.WORD T$LOLIM
.WORD T$HILIM
GPRML PAX,10,1,NO
.WORD T$CODE
.WORD PAX
.WORD 1

EXIT HRD
.WORD T$CODE

UNIT: .ASCIZ /UNIT NUMBER/

INTVEC: .ASCIZ /INTERRUPT VECTOR ADDRESS/

LEV: .ASCIZ /INTERRUPT LEVEL/

RKS: .ASCIZ /ROCKER SWITCH SETTINGS/

PAX: .ASCIZ /TESTING A KDF11-B/

.EVEN

ENDHRD
.EVEN

L10107:
.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 L10110-L$SOFT/2

L$SOFT::
GPRMD CKW1,0,0,-1,0,177777,YES
.WORD T$CODE
.WORD CKW1
.WORD -1

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3530	017166	000000				.WORD	T\$LOLIM
3531	017170	177777				.WORD	T\$HILIM
3532	017172					GPRMD	CKW2,2,0,-1,0,177777,YES
3533	017172	001032				.WORD	T\$CODE
3534	017174	017357				.WORD	CKW2
3535	017176	177777				.WORD	-1
3536	017200	000000				.WORD	T\$LOLIM
3537	017202	177777				.WORD	T\$HILIM
3538	017204					GPRMD	CKW3,4,0,-1,0,177777,YES
3539	017204	002032				.WORD	T\$CODE
3540	017206	017375				.WORD	CKW3
3541	017210	177777				.WORD	-1
3542	017212	000000				.WORD	T\$LOLIM
3543	017214	177777				.WORD	T\$HILIM
3544	017216					GPRMD	CKW4,6,0,-1,0,177777,YES
3545	017216	003032				.WORD	T\$CODE
3546	017220	017413				.WORD	CKW4
3547	017222	177777				.WORD	-1
3548	017224	000000				.WORD	T\$LOLIM
3549	017226	177777				.WORD	T\$HILIM
3550	017230					GPRMD	CKW5,10,0,-1,0,177777,YES
3551	017230	004032				.WORD	T\$CODE
3552	017232	017431				.WORD	CKW5
3553	017234	177777				.WORD	-1
3554	017236	000000				.WORD	T\$LOLIM
3555	017240	177777				.WORD	T\$HILIM
3556	017242					GPRMD	CKW6,12,0,-1,0,177777,YES
3557	017242	005032				.WORD	T\$CODE
3558	017244	017447				.WORD	CKW6
3559	017246	177777				.WORD	-1
3560	017250	000000				.WORD	T\$LOLIM
3561	017252	177777				.WORD	T\$HILIM
3562	017254					GPRMD	CKW7,14,0,-1,0,177777,YES
3563	017254	006032				.WORD	T\$CODE
3564	017256	017465				.WORD	CKW7
3565	017260	177777				.WORD	-1
3566	017262	000000				.WORD	T\$LOLIM
3567	017264	177777				.WORD	T\$HILIM
3568	017266					GPRMD	CKW8,16,0,-1,0,177777,YES
3569	017266	007032				.WORD	T\$CODE
3570	017270	017503				.WORD	CKW8
3571	017272	177777				.WORD	-1
3572	017274	000000				.WORD	T\$LOLIM
3573	017276	177777				.WORD	T\$HILIM
3574							
3575	017300					EXIT SFT	
3576	017300	111004				.WORD	T\$CODE
3577							
3578	017302	044103	041505	053513	CKW1:	.ASCIZ	/CHECKWORDS FOR DIAGNOSTIC ROM. CHECKWORD 1: /
3579	017310	051117	051504	043040			
3580	017316	051117	042040	040511			
3581	017324	047107	051517	044524			
3582	017332	020103	047522	027115			
3583	017340	041440	042510	045503			
3584	017346	047527	042122	030440			
3585	017354	020072	000				

