

KMV11-C

KMV11-C LOGIC DIAG
CVKMHA0

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JAN 1984
digital
Made In USA

VKMMAO KMV11C STATIC DIAG

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IDENTIFICATION

PRODUCT CODE: AC T379A MC
PRODUCT NAME: CVKMMAO KMV11C LOGIC DIAG
PRODUCT DATE: AUG 1983
MAINTAINER: CSS ANNECY
AUTHOR: ALAIN FEUILLET

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DIGITAL	PDP	QBUS
DEC	DECUS	DECTAPE

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/V01.01/ ALAIN FEUILLET

/V01.02/ NICOLE JACQUEMIN 16 FEB-83
DISPLAY CHECKSUM VALUE IN CASE OF ERROR
ADD ERROR MESSAGE WHEN MODE 2 CANNOT BE ENTERED
FOR A STACK PROBLEM
- DEFAULT VALUE FOR BAUD RATE IS 7
- ADD TEST36 (AND RENAME LONG RAM TEST TO TEST37)
WHICH TEST DATA RECEPTION USING THE POLLING
FACILITY.
SUPPORT OF MORE THAN ONE UNIT.

/V01.03/ CHRISTIAN LEBRAUD 13 APR 83
- CLEAN ERROR REPORT FOR RELEASE
- SUPPRESS INTERRUPT PRIORITY CHECKING

/V01.04/ CHRISTIAN LEBRAUD 27-MAY-83
- CHANGE NXH TEST TO RUN ON A 11/23A
- PROM P/N MUST BE DISPLAYED FOR EACH UNIT
UNDER TEST
- CLEAN PROBLEMS RELATED TO THE SUPERVISOR
INTERFACE.

/V01.05/ CHRISTIAN LEBRAUD 1 JULY 83
- CHANGE TEST33 TO RUN WITH 48KW

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1.0 INTRODUCTION

1.1 PROGRAM ABSTRACT

THIS DIAGNOSTIC IS DESIGNED TO TEST OUT THE KMV11 C INTERFACE WHICH IS PHYSICALLY A FULL MULTI LAYER QUAD MODULE NAMED M7502

THE MAJOR FEATURES OF THIS INTERFACE ARE:

- HIGH SPEED DATA COMMUNICATION INTERFACE FOR A Q BUS BASED SYSTEM.
- USE OF THE DCT11 MICROPROCESSOR.
- FIT INTO ANY POWERED BACKPLANE FOR Q-BUS SYSTEM WHICH ACCEPTS QUAD MODULES.
- HIGH SPEED DATA TRANSFER BY USE OF A FIFO AND IN/OUT DMA ACCESS COMPLETELY CONTROLLED BY HARDWARE.
- 8K BYTES OF EPROM CONTAINING EXECUTIVE AND ROOT FIRMWARE, THE LATTER CONTAINING THE SELF TESTS AND TEST ROUTINES USED WITH THIS DIAGNOSTIC.
- 32K BYTES OF RAM FOR THE LOADABLE APPLICATION FIRMWARE.
- A SET OF 16 CSR'S USED TO COMMUNICATE WITH THE HOST COMPUTER.
- INTERRUPT VECTORING.
- BIT STUFFING SYNCHRONOUS MODE OF TRANSMISSION.
- CONNECTION TO A NETWORK USING THE RS-422 ELECTRICAL INTERFACE.

THE PURPOSE OF THIS PROGRAM IS TO PERFORM DIAGNOSTIC TESTING OF ALL THE M7502 LOGIC IN A STATIC MANNER THAT MEANS, TESTING OF:

- THE M7502 MEMORY INCLUDING CSR'S, INTERNAL REGISTERS, THE PROM AND RAM.
- Q-BUS LOGIC FOR DMA AND INTERRUPTS
- DCT11 INTERRUPT LOGIC
- LINE AND REAL TIME CLOCKS
- USART AND FIFO
- MODEM CONTROL AND MONITORING
- RS422 INTERFACE

A CONTROL IS ALSO DONE TO VERIFY THAT THE PROGRAM AND THE RESIDENT FIRMWARE HAVE THE SAME REVISION. MOREOVER, THE PROM PART NUMBER IS AUTOMATICALLY PRINTED DURING THE FIRST PASS OF THE DIAGNOSTIC.

NOTICE THAT THE TEST ON MODEM SIGNALS REQUIRES THE USE OF AN EXTERNAL LOOP BACK CONNECTOR AND IT WILL ONLY RUN IF THE OPERATOR HAS PREVIOUSLY INSERTED THIS CONNECTOR.

IN ORDER TO TEST THE DIFFERENT LOGIC FUNCTIONS, TWO MAINTENANCE MODES ARE REQUIRED; MAINT MODE 2 AND 3.

- IN THE MAINTENANCE MODE 3, THE DCT11 IS INOPERATIVE (IT LOOPS ON ITSELF AND, LETS THE HOST TO WORK ON CSR'S ALONE)
- IN THE MAINTENANCE MODE 2, THE HOST ACTIVATES SOME TEST ROUTINES IN THE ROOT FIRMWARE AND LETS THE DCT11 TO CHECK

203 THE HARDWARE FUNCTIONS BY ITSELF EXCEPT IN THE CASE OF DMA,
204 Q BUS LOGIC AND CSR'S DATA TRANSFERS. THE MAINT MODE IS
205 SELECTED JUST AFTER THE MASTER CLEAR AND, FOR EACH TEST.
206
207 THE STATIC DIAGNOSTIC DOES NOT REQUIRE ANY MANUAL INTER
208 VENTION DURING TEST PERIOD. A VISUAL CHECK OF THE TEST
209 PROCESSING IS POSSIBLE BY MEANS OF TWO MAINTENANCE LEDS
210 (GREEN AND YELLOW) ON THE KMV11-C DEVICE:
211 . GRN - APPLICATION FIRMWARE RUNNING
212 . YEL - SELFTEST RUNNING
213 . YEL+GRN - MAINTENANCE IS RUNNING
214 . GRN FLASH - APPLICATION ERROR
215 . YEL FLASH - SF F TEST ERROR
216 . YEL+GRN FLASHING - MAINTENANCE ERROR
217 . BOTH LIGHT OFF - ERROR
218
219 THIS PROGRAM WILL BE IMPLEMENTED USING THE DIAGNOSTIC
220 SUPERVISOR AND A STRUCTURED PROGRAMMING APPROACH. BECAUSE
221 THE DESIGN CONFORMS TO THE SUPERVISOR (STANDALONE VERSION)
222 THE PROGRAM WILL BE COMPATIBLE WITH ACT, APT, XXDP, AND SLIDE.
223
224 THROUGH DIALOGUE WITH THE OPERATOR, THE PROGRAM WILL ALLOW
225 MODIFICATION OF DEVICE PARAMETERS, SUCH AS Q-BUS ADDRESS,
226 VECTOR ADDRESS, LINE SPEED AND PROCESSOR TYPE.
227
228
229 1.2 HARDWARE INTRODUCTION
230
231 THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE KMV11-C LOGIC
232 DIAGNOSTIC:
233
234 PDP11/23A,238
235 24K MEMORY
236 CONSOLE TERMINAL
237 THE M7502 MODULE
238 ONE BC08S 10 CABLE WITH RS422 BERG/CINCH MODEM CONNECTION
239 BOX LOOP-BACK CONNECTORS(REMOTE AND LOCAL)

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3.0 PRELIMINARY PROGRAM REQUIREMENTS

THE PROCESSOR AND MEMORY SHOULD BE THOROUGHLY TESTED PRIOR
TO RUNNING THIS DIAGNOSTIC.

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4.0 GENERAL PROGRAM CONSIDERATIONS

4.1 DIAGNOSTIC SUPERVISOR

THIS PROGRAM IS COMPATIBLE WITH THE STANDALONE DIAGNOSTIC SUPERVISOR, AND MUST BE LOADED TO BE CO RESIDENT WITH THE SUPERVISOR, OR BE PREVIOUSLY COMBINED WITH THE SUPERVISOR AND LOADED AS A SINGLE FILE. IN EITHER CASE, THE COMBINED PROGRAM WILL NOT EXCEED 16K OF MEMORY.

4.2 EXECUTION TIME

THE TOTAL TIME REQUIRED TO RUN THE M7502 STATIC TESTS IS LESS THAN 300 SECONDS FOR TESTS 1-35 AND ABOUT 1H15 FOR THE LONG RAM TEST, TEST36 PER PASS FOR EACH UNIT.

4.3 XXDP.

THIS PROGRAM MAY BE LOADED UNDER XXDP., AND MAY BE RUN IN DUMP MODE OR CHAIN MODE.

4.4 ACT/SLIDE

THIS PROGRAM MAY BE LOADED UNDER ACT OR SLIDE AND MAY BE RUN IN DUMP MODE OR CHAIN MODE.

4.5 APT

THIS PROGRAM MAY BE LOADED BY THE APT SYSTEM (INCLUDING APT RD) AND RUN IN PROGRAM MODE OR SCRIPT MODE.

4.6 MEMORY MANAGEMENT

MEMORY MANAGEMENT IS NOT UTILIZED IN THIS PROGRAM. IF IT IS INSTALLED, IT IS DISABLED BY THE PROGRAM.

4.7 MEMORY PARITY OPTION

IF PARITY MEMORY IS INSTALLED, MEMORY PARITY TRAPS ARE DISABLED BY THE PROGRAM.

4.8 ERROR LOGGING

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THE NUMBER OF ERRORS WHICH HAVE OCCURRED ON EACH DEVICE
UNDER TEST SINCE THE LAST START OR RESTART COMMAND IS KEPT
IN AN ERROR LOG. THIS LOG MAY BE PRINTED BY USING THE
"PRINT" COMMAND (SEE SECTION 6.3.8).

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5.0 PROGRAM LOAD MEDIA

THIS PROGRAM CAN BE LOADED FROM PAPER TAPE USING THE ABSOLUTE LOADER OR FROM ACT, SLIDE, OR APT SYSTEMS, OR FROM ANY MEDIA SUPPORTED BY XXDP+. WHEN USING THE PAPER TAPE ABSOLUTE LOADER, THE PROGRAM SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC SUPERVISOR. WHEN USING XXDP+, THE DIAGNOSTIC SUPERVISOR SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC PROGRAM.

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6.0 OPERATING INSTRUCTIONS

6.1 LOADING AND STARTING PROCEDURES

6.1.1 LOADING PROCEDURES

THIS PROGRAM MAY BE LOADED FROM PAPER TAPE USING THE ABSOLUTE LOADER. IT MAY ALSO BE LOADED FROM ANY XXDP+ LOAD MEDIA. WHEN LOADED UNDER XXDP+, THE DIAGNOSTIC SUPERVISOR WILL BE LOADED AUTOMATICALLY.

6.1.2 STARTING PROCEDURES

THE PROGRAM STARTS AT LOCATION 200. USE STANDARD DEC PROCEDURES TO START THE PROGRAM.

6.1.3 STEPS FOR QUICK AND SIMPLE EXECUTION

THE DIAGNOSTIC CAN BE EXECUTED STANDALONE UNDER XXDP+ WITHOUT READING THE REMAINDER OF THIS DOCUMENT, AS FOLLOWS:

- A) LOAD AND START DIAGNOSTIC USING RUN COMMAND
- B) RECEIVE DIAGNOSTIC SUPERVISOR PROMPT (DR>)
- C) ENTER STA<CR>
- D) ANSWER HARDWARE AND SOFTWARE QUESTIONS
- E) GET END OF PASS MESSAGES OR ERROR MESSAGES
- F) TO END EXECUTION, ENTER CONTROL/C

6.2 INITIAL DIALOGUE

AFTER THE PROGRAM AND THE SUPERVISOR ARE LOADED AND THE PROGRAM IS STARTED, THE FOLLOWING IDENTIFICATION IS TYPED:

200GDRS LOADED
DIAG. RUN-TIME SERVICES REV. D APR-79
CVKMAO KMV11-C LOGIC DIAGNOSTIC
UNIT IS M7502
DR>...

THE OPERATOR THEN PROCEEDS BY TYPING ONE OR MORE OF THE COMMANDS DESCRIBED IN THE FOLLOWING SECTION 6.3. (FOR MORE DETAILED INFORMATION, REFER TO THE DIAGNOSTIC SUPERVISOR FUNCTIONAL SPECIFICATION).

6.3 PROGRAM OPTIONS

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6.3.1 START COMMAND

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STA(RT)/TESTS:<TEST-LIST>/PASS:<PASS-CNT>/FLAGS:
<FLAG-LIST>/EOP:<INCR>
*****
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6.3.1.1 TESTS SWITCH (/TESTS:<TEST-LIST>)

<TEST-LIST> IS A SEQUENCE OF DECIMAL NUMBERS (1:2 ETC.) OR RANGES OF DECIMAL NUMBERS (1-5:8-10 ETC.) THAT SPECIFY THE TESTS TO BE EXECUTED. THE NUMBERS ARE SEPARATED BY COLONS. THE NUMBERS RANGE FROM 1 TO THE LARGEST TEST NUMBER IN THE DIAGNOSTIC. THEY MAY BE SPECIFIED IN ANY ORDER. TESTS WILL BE EXECUTED IN NUMERICAL ORDER REGARDLESS OF THE ORDER OF SPECIFICATION. THE DEFAULT IS TO EXECUTE ALL TESTS. ON THIS AND ALL SWITCHES, THE ANGLE BRACKETS <> ARE PUNCTUATION USED IN THE DEFINITION ONLY, AND ARE NOT TO BE TYPED BY THE OPERATOR. SEE EXAMPLE AT END OF 6.3.1.5.

6.3.1.2 PASS SWITCH (/PASS:<PASS-CNT>)

<PASS-CNT> IS A DECIMAL NUMBER INDICATING THE DESIRED NUMBER OF PASSES. A PASS IS DEFINED AS THE EXECUTION OF THE FULL DIAGNOSTIC (ALL SELECTED TESTS) AGAINST ALL UNITS SUBMITTED. THE DEFAULT IS NON-ENDING EXECUTION. IN THIS CASE EXIT FROM THE PROGRAM IS ACCOMPLISHED EITHER BY TYPING A CONTROL/C OR BY OCCURANCE OF AN ERROR WITH THE HALT ON ERROR FLAG BEING SET. THE EXIT IS A RETURN TO COMMAND MODE. SEE EXAMPLE AT END OF 6.3.1.5.

6.3.1.3 FLAGS SWITCH (/FLAGS:<FLAG-LIST>)

<FLAG-LIST> IS A SEQUENCE OF ELEMENTS OF THE FORM <FLAG>, <FLAG=1>, OR <FLAG=0>, SEPARATED BY COLONS, WHERE <FLAG> HAS ONE OF THE FOLLOWING VALUES:

HOE	HALT ON ERROR, CAUSING COMMAND MODE TO BE ENTERED WHEN AN ERROR IS ENCOUNTERED
LOE	LOOP ON ERROR, CAUSING THE DIAGNOSTIC TO LOOP CONTINUOUSLY WITHIN THE SMALLEST DEFINED BLOCK OF CODING (SEGMENT, SUBTEST, OR TEST) CONTAINING THE ERROR
IER	INHIBIT ERROR REPORTING
IBE	INHIBIT BASIC ERROR REPORTS
IXE	INHIBIT EXTENDED ERROR REPORTS
PRI	DIRECT ALL MESSAGES TO A LINE PRINTER
PNT	PRINT NUMBER OF TEST BEING EXECUTED
BOE	BELL ON ERROR
UAM	RUN IN UNATTENDED MODE, BYPASSING MANUAL INTERVENTION TESTS
ISR	INHIBIT STATISTICAL REPORTS

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IDU INHIBIT DROPPING OF UNITS BY DIAGNOSTIC
LOT LOOP ON TEST

THE FLAGS NAMED OR EQUATED TO 1 ARE SET, THOSE EQUATED TO 0 ARE CLEARED. A FLAG NOT SPECIFIED IS CLEARED. IF THE FLAGS SWITCH IS NOT GIVEN ALL FLAGS ARE CLEARED. SEE EXAMPLE AT END OF 6.3.1.5.

6.3.1.4 END OF PASS SWITCH (/EOP:<INCR>)

<INCR> IS A DECIMAL NUMBER INDICATING HOW OFTEN (IN TERMS OF PASSES) IT IS DESIRED THAT THE END OF PASS MESSAGE BE PRINTED. THE DEFAULT IS AT THE END OF EVERY PASS. SEE EXAMPLE AT END OF 6.3.1.5.

6.3.1.5 EFFECT OF START COMMAND

THE EFFECT OF THE START COMMAND IS TO INITIATE THE HARDWARE PARAMETER DIALOGUE, THE SOFTWARE PARAMETER DIALOGUE, AND THEN THE DIAGNOSTIC TESTS THEMSELVES.

THE HARDWARE PARAMETER DIALOGUE COMMENCES WITH THE QUESTION "0 UNITS?" TO WHICH THE OPERATOR REPLIES WITH A DECIMAL NUMBER N FROM 1 TO 16. THE TERM "UNIT" REFERS TO THE DEVICE TO WHICH THIS SERIES OF DIAGNOSTICS IS DEDICATED. FOLLOWING THIS ARE THE QUESTIONS WHEREBY THE P-TABLES THEMSELVES WILL BE BUILT. EACH P TABLE IS A CORE-RESIDENT TABLE CONTAINING ALL THE HARDWARE INFORMATION FOR ONE UNIT. THE OPERATOR MUST SUPPLY N (NUMBER OF UNITS) VALUES FOR EACH QUESTION. HE MAY DO THIS BY GIVING ONE ANSWER TO EACH QUESTION (IN WHICH CASE THE SERIES OF QUESTIONS WILL BE POSED N TIMES) OR BY GIVING N VALUES, SEPARATED BY COMMAS, TO EACH QUESTION (SERIES WILL BE POSED ONCE). EACH QUESTION IS FOLLOWED BY THE RESPONSE RADIX (D FOR DECIMAL, B FOR BINARY, O FOR OCTAL, L FOR YES/NO) IN PARENTHESES AND THE DEFAULT VALUE AFTER THE PARENTHESES.

FOLLOWING THE HARDWARE QUESTIONS ARE THE SOFTWARE QUESTIONS TO BUILD THE SOFTWARE TABLES, WHICH DEFINE THE MODE (QUICK VERIFY ETC.) THAT THE DIAGNOSTIC WILL EXECUTE IN.

WHEN THE QUESTION "0 UNITS?" IS ANSWERED, MEMORY STORAGE IS ALLOCATED FOR THE P-TABLES, AND IF THERE IS NOT ENOUGH TO ACCOMMODATE THEM THE MESSAGE "TOO MANY UNITS" IS ISSUED. IN THIS CASE THE DIAGNOSTIC MUST BE EXECUTED MORE THAN ONCE TO TEST ALL UNITS.

EXAMPLE:

STA/TESTS:1:2-4:6:8-10/PASS:3/FLAGS:IER:HOE=1:UAM:LOE

THIS COMMAND WILL CAUSE THREE PASSES TO BE MADE, EACH PASS CONSISTING OF TESTS 1,2,3,4,6,8,9, AND 10 EXECUTED AGAINST ALL UNITS. THERE IS NO DIFFERENCE BETWEEN SAYING <FLAG> AND SAYING <FLAG=1>. THE NOTATION <FLAG=0> IS MEANINGFUL ONLY ON A COMMAND OTHER THAN START TO CLEAR A FLAG THAT WAS

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PREVIOUSLY SET. NOTE THAT ON ALL COMMANDS, ONLY THE FIRST THREE LETTERS ARE SCANNED.

6.3.2 RESTART COMMAND

RES(TART)/TESTS:<TEST-LIST>/PASS:<PASS CNT>/FLAGS:
<FLAG-LIST>/UNITS:<UNIT-LIST>

6.3.2.1 TESTS, PASS, AND FLAGS SWITCHES

<TEST-LIST>, <PASS-CNT>, AND <FLAG-LIST> ARE AS IN THE START COMMAND.

6.3.2.2 UNITS SWITCH (/UNITS:<UNIT-LIST>)

<UNIT-LIST> IS A SEQUENCE OF DECIMAL NUMBERS (0,1 ETC.) OF RANGES OF DECIMAL NUMBERS (0-5, 8-10 ETC.) THAT SPECIFY THE UNITS TO BE TESTED. THE NUMBERS ARE SEPARATED BY COLONS. THE NUMBERS MAY RANGE FROM 0 THRU N-1 (N IS THE NUMBER OF UNITS SPECIFIED IN THE PREVIOUS START COMMAND). THE NUMBER INDICATES THE POSITION OF THE P-TABLE AS THE DATA WAS ENTERED DURING THE HARDWARE DIALOGUE. THE UNITS WHICH ARE SELECTED MUST NOT HAVE BEEN DROPPED BY THE DROP COMMAND. SEE THE DISCUSSION OF ADD AND DROP COMMANDS BELOW. DEFAULT IS TO TEST ALL UNITS WHICH HAVE NOT BEEN DROPPED BY A DROP COMMAND.

6.3.2.3 EFFECT OF RESTART COMMAND

THE RESTART COMMAND DIFFERS FROM THE START COMMAND IN THAT THE P-TABLES FROM THE PREVIOUS START COMMAND (THERE MUST HAVE BEEN ONE) ARE USED, INSTEAD OF NEW ONES BEING BUILT. THE UNITS SWITCH GIVES THE ABILITY TO SELECT A SUBSET OF THE E. THE SOFTWARE DIALOGUE MAY OPTIONALLY BE REEXECUTED (OPERATOR WILL BE ASKED). THE COMMAND CAN BE USED AFTER COMMAND MODE HAS BEEN REENTERED IN ANY OF THE THREE NORMAL WAYS: A) THE REQUESTED NUMBER OF PASSES HAVE BEEN MADE B) AN ERROR WAS ENCOUNTERED WITH THE HALT ON ERROR FLAG SET C) A CONTROL/C WAS ENTERED BY THE OPERATOR.

6.3.3 CONTINUE COMMAND

CON(TINUE)/PASS:<PASS-CNT>/FLAGS:<FLAG-LIST>

6.3.3.1 PASS SWITCH (/PASS:<PASS-CNT>)

<PASS CNT> IS SAME AS IN START COMMAND, BUT THE DEFAULT IS

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THE UNSATISFIED PASS CNT FROM THE PREVIOUS START OR RESTART.
IF NONE REMAINS, THE DEFAULT IS NON ENDING EXECUTION.

6.3.3.2 FLAG SWITCH (/FLAGS:<FLAG LIST>)

<FLAG LIST> IS SAME AS IN START COMMAND, BUT UNSPECIFIED
FLAGS RETAIN THEIR CURRENT VALUE.

6.3.3.3 EFFECT OF CONTINUE COMMAND

CONTINUE MUST FOLLOW A START OR RESTART, AND COMMAND MODE
MUST HAVE BEEN ENTERED DUE TO A HALT ON ERROR OR A
CONTROL/C. THE EFFECT OF THE COMMAND IS TO GO TO THE
BEGINNING OF THE TEST THAT WAS BEING EXECUTED WHEN THE HALT
OR CONTROL/C TOOK PLACE. SOFTWARE DIALOGUE MAY OPTIONALLY
BE REEXECUTED. HARDWARE PARAMETERS MAY NOT BE CHANGED.

6.3.4 PROCEED COMMAND

PROCEED)/FLAGS:<FLAG-LIST>

6.3.4.1 FLAGS SWITCH (/FLAGS:<FLAG-LIST>)

<FLAG-LIST> IS AS IN THE START COMMAND, BUT UNSPECIFIED
FLAGS RETAIN THEIR CURRENT VALUE.

6.3.4.2 EFFECT OF PROCEED COMMAND

PROCEED MUST FOLLOW A START, RESTART, OR CONTINUE. COMMAND
MODE MUST HAVE BEEN ENTERED VIA A HALT ON ERROR. THE EFFECT
OF THE COMMAND IS TO BEGIN EXECUTION AT THE LOCATION
FOLLOWING THE ERROR CALL. NEITHER HARDWARE NOR SOFTWARE
PARAMETERS MAY BE ALTERED.

6.3.5 ADD COMMAND

ADD/UNITS:<UNIT-LIST>

6.3.5.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)

<UNIT-LIST> IS AS IN THE RESTART COMMAND.

6.3.5.2 EFFECT OF ADD COMMAND

THE UNITS SPECIFIED ARE ADDED TO THE TEST SEQUENCE. EACH

{ , }

614 UNIT MUST HAVE A P-TABLE IN MEMORY DUE TO AN EARLIER
615 HARDWARE DIALOGUE. THIS COMMAND MUST BE FOLLOWED BY A
616 RESTART OR CONTINUE. THE UNITS SWITCH MUST BE SPECIFIED.
617 THE ADD COMMAND IS MEANINGFUL ONLY FOR UNITS THAT WERE
618 PREVIOUSLY DROPPED.
619
620
621 6.3.6 DROP COMMAND
622
623 *****
624 DRO(P)/UNITS:<UNIT-LIST>
625 *****
626
627
628 6.3.6.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)
629
630 <UNIT-LIST> IS AS IN THE RESTART COMMAND.
631
632
633 6.3.6.2 EFFECT OF DROP COMMAND
634
635 THE UNITS SPECIFIED WILL BE DROPPED FROM TESTING. THE UNITS
636 WILL BE RESELECTED ONLY BY THE EXECUTION OF AN ADD OR START
637 COMMAND. THE UNITS SWITCH MUST BE ENTERED. THIS COMMAND
638 MUST BE FOLLOWED BY A RESTART OR A CONTINUE COMMAND.
639
640
641 6.3.7 PRINT COMMAND
642
643 *****
644 PRI(NT)
645 *****
646
647
648 6.3.7.1 EFFECT OF PRINT COMMAND
649
650 THE TOTAL NUMBER OF ERRORS FOR EACH UNIT SINCE THE LAST
651 START OR RESTART COMMAND ARE PRINTED. THE ISR (INHIBIT
652 STATISTICAL REPORTING) FLAG IS CLEARED.
653
654
655 6.3.8 DISPLAY COMMAND
656
657 *****
658 DIS(PLAY)/UNITS:<UNIT-LIST>
659 *****
660
661
662 6.3.8.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)
663
664 <UNIT-LIST> IS AS IN THE RESTART COMMAND.
665
666
667 6.3.8.2 EFFECT OF DISPLAY COMMAND
668
669 THE HARDWARE P-TABLES FOR ALL UNITS UNDER TEST ARE PRINTED
670 OUT IN THE FORMAT IN WHICH THEY WERE ENTERED. ANY UNITS

671 THAT WERE DROPPED BY THE OPERATOR DROP COMMAND ARE SO
672 DESIGNATED.
673
674
675 6.3.9 FLAGS COMMAND
676
677 *****
678 FLA(GS)
679 *****
680
681
682 6.3.9.1 EFFECT OF FLAGS COMMAND
683
684 THE CURRENT SETTINGS OF ALL FLAGS ARE PRINTED.
685
686
687 6.3.10 ZFLAGS COMMAND
688
689 *****
690 ZFL(AGS)
691 *****
692
693
694 6.3.10.1 EFFECT OF ZFLAGS COMMAND
695
696 ALL FLAGS ARE CLEARED.
697
698
699 6.3.11 CONTROL CHARACTERS
700
701 A CONTROL C (C) ENTERED DURING THE EXECUTION OF A DIAGNOSTIC
702 CAUSES A RETURN TO COMMAND MODE.
703
704 A CONTROL Z (Z) ENTERED DURING ONE OF THE THREE OPERATOR
705 DIALOGUES- INITIAL DIALOGUE (SEE 6.2), HARDWARE DIALOGUE (SEE
706 6.3.1.5), OR SOFTWARE DIALOGUE (SEE 6.3.1.5) CAUSES THE
707 DEFAULTS TO BE TAKEN FOR THE REMAINDER OF THAT DIALOGUE.
708
709 A CONTROL O (O) ENTERED DURING THE EXECUTION OF A DIAGNOSTIC
710 CAUSES ALL TELETYPE OUTPUT TO BE SUPPRESSED FOR THE
711 REMAINDER OF THE DIAGNOSTIC OR UNTIL ANOTHER O IS TYPED,
712 WHICH RESTORES NORMAL TELETYPE OUTPUT.
713
714
715 6.3.12 HARDWARE PARAMETERS
716
717 THE FOLLOWING 4 QUESTIONS WILL BE ASKED ON A START COMMAND.
718 THE VALUE LOCATED TO THE LEFT OF THE QUESTION MARK IS THE
719 DEFAULT VALUE THAT WILL BE TAKEN ON A CARRIAGE RETURN
720 RESPONSE.
721
722
723 1. KMV11-C CSR ADDRESS : (O) 177000 ?
724
725 THIS IS THE ADDRESS AT WHICH THE CSR REGISTERS (SELO) RESIDE
726 ON THE QBUS. THE ALLOWABLE RANGE IS 160000-177776
727

728 (OCTAL), AND THE DEFAULT IS 177000.
 729
 730 2. DEVICE VECTOR ADDRESS : (O) 300 ?
 731
 732 THIS IS THE ADDRESS OF THE FIRST INPUT INTERRUPT VECTOR FOR
 733 THIS DEVICE. THE ALLOWABLE RANGE IS 000 674 (OCTAL), AND THE
 734 DEFAULT VALUE IS 300.
 735
 736 3. LOOPBACK CONNECTOR USED : (L) Y ?
 737
 738 THIS TELLS THE PROGRAM IF THE LOOP-BACK CONNECTOR IS PLUGGED
 739 OR NOT. IF IT IS NOT THE INTERNAL LOOPBACK IS AUTOMATICALLY SELECTED
 740 THE ALLOWABLE VALUES ARE Y OR NO, AND THE DEFAULT IS YES.
 741
 742 4. DEVICE LINE CLOCK RATE SELECTED : (O) 7 ?
 743
 744 THIS TELLS THE PROGRAM AT WHICH CLOCK RATE THE TRANSMISSION
 745 LINE WILL BE TESTED (K BIT PER SECONDS). THE ALLOWABLE VALUES ARE:
 746 0=2.4K
 747 1=9.6K
 748 2=19.2K
 749 3=48K
 750 4=56K
 751 5=64K
 752 6=72K
 753 7=ALL CLOCK RATES
 754 THE DEFAULT VALUE IS 7.
 755
 756
 757 5. DO YOU WANT TO RUN LONG RAM TEST : (L) N ?
 758
 759 THIS TELLS THE PROGRAM IF THE LONG RAM TEST HAS TO BE RUN.
 760 IF ANSWER IS YES TEST DURATION IS 1M15.
 761
 762
 763 6.3.13 SOFTWARE PARAMETERS
 764
 765 NO SOFTWARE PARAMETERS ARE REQUESTED BY THE LOGIC DIAGNOSTIC
 766
 767
 768 6.3.14 EXTENDED DISCUSSION OF P-TABLE DIALOGUE
 769
 770 THE FULL CAPABILITY OF THE HARDWARE DIALOGUE IS REVEALED BY
 771 THE FOLLOWING DISCUSSION OF WHAT HAPPENS INTERNALLY.
 772
 773 AFTER THE INITIAL DIALOGUE, THE SUPERVISOR ISSUES THE QUES
 774 TION BELOW:
 775
 776 CHANGE HW (L) ?
 777
 778 IF YOUR RESPONSE IS Y (YES), THE SUPERVISOR ASKS FOR THE
 779 NUMBER OF UNITS UNDER TEST:
 780
 781 # UNITS (O) ?
 782
 783 AS SOON AS THE QUESTION "# UNITS ?" IS ANSWERED (WITH THE
 784 NUMBER N, SAY) SPACE IN CORE IS ALLOCATED FOR N P TABLES.

785 ALL OF THE P-TABLES ARE OF THE SAME FORMAT, AND THERE IS A
786 ONE-TO ONE CORRESPONDENCE BETWEEN THE HARDWARE PARAMETER
787 QUESTIONS AND THE SLOTS IN THE P TABLE FORMAT.
788
789 ON THE FIRST TRIP THRU THE QUESTIONS, ALL OF THE SLOTS IN
790 ALL OF THE P-TABLES ARE FILLED. IF THE OPERATOR TYPES IN
791 LESS THAN N EXPLICIT VALUES IN RESPONSE TO A PARTICULAR
792 QUESTION, THESE VALUES ARE PLACED IN THE P-TABLES (ONE VALUE
793 GOING INTO THE PROPER SLOT OF EACH P-TABLE BEGINNING WITH
794 THE FIRST P-TABLE) UNTIL THE STRING OF VALUES IS EXHAUSTED.
795 THE LAST VALUE IN THE STRING BECOMES THE NEW DEFAULT AND IS
796 USED TO FILL THAT SLOT IN THE REMAINING P-TABLES.
797
798 ON SUBSEQUENT TRIPS THRU THE QUESTIONS, THE SAME PROCESS IS
799 CARRIED OUT, EXCEPT THAT THE EARLIEST P-TABLE NOT TO HAVE
800 RECEIVED AN EXPLICIT VALUE IN ANY OF ITS SLOTS NOW ASSUMES
801 THE ROLE THAT TABLE NUMBER ONE PLAYED IN THE FIRST TRIP.
802
803 THE SERIES OF QUESTIONS IS REISSUED UNTIL AT LEAST ONE
804 QUESTION HAS RECEIVED N EXPLICIT VALUES FROM THE OPERATOR.
805
806 IN GIVING A STRING OF VALUES, COMMAS WITHOUT INTERVENING
807 VALUES MAY BE USED TO INDICATE A REPETITION OF THE LAST
808 NAMED VALUE.
809
810 A STRING OF VALUES MAY BE GIVEN AS A RANGE (6-10 FOR
811 EXAMPLE). IF THE VALUES REPRESENT PURE NUMERICAL DATA, THIS
812 SAMPLE RANGE TRANSLATES TO THE STRING 6,7,8,9,10 (AN
813 INCREMENT OF 1). IF THE VALUES ARE ADDRESSES, THE SAMPLE
814 RANGE TRANSLATES TO THE STRING 6,8,10 (AN INCREMENT OF 2).
815 NOW LET US SEE HOW WE COULD USE THESE CAPABILITIES TO
816 CONSTRUCT A SET OF P-TABLES. ASSUME THAT WE HAVE 16 UNITS,
817 AND THAT THERE ARE THREE HARDWARE PARAMETERS FOR EACH (THREE
818 SLOTS IN THE P-TABLE, THREE HARDWARE QUESTIONS IN THE
819 DIALOGUE). LET THE DESIRED VALUE FOR THE FIRST PARAMETER BE
820 THE NUMBER 75 FOR ALL 16 TABLES. LET THE DESIRED VALUE FOR
821 THE SECOND PARAMETER BE EQUAL TO THE UNIT NUMBER
822 (0,1,2,...,15) EXCEPT FOR UNIT 12, WHICH SHOULD RECEIVE THE
823 VALUE 11. LET THE DESIRED VALUE FOR THE THIRD PARAMETER BE
824 THE NUMBER 76 FOR THE FIRST 7 UNITS AND THE NUMBER 77 FOR
825 THE LAST 9 UNITS.
826
827 THE FOLLOWING DIALOGUE WOULD ACCOMPLISH THIS GOAL:
828
829 # UNITS (D) ? 16
830
831 UNIT 1
832 <QUESTION 1> ? 75
833 <QUESTION 2> ? 0-6
834 <QUESTION 3> ? 76
835
836 UNIT 21
837 <QUESTION 1> ?
838 <QUESTION 2> ? 7-11..13-15
839 <QUESTION 3> ? 77
840
841 THE FIRST TIME THE SERIES IS ASKED, SLOT ONE RECEIVES A 75

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IN ALL 16 TABLES. SLOT TWO RECEIVES THE VALUES 0,1,2,....,6
IN TABLES 0 THRU 6 AND A CONSTANT 6 IN TABLES 7 THRU 15.
SLOT THREE RECEIVES A CONSTANT 76 IN ALL 16 TABLES.

THE SECOND TIME THRU THE SERIES, TABLES 16 THRU THE END ARE
GOING TO BE AFFECTED (NOTE THAT THIS PIECE OF INFORMATION IS
PRINTED OUT FOR THE THE OPERATOR IN THE FORM "UNIT XX" AT
THE BEGINNING OF EACH SERIES). QUESTION 1 IS RESPONDED TO
BY A <CR>, SO SLOT ONE STAYS AT CONSTANT 75 IN TABLES 7 THRU
15, SINCE NO NEW EXPLICIT VALUES ARE TYPED IN. SLOT TWO GETS
THE VALUES 7,8,9,10,11 IN TABLES 7 THRU 11, AND GETS A 11 IN
SLOT 12, AND GETS THE VALUES 13,14,15 IN TABLES 13 THRU 15.
SLOT THREE GETS THE VALUE 7; IN TABLES 7 THRU 15.

THE DIALOGUE IS TERMINATED WHEN THE SOFTWARE RECOGNIZES THAT
16 EXPLICIT VALUES HAVE BEEN GIVEN FOR AT LEAST ONE QUESTION
(NAMELY QUESTION 2).

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7.0 TEST DESCRIPTIONS

7.1 TEST01

** - TEST Q BUS ACCESS ON ALL KMV11 CSR'S

DESCRIPTION: VERIFY THAT REFERENCING KMV11 CSR'S DOES NOT
CAUSE A TIME OUT TRAP

REPORT: ERROR 1 TIME-OUT ERROR

7.2 TEST02

** - TEST THAT ALL CSR'S CAN BE CLEARED

DESCRIPTION: THE HOST CLEARS ALL CSR'S THEN IT TESTS THEM
FOR ALL ZERO.

MAINT MODE: 3

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 3 ALL CSR'S CAN'T BE CLEARED

7.3 TEST03

** - TEST THAT THE KMV11 CAN BE INITIALIZED

DESCRIPTION: THE HOST SETS SEL0 TO ENTER MAINTENANCE MODE3
AFTER MASTER CLEAR.
UPON COMPLETION OF INITIALISATION, THE DCT11
MUST CLEAR MCLR THEN ENTER MODE 3(THE DCT11
LOOPS ON ITSELF)

REPORT: ERROR 2 MASTER CLEAR FAILS TO RESET

7.4 TEST04

** - TEST Q-BUS ACCESS ON SEL2 TILL SEL36

DESCRIPTION: THE HOST WRITES PATTERNS IN EACH CSR THEN IT
CHECKS THE SELECTED CSR FOR THE PATTERN AND
ALL OTHERS CSR'S FOR ZERO. BEFORE SELECTION
OF A NEW CSR FOR TEST, ALL CSR'S ARE CLEARED

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MAINT MODE: 3
PATTERNS: ALL 0
ALL 1
052525
125252
ROTATING 1
ROTATING 0
REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 4 DATA COMPARE ERROR ON CSR S
Q-BUS ACCESS

7.5 TEST05

** TEST Q-BUS ACCESS ON SELO CSR

DESCRIPTION: THE HOST CLEARS ALL CSR'S THEN WRITES ONE
PATTERN IN SELO SUCH AS:
SELO = PATTERN & 1'S COMP OF MCLR
THEN THE HOST CHECKS SELO FOR PATTERN & 1'S
COMP MCLR AND ALL OTHER CSR FOR ZERO.

MAINT MODE: 3
PATTERNS: ALL 0
ALL 1
052525
125252
ROTATING 1
ROTATING 0
REPORTS: ERROR 2 MASTER FAILS TO RESET
ERROR 5 DATA COMPARE ERROR ON SELO

7.6 TEST06

** - TEST DATA TRANSFER THROUGH SELO

DESCRIPTION: TEST IN TWO PARTS:
THE FIRST TRIES TO ENTER
CORRECTLY MAINTENANCE MODE 2(MAINT1!) AFTER
MASTER CLEAR, GIVEN THE DCT11 THE POSSIBILI
TY TO RUN TEST ROUTINES. THE HOST SETS SELO
WITH MAINTENANCE MODE 2 AND THE PATTERN 252
IN THE LOW BYTE. THE DCT11 MUST READ IT THEN
WRITE BACK SELO WITH MCLR CLEARED AND 125
IN THE LOW BYTE. THE SECOND TESTS THAT THE
DCT11 CAN READ THE RUN, READ, WRITE BITS AND
PATTERN 125 IN THE LOW BYTE. THE DCT11 MUST
CLEAR ALL BITS AND WRITE BACK IN SELO ERROR

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BIT AND PATTERN 252.

MAINT MODE: 2

KMV ROUTINES: 25 AND 52

REPORTS: ERROR 6 DATA COMPARE ERROR ON SELO,
 THE DCT11 CAN'T CORRECTLY AC
 CESS SELO OR ENTER MAINTANANCE
 MODE 1.

7.7 TEST07

**- TEST THAT ALL THE NATIVE FIRMWARE CAN BE ACCESSED

DESCRIPTION: THE HOST ASKS THE DCT11 TO CALCULATE AND
 VERIFYING CHECKSUM OF THE NATIVE CODE. THE
 HOST WAITS FOR 500MS AND POLLS SELO FOR THE
 DCT11 ANSWER:
 SELO=TEST NUMBER IF NO KMV11 ANSWER
 SELO=0 IF TEST OKE
 SELO=100 IF ANY ERROR

MAINT MODE: 2

KMV ROUTINE: 01

REPORTS: ERROR 11 NO ANSWER FROM THE KMV11
 ERROR 2 MASTER CLEAR FAILS TO RESET
 ERROR 7 CHECKSUM ERROR

7.8 TEST08

**- TEST THE NATIVE FIRMWARE REVISION CODE

DESCRIPTION: THE HOST ASKS THE DCT11 FOR THE CURRENT REV
 ISION CODE.
 THE DCT11 USES SELO TO ANSWER:
 SELO=TEST NUMBER IF NO KMV11 ANSWER
 SELO=1 TO 63 FOR REVISION
 AND THE HOST COMPARES IT AGAINST THE ACTUAL
 ONE AT LOCATION REVCOD.

MAINT MODE: 2

KMV ROUTINE: 23,24

REPORTS: ERROR 11 KMV11 CAN'T ANSWER
 ERROR 2 MASTER CLEAR FAILS TO RESET
 ERROR 10 BAD REVISION CODE

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7.9 TEST09

** TEST DATA TRANSFER THROUGH REGISTER SEL2

DESCRIPTION: THE HOST WRITES ONE PATTERN IN SEL2, WHICH MUST BE READ BY THE DCT11. THE DCT11 ANSWERS BY LOADING IN SELO THE PATTERN CODE CORRESPONDING TO THE PATTERN IT HAS READ.