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3586 017357 103 042510 045503 CKW2: .ASCIZ /CHECKWORD 2: /
3587 017364 047527 042122 031040
3588 017372 020072 000
3589 017375 103 042510 045503 CKW3: .ASCIZ /CHECKWORD 3: /
3590 017402 047527 042122 031440
3591 017410 020072 000
3592 017413 103 042510 045503 CKW4: .ASCIZ /CHECKWORD 4: /
3593 017420 047527 042122 032040
3594 017426 020072 000
3595 017431 103 042510 045503 CKW5: .ASCIZ /CHECKWORD 5: /
3596 017436 047527 042122 032440
3597 017444 020072 000
3598 017447 103 042510 045503 CKW6: .ASCIZ /CHECKWORD 6: /
3599 017454 047527 042122 033040
3600 017462 020072 000
3601 017465 103 042510 045503 CKW7: .ASCIZ /CHECKWORD 7: /
3602 017472 047527 042122 033440
3603 017500 020072 000
3604 017503 103 042510 045503 CKW8: .ASCIZ /CHECKWORD 8: /
3605 017510 047527 042122 034040
3606 017516 020072 000
3607 017522 .EVEN
3608
3609
3610 017522 ENDSFT
3611 .EVEN
3612 017522 L10110:
3613
3614 017572 .=.+50
3615 017572 LASTAD
3616 .EVEN
3617 017572 000000 .WORD 0
3618 017574 000000 .WORD 0
3619 017576 L$LAST::
3620
3621 000001 .END
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C\$GPRI= 000040	398#													
C\$INIT= 000011	398#	1307												
C\$INLP= 000020	398#													
C\$MANI= 000050	398#	2203	2250	2401	2584	2839								
C\$MEM = 000031	398#													
C\$MSG = 000023	398#	911	931	951	971	983	995	1007	2060	2079	2098	2117	2136	
	2359	2634	2647	2660	2673	2686	3322	3344	3358					
C\$OPEN= 000034	398#													
C\$PNTB= 000014	398#	899	919	939	959	979	991	1003	2049	2056	2068	2075	2087	
	2094	2106	2113	2125	2132	2355	2630	2643	2656	2669	2681	3316	3330	
	3340	3352												
C\$PNTF= 000017	398#	1017	1066	2297	2309	2326	2336	2547	2556	2563	2577	2598	2607	
C\$PNTS= 000016	398#													
C\$PNTX= 000015	398#	907	927	947	967									
C\$QIO = 000377	398#													
C\$RDBU= 000007	398#													
C\$REFG= 000047	398#													
C\$RESE= 000033	398#	2007												
C\$REVI= 000003	398#	463												
C\$RFLA= 000021	398#													
C\$RPT = 000025	398#	1280												
C\$SEFG= 000046	398#													
C\$SPRI= 000041	398#	1302	1894	1899	1919	1924	1952	1957	1977	1982	2010	2015		
C\$SVEC= 000037	398#	1889												
C\$TPRI= 000013	398#													
DADDR 013774	2411	2797#												
DATOUT 014510	2962	2964#												
DEL CNT 002346	723#	1244*	1246											
DERR1 012566	2442	2624#												
DERR2 012614	2459	2637#												
DERR3 012642	2476	2650#												
DERR4 012670	2493	2663#												
DERR5 012716	2591	2676#												
DFLTST 014264	2841	2854	2865	2907	2909#									
DFPTBL 002144	538#													
DIAGER 003554	860#	1000												
DIAGMC= 000000	398													
DIAIN 014140	2866#													
DLOOP 011716	2435#	2505												
DRLP 012564	2416*	2429*	2430	2621#										
DRTST 011676	2432#													
DSPCOD 002122	514#													
EF.CON= 000036	651#													
EF.NEW= 000035	652#													
EF.PWR= 000034	653#													
EF.RES= 000037	650#													
EF.STA= 000040	649#													
EPADD 016633	3026	3409#												
EPRIN 014162	2876#	2972												
EPRM 016534	2881	3075	3083	3091	3393#									
EPRMT 014630	2886	3007#												
EPRCM 002370	725#	3019	3049											
EPRTST 015006	3050#	3067												
ERM5 016304	3327	3360#												
ERM6 016334	3313	3365#												
ERRFLG 002344	722#	1157*	1174*	1185*	1190*	2919*	2956	2964	3007*	3054	3062	3102*	3150	

G\$YES = 000010	398#	2410	2860	2927	3025	3121	3216	3459	3465	3471	3477	3527	3533
	3539	3545	3551	3557	3563	3569							
HBYTE 015774	3249	3252#											
HELP = 000000	6#	15	18	23	24	102	105	122	130	139	143	161	241
	249	290	295	314	397	403#	417	506	526	540	562	603#	684
	809	883	1022	1254	1256	1258	1260	1262	1264	1266	1268	1269	1270
	1272#	1303	1342	1347	1355#	3429	3431	3432	3434	3436	3438	3440#	3458
	3490	3577	3608										
HIADD 015054	3058	3061#											
HIBYT 003027	773#	2963	3061	3157	3252								
HIBYTE 004746	1150	1161#											
HIGH 014502	2960	2963#											
HIGHB 015432	3154	3157#											
HIRANG 002340	720#	1012	1131*	1132*	1135*								
HIROM 013165	2666	2719#											
HOE = 100000 G	682#												
HRAERR 013106	2653	2710#											
IBE = 010000 G	679#												
ICOUNT 007670	1881*	1900	1909*	1925	1934*	1958	1967*	1983	1992*	2016	2025*	2036*	2041#
	2052	2071	2090	2109	2128								
IDU = 000040 G	672#												
IER = 020000 G	680#												
INLP 004364	1068#	1081											
INPUT 004344	1062#	2922	3020	3116	3211								
INSTR 004422	1063	1084#											
INTCT 010244	2053	2072	2091	2110	2129	2146#							
INTSR 007662	1886	2033#											
INTVEC 017034	3466	3492#											
INWORD 004510	1073	1094#											
ISR = 000100 G	673#												
IXE = 004000 G	678#												
ISAU = 000041	398#												
ISAUTO= 000041	398#	1317#	1321#										
ISCLN = 000041	398#	1329#	1344	1352#									
ISDU = 000041	398#												
ISHRD = 000041	3455#	3512#											
ISINIT= 000041	398#	1291#	1308#										
ISMOD = 000041	398#	408#	505#	514#	526#	613#	687#	695#	728#				
ISMSG = 000041	398#	894#	912#	914#	932#	934#	952#	954#	972#	974#	984#	986#	996#
	998#	1008#	2044#	2061#	2063#	2080#	2082#	2099#	2101#	2118#	2120#	2137#	2348#
	2360#	2624#	2635#	2637#	2648#	2650#	2661#	2663#	2674#	2676#	2687#	3310#	3323#
	3325#	3345#	3347#	3359#									
	398#	1310#											
ISPROT= 000040	398#												
ISPTAB= 000041	398#												
ISPWR = 000041	398#												
ISRPT = 000041	398#	1277#	1281#										
ISSEG = 000041	398#	1366	1368	1390	1413	1436	1459	1480	1503	1526	1549	1576	1614
	1622	1644	1668	1691	1714	1736	1758	1781	1804	1831	1873	1883	1915
	1948	1973	2004	2193	2248	2397	2399	2468	2501	2513	2529	2830	2832
	2918	3006	3101	3196									
ISSETU= 000041	398#												
ISSFT = 000041	3524#	3613#											
ISSRV = 000041	398#	2035#	2040#										
ISSUB = 000041	398#	1366	1368#	1386#	1388#	1390#	1409#	1411#	1413#	1432#	1434#	1436#	1455#
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SEQ 0078

REGDT	003666		875#	904	924	944	964	3337											
RERR1	003732	G	894#	1377	1631														
RERR2	004000	G	914#	1400	1654														
RERR3	004046	G	934#	1423	1490	1678	1746												
RERR4	004114	G	954#	1446	1467	1513	1536	1701	1724	1768	1791								
RERR5	004162	G	974#	1563	1818														
RERR6	004204	G	986#	1592	1847														
RESPND	002332		717#	1334*	2869	2874	2879	2884	2890	2895	2901	2906	3106	3113	3114				
			3201	3208	3209														
RFLAG	002276		703#	1133	2434*	2949*	3048*	3143*	3238*										
RKSW	017105		3478	3500#															
ROTL P1	006140		1553#	1558															
ROTL P2	006224		1580#	1586															
ROTL P3	007026		1808#	1813															
ROTL P4	007112		1835#	1841															
ROTO	003502		852#	988															
ROT1	003432		844#	976															
RSET	002334		718#	1333*	2409	2414													
RSTRT	011662		2405	2417	2430#														
RWDCT	016413		3013	3108	3203	3376#													
RWR	002610		742#	1376	1399	1422	1445	1466	1489	1512	1535	1552	1591						
RWREG =	177522		1332*	1363#	1369*	1372	1391*	1392	1395	1414*	1415	1418	1437*	1438	1441				
			1460*	1461	1481*	1482	1485	1504*	1505	1508	1527*	1528	1531	1550*	1551*				
			1552	1553	1557*	1577*	1578*	1579	1580	1583*									
SERR1	011444		2352	2371#															
SETADR	005142		1205#	2428	2944	3042	3138	3233											
SFPTBL	002160	G	560#	2433	2531	2566													
SRR	016652		3122	3413#															
STORE	002320		712#	1071	1078	1205	2421	2937	3035	3131	3226								
STRT	011620		2403	2416#															
SVCGBL =	000000		398#	399#	408	409	419	420	428	429	430	431	432	433	434				
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			954	955	974	975	986	987	998	999	1277	1278	1291	1292	1310				
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992	993	995	996	1000	1001	1002	1003	1004	1005	1007	1008	1012
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SEQ 0080