PATTERN CODE	FOR	PATTERN
SELO = 0		ALL 0
1		ALL 1
2		052525
3		125252
4 - 19.		ROTATING 0
20. 35.		ROTATING 1
36.		UNKNOWN

THEN THE HOST TESTS THE CODE RETURNED.

MAINT MODE: 2

KMV ROUTINE: 03

REPORTS: ERROR 11 NO ANSWER FROM THE KMV11
ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 12 DCT11 CAN'T CORRECTLY READ SEL2

7.10 TEST10

** - TEST DATA TRANSFER THROUGH ALL CSR'S EXCEPT SELO

DESCRIPTION: THE HOST WRITES ONE PATTERN IN ONE CSR AND ASKS THE DCT11 TO READ THEN TO WRITE IT IN A SECOND CSR. THE DCT11 INDICATES COMPLETION OF THE TRANSFER BY CLEARING SELO. THEN THE HOST TESTS THE SELECTED CSR'S FOR PATTERN AND ALL OTHER CSR'S FOR ZERO. ALL CSR ARE CLEARED BEFORE SELECTION OF NEW CSR'S FOR TEST. THE HOST USES SEL2 TO PASS CSR OFFSET OF A SOURCE AND DESTINATION, SUCH AS:

	15	8 7	0
SEL2	} SOURCE } DESTINATION }		

THE TEST INCLUDES THE FOLLOWING TRANSFERS:

FROM	TO
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SEL4	SEL2
SEL2	SEL4
SEL4	SEL6
SEL6	SEL10
SEL10	SEL12
SEL12	SEL14
SEL14	SEL16
SEL16	SEL20
SEL20	SEL22
SEL22	SEL24
SEL24	SEL26
SEL26	SEL30
SEL30	SEL32
SEL32	SEL34
SEL34	SEL36
SEL36	SEL4

MAINT MODE: 2

KMV ROUTINE: 04

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	KMV11 CAN'T ANSWER
	ERROR 13	DCT11 CAN'T CORRECTLY ACCESS CSR'S

7.11 TEST11

** - CONTROL OF THE KMV11-C EPROM'S PART NUMBER

DESCRIPTION: THIS CONTROL IS TAKEN OUT ON THE FIRST PASS ONLY. THE GOAL IS TO GET THE 2 PART NUMBERS STORED IN THE KMV EPROM THEN TO PRINT IT. IN ORDER TO DO THAT, THE HOST ASKS THE DCT11 TO RETURN BACK THE PART NUMBER ADDRESS, SUCH AS:

SEL0 = 0 FOR KMV ROUTINE 27 JOB DONE
SEL2 = PART NUMBER ADDRESS

THEN THE HOST BY MEANS OF THE KMV 'MAILBOX' ROUTINE READS ALL PART NUMBER CHARACTERS. FOR THIS ROUTINE THE HOST PASSES PARAMETERS:

SEL2 = SEL10 ADDRESS
SEL4 = PART NUMBER ADDRESS
SEL6 = 4 FOR READ BYTE INDICATION
SEL10 = WILL BE LOADED BY THE DCT11 WITH A CHARACTER

THEN THE HOST PRINTS THE LOW AND HIGH PROM NUMBERS.

MAINT MODE: 2

KMV ROUTINES: 23,24

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1201

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
 ERROR 11 NO KMV11 RESPONSE

7.12 TEST12

** SHORT RAM SPACE TEST

DESCRIPTION: THE HOST ASKS THE DCT11 TO TEST THE RAM
 BY ITSELF. PERIODICALLY THE HOST CHECKS THE
 REGISTER SEL0 FOR ANY DCT11 RESPONSE:
 SEL0 = 0 IF TEST SUCCEEDED
 SEL0 = 100 IF ANY ERROR
 IN THE LATTER CASE, THE FOLLOWING REGISTERS
 CONTAINS THE ERROR REPORTS, SUCH AS:

 IF THE DCT11 CAN'T CLEAR ALL THE RAM
 SEL2 = 2
 SEL4 = FIRST BAD WORD ADDRESS
 SEL6 = FIRST BAD WORD

 IF DATA COMPARE ERROR AT LOCATION TESTED
 SEL2 = 4
 SEL4 = RAM ADDRESS
 SEL6 = BAD WORD
 SEL10 = PATTERN

MAINT MODE: 2

KMV ROUTINE: 26

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
 ERROR 11 NO ANSWER FROM THE KMV11
 ERROR 14 ALL THE RAM CAN'T BE CLEARED
 ERROR 15 DATA COMPARE ERROR ON RAM AT
 LOCATION UNDER TEST

7.13 TEST13

** TEST OF INTERNAL KMV11 R/W REGISTERS

DESCRIPTION: THE HOST ASKS THE DCT11 TO TEST ALL R/W
 REGISTERS BY ITSELF. PERIODICALLY, THE HOST
 POLLS SEL0 FOR ANY DCT11 RESPONSE:

 SEL0 = 0 FOR TEST ONE
 SEL0 = 100 FOR ANY ERROR

 IN THE LATTER CASE, THE FOLLOWING REGISTERS
 CONTAINS ERROR REPORTS, SUCH AS:

 SEL2 = 2 BYTE COUNT OUT REG.
 = 4 BUS ADDRESS OUT REG.

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• 6 EXT ADDRESS OUT REG.
• 10 BYTE COUNT IN REG.
• 12 BUS ADDRESS IN REG.
• 14 EXT ADDRESS IN REG.
SEL4 • CURRENT PATTERN
SEL6 • BAD WORD

MAINT MODE: 2

KMV ROUTINE: 06

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO RESPONSE FROM THE KMV11
ERROR 17 DATA COMPARE ERROR ON KMV11
INTERNAL R/W REGISTER

7.14 TEST14

•• - TEST INTERRUPT CAPABILITY OF KMV11-C ON Q BUS

DESCRIPTION: THE HOST GETS ACTUAL VECTOR AND PRIORITY FROM P.TABLE. THE HOST PREPARES VECTOR AREA AND SETS ITS PRIORITY TO 7 THEN IT ASKS THE DCT11 TO REQUEST AN INTERRUPT ON Q-BUS. SINCE THE DCT11 CAN REQUEST INTERRUPT ON Q-BUS THROUGH VECTORS XX0 AND XX4 THE TEST IS COMPOSED OF TWO SUBTESTS, ONE FOR EACH VECTOR. THE HOST INDICATES TO THE DCT11 THE VECTOR UNDER TEST BY MEANS OF SEL2:
SEL2 = 0 FOR XX0
SEL2 = 1 FOR XX4
THE DCT11 RESPONSE AFTER COMPLETION IS:
SEL0 = 0
THEN,
FOR LEVEL=6 TO 3 DO
NOP
NOP
READ INTERRUPT FLAG
IF FLAG SET THEN
IF AT LEGAL PRIORITY THEN
GOOD EXIT
ELSE
ERROR REPORTS
ENDIF
ENDIF
ENDDO
REPORT ERROR FOR NO INTERRUPT

MAINT MODE: 2

KMV ROUTINE: 07

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO KMV11 RESPONSE

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ERROR 20 Q BUS INTERRUPT AT AN UNE/PECTED PRIORITY LEVEL
ERROR 21 NO Q BUS INTERRUPT OCCURS

7.15 TEST15

•• - TEST THAT ACCESS TO BSEL0/BSEL2 INTERRUPTS THE DCT11

DESCRIPTION: THE HOST ASKS THE DCT11 TO SERVICE INTERRUPT ON BSEL0/BSEL2 INTERRUPT. SINCE BSEL0 AND BSEL2 ACCESSES CAN PRODUCE AN INTERRUPT, THE HOST USES SEL2 TO SPECIFY TO THE DCT11 WHICH CSR ACCESS IS TESTED:

SEL2 = 0 FOR BSEL0 ACCESS
SEL2 = 2 FOR BSEL2 ACCESS

DCT11 RESPONSE WILL BE:

SELO = 0 IF EXPECTED INTERRUPT
= 100 IF UNEXPECTED INTERRUPT
= OTHER IF NOT INTERRUPTED

THEN AFTER ASKING THE DCT11,
FOR BSEL=0 TO 37 EXCEPT BSEL0/2 DO

SET BITS IN BSEL
WAIT FOR 1 MS

READ SELO
CASE SELO OF

0 : REPORT ERROR 23 AND EXIT
100 : REPORT ERROR 23 AND EXIT

ENDCASE

ENDDO

SET BITS IN BSEL0/2

WAIT FOR 1 MS

READ SELO

IF SELO=0 THEN

GOOD EXIT

ELSE

CASE SEL2 OF

2 : REPORT ERROR 24 AND EXIT
4 : REPORT ERROR 24 AND EXIT
OTHER : REPORT ERROR 22 AND EXIT

ENDCASE

ENDIF

MAINT MODE: 2

KMV ROUTINE: 10

REPORTS: ERROR 2 MASTERCLEAR FAILS TO RESET
ERROR 11 NO KVV11 RESPONSE
ERROR 22 DCT11 NOT INTERRUPTED
ERROR 23 NOT EXPECTED CSR CAUSES AN INTERRUPT ON DCT11
ERROR 24 KVV11 INTERRUPTED AT ILLEGAL VECTOR

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7.16 TEST16

** TEST OF THE REAL TIME CLOCK

DESCRIPTION: THE HOST ASKS THE DCT11 TO TEST THE REAL TIME CLOCK BY ITSELF. THE DCT11 TEST THE REAL TIME CLOCK INTERRUPT FOR TWO PERIODS OF CLOCK THEN IT DISABLES IT PERIODICALLY THE HOST POLLS SEL0 FOR ANY DCT11 RESPONSE:

SEL0 = 0 IF TEST OKE
SEL0 = 100 IF ANY ERROR

IN THE LATTER CASE, THE FOLLOWING CSR S CONTAIN THE ERROR REPORT SUCH AS:

- DCT11 INTERRUPTED BEFORE TIME ELAPSED
SEL2 = 2
SEL4 = CLOCK PERIOD
- COUNTER DECREMENTED BUT NO INTERRUPT
SEL2 = 4
SEL4 = CLOCK PERIOD
- COUNTER STOPPED
SEL2 = 6
SEL4 = CLOCK PERIOD
- NOT EXPECTED INTERRUPT
SEL2 = 10
SEL4 = CLOCK PERIOD

DCT11 INTERRUPTED WHILE CLOCK DISABLE
SEL2 = 12

THEN THE HOST REPORTS CORRESPONDING ERROR.

MAINT MODE: 2

KMV ROUTINE: 11

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO KMV11 RESPONSE
ERROR 25 INTERRUPT OCCURS TOO EARLY
ERROR 26 COUNTER DECREMENTED BUT NO INTERRUPT
ERROR 27 COUNTER STOPPED
ERROR 30 KMV11 INTERRUPTED AT ILLEGAL VECTOR
ERROR 31 INTERRUPT WHILE CLOCK DISABLED

7.17 TEST17

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** TEST OF TRANSMIT DATA IN INTERRUPT MODE

DESCRIPTION: THE HOST ASKS DCT11 TO TEST DATA TRANSMISSION IN INTERRUPT MODE. THE DCT11 TESTS ALL XMT RELATIVE CONTROL BITS AND INTERRUPTS WHILE THE RECEIVER IS DISABLED. IT TESTS LINE CLOCK COUNTER TOO. THE LINE CLOCK RATE IS PREVIOUSLY LOADED IN SEL2 BY THE HOST:

SEL2	= 226	FOR	72K
	= 410	FOR	64K
	= 444	FOR	56K
	= 504	FOR	48K
	= 1540	OR	19.2K
	= 3440	FOR	9.6K
	= 24200	FOR	2.4K

THE HOST SELECTS SPEED BY MEANS OF P.TABLE. IN THE CASE OF ALL SPEED REQUESTED, THE TEST IS REPEATED FOR EACH SPEED. PERIODICALLY THE HOST POLLS SEL0 FOR ANY DCT11 RESPONSE:

SEL0	= 0	IF TEST OKE
SEL0	= 100	IF ANY ERROR

IN THE LATTER CASE, THE FOLLOWING CSR'S CONTAIN ERROR REPORTS, SUCH AS:

SEL2	= 2	ERROR 32
	= 4	ERROR 33
	= 6	ERROR 34
	= 10	ERROR 40
	= 12	ERROR 41
	= 14	ERROR 42
	= 16	ERROR 43

SEL4 = INTERRUPT COUNT

THEN, THE HOST REPORTS ERROR AND EXIT.

MAINT MODE: 2

KMV ROUTINE: 12

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO KMV11 RESPONSE
	ERROR 32	LINE CLOCK COUNTER STOPPED
	ERROR 33	TIMEOUT WITHOUT INTERRUPT
	ERROR 34	INTERRUPT AT ILLEGAL VECTOR
	ERROR 40	UNEXPECTED INTERRUPT WHILE XMT INTERRUPT DISABLE
	ERROR 41	NO INTERRUPT WHILE WAITING UNDERRUN
	ERROR 42	UNDERRUN INTERRUPT AT ILLEGAL VECTOR
	ERROR 43	UNDERRUN INTERRUPT WHILE NOT EXPECTED

7.18 TEST18

7.19 TEST19

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7.20 TEST20
7.21 TEST21
7.22 TEST22

.. - TEST OF DATA RECEPTION IN INTERRUPT MODE

DESCRIPTION: THE HOST ASKS THE DCT11 TO TEST DATA RECEPTION BY ITSELF. IN ORDER TO DO THAT, IT PASSES TO THE DCT11 PARAMETERS SUCH AS:
SEL2 = LINE CLOCK RATE (AS DEFINED IN TEST16)

THE TEST IS COMPOSED OF 5 SUBTESTS:

- TEST 18
TEST OF INTERRUPTS ON NON ZERO STATUS AND DATA RECEPTION FOR ONE FRAME SENT, SUCH AS:

```

}TSOM----}
}1      }
}2      }  >...
}3      }  }
}4      }  }
}5      }  }
}6      }  }
}1      }  }
}2      }  }
}TEOM   }  }
-----}
XMT FIFO }
      }
}RSOM!1 }
}2      }  <...
}3      }
}4      }
}5      }
}6      }
}1      }
}REOM!2 }
-----}
RCV FIFO

```

- TEST 19
TEST OF TWO FRAMES CONSECUTIVELY SENT BUT ONLY THE SECOND ONE IS TAKEN INTO ACCOUNT.

```

}TSOM----}
}1      }
}2      }
}3      }
}4      }
}5      }

```

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```

)TEOM )
)TSOM )
)1 )
)2 )
)3 )
)4 )
)5 )
)6 )
)1 )
)2 )
)TEOM )
-- --
XMT FIFO

```

```

-- --
)RSOM!1 )
)REOM!5 )
)RSOM!1 )
)2 )
)3 )
)4 )
)5 )
)6 )
)1 )
)REOM!2 )
-- --
RCV FIFO

```

- TEST 20

AN ABORT CHARACTER IS RECEIVED DUE TO A TRANSMIT
UNDERRUN AND ANOTHER ONE DUE TO A REAL ONE TRANSMITTED.

```

)TSOM ---)
)1 )
)2 )
)3 )
)4 )
)5 )
)6 )
)1 )
THEN STOP
UNTIL UNDERRUN --- )
)TSOM )
)1 )
)2 )
)3 )
)4 )
)TXAB )
-- --
XMT FIFO

```

```

-----
)RSOM!1 )
)2 )
)3 )
)4 )
RABO+REOM!4
RSOM!1
RABO+REOM!1

```

- TEST 21

TEST OF NON ZERO STATUS INTERRUPT IN CASE OF
CRC ERROR. THE COM DEVICE
IS INITIALIZED TO SEND A FLAG INSTEAD OF AN
ABORT(IDLE=1) ON TXAB SET

```

)TSOM ---)
)1 )
)2 )
)3 )
)4 ) --> FLAG -->
)5 )
)6 )
)TABO )
-- --

```

```

)RSOM!1 ---)
)2 )
)3 )
)ERRCHK!REOM 4 )
-- --
RCV FIFO

```

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XMT FIFO

TEST 22
TEST OF RECEIVE OVERPRIN

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)T5OM      )      )      )      )      )      )      )      )      )      )
)1          )      )      )      )      )      )      )      )      )      )
)2          )      )      )      )      )      )      )      )      )      )
)3          )      )      )      )      )      )      )      )      )      )

UP TO 68 INCREMENTAL DATA                                UP TO 64 DATA IN

)104       )      )      )      )      )      )      )      )      )      )
)TEOM      )      )      )      )      )      )      )      )      )      )

```

PERIODICALLY THE HOST POLLS SELO FOR ANY DCT11
RESPONSE:

```

RESPONSE:
          SEL0 = 0           FOR TEST OK
          SEL0 = 100        IF ANY ERROR
IN THE LATTER CASE SEL2 POINTS TO THE ERROR.
POSSIBLE ERRORS ARE :

```

```

SEL2  ▸ 2      FOR ERROR 32
      ▸ 4      FOR ERROR 45
      ▸ 6      FOR ERROR 40
      ▸ 10     FOR ERROR 46
      ▸ 12     FOR ERROR 47
      ▸ 14     FOR ERROR 50
      ▸ 16     FOR ERROR 51
      ▸ 20     FOR ERROR 35
      ▸ 22     FOR ERROR 43

```

```
SEL4 = OBTAINED STATUS&DATA
SEL6 = EXPECTED ONE
SEL10 = EVENT FLAGS
```

MAINT MODE: 2

```

KMV ROUTINE:      13          FOR TEST 18
                   14          FOR TEST 19
                   15          FOR TEST 20
                   16          FOR TEST 21
                   17          FOR TEST 22

```

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO KMV11 RESPONSE
	ERROR 32	LINE CLOCK FAILURE
	ERROR 40	TRANSMIT INTERRUPT WHILE DISABLED
	ERROR 35	UNDERRUN INTERRUPT
	ERROR 43	UNEXPECTED UNDERRUN INTERRUPT AFTER ACK
	ERROR 45	XMT/RCV PROCESSING FAILS
	ERROR 46	UNEXPECTED STATUS RECEIVED
	ERROR 47	UNEXPECTED DATA RECEIVED
	ERROR 50	RECEIVE INTERRUPT WHILE DISABLED

ERROR 51

INTERRUPT AT ILLEGAL VECTOR

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7.23 TEST23
7.24 TEST24
7.25 TEST25

TEST23: TEST OF DMA IN (TRX) TRANSFER USING A SHORT FRAME OF DATA
THE FRAME USED IS THE PATTERN TABLE:

ALL 0
ALL 1
052525
125252
ROTATING 0
ROTATING 1

TEST24: TEST OF DMA IN (TRX) TRANSFER USING A LONG FRAME OF DATA
THE FRAME USED IS 1020 BYTES LONG AND CONTAINS THE FOLLOWING DATA:
0,1,2...376,0,1,2...376...0,1,2...376

TEST25: TEST OF NON EXISTENT MEMORY TEST DURING A TRANSMIT DMA TRANSFER
THE NON EXISTENT MEMORY ADDRESS USED IS THE REVERVED ONE 760000.