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2681	2682	2683	2686	2687	2804	2805	2832	2833	2836	2837	2838	2839
2840	2841	2842	2857	2858	2859	2860	2861	2862	2863	2867	2868	2869
2870	2871	2872	2873	2877	2878	2879	2880	2881	2882	2883	2888	2889
2890	2891	2892	2893	2894	2899	2900	2901	2902	2903	2904	2905	2910
2911	2912	2914	2915	2918	2919	2924	2925	2926	2927	2928	2929	2930
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2979	2980	2981	2982	2983	2984	2986	2987	2988	2989	2990	2991	2992
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3011	3012	3013	3014	3015	3016	3017	3022	3023	3024	3025	3026	3027
3028	3033	3034	3035	3036	3037	3038	3039	3040	3041	3073	3074	3075
3076	3077	3078	3079	3081	3082	3083	3084	3085	3086	3087	3089	3090
3091	3092	3093	3094	3095	3098	3099	3101	3102	3104	3105	3106	3107
3108	3109	3110	3111	3112	3118	3119	3120	3121	3122	3123	3124	3129
3130	3131	3132	3133	3134	3135	3136	3137	3165	3166	3167	3168	3169
3170	3171	3172	3173	3174	3176	3177	3178	3179	3180	3181	3182	3184
3185	3186	3187	3188	3189	3190	3193	3194	3196	3197	3199	3200	3201
3202	3203	3204	3205	3206	3207	3213	3214	3215	3216	3217	3218	3219
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3277	3278	3279	3280	3281	3282	3283	3284	3285	3286	3287	3288	3289
3290	3291	3292	3294	3295	3297	3298	3299	3312	3313	3314	3315	3316
3317	3318	3322	3323	3327	3328	3329	3330	3331	3332	3335	3336	3337
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3479	3480	3481	3482	3483	3484	3485	3486	3488	3489	3510	3511	3524
3525	3527	3528	3529	3530	3531	3532	3533	3534	3535	3536	3537	3538
3539	3540	3541	3542	3543	3544	3545	3546	3547	3548	3549	3550	3551
3552	3553	3554	3555	3556	3557	3558	3559	3560	3561	3562	3563	3564
3565	3566	3567	3568	3569	3570	3571	3572	3573	3574	3576	3577	3611
3612	3616	3617	3618	3619								
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1668	1691	1714	1736	1758	1781	1804	1831	1883	1915	1948	1973	2004
2399	2468	2501	2513	2529	2832	2918	3006	3101	3196			
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971	982	983	994	995	1006	1007	1077	1078	1279	1280	1306	1307
1319	1320	1350	1351	1386	1387	1409	1410	1432	1433	1455	1456	1476
1477	1499	1500	1522	1523	1545	1546	1572	1573	1601	1602	1605	1606
1640	1641	1663	1664	1687	1688	1710	1711	1733	1734	1755	1756	1777
1778	1800	1801	1827	1828	1856	1857	1859	1860	1911	1912	1936	1937
1969	1970	1994	1995	2027	2028	2038	2039	2059	2060	2078	2079	2097
2098	2116	2117	2135	2136	2184	2185	2235	2236	2358	2359	2386	2387
2413	2414	2427	2428	2463	2464	2497	2498	2507	2508	2523	2524	2612
2613	2633	2634	2646	2647	2659	2660	2672	2673	2685	2686	2803	2804
2863	2864	2873	2874	2883	2884	2894	2895	2905	2906	2913	2914	2930
2931	2943	2944	3002	3003	3017	3018	3028	3029	3041	3042	3097	3098
3112	3113	3124	3125	3137	3138	3192	3193	3207	3208	3219	3220	3232
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SVCSUB= 177777

SVCTAG= 000000

PARAMETER CODING
CVMBAE.P11

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MACY11 30(1046)

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CROSS REFERENCE TABLE -- USER SYMBOLS

E 7

SEQ 0082

TSFLAG= 000041

1344# 1381# 1404# 1427# 1450# 1471# 1494# 1517# 1540# 1567# 1596# 1618# 1635#
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2209# 2231# 2268# 2340# 2446# 2480# 2618# 2836# 2910# 2975# 3165# 3260# 3270#
3280# 3290# 3297# 3488# 3576#

TSGMAN= 000000

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1072# 1076 2422# 2426 2938# 2942 3012# 3015 3036# 3040 3107# 3111 3132#
3136 3202# 3206 3227# 3231 3459# 3463 3465# 3469 3471# 3475 3477# 3481
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3567 3569# 3573

TSLAST= 000001

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3527# 3530 3533# 3536 3539# 3542 3545# 3548 3551# 3554 3557# 3560 3563#
3566 3569# 3572

T\$LSYM= 010000

398# 549 599 911 931 951 971 983 995 1007 1280 1307 1320
1351 1387 1410 1433 1456 1477 1500 1523 1546 1573 1602 1606 1641
1664 1688 1711 1734 1756 1778 1801 1828 1857 1860 1912 1937 1970
1995 2028 2039 2060 2079 2098 2117 2136 2185 2236 2359 2387 2464
2498 2508 2524 2613 2634 2647 2660 2673 2686 2804 2914 3003 3098
3193 3294 3322 3344 3358 3428 3512 3613

T\$LTNO= 000007

T\$NEST= 177777

3620#
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894# 910# 914# 930# 934# 950# 954# 970# 974# 982# 986# 994# 998#
1006# 1277# 1279# 1291# 1306# 1310# 1315# 1317# 1319# 1329# 1350# 1366# 1368#
1386# 1390# 1409# 1413# 1432# 1436# 1455# 1459# 1476# 1480# 1499# 1503# 1522#
1526# 1545# 1549# 1572# 1576# 1601# 1605# 1614# 1622# 1640# 1644# 1663# 1668#
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1831# 1856# 1859# 1873# 1883# 1911# 1915# 1936# 1948# 1969# 1973# 1994# 2004#
2027# 2035# 2038# 2044# 2059# 2063# 2078# 2082# 2097# 2101# 2116# 2120# 2135#
2184# 2193# 2235# 2248# 2348# 2358# 2386# 2397# 2399# 2463# 2468# 2497# 2501#
2507# 2513# 2523# 2529# 2612# 2624# 2633# 2637# 2646# 2650# 2659# 2663# 2672#
2676# 2685# 2803# 2830# 2832# 2913# 2918# 3002# 3006# 3097# 3101# 3192# 3196#
3293# 3310# 3321# 3325# 3343# 3347# 3357# 3427# 3455# 3488 3510# 3524# 3576
3611#

T\$NSO = 000005

409# 505 515# 526 536# 548 558# 598 614# 687 696# 728 894#
910 914# 930 934# 950 954# 970 974# 982 986# 994 998# 1006
1277# 1279 1291# 1306 1310# 1315 1317# 1319 1329# 1350 1366# 1605 1614#
1859 1873# 2184 2193# 2235 2248# 2386 2397# 2803 2830# 3427 3455# 3488
3510 3524# 3576 3611

T\$NS1 = 000011

1368# 1386 1390# 1409 1413# 1432 1436# 1455 1459# 1476 1480# 1499 1503#
1522 1526# 1545 1549# 1572 1576# 1601 1622# 1640 1644# 1663 1668# 1687
1691# 1710 1714# 1733 1736# 1755 1758# 1777 1781# 1800 1804# 1827 1831#
1856 1883# 1911 1915# 1936 1948# 1969 1973# 1994 2004# 2027 2035# 2038
2044# 2059 2063# 2078 2082# 2097 2101# 2116 2120# 2135 2348# 2358 2399#
2463 2468# 2497 2501# 2507 2513# 2523 2529# 2612 2624# 2633 2637# 2646
2650# 2659 2663# 2672 2676# 2685 2832# 2913 2918# 3002 3006# 3097 3101#
3192 3196# 3293 3310# 3321 3325# 3343 3347# 3357

T\$PTNU= 000000

T\$SAVL= 177777

T\$SEGL= 177777

T\$SUBN= 000005

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1614#	1622#	1644#	1668#	1691#	1714#	1736#	1758#	1781#	1804#	1831#	1873#	1883#
1915#	1948#	1973#	2004#	2035#	2044#	2063#	2082#	2101#	2120#	2193#	2248#	2348#
2397#	2399#	2468#	2501#	2513#	2529#	2624#	2637#	2650#	2663#	2676#	2830#	2832#
2918#	3006#	3101#	3196#	3310#	3325#	3347#	3455#	3524#				

TSTEMP= 000005

505#	518#	519#	520#	521#	522#	523#	524#	525#	526#	548#	598#	687#
728#	910#	930#	950#	970#	982#	994#	1006#	1072#	1279#	1306#	1315#	1319#
1344#	1345	1350#	1381#	1382	1386#	1404#	1405	1409#	1427#	1428	1432#	1450#
1451	1455#	1471#	1472	1476#	1494#	1495	1499#	1517#	1518	1522#	1540#	1541
1545#	1567#	1568	1572#	1596#	1597	1601#	1605#	1618#	1619	1635#	1636	1640#
1658#	1659	1663#	1682#	1683	1687#	1705#	1706	1710#	1728#	1729	1733#	1750#
1751	1755#	1772#	1773	1777#	1795#	1796	1800#	1822#	1823	1827#	1851#	1852
1856#	1859#	1879#	1880	1911#	1936#	1944#	1945	1969#	1994#	2000#	2001	2027#
2030#	2031	2038#	2059#	2078#	2097#	2116#	2135#	2184#	2209#	2210	2231#	2232
2235#	2268#	2269	2340#	2341	2358#	2386#	2410#	2422#	2446#	2447	2463#	2480#
2481	2497#	2507#	2523#	2612#	2618#	2619	2633#	2646#	2659#	2672#	2685#	2803#
2836#	2837	2860#	2870#	2880#	2891#	2902#	2910#	2911	2913#	2927#	2938#	2975#
2976	3002#	3012#	3025#	3036#	3097#	3107#	3121#	3132#	3165#	3166	3192#	3202#
3216#	3227#	3260#	3261	3270#	3271	3280#	3281	3290#	3291	3293#	3297#	3298
3321#	3343#	3357#	3427#	3459#	3465#	3471#	3477#	3483#	3488#	3510#	3527#	3533#
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TSTEST= 000007