DESCRIPTION: THE HOST LOADS THE FRAME PARAMETERS IN THE CSR.
THEN IT ACTIVATES THE FW ROUTINE TO TRANSFER
BY DMA THE FRAME INTO THE XMT FIFO, TO
TRANSMIT IT, AND RECEIVE IT BACK. THE DCT11
CHECKS THE RECEIVED FRAME. IN ORDER TO INIT
DMA TRANSFER THE HOST PASSES PARAMETERS TO
THE DCT11, SUCH AS:

SEL2 = LINE CLOCK RATE
SEL4 = DMA IN BYTE COUNT(2'S COMP)
SEL6 = DMA IN BUS ADDRESS(EVEN)
SEL10 = EXT ADDRESS
SEL12 = SUBTEST CODE

NOTICE THAT DMA IN IS WORD WIDE BUT, EACH
WORD IS LOADED IN FIFO BYTE BY BYTE.
PERIODICALLY THE HOST POLLS SEL0 FOR ANY RES
PONSE FROM THE KMV11:

SEL0 = 0 IF TEST CORRECTLY ENDED
SEL0 = 100 IF ANY ERROR
IN THE LATTER CASE:

SEL2 = 2	FOR ERROR 32
4	FOR ERROR 45
6	FOR ERROR 54
10	FOR ERROR 55
12	FOR ERROR 56
14	FOR ERROR 46
16	FOR ERROR 57
20	FOR ERROR 50
22	FOR ERROR 51
24	FOR ERROR 35

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SEL10 = FLAGWORD DESCRIBING PROCESSING
SEL12 = CURRENT TRX DMA BYTE COUNT
SEL14 = CURRENT TRX DMA BUFFER ADDRESS (LOW)
SEL16 = CURRENT TRX DMA BUFFER ADDRESS (HIGH)
IF ERROR 46,50,57 :
SEL4 = RCV STATUS AND DATA REGISTER
SEL6 = EXPECTED VALUE

THEN THE HOST BUILDS ERROR REPORT AND EXIT

MAINT MODE: 2

KMV ROUTINE: 20

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO KMV11 RESPONSE
	ERROR 32	LINE COUNTER ERROR
	ERROR 35	UNDERRUN INTERRUPT OCCURS
	ERROR 45	TRX/RCV ERROR
	ERROR 46	UNEXPECTED STATUS RECEIVED
	ERROR 50	UNEXPECTED RCV INT. WHILE DISABLED
	ERROR 51	INTERRUPT AT ILLEGAL VECTOR
	ERROR 54	UNEXPECTED END OF RCV DMA INT.
	ERROR 55	END OF TRX DMA WITHOUT BIT "BCNTIN" SET
	ERROR 56	TIMEOUT DURING TRX DMA
	ERROR 57	DATA COMPARE ERROR DURING TRX DMA

7.26 TEST26

7.27 TEST27

7.28 TEST28

TEST26: TEST OF DMA OUT (RCV) TRANSFER USING A SHORT FRAME OF DATA
TEST27: TEST OF DMA OUT (RCV) TRANSFER USING A LONG FRAME OF DATA
TEST28: TEST NON EXISTENT MEMORY ADDRESS DURING A OUT DMA TRANSFER

DESCRIPTION: THE HOST PREPARES A SPACE IN ITS MEMORY FOR THE TRANSFERRED FRAME. THEN, THE HOST ASKS THE DCT11 FOR PROCESSING. IN ORDER TO INIT DMA OUT, THE HOST PASSES PARAMETERS TO THE KMV, SUCH AS:

SEL2 = LINE CLOCK RATE
SEL4 = DMA OUT BYTE COUNT(2'S COMP.)
SEL6 = RECEIVE BUFFER ADDRESS(EVEN)
SEL10 = EXT. ADDRESS
SEL12 = SUBTEST CODE (0 OR 2)

THE DCT11 SENDS , RECEIVES AND TRANSFERS BY DMA THE SAME FRAMES AS NOTICE IN TESTS 23,24,25. DMA OUT IS BYTE WIDE. PERIODICALLY THE HOST POLLS SEL0 FOR ANY RESPONSE FROM THE KMV11:

SEL0 = 0 IF TEST OKE
SEL0 = 100 IF ANY ERROR

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IN THE FORMER CASE, THE HOST CHECK THE FRAME
LOADED BY DMA AND REPORT ERROR IF A DATA
COMPARE ERROR.

IN THE LATTER CASE,

SEL2 = 2 FOR ERROR 32
4 FOR ERROR 45
6 FOR ERROR 61
10 FOR ERROR 62
12 FOR ERROR 63
14 FOR ERROR 46
16 FOR ERROR 51
20 FOR ERROR 35
SEL4 = RCV STATUS AND DATA REGISTER (ERROR 46)
SEL6 = EXPECTED STATUS AND DATA REGISTER (ERROR 46)
SEL10 = FLAGWORD
SEL12 = CURRENT RCV BYTE COUNT
SEL14 = CURRENT RCV BUFFER ADDRESS (LOW)
SEL16 = CURRENT RCV BUFFER ADDRESS (HIGH)

THEN THE HOST BUILDS ERROR REPORTS DEPENDING
ON SELO THEN EXIT.

MAINT MODE: 2

KMV ROUTINE: 21

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO KMV11 RESPONSE
ERROR 35 UNDERRUN INTERRUPT OCCURS
ERROR 45 TRX/RCV ERROR
ERROR 46 UNEXPECTED RECEIVED STATUS
ERROR 61 UNEXPECTED END OF TRX DMA
ERROR 62 RCV BYTE COUNT OVERFLOW
ERROR 63 TIMEOUT DURING RCV DMA
ERROR 51 INTERRUPT AT ILLEGAL VECTOR

7.29 TEST29
7.30 TEST30
7.31 TEST31
7.32 TEST32

TESTS OF DMA TRANSFER IN BOTH DIRECTIONS

DESCRIPTION: THE HOST ASKS THE DCT11 FOR INITIALIZING A
DMA TRANSFER IN BOTH DIRECTIONS.
IN ORDER TO RUN TEST, THE HOST PASSES TO THE
DCT11 PARAMETERS, SUCH AS:

SEL2 = LINE CLOCK RATE
SEL4 = DMA TRX BYTE COUNT(2'S COMP.)
SEL6 = DMA TRX BUS ADDRESS(EVEN)
SEL10 = DMA TRX IN EXT. ADDRESS
SEL12 = DMA RCV BYTE COUNT
SEL14 = DMA RCV OUT BUS ADDRESS
SEL16 = DMA RCV OUT EXT. ADDRESS
BIT15 OF SEL16 SET IF SEL20 NOT VALID (MEANS THE
DATA BYTE MUST BE IGNORED WHEN A STATUS IS RECEIVED.
SEL20 = LAST EXPECTED DATA TO BE RECEIVED

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THEN THE HOST PERIODICALLY POLLS SELO FOR A
RESPONSE FROM THE DCT11:

SELO = 0 IF TEST COMPLETED

SELO = 100 IF ANY ERROR

IN THE FORMER CASE THE HOST COMPARES THE XMT
TABLE WITH THE RCV ONE AND REPORT ERROR 64
IF ANY DATA COMPARE ERROR.

IN THE LATTER CASE:

SEL2 = 2	FOR ERROR 32
= 4	FOR ERROR 45
= 6	FOR ERROR 56
= 10	FOR ERROR 62
= 12	FOR ERROR 63
= 14	FOR ERROR 55
= 16	FOR ERROR 46
= 20	FOR ERROR 51
= 22	FOR ERROR 35

SEL4 = RECEIVED STATUS&DATA REGISTER (ERROR 46)

SEL6 = EXPECTED STATUS&DATA REGISTER (ERROR 46)

SEL10 = FLAGWORD

SEL12 = TRX DMA BYTE COUNT

SEL14 = TRX DMA BUS ADDRESS

SEL16 = TRX DMA EXT. ADDRESS

SEL20 = RCV DMA BYTE COUNT

SEL22 = RCV DMA BUS ADDRESS

SEL24 = RCV DMA EXT. ADDRESS

THEN THE HOST BUILDS REPORT AND EXIT

MAINT MODE: 2

KMV ROUTINE: 22

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO KMV11 RESPONSE
	ERROR 32	LINE COUNTER ERROR WHEN STARTED
	ERROR 35	UNDERRUN INTERRUPT OCL RS
	ERROR 45	TRX/RCV ERRORS
	ERROR 46	UNEXPECTED STATUS RECEIVED
	ERROR 51	INTERRUPT AT ILLEGAL VECTOR
	ERROR 55	BIT "BCNTIN" NOT SET AT END OF TRX DMA
	ERROR 56	Q-BUS TIMEOUT DURING TRX DMA
	ERROR 62	BYTE COUNT OVERFLOW DURING RCV DMA
	ERROR 63	Q-BUS TIMEOUT DURING RCV DMA
	ERROR 64	DATA COMPARE ERROR

TEST29:

THE FIRST TEST OF THIS CLASS CORRESPONDS TO A 11 BYTES LONG TRANSMIT BUFFER
AND A 15 BYTES LONG RECEIVE BUFFER.

TEST30:

THE SECOND TEST OF THIS CLASS CORRESPONDS TO A 10 BYTES LONG TRANSMIT BUFFER
AND A 8 BYTES LONG RECEIVE BUFFER.

TEST31:

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THE THIRD TEST OF THIS CLASS CORRESPONDS TO A 10 BYTES LONG TRANSMIT BUFFER AND A 6 BYTES LONG RECEIVE BUFFER. THIS TEST PERMITS TO TEST THE BUFFER OVERFLOW.

TEST32:

THE FOURTH TEST OF THIS CLASS CORRESPONDS TO A LONG DMA TRANSFER. 1020. BYTES WILL BE TRANSMITTED AND RECEIVED.

7.33 TEST33

TEST OF DMA TRANSFER IN BOTH DIRECTIONS AND IN HIGHER PART OF THE HOST MEMORY TO CHECK THE EXTENDED ADDRESS COUNTER

INPUT PARAMETERS FOR FW ROUTINE:

SEL2 = LINE CLOCK RATE
SEL4 = TRX DMA BYTE COUNT (IN 2'S COMP FORM)
SEL6 = TRX DMA BUFFER ADDRESS (LOW)
SEL10 = TRX DMA BUFFER ADDRESS (HIGH)
SEL12 = RCV DMA BYTE COUNT (IN 2'S COMP FORM)
SEL14 = RCV DMA BUFFER ADDRESS (LOW)
SEL16 = RCV DMA BUFFER ADDRESS (HIGH)
BIT 15 SET IF SEL20 MUST NOT BE TAKEN INTO ACCOUNT IN FW TEST22
SEL20 = LAST EXPECTED DATA TO BE RECEIVED

OUTPUT:

SELO = 0 IF SUCCESS
SELO = 100 IF ANY ERROR
WITH SEL2 =

SEL12 = TRX DMA BYTE COUNT
SEL14 = TRX DMA BUFFER ADDRESS (LOW)
SEL16 = TRX EXT ADDRESS
SEL20 = RCV DMA BYTE COUNT
SEL22 = RCV DMA BUFFER ADDRESS (HIGH)
SEL24 = RCV DMA EXT. BUFFER ADDRESS

MAINT MODE: 2

KMV ROUTINE: 22

7.34 TEST34

TEST OF MODEM SIGNALS (EXTERNAL LOOP-BACK MODE)

DESCRIPTION: THIS TEST CAN BE RUN IN THE CASE OF EXTERNAL LOOP ONLY. AN ERROR MESSAGE IS PRINTED IF NO LOOP-BACK CONNECT. PLUGGED. OTHERWISE, THE HOST ASKS THE DCT11 TO SET-UP MODEM CONTROLS BY MEANS OF THE 'MAILBOX' ROUTINE WITH THE FOLLOWING INPUTS:

SEL2 = PORT B ADDRESS
SEL4 = MODEM CONTROL BIT(S)
SEL6 = 6 FOR WRITE BYTE

THEN TO READ LOOP BACK RESULT BY MEANS OF THE 'MAILBOX' ROUTINE WITH THE FOLLOWING INPUTS:
SEL2 = PORT A ADDRESS

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SEL4 = 377
SEL6 = 4 FOR READ BYTE
THE HOST POLLS SEL0 FOR 'MAILBOX' ROUTINE JOB
COMPLETED:
SEL0 = 0 FOR JOB COMPLETE
IN THE LOOP BACK RESULT CASE,
SEL4 = EXPECTED LOOP BACK RESULT
THEN THE HOST TESTS/REPORTS AND EXITS.

NOTICE, THAT MODEM SIGNALS ARE LOOPED, SUCH
AS:

```

CCITT 108/2      . . .
CCITT 105        . . .
CCITT 107      < . . . >
CCITT 106      < . . . >
CCITT 109      < . . . >

```

MODEM CCITT 108/2 AND 105 WILL BE SET ONE BY
ONE THEN TOGETHER.

MAINT MODE: 2

KMV ROUTINE: 23

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO KMV11 RESPONSE
	ERROR 74	MODEM SIGNAL BIT SETTING NOT
		CORRECT
	ERROR 75	NO LOOP BACK CONNECTOR

7.35 TEST35

THIS TEST LOADS A ROUTINE IN THE RAM AND CHECKS IF ITS
EXECUTION IS CORRECT.
THE ROUTINE LOADED IS THE FW TEST06

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING ALL R/W
REGISTERS BY ITSELF. PERIODICALLY, THE HOST
POLLS SEL0 FOR ANY DCT11 RESPONSE:
SEL0 = 0 FOR TEST OKE
SEL0 = 100 FOR ANY ERROR
IN THE LATTER CASE, THE FOLLOWING REGISTERS
CONTAINS ERROR REPORTS, SUCH AS:
SEL2 = 2 BYTE COUNT OUT REG.
4 BUS ADDRESS OUT REG.
6 EXT ADDRESS OUT REG.
10 BYTE COUNT IN REG.
12 BUS ADDRESS IN REG.
14 EXT ADDRESS IN REG.
SEL4 = CURRENT PATTERN
SEL6 = BAD WORD

VKPM40 KMV11C STATIC DIAG

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MAINT MODE: 2

KMV ROUTINE: 27

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO RESPONSE FROM THE KMV11
ERROR 17 DATA COMPARE ERROR ON KMV11
INTERNAL R/W REGISTER

7.36 TEST36

RECEIVE DATA TEST USING THE POLLING FACILITY INSTEAD OF INTERRUPT

DESCRIPTION:

THIS TEST SELECT IN THE NATIVE FIRMWARE THE TEST30,
WHICH TESTS TRANSMISSION AND RECEPTION OF DATA USING
THE POLLING FACILITY INSTEAD OF INTERRUPT.
PERIODICALLY THE HOST POLLS SEL0 FOR ANY DCT11
RESPONSE:

SEL0 = 0 FOR TEST OKE
SEL0 = 100 IF ANY ERROR
IN THE LATTER CASE SEL2 POINTS TO THE ERROR,
POSSIBLE ERRORS ARE :

SEL2 = 2 FOR ERROR 32
= 4 FOR ERROR 45
= 6 FOR ERROR 40
= 10 FOR ERROR 46
= 12 FOR ERROR 47
= 14 FOR ERROR 50
= 16 FOR ERROR 51
= 20 FOR ERROR 35
= 22 FOR ERROR 43

SEL4 = OBTAINED STATUS&DATA

SEL6 = EXPECTED ONE

SEL10 = EVENT FLAGS

MAINT MODE: 2

KMV ROUTINE: 30

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO KMV11 RESPONSE
ERROR 32 LINE CLOCK FAILURE
ERROR 40 TRANSMIT INTERRUPT WHILE DISABLED
ERROR 35 UNDERRUN INTERRUPT
ERROR 43 UNEXPECTED UNDERRUN INTERRUPT AFTER ACK
ERROR 45 XMT/RCV PROCESSING FAILS
ERROR 46 UNEXPECTED STATUS RECEIVED
ERROR 47 UNEXPECTED DATA RECEIVED
ERROR 50 RECEIVE INTERRUPT WHILE DISABLED
ERROR 51 INTERRUPT AT ILLEGAL VECTOR

7.37 TEST37

LONG RAM TEST

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THIS TEST DURATION IS ABOUT 1M15

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING THE RAM
BY ITSELF. PERIODICALLY THE HOST CHECKS THE
REGISTER SELO FOR ANY DCT11 RESPONSE:
SELO = 0 IF TEST SUCCEEDED
SELO = 100 IF ANY ERROR
IN THE LATTER CASE, THE FOLLOWING REGISTERS
CONTAINS THE ERROR REPORTS AS FOLLOW:

IF THE DCT11 CAN'T CLEAR ALL THE RAM
SEL2 = 2
SEL4 = FIRST BAD WORD ADDRESS
SEL6 = FIRST BAD WORD

IF DATA COMPARE ERROR AT LOCATION TESTED
SEL2 = 4
SEL4 = RAM ADDRESS
SEL6 = BAD WORD
SEL10 = PATTERN

IF WRITTEN PATTERN IN ONE LOCATION PRODU
CES FALSE DATA IN OTHER LOCATIONS
SEL2 = 6
SEL4 = FIRST BAD WORD ADDRESS
SEL6 = FIRST BAD WORD
SEL10 = PATTERN
SEL12 = LOCATION UNDER TEST

MAINT MODE: 2

KMV ROUTINE: 05

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO ANSWER FROM THE KMV11
ERROR 14 ALL THE RAM CAN'T BE CLEARED
ERROR 15 DATA COMPARE ERROR ON RAM AT
LOCATION UNDER TEST
ERROR 16 DATA COMPARE ERROR ON RAM AT
LOCATION NOT UNDER TEST

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8.0 ERROR INFORMATION

8.1 ERROR REPORTING

ERRORS ARE REPORTED BY THE PROGRAM AS THEY OCCUR (IF NOT INHIBITED). THE REPORT CONFORMS TO THE DIAGNOSTIC SUPERVISOR ERROR REPORT FORMAT, AND CONSISTS OF A DESCRIPTION OF THE ERROR, THE TEST NUMBER, SUBTEST NUMBER, PC OF THE ERROR CALL, DEVICE ADDRESS, AND BASIC ERROR INFORMATION (EXTENDED ERROR INFORMATION CAN BE SUPPRESSED BY SETTING THE FLAG SWITCH IXE).

THE FOLLOWING EXAMPLES PROVIDE TYPICAL ERROR REPORTS:

VKMMAO WRD ERR 00011 ON UNIT 00 TST 007 SUB 000 PC: 032164
NO ANSWER FROM THE KMV11-C

VKMMAO WRD ERR 00016 ON UNIT 00 TST 013 SUB 000 PC: 031010

DATA COMPARE ERROR ON RAM AT LOCATION NOT UNDER TEST
LOCATION UNDER TEST = XXXXXX FOR PATTERN = XXXXXX

BAD VALUE = XXXXXX AT LOCATION = XXXXXX

NOTICE THAT THE REPORT MAY BE MORE EXTENSIVE AND REQUIRE ADDITIONAL DATA TO BE REPORTED.

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9.0 HISTORY

- VERSION 01, REVISION A
VERSION 01, REVISION B
-VERSION 01, REVISION C
B

DESIGN STARTED ON MAY 82
27 MAY 83
01 JULY 83

VKMMA0 KMV11C STATIC DIAG

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```

1      .TITLE VKMMA0 KMV11C STATIC DIAG
2      .IDENT /V01.05/
3
4      ; CONTROL LISTING OF HELP INFORMATION
5      ; HELP=0   NO LIST
6      ; HELP=1   LIST
7
8
9      000000
10     000C00      .ENABL  HELP=0
11     002000      ABS,AMA
12                        . =2000
13
14
15
16
17     .MCALL  SVC
18     002000     SVC                      ; INITIALIZE SUPERVISOR MACROS
19
20
21
22
23
24     002000      BGNMOD  VKMMA0
25
26
27     177777      $LSYIN= -1
28     177777      $LSTAG= -1
29     177777      SVCING= -1      ; LIST INSTRUCTIONS, SHIFTED RIGHT
30     177777      SVCTST= -1     ; LIST TEST TAGS, SHIFTED RIGHT
31     177777      SVCSUB= -1     ; LIST SUBTEST TAGS, SHIFTED RIGHT
32     177777      SVCGBL= -1    ; LIST GLOBAL TAGS, SHIFTED RIGHT
33     177777      SVCTAG= -1    ; LIST OTHER TAGS, SHIFTED RIGHT
34
35      ; CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
36      ; TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
37      ; SYMBOLS TO BE MINUS ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
38      ; CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.
39
40

```

VKMMA0 KMV11C STATIC DIAG
PROGRAM HEADER

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```

42      .SBTTL PROGRAM HEADER
43      ;
44      ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
45      ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
46      ;
47
48 002000      POINTER BGNSW,BGNAU,BGNDU,BGNSETUP
49
50      000000
51      HELP=0
52
53      .IF NE HELP
54      ;*****
55      ; IF ANY OPTIONAL POINTERS ARE TO BE USED IN THE "HEADER", CHANGE
56      ; "POINTER" TO CONTAIN THE CORRECT ARGUMENTS. IF ALL OPTIONAL
57      ; POINTERS ARE TO BE USED, CHANGE "POINTER" TO BE "POINTER ALL".
58      ; IF NO ARGUMENTS ARE USED, CHANGE "POINTER" TO BE "POINTER NONE".
59      ; ARGUMENT          OPTION
60      ; -----
61      ; BGNRPT          REPORT CODE
62      ; BGNSW          SOFTWARE TABLE
63      ; BGNSFT          SOFTWARE TABLE QUESTIONS
64      ; BGNAU          ADD CODE
65      ; BGNDU          DROP CODE
66      ; ERR_TBL        ERROR TABLE
67      ; BGNSETUP        ASSEMBLED P-TABLE
68      ;*****
69      .ENDC
70 002000      HEADER VKMMA0,A,0,240.,0,PRI07 ; /V01.04/ ADD PRIORITY
71
72
73      .IF NE HELP
74      ;*****
75      ; CHANGE THE "HEADER" TO CONTAIN THE PROPER ARGUMENTS.
76      ; ARGUMENTS ARE: NAME,REV,PATCH,LONGEST TEST TIME,TYPE
77      ; WHERE "TYPE" = 0 FOR SEQUENTIAL DIAGNOSTIC AND = 1
78      ; FOR EXERCISER. THERE ALSO AN OPTIONAL SIXTH ARGUMENT
79      ; WHICH SPECIFIES THE PROCESSOR PRIORITY TO BE SET WHEN
80      ; STARTING THE DIAGNOSTIC.(DEFAULT IS 0).
81      ;*****
82      .ENDC
83

```

VKMMAD KMV11C STATIC DIAG
PROGRAM HEADER

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```

85
86
87      ;**
88      ; THIS TABLE IS USED BY THE RUNTIME SERVICES
89      ; TO PROTECT THE LOAD MEDIA.
90      ;
91      002122      BGNPROT
92
93      002122      177777      1      ;OFFSET INTO P-TABLE FOR CSR ADDRESS
94      002124      177777      -1     ;OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
95      002126      177777      -1     ;OFFSET INTO P-TABLE FOR DRIVE NUMBER
96
97
98      .IF NE HELP
99      ;*****
100     ; INSERT BYTE OFFSET FOR DATA NOTED IN COMMENTS ABOVE. (OFFSET
101     ; REFERS TO THE NUMBER OF BYTES FROM THE BEGINNING OF A PTABLE
102     ; ENTRY TO THE ITEM IN QUESTION.) IF THE PARTICULAR
103     ; ITEM DOES NOT APPLY, LEAVE ENTRY AS -1. WHEN THE RUNTIME
104     ; SERVICES EXECUTES A GPHARD, IT USES THESE OFFSETS (IF NOT
105     ; SET TO -1) TO GET THE ITEMS AND COMPARE WITH THOSE SAVED
106     ; IN THE XXDP+ MONITOR. IF THE UNIT BEING REQUESTED MATCHES THE
107     ; LOAD DEVICE, THE RUNTIME SERVICES RETURN AN INCOMPLETE FLAG ON
108     ; THE GPHARD.
109     ;*****
110     .ENDC
111
112
113      002130      ENDPROT
114

```

VKMMA0 KMV11C STATIC DIAG
DISPATCH TABLE

MACRO M1200 22 AUG 83 14:36 PAGE 16

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119
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121
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123 002130
124
125
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135

.SBTTL DISPATCH TABLE

;/;;;
;/ THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
;/ IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
;/;;;

DISPATCH 37.

.IF NE HELP

;*****
; CHANGE THE ARGUMENT OF "DISPATCH" TO BE THE
; NUMBER OF HARDWARE TESTS IN YOUR PROGRAM.
;*****
.ENDC

VKMMAO KMV11C STATIC DIAG
DEFAULT HARDWARE P-TABLE

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```

137      .SBTTL DEFAULT HARDWARE P TABLE
138
139      ;////////////////////////////////////
140      ;/ THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
141      ;/ THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
142      ;/ IS IDENTICAL TO THE STRUCTURE OF THE RUN TIME P-TABLE.
143      ;/ AND IS USED AS A " TEMPLATE" FOR BUILDING THE P-TABLE
144      ;////////////////////////////////////
145
146      .ENABL  AMA
147 002244      BGNHW  DFPTBL
148
149      .IF NE HELP
150      ;*****
151      ;      PLACE YOUR DEFAULT HARDWARE P-TABLE HERE. THE VALUES AND
152      ;      SIZE WILL BE USED AS A "TEMPLATE" FOR CREATING ACTUAL P-TABLE
153      ;      ENTRIES AND THE DEFAULT VALUES IN THE OPERATOR DIALOGUE.
154      ;      THE ACTUAL P-TABLE BUILT AT RUNTIME IS STORED IN SUPERVISOR
155      ;      SPACE.
156      ;*****
157      .ENDC
158
159 002246 177000      .WORD 177000      ;KMV11-C CSR ADDRESS
160 002250 000300      .WORD 300        ;KMV11-C VECTOR ADDRESS IN
161 002252 004000      .WORD 4000       ;INTERRUPT PRIORITY LEVEL
162 002254 000001      .WORD 1          ;TEST LOOPBACK CONNECTOR INSTALLED FLAG
163 002256 000007      .WORD 7          ;CONTAINS BAUD RATE INDICATOR
164                                     ;0=2.4K , 1=9.6K , 2=19.2K , 3=48K , 4=56K
165                                     ;5=64K , 6=72K , 7=ALL
166 002260 000000      .WORD 0          ; LONG RAM TEST TO BE RUN
167
168 002262      ENDPHW

```

VKMHA0 KMV11C STATIC DIAG
DEFAULT HARDWARE P TABLE

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SEQ 0050

170
171
172
173
174
175
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178
179
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182

```
.IF NE HELP
;*****
;   PLACE YOUR SOFTWARE P-TABLE HERE.  THIS TABLE
;   IS OPTIONAL.  THIS TABLE, UNLIKE THE HARDWARE TABLE, WILL CONTAIN
;   THE ACTUAL VALUES ENTERED BY THE OPERATOR.
;*****
.ENDC
```

VKMMAO KMV11C STATIC DIAG
DEFAULT HARDWARE P TABLE

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218
219
220
221
222 002262

.SBTTL GLOBAL EQUATES SECTION

```

;////////////////////////////////////
; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
; ARE USED IN MORE THAN ONE TEST.
;////////////////////////////////////

```

.IF NE HELP

```

;*****
; NOTE: THE ASSEMBLER DIRECTIVE '.GLOBL' SHOULD NOT BE USED ANYWHERE IN
; YOUR DIAGNOSTIC PROGRAM. INSTEAD, USE THE DOUBLE-EQUATE (==) OR
; DOUBLE-COLON (::) TO DEFINE GLOBAL VALUES. HELP-MESSAGES GIVEN
; BELOW EXPLAIN WHERE TO USE THE DOUBLE-EQUATE AND DOUBLE-COLON
; DIRECTIVES.
;*****

```

.ENDC

.IF NE HELP

```

;*****
; THE "EQUALS" MACRO DEFINES SOME COMMON SYMBOLS: BIT DEFINITIONS,
; SUPERVISOR EVENT FLAGS, SUPERVISOR FLAGS AND PROCESSOR PRIORITIES.
;
; ADD TO THIS SECTION YOUR EQUATED VALUES THAT ARE USED IN MORE
; THAN ONE TEST. EQUATES THAT ARE USED IN ONLY ONE TEST SHOULD BE
; PLACED AT THE FRONT OF THE TEST.
;
; EQUATES THAT ARE ADDED TO THIS SECTION MUST BE DEFINED WITH A
; DOUBLE-EQUATE (==); THIS WILL MAKE THEM GLOBAL EQUATES.
; FOR EXAMPLE, AN ERROR STATUS BIT COULD BE DEFINED AS ERR==BIT15.
;*****

```

.ENDC

.LIST ME
EQUALS

; BIT DIFINITIONS

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

VKMMAO KMV11C STATIC DIAG
GLOBAL EQUATES SECTION

MACRO M1200 22 AUG-83 14:36 PAGE 19-1

```

000001      BIT00== 1
001000      BIT9==  BIT09
000400      BIT8==  BIT08
000200      BIT7==  BIT07
000100      BIT6==  BIT06
000040      BIT5==  BIT05
000020      BIT4==  BIT04
000010      BIT3==  BIT03
000004      BIT2==  BIT02
000002      BIT1==  BIT01
000001      BIT0==  BIT00

;
; EVENT FLAG DEFINITIONS
; EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
;
000040      EF.START==      32.      ; START COMMAND WAS ISSUED
000037      EF.RESTART==    31.      ; RESTART COMMAND WAS ISSUED
000036      EF.CONTINUE==   30.      ; CONTINUE COMMAND WAS ISSUED
000035      EF.NEW==        29.      ; A NEW PASS HAS BEEN STARTED
000034      EF.PWR==        28.      ; A POWER-FAIL/POWER-UP OCCURRED
;
; PRIORITY LEVEL DEFINITIONS
;
000340      PRI07== 340
000300      PRI06== 300
000240      PRI05== 240
000200      PRI04== 200
000140      PRI03== 140
000100      PRI02== 100
000040      PRI01== 40
000000      PRI00== 0
;
; OPERATOR FLAG BITS
;
000004      EVL==      4
000010      LOT==     10
000020      ADR==     20
000040      IDU==     40
000100      ISR==    100
000200      UAM==    200
000400      BOE==    400
001000      PNT==   1000
002000      PRI==   2000
004000      IXE==   4000
010000      IBE==  10000
020000      IER==  20000
040000      LOE==  40000
100000      HOE== 100000
.NLIST ME

;*****
;* PROGRAM EVENT FLAG DEFINITIONS
;*****
;

```

223
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225
226
227
228
229

VKMMA0 KMV11C STATIC DIAG
GLOBAL EQUATES SECTION

MACRO M1200 22 AUG 83 14:36 PAGE 19 2

```

230      ; CSR OFFSETS DEFINITIONS
231      ;
232      SEL0      = 0
233      SEL2      = SEL0+2
234      SEL3      = SEL2+1
235      SEL4      = SEL2+2
236      SEL6      = SEL4+2
237      SEL10     = SEL6+2
238      SEL12     = SEL10+2
239      SEL14     = SEL12+2
240      SEL16     = SEL14+2
241      SEL20     = SEL16+2
242      SEL22     = SEL20+2
243      SEL24     = SEL22+2
244      SEL26     = SEL24+2
245      SEL30     = SEL26+2
246      SEL32     = SEL30+2
247      SEL34     = SEL32+2
248      SEL36     = SEL34+2
249
250      CSRLen    = 16.                ;LENGTH OF CSR IN WORDS
251      ;
252      ; SEL0 BIT DEFINITIONS
253      ;
254      RUN        = BIT15      ;RUN BIT
255      MCLR       = BIT14      ;MASTER CLEAR BIT
256      WRITE     = BIT13      ;WRITE BIT
257      TSTNUM    = BIT12      ;THIS BIT IS SET TO VALIDATE THE TEST NUMBER IN BSEL0
258      MAINT2    = BIT11      ;MODE MAINTENANCE 2
259      READ      = BIT10      ;READ BIT
260      MAINT1    = BIT09      ;MODE MAINTENANCE 1
261      ERR       = BIT08      ;ERROR BIT
262
263      000000
264      000002
265      000003
266      000004
267      000006
268      000010
269      000012
270      000014
271      000016
272      000020
273      000022
274      000024
275      000026
276      000030
277      000032
278      000034
279      000036
280
281      100000
282      040000
283      020000
284      010000
285      004000
286      002000
287      001000
288      000400

```

```
265 .SBTTL GLOBAL DATA SECTION
266
267 ;////////////////////
268 ;// THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
269 ;// IN MORE THAN ONE TEST.
270 ;////////////////////
271
272 .IF NE HELP
273 ;*****
274 ; INSERT INTO THE <> THE NAMES OF THE DEVICES TO BE TESTED.
275 ;*****
276 .ENDC
277
278
279 ;*****
280 ;* STORAGE FOR DEVICE REGISTERS
281 ;*****
282 002262 DESCRIPT <VKMMAO KMV11-C LOGIC DIAGNOSTIC>
283
284
285 .IF NE HELP
286 ;*****
287 ; THE ERRTBL MACRO IS REQUIRED IF YOU INTEND TO REPORT ERRORS USING
288 ; THE "ERROR" MACRO. THE ERRTBL MACRO EXPANDS INTO FOUR WORDS THAT
289 ; ARE USED BY THE RUNTIME SERVICES DURING AN ERROR CALL: ERROR TYPE,
290 ; ERROR NUMBER, ADDRESS OF ERROR MESSAGE AND ADDRESS OF MESSAGE
291 ; BLOCK. THERE MUST BE ONLY ONE ERRTBL IN ANY PROGRAM. THIS SECTION
292 ; IS OPTIONAL. REMOVE IT IF YOU ARE NOT GOING TO USE THE ERROR
293 ; MACRO. CHANGE THE POINTER MACRO TO REFLECT THIS SECTION'S DEL-
294 ; ETION IF YOU REMOVE IT.
295 ;*****
296 .ENDC
297
298
299 002324 ERRTBL
002324 000000 ERRTP:: .WORD 0
002326 000000 ERRNBR:: .WORD 0
002330 000000 ERRMSG:: .WORD 0
002332 000000 ERRBLK:: .WORD 0
300
301
302
303
304 ;*****
305 ;* MISCELLANEOUS STORAGE
306 ;*****
307
308 002334 000000 LOGDEV: 0 ;LOGICAL DEVICE NUMBER
309 002336 000000 PSTACK: 0 ;BASE LEVEL PROGRAM STACK POINTER
310 002340 000000 FTIME: 0 ;FIRST PASS FLAG
311 002342 000000 FLGP11: 0 ;FIRST PASS FLAG WORD USED IN TEST11
312 002344 000000 SAVE4: 0 ;SAVE INT. VECTOR 004
313 002346 000000 SAVE6: 0
314 002350 000000 GOOD: 0 ;POINT TO GOOD DATA
315 002352 000000 BAD: 0 ;POINT TO BAD DATA
316 002354 000000 SPADDR: 0 ;STACK ADDRESS IN CASE OF ERROR 0
317 002356 000000 INTFLG: 0 ;INTERRUPT FLAG
```

VKMMAO KMV11C STATIC DIAG
GLOBAL DATA SECTION

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```

318 002360 000000 DATA: 0 ; POINTER TO CURRENT PATTERN
319 002362 000000 RATE: 0 ; POINT TO THE CURRENT LINE CLOCK RATE
320 002364 000000 NXMTST: 0 ; FLAGWORD SET TO 1 WHEN NXM TEST IS RUNNING
321 002366 000000 LCLOOP: 0 ; LOOPBACK CONNECTOR INDICATOR
322 002370 000000 REG1: 0
323 002372 000000 REG2: 0
324 002374 000000 REG3: 0
325 002376 000000 REG4: 0
326 002400 000000 REG5: 0
327 002402 000000 NUM0: 0 ; CSR OFFSET FOR ERROR REPORT
328 002404 000000 NUM1: 0
329 002406 000000 RMTST: 0 ; LONG TEST RAM FLAG
330 002410 000000 GDDAT: 0 ; GOOD DATA
331 002412 000000 BDDAT: 0 ; BAD DATA
332 002414 000000 BADLOC: 0 ; FOR ERROR REPORT
333 002416 000000 TSTLOC: 0 ;
334 002420 000000 BDLVL: 0 ;
335 002422 000000 GDLVL: 0 ;
336 002424 000000 GDVEC: 0 ;
337 002426 000000 RATIO: 0 ; CURRENT LINE SPEED RATE
338 002430 000000 BUF01: .BLKW 16. ; ERROR MESSAGE BUFFER
339 002470 000020 BUFLN: .WORD CSLEN ; BUFFER LENGTH INITED TO CSR LENGTH
340
341 ;*****
342 ;* REVISION CODE FOR TEST
343 ;*****
344
345 002472 000003 REVCOD: 3
346
347 ;*****
348 ;* POINTERS TO KMV11 VECTORS AND REGISTERS
349 ;*****
350
351 002474 000000 KMVCSR: 0 ; CSR ADDRESS
352 002476 000000 KMOV00: 0 ; POINTER TO INTERRUPT VECTOR XX0
353 002500 000000 KMOV04: 0 ; POINTER TO INTERRUPT VECTOR XX4
354 002502 000000 KMLVL: 0 ; INTERRUPT SERVICING RELATIVE LEVEL
355
356
357 ;*****
358 ;* SPECIAL LOCATION RESERVED FOR TESTS ON MORE THAN ONE UNIT
359 ;*****
360 002504 000000 L1SW: .WORD 0
361 002506 000000 LOCK: .WORD 0 ; ADDRESS FOR LOCK CURRENT DATA
362 002510 000 INIFLG: .BYTE 0 ; PROGRAM INITIALIZING FLAG
363 .EVEN
364 002512 000 LOKFLG: .BYTE 0 ; LOCK ON CURRENT TEST FLAG
365 002513 000 QV.FLG: .BYTE 0 ; QUICK VERIFY FLAG
366 .EVEN
367 002514 000000 UUT: .WORD 0 ; CURRENT UNIT UNDER TEST
368 002516 000000 UNIT: .WORD 0 ; USED FOR UNIT NUMBER
369 002517 000000 ADDR: .WORD 0
370 002518 000005 MAXERR: .WORD 5 ; MAX ERROR NUMBER ALLOWED
371 002519 000000 ERRCNT: .WORD 0 ; CURRENT ERROR NUMBER
372 002526 160000 NXMLOW: .WORD 160000 ; /V01.04/ FIRST USER SPACE I/O
373 002530 000277 NXMHIG: .WORD 277 ; ADDRESS FOR NXM MEMORY TEST
374

```

```
375 ;*****
376 ;* DATA STORAGE
377 ;*****
378
379 002532 REGSPC: .BLKW 16. ;GOOD IMAGE CSR
380
381 002572 WRKSPC: .BLKW 16. ;WORK SPACE
382
383 002632 TRXBUF: ;TX BUFFER FOR DMA
384 000004 ;[0,1,2,3...376,0,1,2...376....376]
385 .REPT 4
386 A=0
387 .REPT 377
388 .BYTE A
389 A=A+1
390 .ENDR
391 001774 TLMALG=.-TRXBUF
392
393 004626 RCVBUF: .BLKB 1020. ;RX BUFFER FOR DMA
394
395 006622 000020 PNTBL: .REPT 16. ; /V01.04/ FIRST PASS TABLE
396 .WORD 0
397 .ENDR
398
399
400
401 ; KMV ROM PART NUMBER PRINT OUT
402 .LIST BEX
403 006662 045 116 045 MPNUML: .ASCIZ /#N#A LOW PROM PART NUMBER : #T/
404 006723 045 116 045 MPNUMH: .ASCIZ /#N#A HIGH PROM PART NUMBER : #T/
405 006764 PARTNB: .BLKB 36. ;EPROM LOW AND HIGH PART NUMBER /V01.04/
406 007030 000 000 .BYTE 0,0
407 .EVEN
408
409 ;TEST34 (MODEM SIGNALS TEST) MESSAGE
410 007032 045 116 045 EMO052: .ASCIZ /#N#A TEST NOT RUN - NO LOOPBACK CONNECTOR INSERTED /
411
412 ; TEST37 (LONG RAM TEST) MESSAGE
413 007116 045 116 045 MTST37: .ASCII /#N#A TEST37 STARTED: /
414 007143 045 116 045 .ASCIZ /#N#A ITS DURATION IS ABOUT 1M15 /
415 .LIST BEX
416 .EVEN
417
418 ;*****
419 ;* PATTERN TABLE
420 ;*****
421
422 007204 000000 PATRN: 000000
423 007206 177777 177777
424 007210 052525 052525
425 007212 125252 125252
426 007214 177776 177776
427 007216 177775 177775
428 007220 177773 177773
429 007222 177767 177767
430 007224 177757 177757
431 007226 177737 177737
```

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432 007230 177677
 433 007232 177577
 434 007234 177377
 435 007236 176777
 436 007240 175777
 437 007242 173777
 438 007244 167777
 439 007246 157777
 440 007250 137777
 441 007252 077777
 442 007254 100000
 443 007256 040000
 444 007260 020000
 445 007262 010000
 446 007264 004000
 447 007266 002000
 448 007270 001000
 449 007272 000400
 450 007274 000200
 451 007276 000100
 452 007300 000040
 453 007302 000020
 454 007304 000010
 455 007306 000004
 456 007310 000002
 457 007312 000001
 458 007314 000000
 459 000112

177677
 177577
 177377
 176777
 175777
 173777
 167777
 157777
 137777
 077777
 100000
 040000
 020000
 010000
 004000
 002000
 001000
 000400
 000200
 000100
 000040
 000020
 000010
 000004
 000002
 000001
 000000

PATLGH=-PATIRN

; THIS TABLE IS USED IN THE TEST10.
 ; EACH ENTRY CONTAINS ONE BYTE FOR THE "FROM" OFFSET AND ANOTHER FOR
 ; THE "TO" OFFSET.

REGTAB: .BYTE 04,02
 .BYTE 04,06
 .BYTE 06,10
 .BYTE 10,12
 .BYTE 12,14
 .BYTE 14,16
 .BYTE 16,20
 .BYTE 20,22
 .BYTE 22,24
 .BYTE 24,26
 .BYTE 26,30
 .BYTE 30,32
 .BYTE 32,34
 .BYTE 34,36
 .BYTE 36,04
 .WORD 0

; LINE CLOCK RATE RATIO IN BCD (4 DECADES)
 ;

RATIO: ; DIVIDER VALUE IN BCD TO BE LOADED IN LINE COUNTER

481
 482
 483
 484
 485
 486 007356
 487
 488 007356 024200

24200

;2.4K RATE=0

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GLOBAL DATA SECTION

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489 007360 003440
490 007362 001540
491 007364 000504
492 007366 000444
493 007370 000410
494 007372 000226
495 007374 000000
496
497
498
499
500
501 007376
502 007576
503
504
505
506
507
508
509

3440 ;9.6K RATE=1
1540 ;19.2K RATE=2
504 ;48K RATE=3
444 ;56K RATE=4
410 ;64K RATE=5
226 ;72K RATE=6
0
151 ;100K
;*****
; * STACK USED FOR SUBROUTINE LINKAGE
;*****
SSTACK: .BLKW 100

VKMHA0 KMV11C STATIC DIAG
GLOBAL TEXT SECTION

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511
512
513
514
515
516
517
518
519
520
521
522 007576
523
524
525
526
527
528
529
530
531
532
533
534
535
536

.SBTTL GLOBAL TEXT SECTION

```
;*****  
; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,  
; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN  
; MORE THAN ONE TEST.  
;*****  
  