398#	1366#	1368	1390	1413	1436	1459	1480	1503	1526	1549	1576	1614#
1622	1644	1668	1691	1714	1736	1758	1781	1804	1831	1873#	1883	1915
1948	1973	2004	2193#	2248#	2397#	2399	2468	2501	2513	2529	2830#	2832

TSTSTM= 177777

398#	899	907	911	919	927	931	939	947	951	959	967	971
979	983	991	995	1003	1007	1017	1066	1069	1122	1127	1280	1294
1302	1307	1320	1341	1344	1351	1368	1374	1379	1381	1384	1387	1390
1397	1402	1404	1407	1410	1413	1420	1425	1427	1430	1433	1436	1443
1448	1450	1453	1456	1459	1464	1469	1471	1474	1477	1480	1487	1492
1494	1497	1500	1503	1510	1515	1517	1520	1523	1526	1533	1538	1540
1543	1546	1549	1560	1565	1567	1570	1573	1576	1589	1594	1596	1599
1602	1606	1618	1622	1628	1633	1635	1638	1641	1644	1651	1656	1658
1661	1664	1668	1675	1680	1682	1685	1688	1691	1698	1703	1705	1708
1711	1714	1721	1726	1728	1731	1734	1736	1743	1748	1750	1753	1756
1758	1765	1770	1772	1775	1778	1781	1788	1793	1795	1798	1801	1804
1815	1820	1822	1825	1828	1831	1844	1849	1851	1854	1857	1860	1879
1883	1889	1894	1899	1903	1908	1912	1915	1919	1924	1928	1933	1937
1944	1948	1952	1957	1961	1966	1970	1973	1977	1982	1986	1991	1995
2000	2004	2007	2010	2015	2019	2024	2028	2030	2049	2056	2060	2068
2075	2079	2087	2094	2098	2106	2113	2117	2125	2132	2136	2185	2198
2203	2209	2216	2221	2226	2231	2236	2250	2261	2266	2268	2297	2309
2326	2336	2340	2355	2359	2387	2399	2401	2407	2419	2439	2444	2446
2449	2456	2461	2464	2468	2473	2478	2480	2483	2490	2495	2498	2501
2508	2513	2524	2529	2547	2556	2563	2577	2584	2588	2593	2598	2607
2613	2618	2630	2634	2643	2647	2656	2660	2669	2673	2681	2686	2804
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2975	2978	2983	2986	2991	2994	2999	3003	3006	3009	3022	3033	3073
3078	3081	3086	3089	3094	3098	3101	3104	3118	3129	3165	3168	3173
3176	3181	3184	3189	3193	3196	3199	3213	3224	3260	3263	3268	3270
3273	3278	3280	3283	3288	3290	3294	3297	3316	3322	3330	3340	3344
3352	3358	3428										

TSTSTS= 000001

TSSAUT= 010014

TSSCLE= 010015

398#	1366#	1614#	1873#	2193#	2248#	2397#	2830#
1317#	1319						
1329#	1344	1350					

GPHARD	1292														
GPRMD	1069#	1072	2419#	2422	2935#	2938	3009#	3012	3033#	3036	3104#	3107	3129#	3132	3199#
	3202	3224#	3227	3458	3464	3470	3476	3526	3532	3538	3544	3550	3556	3562	3568
GPRML	2407#	2410	2857#	2860	2867#	2870	2877#	2880	2888#	2891	2899#	2902	2924#	2927	3022#
	3025	3118#	3121	3213#	3216	3482									
HEADER	418														
LASTAD	3615														
MANUAL	2202	2249	2400	2583	2838										
MSBYTE	419#	425	426	427											
MSCHEC	1344#	1381#	1404#	1427#	1450#	1471#	1494#	1517#	1540#	1567#	1596#	1618#	1635#	1658#	1682#
	1705#	1728#	1750#	1772#	1795#	1822#	1851#	1879#	1944#	2000#	2030#	2209#	2231#	2268#	2340#
	2446#	2480#	2618#	2836#	2910#	2975#	3165#	3260#	3270#	3280#	3290#	3297#	3488#	3576#	
MSCNTO	1072#	2410#	2422#	2860#	2870#	2880#	2891#	2902#	2927#	2938#	3012#	3025#	3036#	3107#	3121#
	3132#	3202#	3216#	3227#	3459#	3465#	3471#	3477#	3483#	3527#	3533#	3539#	3545#	3551#	3557#
	3563#	3569#													
MSCOUN	896#	902#	916#	922#	936#	942#	956#	962#	976#	988#	1000#	1012#	1063#	2046#	2052#
	2065#	2071#	2084#	2090#	2103#	2109#	2122#	2128#	2293#	2305#	2322#	2333#	2350#	2544#	2553#
	2560#	2574#	2595#	2603#	2626#	2639#	2652#	2665#	2678#	3312#	3327#	3335#	3349#		
MSDATA	419#	428	430	432	434	436	438	440	442	444	446	448	450	452	454
	456	458#	460	462	465	468	470	472	474	476	478	480	482	484	486
	488	490	492	494	496	498	500	502	793#	803#					
MSDECR	505#	526#	548#	598#	687#	728#	910#	930#	950#	970#	982#	994#	1006#	1279#	1306#
	1315#	1319#	1350#	1386#	1409#	1432#	1455#	1476#	1499#	1522#	1545#	1572#	1601#	1605#	1640#
	1663#	1687#	1710#	1733#	1755#	1777#	1800#	1827#	1856#	1859#	1911#	1936#	1969#	1994#	2027#
	2038#	2059#	2078#	2097#	2116#	2135#	2184#	2235#	2358#	2386#	2463#	2497#	2507#	2523#	2612#
	2633#	2646#	2659#	2672#	2685#	2803#	2913#	3002#	3097#	3192#	3293#	3321#	3343#	3357#	3427#
	3510#	3611#													
MSDEFA	1072#	2410#	2422#	2860#	2870#	2880#	2891#	2902#	2927#	2938#	3012#	3025#	3036#	3107#	3121#
	3132#	3202#	3216#	3227#	3459#	3465#	3471#	3477#	3483#	3527#	3533#	3539#	3545#	3551#	3557#
	3563#	3569#													
MSENDE	505#	526#	548#	598#	687#	728#	910#	930#	950#	970#	982#	994#	1006#	1279#	1306#
	1319#	1350#	1386#	1409#	1432#	1455#	1476#	1499#	1522#	1545#	1572#	1601#	1605#	1640#	1663#
	1687#	1710#	1733#	1755#	1777#	1800#	1827#	1856#	1859#	1911#	1936#	1969#	1994#	2027#	2038#
	2059#	2078#	2097#	2116#	2135#	2184#	2235#	2358#	2386#	2463#	2497#	2507#	2523#	2612#	2633#
	2646#	2659#	2672#	2685#	2803#	2913#	3002#	3097#	3192#	3293#	3321#	3343#	3357#	3427#	3510#
	3611#														
MSERRI	1122#	1374#	1397#	1420#	1443#	1464#	1487#	1510#	1533#	1560#	1589#	1628#	1651#	1675#	1698#
	1721#	1743#	1765#	1788#	1815#	1844#	1903#	1928#	1961#	1986#	2019#	2261#	2439#	2456#	2473#
	2490#	2588#	2978#	2986#	2994#	3073#	3081#	3089#	3168#	3176#	3184#	3263#	3273#	3283#	
MSEXCP	1072#	2422#	2938#	3012#	3036#	3107#	3132#	3202#	3227#	3459#	3465#	3471#	3477#	3527#	3533#
	3539#	3545#	3551#	3557#	3563#	3569#									
MSEXIT	1344#	1345	1381#	1382	1404#	1405	1427#	1428	1450#	1451	1471#	1472	1494#	1495	1517#
	1518	1540#	1541	1567#	1568	1596#	1597	1618#	1619	1635#	1636	1658#	1659	1682#	1683
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PARAMETER CODING
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MACY11 30(1046)
16:22

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CROSS REFERENCE TABLE -- MACRO NAMES