;*****  
; * NAMES OF DEVICES SUPPORTED BY PROGRAM  
;*****  
DEV TYP <M7502>
```

.IF NE HELP

```
;*****  
; INSERT THE FORMAT STATEMENTS USED IN THE VARIOUS PRINT CALLS.  
; USE THE .ASCIZ STATEMENT.  
;*****  
.ENDC
```

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

538      .SBTTL GLOBAL SUBROUTINES
539
540
541
542
543      ;////////////////////////////////////
544      ;/      THE GLOBAL SUBROUTINES ARE CALLED BY MORE THAN ONE TEST
545      ;////////////////////////////////////
546      .IF NE HELP
547
548
549      ; SUBORDINATE ROUTINES USED:
550
551      ;      LIST THE SUBROUTINES CALLED BY THIS SUBROUTINE.
552      ;*****
553
554      ; FUNCTIONAL SIDE EFFECTS:
555
556      ;*****
557      ;      DESCRIBE ANY EFFECTS THIS SUBROUTINE MAY HAVE UPON OTHER
558      ;      MODULES OF THE DIAGNOSTIC PROGRAM. AN EXAMPLE OF THIS IS
559      ;      THE SUBROUTINE INHIBITS ALL INTERRUPTS WITH PRIORITY 7.
560      ;*****
561
562      ; CALLING SEQUENCE:
563
564      ;*****
565      ;      GIVE THE EXACT CALLING SEQUENCE USED TO ACCESS THIS SUBROUTINE.
566      ;      FOR EXAMPLE:      MOV COUNT,R1      ;MOVE INPUT TO R1
567      ;                          JSR      PC,ROUTINE      ;GO TO ROUTINE
568      ;                          BCS      ERROR      ;CARRY SET IF ROUTINE HAD ERROR
569      ;*****
570      ; --
571
572      ;*****
573      ;      INSERT THE CODE FOR THIS SUBROUTINE. THE NAME OF THE SUBROUTINE SHOULD
574      ;      BE DEFINED WITH A DOUBLE-COLON (::); THIS WILL MAKE THE SUBROUTINE GLOBAL.
575      ;*****
576      .ENDC
577
578      .IF NE HELP
579      ;*****
580      ;      BEGIN EACH SUBROUTINE AT THE TOP OF A NEW PAGE.
581      ;*****
582
583      ;**
584      ; FUNCTIONAL DESCRIPTION:
585      ;      SUBROUTINE TO....
586      ; --
587
588      ;*****
589      ;      COMPLETE THE "SUBROUTINE TO...." STATEMENT WITH A FUNCTIONAL
590      ;      DESCRIPTION OF THIS SUBROUTINE.
591      ;*****
592
593      ; INPUTS:
594

```

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

595 ;*****
596 ; LIST THE INPUT DATA THAT ARE EXPLICITLY PASSED TO THIS SUBROUTINE.
597 ;*****
598
599 ; IMPLICIT INPUTS:
600
601 ;*****
602 ; LIST THE INPUT DATA THAT ARE IMPLICITLY USED BY THIS SUBROUTINE;
603 ; FOR EXAMPLE, DATA READ FROM COMMON AREAS.
604 ;*****
605
606 ; OUTPUTS:
607
608 ;*****
609 ; LIST THE OUTPUT DATA THAT ARE EXPLICITLY GIVEN BY THIS SUBROUTINE
610 ;*****
611
612 ; IMPLICIT OUTPUTS:
613
614 ;*****
615 ; LIST THE OUTPUT DATA THAT ARE IMPLICITLY GIVEN BY THIS SUBROUTINE;
616 ; FOR EXAMPLE, DATA STORED IN COMMON AREAS.
617 ;*****
618 .ENDC
619
620
621
622
623
624
625
626 ;*****
627 ; * LIST OF THE COMMON MACRO AND SUBROUTINES
628 ; *
629 ; * -TO CHECK MAXIMUM ERRORS IS NOT REACHED : CALL CHKMAX
630 ; * -TO REPEAT N TIMES A FUNCTION : DO <FUNCTION>,N
631 ; * -TO WAIT TILL SELO/INTFLG OR TIME-OUT : WAIT 0(1 OR 2),N.
632 ; * -TO DISPATCH ACCORDING TO ERROR REPORT : DSPACH N.
633 ; * -TO SAVE GENERAL REGISTERS : SAVE 012...
634 ; * -TO RESTORE GENERAL REGISTERS : GET 012...
635 ; * -TO COMPARE BLOCK OF DATA (BY WORD) : CALL COMPAR
636 ; * -TO COMPARE BLOCK OF DATA (BY BYTE) : CALL COMPRB
637 ; * -TO CLEAR A BUFFER : CALL CLEAR
638 ; * -TO COPY ONE BUFFER IN A SECOND ONE : CALL COPY
639 ; * -TO CLEAR ALL CSR'S : CALL CLRKMV
640 ; * -TO SET MAINTENANCE MODE : MODE 2(3)
641 ; * -TO ACTIVATE DCT11 TEST ROUTINE : TESTNB N.
642 ; * -TO MAKE A DELAY OF N*100 MICROSECONDS : DELAY N.
643 ; *
644 ;*****

```

VKMMAD KHV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

646                                     ;**
647                                     ; ROUTINE TO CHECK THAT THE MAXIMUM NUMBER OF ERRORS IS NOT REACHED
648                                     ;
649                                     ; OUTPUT: RETURN TO CALLER IF MAX NUMBER IS NOT REACHED
650                                     ; OTHERWISE PRINT ERROR MESSAGE AND DROP UNIT
651                                     ;
652 007604 CHKMAX: INLOOP                                     ;LOOPING ON ERROR ?
653 007606 BCOMPLETE 1$                                     ;YES, EXIT
654 007610 RFLAGS RO                                       ;GET OPERATORS FLAG
655 007612 032700 000040 BIT #IDU,RO                     ;IS DROPPING INHIBITED ?
656 007616 001026 BNE 1$                                   ;YES, EXIT
657 007620 005237 002524 INC ERRCNT                       ;INC COUNTER
658 007624 023737 002522 002524 CMP MAXERR,ERRCNT        ;MAX NUMBER REACHED ?
659 007632 002020 BGE 1$                                   ;NO, RETURN TO CALLER
660
661 007634 PRINTF #NERRS,MAXERR,UUT                       ;PRINT CORRESPONDING MESSAGE
662 007664 DDUU UUT                                       ;DROP UNIT
663 007672 DOCLN                                         ;END SUBPASS
664 007674 1$:
665 007674 000207 RETURN
666
667 007676 045 116 045 NERRS: .ASCIZ /#N#AMORE THAN #D3#A ERRORS ON UNIT #D2/
    007701 101 115 117
    007704 122 105 040
    007707 124 110 101
    007712 116 040 045
    007715 104 063 045
    007720 101 040 040
    007723 105 122 122
    007726 117 122 123
    007731 040 117 116
    007734 040 125 116
    007737 111 124 040
    007742 045 104 062
    007745 000
668                                     .EVEN

```

VKMM40 KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```
670      ;**
671      ; ROUTINE TO SAVE GENERAL REGISTERS
672      ;
673      ; DESCRIPTION: PERMITS TO SAVE GENERAL REGISTERS R0 TO R7
674      ;
675      ; CALLING SEQUENCE: SAVE      123...
676      ;
677      ; INPUTS: REGISTER NUMEROS LIST
678      ;
679      ; OUTPUTS: REG(N)=R(N)
680      ;
681      ; CAUTIONS: NONE
682      ; --
683
684
685
686      .MACRO  SAVE      ARGLST
687      .IRPC   N,<ARGLST>
688      MOV     R'N,REG'N
689      .ENDR
690      .ENDM
691
```

VKMHA0 KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```
693
694
695      ;**
696      ; ROUTINE TO RESTORE GENERAL REGISTERS
697      ;
698      ; DESCRIPTION: PERMITS TO RESTORE GENERAL REGISTERS R0 TO R7
699      ;
700      ; CALLING SEQUENCE: GET      123....
701      ;
702      ; INPUTS: REGISTER NUMEROUS LIST
703      ;
704      ; OUTPUTS: NONE
705      ;
706      ; CAUTIONS: NONE
707      ; -
708
709
710      .MACRO GET      ARGLST
711      .IRPC      N,<ARGLST>
712      MOV      REG'N,R'N
713      .ENDR
714      .ENDM
715
```

VKMHA0 KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

717
718
719 ; **
720 ; ROUTINE TO DISPATCH ACCORDING TO ERROR REPORT
721 ;
722 ; DESCRIPTION: DATA IN SEL2 IS USED AS AN OFFSET TO POINT TO AN ERROR BRANCH
723 ;               TABLE WHICH FOLLOWS THE CALL NON EXPECTED OFFSET IN SEL2
724 ;               POINTS TO THE ADDRESS FOLLOWING THE LAST BRANCH.
725 ;
726 ; CALLING SEQUENCE: DSPACH      N.
727 ;                   BR  3$
728 ;                   BR  4$
729 ;                   BR  5$
730 ;
731 ;
732 ;
733 ; INPUTS: N.=DECIMAL NUMBER OF BRANCH
734 ;         SEL2=POINT TO ERROR OFFSET
735 ;
736 ; OUTPUTS: BAD=CONTENTS OF SEL2
737 ;         NUM0=2
738 ;
739 ; CAUTIONS: NONE
740 ; --
741
742
743 .MACRO  DSPACH  N
744         JSR      R5,TSTSL2
745         N
746 .ENDM
747
748
749
750 007746 TSTSL2: SAVE      12
751 007756 012501      MOV      (R5)+,R1          ;GET NUMBER OF BRANCH
752 007760 006301      ASL      R1                ;*2
753 007762 013702 002474      MOV      KMVCSR,R2      ;GET CSR ADDRESS
754 007766 016237 000002 002352      MOV      SEL2(R2),BAD      ;GET SEL2 CONTENTS
755 007774 005737 002352      TST      BAD          ;IS THERE ANY OFFSET?
756 010000 001416      BEQ      1$                ;IF NOT
757 010002 032737 000001 002352      BIT      4910,BAD      ;EVEN OFFSET?
758 010010 001012      BNE      1$                ;IF ODD
759 010012 023701 002352      CMP      BAD,R1        ;CURRENT OFFSET <= TO MAXI OFFSET?
760 010016 101007      BHI      1$                ;IF NOT
761 010020 005337 002352      DEC      BAD          ;ADJUST OFFSET
762 010024 005337 002352      DEC      BAD
763 010030 063705 002352      ADD      BAD,R5
764 010034 000410      BR       2$                ;POINT TO CORRESPONDING BRANCH
765
766 010036 012737 000002 002402 1$:      MOV      42,NUM0      ;GET CSR OFFSET
767 010044      ERRHRD 13,EM0012,PRBAD      ;REPORT ERROR IF BAD SEL2
768 010054 060105      ADD      R1,R5
769 010056      2$:
770 010056      GET      12
771 010066 000205      RTS      R5
772

```

VKMM40 KHV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

774
775
776 ; ***
777 ; ROUTINE TO WAIT TILL SELO/INTFLG OR A TIME OUT
778 ;
779 ; DESCRIPTION: WHILE WE ARE WAITING FOR N*1MS, A TEST IS DONE FOR AN EVENT
780 ; SUCH AS A END OF OCT11 TEST OR AN INTERRUPT. THE FORMER IS
781 ; DONE BY POLLING SELO FOR 0 OR 100. THE LATTER IS DONE BY
782 ; POLLING INTFLG. IF TIME ELAPSED BEFORE ANY EVENT, TIMEOUT FLAG
783 ; IS SET. POSSIBLE EXITS:
784 ; CASE OF SELO PC IF SELO=0
785 ; PC=2 IF SELO=100
786 ; PC=4 IF TIME OUT
787 ; CASE IF INT. PC IF INTFLG SET
788 ; PC=2 IF TIME-OUT
789 ; CASE TIME OUT PC
790 ;
791 ; CALLING SEQUENCE: WAIT 0(1 OR 2),N,M
792 ;
793 ; INPUTS: FIRST CALL PARAMETER=0 IN CASE OF INTFLG
794 ; =1 IN CASE OF SELO
795 ; =2 IN CASE OF A SIMPLE WAIT
796 ; N=DECIMAL NUMBER OF MS
797 ; M=MULTIPLICATOR FACTOR FOR N (ONLY USED IN WAIT1)
798 ;
799 ; OUTPUTS:
800 ; NUMO=0
801 ; BAD=CONTENTS OF SELO
802 ;
803 ; CAUTIONS: NONE
804 ; --
805
806
807 .MACRO WAIT TYP,N,M
808 JSR R5,WAIT,TYP
809 N
810 .IF NB M
811 M
812 .IFF
813 1
814 .ENDC
815 .ENOM
816
817
818
819 010070 WAITO: SAVE 1
820 010074 012501 MOV (R5),R1 ;GET TIME LENGTH
821 010076 005725 TST (R5),
822 010100 18: DELAY 10. ;WAIT FOR 1MS
823 010130 005737 002356 TST INTFLG ;ANY INTERRUPT?
824 010134 001004 BNE 28 ;IF YES
825 010136 BREAK
826 010140 077121 SOB R1,18 ;LOOP TILL TIME ELAPSES
827 010142 062705 000002 ADD #2,R5 ;PC=2
828 010146 28: GET 1
829 010152 000205 RTS R5
830

```

VKMHA0 KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

831
832 010154          WAIT1:  SAVE      12
833 010164 012501    MOV      (R5)+,R1      ;GET TIME LENGTH
834 010166 012502    MOV      (R5)+,R2
835 010170          1$:    DELAY    10.      ;WAIT FOR 1MS
836 010220 017737 172250 002352    MOV      @KMVCSR,BAD ;READ SELO
837 010226 005737 002352          TST      BAD      ;SELO=0?
838 010232 001415          BEQ      2$      ;IF YES
839 010234 022737 000100 002352    CMP      @100,BAD ;SELO=100?
840 010242 001407          BEQ      3$      ;IF YES
841 010244          BREAK
842 010246 077130    SOB      R1,1$      ;LOOP TILL TIME OUT
843 010250 016501 177774    MOV      -4(R5),R1 ;REINIT R1
844 010254 077233    SOB      R2,1$      ;LOOP UNTIL R2 REACHES 0
845 010256 062705 000002          ADD      @2,R5 ;PC+2
846 010262 062705 000002    3$:    ADD      @2,R5 ;PC+2
847 010266 005037 002402    2$:    CLR      NUM0 ;NUM0=0
848 010272          GET      12
849 010302 000205    RTS      R5
850
851 010304          WAIT2:  SAVE      1
852 010310 012501    MOV      (R5)+,R1      ;GET TIME LENGTH
853 010312 005725    TST      (R5)+
854 010314          1$:    DELAY    10.      ;WAIT FOR 1MS
855 010344          BREAK
856 010346 077116    SOB      R1,1$      ;LOOP TILL TIME ELAPSES
857 010350    2$:    GET      1
858 010354 000205    RTS      R5

```

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GLOBAL SUBROUTINES

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```

860
861
862 ;**
863 ; ROUTINE TO COMPARE BLOCKS OF DATA
864 ;
865 ; DESCRIPTION: TWO BUFFERS ARE COMPARED WORD BY WORD.
866 ;
867 ; INPUTS: R1 SOURCE BUFFER 1 ADDRESS
868 ;         R2 SOURCE BUFFER 2 ADDRESS
869 ;         BUFLN CONTAINS THE LENGTH OF BUFFER TO COMPARE (IN GENERAL = CSRLFN)
870 ;
871 ; OUTPUTS: R1,R2 DESTROYED
872 ;         GOOD CONTAINS THE BUFFER 1 WORD
873 ;         BAD CONTAINS THE BUFFER 2 WORD
874 ;         CARRY SET IF A MISMATCH OCCURS
875 ;
876 ;--
877 010356 COMPAR: SAVE 34
878 010366 013703 002470 MOV BUFLN,R3 ;GET NUMBER OF WORDS
879 010372 005004 CLR R4 ;CURRENT OFFSET=0
880 010374 012137 002350 1$: MOV (R1),GOOD ;READ SOURCE
881 010400 012237 002352 MOV (R2),BAD ;READ DESTINATION
882 010404 023737 002350 002352 CMP GOOD,BAD ;THE SAME?
883 010412 001010 BNE 3$ ;IF NOT
884 010414 005724 TST (R4), ;ADD 2 TO OFFSET
885 010416 077312 SOB R3,1$ ;DEC R3 AND CONTINUE IF NOT NULL
886 010420 000241 CLC
887 010422 2$: GET 34
888 010432 000207 RETURN
889 010434 010437 002402 3$: MOV R4,NUM0 ;SAVE CURRENT OFFSET
890 010440 000261 SEC
891 010442 000767 BR 2$

```

```

893
894
895 ; **
896 ; ROUTINE TO COMPARE BLOCKS OF DATA
897 ;
898 ; DESCRIPTION: TWO BUFFERS ARE COMPARED BYTE BY BYTE.
899 ;
900 ; INPUTS: R1 SOURCE BUFFER 1 ADDRESS
901 ;         R2 SOURCE BUFFER 2 ADDRESS
902 ;         BUFLN CONTAINS THE LENGTH OF BUFFER TO COMPARE
903 ;
904 ; OUTPUTS: R1,R2 DESTROYED
905 ;         GOOD  CONTAINS THE BUFFER 1 BYTE
906 ;         BAD   CONTAINS THE BUFFER 2 BYTE
907 ;         CARRY SET IF A MISMATCH OCCURS
908 ;
909 ; --
910 010444 COMPRB: SAVE      3
911 010450      MOV      BUFLN,R3      ;GET NUMBER OF BYTES
912 010454      CLR      GOOD          ;CLEAN LOCATION
913 010460      CLR      BAD           ;CLEAN LOCATION
914 010464      1$:      MOVB     (R1)+,GOOD ;READ SOURCE
915 010470      MOVB     (R2)+,BAD  ;READ DESTINATION
916 010474      123737 002350 002352      CMPB     GOOD,BAD ;THE SAME?
917 010502      BNE      3$           ;IF NOT
918 010504      SOB      R3,1$        ;DEC R3 AND CONTINUE IF NOT NULL
919 010506      000241      CLC
920 010510      2$:      GET      3
921 010514      000207      RETURN
922 010516      000261      3$:      SEC
923 010520      000773      BR      2$

```

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

925
926
927      ;**
928      ; ROUTINE TO SET MAINTENANCE MODE
929      ;
930      ; DESCRIPTION: SET MAINTENANCE MODE 2 OR 3 AND CHECK THAT MASTER CLFAR IS
931      ;                  RESET BY THE DCT11. ERROR REPORT IF NOT.
932      ;                  IN MODE 3 THE DCT11 LOOPS ON ITSELF WHILE IN MODE 2 THE
933      ;                  DCT11 IS READY TO RUN A TEST
934      ;
935      ; CALLING SEQUENCE: MODE          N
936      ;
937      ; INPUTS: N=2 FOR MODE 2 OR =3 FOR MODE 3
938      ;
939      ; OUTPUTS: NONE
940      ;
941      ; CAUTIONS: NONE
942      ;--
943
944
945      .MACRO  MODE      N
946      JSR      PC,MAINM'N
947
948      .ENDM
949
950
951 010522 005077 171746      MAINM3: CLR      @KMVCSR      ;CLEAN CSR
952 010526 012777 044000 171740      MOV      @MCLR!MAINT2,@KMVCSR ;SET MODE 3
953 010534      DELAY      1      ;WAIT FOR 100MICROS
954 010564 022777 004000 171702      CMP      @MAINT2,@KMVCSR ;MASTER CLEAR RESET ?
955 010572 001404      BEQ      1$      ;YES, CORRECT
956 010574 012737 004000 002350      MOV      @MAINT2,GOOD ;LOAD GOOD VALUE FOR ERROR MESSAGE
957 010602 000401      BR      MAIERR ;JOIN COMMON ERROR CODE
958 010604 000207      1$: RTS      PC      ;RETURN
959 010606 005037 002402      MAIERR: CLR      NUMO      ;OFFSET IS 0
960 010612 017737 171656 002352      MOV      @KMVCSR,BAD ;LOAD BAD VALUE
961 010620      ERHRD      2,EM0002,PRSEL ;ERROR REPORT IF NOT
962 010630 000261      SEC
963 010632 000207      RETURN
964
965
966 010634 005077 171634      MAINM2: CLR      @KMVCSR      ;CLEAN CSR
967 010640 012777 041000 171626      MOV      @MCLR!MAINT1,@KMVCSR ;SET MODE 2
968 010646      DELAY      2      ;WAIT FOR 200MICROS
969 010676 032777 040000 171570      BIT      @MCLR,@KMVCSR ;MASTER CLEAR RESET ?
970 010704 001431      BEQ      1$      ;YES CORRECT
971 010706 013705 002474      MOV      KMVCSR,R5 ;/V01.01/ GET CSR ADDRESS IN R5
972 010712 122765 000100 000000      CMPB     #100,SEL0(R5) ;/V01.01/ IS IT A STACK PROBLEM ?
973 010720 001017      BNE      1000$ ;/V01.01/ NO, GENERAL ERROR
974 010722 016537 000002 002352      MOV      SEL2(R5),BAD ;/V01.01/ GET BAD VALUE
975 010730 016537 000004 002350      MOV      SEL4(R5),GOOD ;/V01.01/ GET EXPECTED ONE
976 010736 016537 000006 002354      MOV      SEL6(R5),SPADDR ;/V01.01/ LOAD STACK LOCATION
977 010744      ERHRD      0,EM0000,PRSTAK ;/V01.01/ STATCK ERROR MESSAGE
978 010754 000261      SEC
979 010756 000207      RETURN
980 010760 012737 001000 002350 1000$: MOV      @MAINT1,GOOD ;LOAD GOOD VALUE FOR ERROR MESSAGE
981 010766 000707      BR      MAIERR ;JOIGN COMMON ERROR CODE

```

G6

SEQ 0071

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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982 010770 000207
983
984

14: RTS PC

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

986
987
988      ; ROUTINE TO SELECT DCT11 TEST ROUTINE
989      ;
990      ; DESCRIPTION: LOAD THE TEST NUMBER IN BSELO AND SET TSTNUM BIT TO
991      ; VALIDATE THE NUMBER IN BSELO. BIT 7 IN SELO IS ALSO SET IF THE
992      ; INTERNAL LOOPBACK IS SELECTED.
993      ;
994      ; CALLING SEQUENCE: TESTNB      N
995      ;
996      ; INPUTS: N=TEST NUMBER IN OCTAL
997      ;
998      ; OUTPUTS: NONE
999      ;
1000     ; CAUTIONS: NONE
1001     ; --
1002
1003
1004
1005             .MACRO  TESTNB  N
1006             JSR      RS,TSTNB
1007             N
1008             .ENDM
1009
1010
1011
1012 010772 042715 177600      TSTNB:  BIC      #177600,(R5)      ;KEEP ONLY VALID BITS
1013 010776 052715 010000      BIS      #TSTNUM,(R5)      ;SET THIS BIT TO BE RECOGNIZED BY THE FW
1014 011002 005737 002366      TST      LCLOOP      ;LOOPBACK CONNECTOR INSTALLED ?
1015 011006 001002      BNE      1$      ;YES, NO INTERNAL LOOP SELECTED
1016 011010 152715 000200      BISB      #200,(R5)      ;SET BIT7 IN SELO TO SELECT INTERNAL LOOP
1017 011014 012577 171454      1$:  MOV      (R5)+, @KMVCSR      ;LOAD NUMBER IN CSR
1018 011020      DELAY      10.      ;WAIT FOR 1MS
1019 011050 000205      RTS      R5
1020

```

VKMM40 KMV11C STATIC DIAG
GLOBAL SUBROUTINES

MACRO M1200 22 AUG 83 14:36 PAGE 32

1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033 011052
1034 011056 013703 002470
1035 011062 005021
1036 011064 077302
1037 011066
1038 011072 000207

; ROUTINE TO CLEAR A SPECIFIED BUFFER

; INPUTS: R1 BUFFER ADDRESS
; BUFLN CONTAINS THE LENGTH

; OUTPUTS: R1 DESTROYED

;-;
CLEAR: SAVE 3
MOV BUFLN,R3
18: CLR (R1);
SOB R3,18
GET 3
RETURN

;GET NUMBER OF WORDS
;CLEAR BUFFER
;DEC COUNTER AND CONTINUE IF NOT NULL

VKMMA0 KMV11C STATIC DIAG
GLOBAL SUBROUTINES

MACRO M1200 22 AUG 83 14:36 PAGE 33

```

1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051 011074
1052 011100 012703 000020
1053 011104 012122
1054 011106 077302
1055 011110
1056 011114 000207
1057

; **
; ROUTINE TO COPY ONE BUFFER IN A SECOND ONE
; THE BUFFER LENGTH IS EQUAL TO CSRLN
;
; INPUTS: R1 SOURCE BUFFER ADDRESS
;         R2 DESTINATION BUFFER ADDRESS
;
; OUTPUTS: R1,R2 DESTROYED
;
; --
COPY:  SAVE    3
      MOV     @CSRLN,R3
1$:    MOV     (R1)+,(R2)+
      SOB     R3,1$
      GET     3
      RETURN

; GET NUMBER OF WORDS
; COPY FROM SOURCE TO DESTINATION BUFFER
; DEC COUNTER AND CONTINUE IF NOT NULL

```

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

1059
1060
1061      ;**
1062      ; ROUTINE TO CLEAR KMV11 CONTROL AND STATUS REGISTERS
1063      ;
1064      ; INPUTS: NONE
1065      ;
1066      ; OUTPUTS: R1 DESTROYED
1067      ;           R5 POINTS ON CSR
1068      ;           BUFLN CONTAINS CSRLN
1069      ;--
1070 011116 013701 002474      CLRKMV: MOV      KMVCSR,R1          ;GET CSR ADDRESS
1071 011122 012737 000020 002470  MOV      @CSRLN,BUFLN      ;LOAD NB OF WORDS TO CLEAR
1072 011130 004737 011052      CALL     CLEAR
1073 011134 012705 000340      MOV      @PRI07,R5          ; SET MOST PRIORITY /V01.04/
1074 011140 106405              MTPS     R5
1075 011142 013705 002474      MOV      KMVCSR,R5          ;GET CSR ADDRESS IN R5
1076 011146 000207              RETURN

```

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```
1078
1079
1080 ; **
1081 ; ROUTINE TO REPEAT N TIMES A FUNCTION
1082 ;
1083 ; DESCRIPTION: NONE
1084 ;
1085 ; CALLING SEQUENCE: DO <ASL R1>,10.
1086 ; REPEAT 10 TIMES THE LINE CODE:ASL R1
1087 ;
1088 ; INPUTS: THE LINE CODE TO REPEAT BETWEEN <..>
1089 ; THE DECIMAL NUMBER FOR REPEAT
1090 ;
1091 ; OUTPUTS: NONE
1092 ;
1093 ; CAUTIONS: NONE
1094 ; -
1095
1096
1097 .MACRO DO FUNCTION,N
1098 .REPT N
1099 FUNCTION
1100 .ENDR
1101 .ENDM
```

VKMMAO KMV11C STATIC DIAG
GLOBAL SUBROUTINES

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```

1103
1104
1105      ;**
1106      ; ROUTINE TO PRINT TEST NUMBER
1107      ;
1108      ; DESCRIPTION: NONE
1109      ;
1110      ; CALLING SEQUENCE: BADHEAD
1111      ;
1112      ; INPUTS: L$TEST=TEST NUMBER
1113      ;
1114      ; OUTPUTS: NONE
1115      ;
1116      ; CAUTION: NONE
1117      ; -
1118
1119
1120
1121      .MACRO ED$CALL XY
1122      .LIST
1123      ;**
1124      ;
1125      ;
1126      ;
1127      ;
1128      ;          ** TEST'XY' **
1129      ;
1130      ;
1131      ;
1132      ;
1133      .NLIST
1134      .ENDM
1135
1136
1137
1138      .MACRO BADHEAD
1139      .RADIX 10
1140      ED$CALL \T$TESTNUM+1
1141      .RADIX 8
1142      .ENDM
1143
1144

```

VKMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1146          .SBTTL GLOBAL ERROR REPORT SECTION
1147
1148          ;////////////////////
1149          ;/      THE GLOBAL ERROR REPORT SECTION CONTAINS ERROR MESSAGES
1150          ;/      THAT ARE USED IN MORE THAN ONE TEST.
1151          ;////////////////////
1152          .NLIST BEX
1153
1154 011150      040      040      102 TIM:      .ASCIZ / BUS TIMEOUT/
1155 011166      040      123      124 EM0000: .ASCIZ / STACK PROBLEM WHEN MODE 2 SELECTED/
1156 011232      040      124      111 EM0001: .ASCIZ / TIME-OUT TRAP ON REFERENCING Q-BUS DEVICE REGISTERS/
1157 011317      040      115      101 EM0002: .ASCIZ / MASTER CLEAR NOT RESET BY THE KMV11/
1158 011364      040      113      115 EM0003: .ASCIZ / KMV11 CONTROL AND STATUS REGISTERS CANNOT BE CLEARED/
1159 011452      040      104      101 EM0004: .ASCIZ / DATA COMPARE ERROR ON CSR'S Q-BUS ACCESS/
1160 011524      040      124      110 EM0005: .ASCIZ / THE KMV11 CANNOT CORRECTLY ACCESS SEL0 OR ENTER MODE 2/
1161 011614      040      113      115 EM0006: .ASCIZ / KMV11 NATIVE FIRMWARE CHECKSUM ERROR/
1162 011662      040      122      105 EM0007: .ASCIZ / REVISION CODE DOES NOT MATCH/
1163 011720      040      113      115 EM0010: .ASCIZ / KMV11 CAN'T CORRECTLY READ SEL2/
1164 011761      040      116      117 EM0011: .ASCIZ / NO KMV11-C RESPONSE/
1165 012006      040      121      055 EM0012: .ASCIZ / Q-BUS CAN'T CORRECTLY ACCESS ALL CSR'S/
1166 012056      040      122      101 EM0013: .ASCIZ / RAM LOCATION CANNOT BE CLEARED/
1167 012116      040      104      101 EM0014: .ASCIZ / DATA COMPARE ERROR ON SELECTED RAM LOCATION/
1168 012173      040      104      101 EM0015: .ASCIZ / DATA COMPARE ERROR ON RAM AT LOCATION NOT UNDER TEST/
1169 012261      040      104      101 EM0016: .ASCIZ / DATA COMPARE ERROR ON KMV11 INTERNAL R-W REGISTERS/
1170 012345      040      121      055 EM0017: .ASCIZ / Q-BUS INTERRUPT AT AN UNEXPECTED PRIORITY LEVEL/
1171 012426      040      116      117 EM0020: .ASCIZ / NO INTERRUPT OCCURS ON Q-BUS/
1172 012464      040      116      117 EM0021: .ASCIZ / NO KMV11 INTERRUPT WHEN CSR'S WERE ACCESSED /
1173 012542      040      125      116 EM0022: .ASCIZ / UNEXPECTED KMV11 INTERRUPT DURING A CSR ACCESS/
1174 012622      040      113      115 EM0023: .ASCIZ / KMV11 INTERRUPTED AT ILLEGAL VECTOR WHEN Q-BUS ACCESS CSR'S/
1175 012717      040      122      105 EM0024: .ASCIZ / REAL TIME CLOCK INTERRUPT OCCURS TOO EARLY/
1176 012773      040      122      105 EM0025: .ASCIZ / REAL TIME CLOCK COUNTER RUNS BUT NO INTERRUPT OCCURS/
1177 013061      040      122      105 EM0026: .ASCIZ / REAL TIME CLOCK COUNTER DOES NOT RUN/
1178 013127      040      122      105 EM0027: .ASCIZ / REAL TIME CLOCK CAUSES A KMV11 INTERRUPT AT ILLEGAL VECTOR/
1179 013223      040      113      115 EM0030: .ASCIZ / KMV11 INTERRUPTED WHILE RTC DISABLED/
1180 013271      040      114      111 EM0031: .ASCIZ / LINE CLOCK DOES NOT RUN CORRECTLY/
1181 013334      040      116      117 EM0032: .ASCIZ / NO KMV11 INTERRUPT WHILE TRANSMIT INTERRUPT IS EXPECTED /
1182 013426      040      124      122 EM0033: .ASCIZ / TRANSMIT INTERRUPT AT ILLEGAL VECTOR/
1183 013474      040      125      116 EM0034: .ASCIZ / UNDERRUN INTERRUPT OCCURS/
1184 013527      040      113      115 EM0037: .ASCIZ / KMV11 INTERRUPTED WHILE TRANSMIT INTERRUPT WAS DISABLED/
1185 013620      113      115      126 EM0040: .ASCIZ /KMV11 NOT INTERRUPTED WHILE WAITING AN UNDERRUN/
1186 013700      125      116      104 EM0041: .ASCIZ /UNDERRUN INTERRUPT AT ILLEGAL VECTOR/
1187 013745      113      115      126 EM0042: .ASCIZ /KMV11 INTERRUPTED AGAIN AFTER ACKNOWLEDGE OF UNDERRUN INTERRUPT/
1188 014045      102      123      105 EM0043: .ASCIZ /BSEL2 CAUSES AN UNEXPECTED INTERRUPT ON KMV11/
1189 014123      124      122      101 EM0044: .ASCIZ /TRANSMISSION-RECEPTION PROCESSING FAILS - SEE EVENTS /
1190 014211      125      116      105 EM0045: .ASCIZ /UNEXPECTED STATUS RECEIVED/
1191 014244      125      116      105 EM0046: .ASCIZ /UNEXPECTED DATA RECEIVED/
1192 014275      122      105      103 EM0047: .ASCIZ /RECEIVED INTERRUPT WHILE INTERRUPTS ARE DISABLED/
1193 014356      130      115      124 EM0050: .ASCIZ /XMT-RCV TEST, KMV11 INTERRUPTED ON ILLEGAL VECTOR/
1194 014440      115      117      104 EM0051: .ASCIZ /MODEM SIGNAL BIT SETTING NOT CORRECT/
1195 014505      125      116      105 EM0054: .ASCIZ /UNEXPECTED END OF RECEIVE DMA INTERRUPT/
1196 014555      105      116      104 EM0055: .ASCIZ /END OF TRANSMIT DMA WITHOUT BIT "BCNTIN" SET/
1197 014632      124      111      115 EM0056: .ASCIZ /TIMEOUT DURING TRANSMIT DMA/
1198 014666      104      101      124 EM0057: .ASCIZ /DATA COMPARE ERROR DURING TRANSMIT DMA/
1199 014735      104      101      124 EM0060: .ASCIZ /DATA COMPARE ERROR DURING RECEIVE DMA/
1200 015004      125      116      105 EM0061: .ASCIZ /UNEXPECTED TIMEOUT DURING TRANSMIT DMA/
1201 015053      102      131      124 EM0062: .ASCIZ /BYTE COUNT OVERFLOW DURING RECEIVE DMA/
1202 015122      124      111      115 EM0063: .ASCIZ /TIMEOUT DURING RECEIVE DMA/

```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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1203	015155	104	101	124	EM0064: .ASCIIZ /DATA COMPARE ERROR DURING DMA TRANSFER IN BOTH DIRECTIONS/
1204	015247	106	101	111	EM0065: .ASCIIZ /FAILURE TO DETECT A NON EXISTENT MEMORY DURING A DMA TRANSFER/
1205					.EVEN

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```
1207      ;
1208      ; //////////////////////////////////////
1209      ; ERROR REPORT SECTION
1210      ; //////////////////////////////////////
1211      ; **
1212      ; ERROR REPORT FOR CSR ADDRESS ERROR
1213      ;
1214 015346 BGNMSG PADFLT
1215 015346 PRINTF @TFM36,ADDR,UNIT
1216 015376 004737 007604 CALL CH*MAX
1217 015402 ENDMMSG
1218
1219 015404 045 116 045 TFM36: .ASCIZ /#N#A REGISTER ADDRESS ERROR. ADDRESS = #06#A, UNIT = #02#N/
1220 .EVEN
1221
```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1223
1224
1225
1226
1227
1228 015500
1229 015500
1230 015534 004737 007604
1231 015540
1232
1233 015542
1234 015542
1235 015572 004737 007604
1236 015576
1237
1238 015600
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248 015600
1249 015630
1250 015664 062737 000002 002402
1251 015672 023727 002402 000040
1252 015700 001423
1253 015702 012137 002350
1254 015706 012237 002352
1255 015712
1256 015746 000746
1257 015750 000240
1258 015752 004737 007604
1259 015756
1260
1261 015760
1262
1263
1264
1265
1266
1267
1268 015760
1269 016014 062737 000002 002402
1270 016022 022737 000040 002402
1271 016030 001421
1272 016032 012237 002352
1273 016036
1274 016072 000750
1275 016074 000240
1276 016076 004737 007604
1277 016102
1278
1279 016104 045 116 045

***
; ERROR REPORT FOR KMV11 CGR TEST
;
BGNMSG PRSEL
PRINTB #MSFL,NUMO,BAD,GOOD
CALL CHKMAX
ENDMSG

BGNMSG PRBAD
PRINTB #MBAD,NUMO,BAD
CALL CHKMAX
ENDMSG

BGNMSG PRREG
;
; INPUT: NUMO CONTAINS THE OFFSET OF THE BAD LOCATION
; NUM1 CONTAINS THE OFFSET OF THE SELECTED LOCATION
; DATA CONTAINS THE CURRENT PATTERN
; BAD CONTAINS THE BAD VALUE
; GOOD CONTAINS THE GOOD VALUE
; R1 POINTS ON THE CURRENT OFFSET IN THE SOURCE BUFFER
; R2 POINTS ON THE CURRENT OFFSET IN THE DESTINATION BUFFER
;
PRINTB #MPAT,NUM1,DATA
PRINTB #MSEL,NUMO,BAD,GOOD
2$: ADD #2,NUMO
CMP NUMO,#40
BEQ 1$
MOV (R1)+,GOOD
MOV (R2)+,BAD
PRINTX #MSEL,NUMO,BAD,GOOD
LT 2$
1$: NOP
CALL CHKMAX
ENDMSG

BGNMSG PRALL
;
; INPUT: NUMO CONTAINS THE OFFSET OF THE BAD LOCATION
; BAD CONTAINS THE BAD VALUE
; GOOD CONTAINS THE GOOD VALUE
; R2 POINTS ON THE CURRENT LOCATION IN THE BUFFER
;
PRINTB #MSEL,NUMO,BAD,GOOD
2$: ADD #2,NUMO
CMP #40,NUMO
BEQ 1$
MOV (R2)+,BAD
PRINTX #MSEL,NUMO,BAD,GOOD
BR 2$
1$: NOP
CALL CHKMAX
ENDMSG

MSEL: .ASCIZ /#N#A SEL#02#A = #06#A EXPECTED VALUE = #06/

```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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SEQ 0092

1280	016161	045	116	045	MBAD:	.ASCIZ	/NMA SEL02A READ - 06/
1281	016212	045	116	045	MPAT:	.ASCIZ	/NMA SEL02A UNDER TEST FOR PATTERN - 06/
1282						.EVEN	

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1284      ;/V01.01/
1285      ;
1286      ; ERROR ROUTINE FOR STACK PROBLEM IN MAINT2
1287      ; INPUT: BAD CONTAINS THE BAD VALUE
1288      ;          GOOD CONTAINS THE EXPECTED ONE
1289      ;          SPADDR THE STACK ADDRESS
1290      ;
1291 016266 BGNMSG  PRSTAK
1292 016266          PRINTB  @MSTACK,SPADDR,BAD,GOOD
1293 016322 004737 007604          CALL  CHKMAX
1294 016326      ENDMSG
1295
1296      ;
1297      ; ERROR ROUTINE FOR CHECKSUM ERROR
1298      ; INPUT: BAD CONTAINS THE WRONG CHECKSUM RETURNED BY THE FW
1299      ;
1300 016330 BGNMSG  PRCHK
1301 016330          PRINTB  @MSCHEK,BAD
1302 016354 004737 007604          CALL  CHKMAX
1303 016360      ENDMSG
1304
1305 016362      045      116      045  MSTACK: .ASCIZ  /%N%A LOCATION = %06%A CONTAINS VALUE = %06%A WHEN EXPECTED VALUE = %06/
1306 016470      045      116      045  MSCHEK: .ASCIZ  /%N%A OBTAINED CHECKSUM = %06/
1307      .EVEN

```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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1309
1310
1311
1312
1313
1314
1315

1316 016526
1317 016526 010137 002352
1318 016532
1319 016562 004737 007604
1320 016566

1321
1322 016570 045 116
1323

; ERROR REPORT FOR REVISION CODE
;--

BGNMSG PRREV
MOV R1,BAD
PRINTB @MREV,BAD,REVCOD
CALL CHKMAX
ENDMSG

045 MREV: .ASCIZ /#N#A REVISION CODE = #06#A EXPECTED ONE = #06/
.EVEN

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1325
1326
1327
1328
1329
1330
1331
1332 016650
1333 016650
1334 016700
1335 016730 004737 007604
1336 016734
1337
1338 016736
1339 016736
1340 016766 004737 007604
1341 016772
1342
1343 016774
1344 016774
1345 017030 004737 007604
1346 017034
1347
1348 017036 045 116 045 MRAM0: .ASCIZ /#N#A LOCATION UNDER TEST = #06#A FOR PATTERN = #06/
1349 .EVEN
1350 017122 045 116 045 MRAM1: .ASCIZ /#N#A BAD VALUE = #06#A AT LOCATION = #06/
1351 .EVEN
1352 017174 045 116 045 MRAM2: .ASCIZ /#N#A LOCATION UNDER TEST = #06/
1353 017232 045 116 045 .ASCIZ /#N#A RAM VALUE = #06#A EXPECTED VALUE = #06/
1354 .EVEN