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	1948#	1951#	1952	1956#	1957	1961	1966#	1969#	1970	1973#	1976#	1977	1981#	1982	1986
	1991#	1994#	1995	2000#	2004#	2007#	2009#	2010	2014#	2015	2019	2024#	2027#	2028	2030#
	2046#	2049	2052#	2056	2059#	2060	2065#	2068	2071#	2075	2078#	2079	2084#	2087	2090#
	2094	2097#	2098	2103#	2106	2109#	2113	2116#	2117	2122#	2125	2128#	2132	2135#	2136
	2184#	2185	2198#	2203#	2209#	2216#	2221#	2226#	2231#	2235#	2236	2250#	2261	2266#	2268#
	2293#	2297	2305#	2309	2322#	2326	2333#	2336	2340#	2350#	2355	2358#	2359	2386#	2387
	2399#	2401#	2407#	2419#	2439	2444#	2446#	2449#	2456	2461#	2463#	2464	2468#	2473	2478#
	2480#	2483#	2490	2495#	2497#	2498	2501#	2507#	2508	2513#	2523#	2524	2529#	2544#	2547
	2553#	2556	2560#	2563	2574#	2577	2584#	2588	2593#	2595#	2598	2603#	2607	2612#	2613
	2618#	2626#	2630	2633#	2634	2639#	2643	2646#	2647	2652#	2656	2659#	2660	2665#	2669
	2672#	2673	2678#	2681	2685#	2686	2803#	2804	2832#	2836#	2839#	2857#	2867#	2877#	2888#
	2899#	2910#	2913#	2914	2918#	2924#	2935#	2975#	2978	2983#	2986	2991#	2994	2999#	3002#
	3003	3006#	3009#	3022#	3033#	3073	3078#	3081	3086#	3089	3094#	3097#	3098	3101#	3104#
	3118#	3129#	3165#	3168	3173#	3176	3181#	3184	3189#	3192#	3193	3196#	3199#	3213#	3224#
	3260#	3263	3268#	3270#	3273	3278#	3280#	3283	3288#	3290#	3293#	3294	3297#	3312#	3316
	3321#	3322	3327#	3330	3335#	3340	3343#	3344	3349#	3352	3357#	3358	3427#	3428	3488#
	3576#														
MSTLAB	899#	907#	911#	919#	927#	931#	939#	947#	951#	959#	967#	971#	979#	983#	991#
	995#	1003#	1007#	1017#	1066#	1069#	1122#	1127#	1280#	1294#	1302#	1307#	1320#	1341#	1344#
	1351#	1368#	1374#	1379#	1381#	1384#	1387#	1390#	1397#	1402#	1404#	1407#	1410#	1413#	1420#
	1425#	1427#	1430#	1433#	1436#	1443#	1448#	1450#	1453#	1456#	1459#	1464#	1469#	1471#	1474#
	1477#	1480#	1487#	1492#	1494#	1497#	1500#	1503#	1510#	1515#	1517#	1520#	1523#	1526#	1533#
	1538#	1540#	1543#	1546#	1549#	1560#	1565#	1567#	1570#	1573#	1576#	1589#	1594#	1596#	1599#
	1602#	1606#	1618#	1622#	1628#	1633#	1635#	1638#	1641#	1644#	1651#	1656#	1658#	1661#	1664#
	1668#	1675#	1680#	1682#	1685#	1688#	1691#	1698#	1703#	1705#	1708#	1711#	1714#	1721#	1726#
	1728#	1731#	1734#	1736#	1743#	1748#	1750#	1753#	1756#	1758#	1765#	1770#	1772#	1775#	1778#
	1781#	1788#	1793#	1795#	1798#	1801#	1804#	1815#	1820#	1822#	1825#	1828#	1831#	1844#	1849#
	1851#	1854#	1857#	1860#	1879#	1883#	1889#	1894#	1899#	1903#	1908#	1912#	1915#	1919#	1924#
	1928#	1933#	1937#	1944#	1948#	1952#	1957#	1961#	1966#	1970#	1973#	1977#	1982#	1986#	1991#
	1995#	2000#	2004#	2007#	2010#	2015#	2019#	2024#	2028#	2030#	2049#	2056#	2060#	2068#	2075#

PRINTB	895	915	935	955	975	987	999	2045	2051	2064	2070	2083	2089	2102	2108
	2121	2127	2349	2625	2638	2651	2664	2677	3311	3326	3334	3348			
PRINTF	1011	1062	2292	2304	2321	2332	2543	2552	2559	2573	2594	2602			
PRINTX	901	921	941	961											
SETPRI	1300	1892	1897	1917	1922	1950	1955	1975	1980	2008	2013				
SETVEC	1884														
SVC	397#														
XFER	1344#	1381#	1404#	1427#	1450#	1471#	1494#	1517#	1540#	1567#	1596#	1618#	1635#	1658#	1682#
	1705#	1728#	1750#	1772#	1795#	1822#	1851#	1879#	1944#	2000#	2030#	2209#	2231#	2268#	2340#
	2446#	2480#	2618#	2836#	2910#	2975#	3165#	3260#	3270#	3280#	3290#	3297#	3488#	3576#	

. ABS. 017576 000

ERRORS DETECTED: 0

CVM8AE.BIN,CVM8AE.LST/CRF/SOL/NL:TOC=SVC.MLB/ML,CVM8AE.P11
RUN-TIME: 30 31 4 SECONDS
RUN-TIME RATIO: 139/66=2.1
CORE USED: 19K (38 PAGES)