```

VKMMAD KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1356
1357
1358
1359
1360      ; **
1361      ; ERROR REPORT ON Q BUS INTERRUPT TEST
1362      ; -
1363 017310      BGNMSG  PRLVL
1364 017310      PRINTB  @MLVL,GDVEC,BDLVL,GDLVL
1365 017344      004737  007604      CALL  CHKMAX
1366 017350      ENDMSG
1367
1368
1369 017352      045      116      045  MLVL:  .ASCII  /NMA INTERRUPT VECTOR = 03/
1370 017405      045      116      045  .ASCIZ  /NMA AT PRIORITY LEVEL = 03MA EXPECTED = 03/
1371      .EVEN
1372
1373 017466      BGNMSG  PRVEC
1374 017466      PRINTB  @MVEC,GDVEC
1375 017512      004737  007604      CALL  CHKMAX
1376 017516      ENDMSG
1377
1378 017520      045      116      045  MVEC:  .ASCIZ  /NMA EXPECTED INTERRUPT VECTOR = 03/
1379      .EVEN

```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```
1381
1382
1383
1384
1385
1386          ;**
1387          ; ERROR REPORT FOR INTERRUPT ON CSR WRITE ACCESS
1388          ;--
1389 017566      BGNMSG  PRCR
1390 017566      PRINTB  @MCSR,NUM1
1391 017612      004737  007604      CALL  CHKMAX
1392 017616      ENDMSG
1393
1394 017620      045      116      045  MCSR:  .ASCIZ  /NNA  CSR ACCESSED * SEL#02/
1395          .EVEN
1396
1397
1398 017654      BGNMSG  PGCSR
1399 017654      PRINTB  @MGCSR,NUM0
1400 017700      004737  007604      CALL  CHKMAX
1401 017704      ENDMSG
1402
1403 017706      045      116      045  MGCSR:  .ASCIZ  /NNA SEL#01#A ACCESS UNDER TEST/
1404          .EVEN
```

VKMMAD KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```
1406
1407
1408
1409      ;**
1410      ; ERROR REPORT FOR RT CLOCK
1411      ;
1412      BGNMSG  PRPER
1413      PRINTB  @MPER,NUMO
1414      CALL    CHKMAX
1415      ENDMSG
1416
1417      020000      045      116      045  MPER:  .ASCIZ  /NMA  DURING CLOCK PERIOD = 01/
1418      .EVEN
```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1420
1421
1422          ;**
1423          ; ERROR REPORT FOR LINE CLOCK
1424          ;--
1425
1426 020040      BGNMSG  PRRATE
1427 020040      004737 020052      CALL  PRIRAT
1428 020044      004777 007604      CALL  CHKMAX
1429 020050      ENDMSG
1430
1431 020052      016137 020106 002352 PRIRAT: MOV  RATETB(R1),BAD
1432 020060      PRINTB  MRATE,BAD
1433 020104      000207      RETURN
1434
1435 020106      020124      RATETB: RATE0
1436 020110      020132      RATE1
1437 020112      020140      RATE2
1438 020114      020147      RATE3
1439 020116      020154      RATE4
1440 020120      020161      RATE5
1441 020122      020166      RATE6
1442
1443 020124      040      062      056  RATE0: .ASCIZ / 2.4K/
1444 020132      040      071      056  RATE1: .ASCIZ / 9.6K/
1445 020140      040      061      071  RATE2: .ASCIZ / 19.2K/
1446 020147      040      064      070  RATE3: .ASCIZ / 48K/
1447 020154      040      065      066  RATE4: .ASCIZ / 56K/
1448 020161      040      066      064  RATE5: .ASCIZ / 64K/
1449 020166      040      067      062  RATE6: .ASCIZ / 72K/
1450
1451 020173      045      116      045  MRATE: .ASCIZ /NMA SELECTED RATE = #T/
1452          .EVEN

```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1454
1455      ;**
1456      ; ERROR REPORT FOR TEST17
1457      ;--
1457 020224      BGNMSG  PRITRX
1458 020224      004737 020052      CALL  PRIRAT      ;PRINT CLOCK RATE
1459 020230      016537 000004 002360      MOV    SEL4(R5),DATA  ;GET INTERRUPT COUNTER
1460 020236      PRINTB  #MTMOTX,DATA  ;PRINT INTERRUPT COUNT NUMBER
1461 020262      004737 007604      CALL  CHKMAX
1462 020266      ENDMSG
1463
1464 020270      045      116      045  MTMOTX: .ASCIZ  /#N#A INTERRUPT COUNT = #D5/
1465      .EVEN
1466
1467

```

VKMHA0 KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1469
1470
1471      ;**
1472      ; ERROR REPORT FOR RCV TESTS
1473      ;
1474      ; INPUT: R1 CONTAINS THE WORD OFFSET OF LINF RATE VALUE IN A TABLE
1475      ;          BDDAT CONTAINS THE RCV STATUS AND DATA REGISTER VALUE
1476      ;          GDDAT CONTAINS THE CORRESPONDING EXPECTED VALUE OF BDDAT
1477      ;          SEL10 CONTAINS THE FLAG WORD
1478      ; --
1479
1480 020324      BGNMSG  PRDAT
1481 020324      004737 020362      CALL      PRDATG          ;CALL COMMON SUBROUTINE
1482 020330      PRINTX  #MEVT          ;PRINT FLAGWORD IN DETAIL
1483 020350      004737 020446      CALL      COMFLG
1484 020354      004737 007604      CALL      CHKMAX
1485 020360      ENDMSG
1486
1487 020362      016137 020106 002352 PRDATG: MOV      RATEB(R1),BAD
1488 020370      PRINTB  #MRATE,BAD      ;PRINT CLOCK RATE
1489 020414      PRINTB  #MDAT,BDDAT,GDDAT ;PRINT STATUS&DATA REGISTER
1490 020444      000207      RETURN
1491
1492 020446      COMFLG: ;DISPLAY BIT PER BIT THE FLAGWORD CONTAINED IN SEL10
1493
1494 020446      012701 002430      MOV      #BUF01,R1
1495 020452      016502 000010      MOV      SEL10(R5),R2
1496 020456      012703 000001      MOV      #BIT0,R3
1497 020462      005011      1$:      CLR      (R1)
1498 020464      030302      BIT      R3,R2
1499 020466      001401      BEQ      2$
1500 020470      005211      INC      (R1)
1501 020472      2$:
1502 020472      005721      TST      (R1),
1503 020474      006303      ASL      R3
1504 020476      001371      BNE      1$
1505 020500      PRINTX  #EVT0,BUF01      ;BIT0
1506 020524      PRINTX  #EVT1,BUF01+2    ;BIT1
1507 020550      PRINTX  #EVT2,BUF01+4    ;BIT2
1508 020574      PRINTX  #EVT3,BUF01+6    ;BIT3
1509 020620      PRINTX  #EVT4,BUF01+10   ;BIT4
1510 020644      PRINTX  #EVT7,BUF01+16   ;BIT7
1511 020670      PRINTX  #EVT8,BUF01+20   ;BIT8
1512 020714      PRINTX  #EVT9,BUF01+22   ;BIT9
1513 020740      PRINTX  #EVT10,BUF01+24  ;BIT10
1514 020764      PRINTX  #EVT11,BUF01+26  ;BIT11
1515 021010      PRINTX  #EVT12,BUF01+30  ;BIT12
1516 021034      PRINTX  #EVT13,BUF01+32  ;BIT13
1517 021060      PRINTX  #EVT15,BUF01+36  ;BIT15
1518 021104      PRINTB  #MNULL
1519 021124      000207      RETURN
1520
1521 021126      045      116      045  MDAT:  .ASCIZ  /#N#A OBTAINED STATUS&DATA = #06#A EXPECTED ONE = #06/
1522 021214      045      116      045  MNULL: .ASCIZ  /#N#A      #N/
1523 021227      045      116      045  MEVT:  .ASCIZ  /#N#A CURRENT EVENT FLAG SETTING:/
1524 021270      045      116      045  EVT0:  .ASCIZ  /#N#A- XMT DATA LOADING STARTED      BIT = #B1/
1525 021350      045      116      045  EVT1:  .ASCIZ  /#N#A- ALL DATA TRANSMITTED      BIT = #B1/

```

VKMMA0 KHV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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1526	021430	045	116	045	EVT2:	.ASCIIZ	/ENBA	TRX DATA INT. WHILE DISABLED	BIT	= #B1/
1527	021510	045	116	045	EVT3:	.ASCIIZ	/ENBA	UNDERRUN INTERRUPT	BIT	= #B1/
1528	021570	045	116	045	EVT4:	.ASCIIZ	/ENBA	UNDERRUN INTERRUPT AFTER ACK	BIT	= #B1/
1529	021650	045	116	045	EVT7:	.ASCIIZ	/ENBA	UNEXPECTED STATUS RECEIVED	BIT	= #B1/
1530	021730	045	116	045	EVT8:	.ASCIIZ	/ENBA	FIRST EXPECTED STATUS RECEIVED	BIT	= #B1/
1531	022010	045	116	045	EVT9:	.ASCIIZ	/ENBA	LAST EXPECTED STATUS RECEIVED	BIT	= #B1/
1532	022070	045	116	045	EVT10:	.ASCIIZ	/ENBA	UNEXPECTED RCV DATA	BIT	= #B1/
1533	022150	045	116	045	EVT11:	.ASCIIZ	/ENBA	FIRST DATA RECEIVED	BIT	= #B1/
1534	022230	045	116	045	EVT12:	.ASCIIZ	/ENBA	LAST DATA RECEIVED	BIT	= #B1/
1535	022310	045	116	045	EVT13:	.ASCIIZ	/ENBA	RCV DATA INT. WHILE DISABLED	BIT	= #B1/
1536	022370	045	116	045	EVT15:	.ASCIIZ	/ENBA	INTERRUPT AT ILLEGAL VECTOR	BIT	= #B1/
1537								.EVEN		

VKMMA0 KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```
1539  
1540 ; **  
1541 ; PREVT:  
1542 ;  
1543 ; INPUT: R1 CONTAINS THE WORD OFFSET OF LINE RATE VALUE IN A TABLE  
1544 ; SEL10 CONTAINS THE FLAG WORD  
1545 ;  
1545 022450 BGNMSG PREVT  
1546 022450 004737 022462 CALL PREVTG  
1547 022454 004737 007604 CALL CHKMAX  
1548 022460 ENDMSG  
1549  
1550 022462 016137 020106 002352 PREVTG: MOV RATE1B(R1),BAD  
1551 022470 PRINTB @MRATE,BAD  
1552 022514 PRINTB @MEVT  
1553 022534 004737 020446 CALL COMFLG  
1554 022540 000207 RETURN  
1555 .EVEN
```

VKMMAO KMMIIC STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1557
1558
1559
1560
1561
1562
1563
1564
1565 022542
1566 022566 042765 177700 000016
1567
1568 022574
1569 022624
1570 022644 000207
1571
1572 022646
1573 022646 004737 022542
1574 022652 004737 007604
1575 022656
1576
1577 022660
1578 022660 004737 020362
1579 022664 004737 022542
1580 022670 004737 007604
1581 022674
1582
1583 022676
1584 022676 004737 022714
1585 022702 004737 022542
1586 022706 004737 007604
1587 022712
1588
1589 022714 016137 020106 002352
1590 022722
1591 022746 012701 002430
1592 022752 016502 000010
1593 022756 012703 000001
1594 022762 005011
1595 022764 030302
1596 022766 001401
1597 022770 005211
1598 022772
1599 022772 005721
1600 022774 006303
1601 022776 001371
1602 023000
1603 023020
1604 023044
1605 023070
1606 023114
1607 023140
1608 023164
1609 023210
1610 023234
1611 023260
1612 023304
1613 023330

***
; ERROR REPORT DURING TRANSMIT DMA
;
; PDMATG:
; INPUT: SEL12 :CURRENT IRX BYTE COUNT
;        SEL14 AND 16 : CURRENT TRX BUFFER ADDRESS
;
;
; PDMATG: PRINTB #PDMATG1,SEL12(R5)
;          BIC    #177700,SEL16(R5) ;KEEP ONLY VALID BITS OF
;                                     ;EXTENDED ADDRESS
;          PRINTB #PDMATG2,SEL14(R5),SEL16(R5)
;          PRINTB #NULL
;          RETURN
;
; BGNMSG PDMAT1
;        CALL PDMATG
;        CALL CHKMAX
;
; ENDMMSG
;
; BGNMSG PDMAT2
;        CALL PRDATG ;PRINT STATUS&DATA REGISTER
;        CALL PDMATG ;PRINT TRX DMA REGISTERS
;        CALL CHKMAX
;
; ENDMMSG
;
; BGNMSG PDMAT3
;        CALL PEVTTG ;PRINT FLAGWORD
;        CALL PDMATG ;PRINT TRX DMA REGISTERS
;        CALL CHKMAX
;
; ENDMMSG
;
; PEVTTG: MOV RATEB(R1),BAD
;          PRINTB #RATE,BAD
;          MOV #BUF01,R1
;          MOV SEL10(R5),R2
;          MOV #BIT0,R3
; 1$: CLR (R1)
;     BIT R3,R2
;     BEQ 2$
;     INC (R1)
; 2$: TST (R1),
;     ASL R3
;     BNE 1$
;     PRINTB #MEVT
;     PRINTX #EVT0,BUF01 ;BIT0
;     PRINTX #EVT1,BUF01.2 ;BIT1
;     PRINTX #EVT12,BUF01.4 ;BIT2
;     PRINTX #EVB3,BUF01.6 ;BIT3
;     PRINTX #EVB10,BUF01.10 ;BIT4
;     PRINTX #EVB2,BUF01.12 ;BIT5
;     PRINTX #EVT7,BUF01.16 ;BIT7
;     PRINTX #EVT8,BUF01.20 ;BIT8
;     PRINTX #EVT9,BUF01.22 ;BIT9
;     PRINTX #EVR10,BUF01.24 ;BIT10
;     PRINTX #EVT11,BUF01.26 ;BIT11

```

VKMMAO KMV11C STATIC DIAG
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930005

1614	023354					PRINTX	#EVT12,BUF01.30		;BIT12
1615	023400					PRINTX	#EVT13,BUF01.32		;BIT13
1616	023424					PRINTX	#EVT15,BUF01.36		;BIT15
1617	023450					PRINTB	#NULL		
1618	023470	000207				RETURN			
1619									
1620	023472	045	116	045	EVT12:	.ASCIZ	/#N#A UNEXPECTED END OF RCV DMA		BIT = #B1/
1621									
1622	023552	045	116	045	DMATG1:	.ASCIZ	/#N#A CURRENT TRANSMIT DMA BYTE COUNT = #06/		
1623	023625	045	116	045	DMATG2:	.ASCIZ	/#N#A CURRENT TRANSMIT DMA BUFFER ADDRESS = #06/		
1624	023703	045	101	040		.ASCIZ	/#A AND EXTENDED BITS = #06/		
1625						.EVEN			

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1627
1628      ; ERROR REPORT DURING RECEIVE DMA
1629      ;
1630      ; INPUT: SEL12 :CURRENT RCV BYTE COUNT
1631      ;           SEL14 AND 16 : CURRENT RCV BUFFER ADDRESS
1632      ;
1633      ;
1634      ; PDMSG:
1635      ; PRINTB  #DMARG1,SEL12(R5)
1636      ; BIC     #177700,SEL16(R5)           ;KEEP ONLY VALID BITS OF
1637      ;                                           ;EXTENDED ADDRESS
1638      ; PRINTB  #DMARG2,SEL14(R5),SEL16(R5)
1639      ; PRINTB  #NULL
1640      ; RETURN
1641
1642      BGNMSG PDMAR1
1643      CALL PDMARG           ;PRINT RCV DMA REGISTERS
1644      CALL CHKMAX
1645      ENDMMSG
1646
1647      BGNMSG PDMAR2
1648      CALL PRDATG           ;PRINT STATUS&DATA REGISTER
1649      CALL PDMARG           ;PRINT RCV DMA REGISTERS
1650      CALL CHKMAX
1651      ENDMMSG
1652
1653      BGNMSG PDMAR3
1654      CALL PEVTRG           ;PRINT FLAGWORD
1655      CALL PDMARG           ;PRINT RCV DMA REGISTERS
1656      CALL CHKMAX
1657      ENDMMSG
1658
1659      024110 016137 020106 002352 PEVTRG: MOV  RATE1B(R1),BAD
1660      024116      PRINTB  #MRATE,BAD
1661      024142 012701 002430      MOV  #BUF01,R1
1662      024146 016502 000010      MOV  SEL10(R5),R2
1663      024152 012703 000001      MOV  #BIT0,R3
1664      024156 005011      14:  CLR  (R1)
1665      024160 030302      BIT  R3,R2
1666      024162 001401      BEQ  24
1667      024164 005211      INC  (R1)
1668      024166      24:
1669      024166 005721      TST  (R1),
1670      024170 006303      ASL  R3
1671      024172 001371      BNE  14
1672      024174      PRINTB  #MEVT
1673      024214      PRINTX  #EVT0,BUF01           ;BIT0
1674      024240      PRINTX  #EVT1,BUF01+2       ;BIT1
1675      024264      PRINTX  #EVT2,BUF01+4       ;BIT2
1676      024310      PRINTX  #EVT4,BUF01+6       ;BIT3
1677      024334      PRINTX  #EVT10,BUF01+10      ;BIT4
1678      024360      PRINTX  #EVT5,BUF01+12      ;BIT5
1679      024404      PRINTX  #EVT7,BUF01+16      ;BIT7
1680      024430      PRINTX  #EVT8,BUF01+20      ;BIT8
1681      024454      PRINTX  #EVT9,BUF01+22      ;BIT9
1682      024500      PRINTX  #EVT15,BUF01+36     ;BIT15
1683      024524      PRINTB  #NULL

```

VKMMA0 KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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1684	024544	000207			RETURN		
1685							
1686	024546	045	116	045	EVR2: .ASCIZ	/NMA- UNEXPECTED END OF TRX DMA	BIT = #B1/
1687	024626	045	116	045	EVR10: .ASCIZ	/NMA- DATA COMPARE ERROR	BIT = #B1/
1688							
1689	024706	045	116	045	DMARG1: .ASCIZ	/NMA CURRENT RECEIVE DMA BYTE COUNT = #06/	
1690	024761	045	116	045	DMARG2: .ASCII	/NMA CURRENT RECEIVE DMA BUFFER ADDRESS = #06/	
1691	025036	045	101	040	.ASCIZ	/A AND EXTENDED BITS = #06/	
1692					.EVEN		

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1694
1695      ;**
1696      ; ERROR REPORT DATA COMPARE ERROR DURING RECEIVE DMA
1697      ;
1698      ; INPUT: BAD CONTAINS THE BAD VALUE RECEIVED IN THE RCVBUF
1699      ;           GOOD CONTAINS THE EXPECTED VALUE
1700      ;           R1 POINTS ON THE PATTERN BUFFER, WHICH IS THE REFERENCE BUFFER
1701      ;           R2 POINTS ON NEXT LOCATION IN THE RECEIVE BUFFER
1702      ;           R3 CONTAINS THE END REFERENCE BUFFER ADDRESS
1703      ;--
1703 025072 BGNMSG  PRDMAR
1704 025072      PRINTB  @DMAR1,BAD,GOOD
1705 025122 112137 002350 1$:  MOVB  (R1)+,GOOD      ;NEXT EXPECTED VALUE
1706 025126 112237 002352      MOVB  (R2)+,BAD      ;NEXT RECEIVED VALUE
1707 025132 020301      CMP  R3,R1      ;END OF BUFFER ?
1708 025134 002415      BLT  2$      ;YES
1709 025136      PRINTB  @DMAR2,BAD,GOOD
1710 025166 000755      BR  1$
1711 025170 000240 2$:  NOP
1712 025172      PRINTB  @NULL
1713 025212 004737 007604      CALL  CHKMAX
1714 025216      ENDMSG
1715 025220      045      116      045  DMAR1:  .ASCIZ  /%N% BAD VALUE =      %03%A      EXPECTED VALUE = %03/
1716 025305      045      116      045  DMAR2:  .ASCIZ  /%N% NEXT LOCATION = %03%A      EXPECTED VALUE = %03/
1717      .EVEN
1718

```

VKMHA0 KHV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1720      ;**
1721      ; ERROR REPORT DURING DMA TRANSFER IN BOTH DIRECTIONS
1722      ;
1723      ; INPUT: SEL12 :CURRENT TRX BYTE COUNT
1724      ;           SEL14 AND 16 : CURRENT TRX BUFFER ADDRESS
1725      ;           SEL20 :CURRENT RCV BYTE COUNT
1726      ;           SEL22 AND 24: CURRENT RCV BUFFER ADDRESS
1727      ;---
1728 025372 PD MRTG: PRINTB  #DMATG1,SEL12(R5)
1729 025416 042765 177700 000016 BIC      #177700,SEL16(R5)      ;KEEP ONLY VALID BITS IN
1730                                     ;EXTENDED ADDRESS
1731 025424 PRINTB  #DMATG2,SEL14(R5),SEL16(R5)
1732 025454 PRINTB  #DMARG1,SEL20(R5)
1733 025500 042765 177700 000024 BIC      #177700,SEL24(R5)      ;KEEP ONLY VALID BITS IN
1734                                     ;EXTENDED ADDRESS
1735 025506 PRINTB  #DMARG2,SEL22(R5),SEL24(R5)
1736 025536 PRINTB  #NULL
1737 025556 000207 RETURN
1738
1739 025560 BGNMSG PD MART
1740 025560 004737 025372 CALL      PD MRTG
1741 025564 004737 007604 CALL      CHKMAX
1742 025570 ENDMMSG
1743
1744 025572 BGNMSG PD MAB1
1745 025572 004737 020362 CALL      PRDATG      ;PRINT STATUS&DATA REGISTER
1746 025576 004737 025372 CALL      PD MRTG      ;PRINT TRX AND RCV DMA REGISTERS
1747 025602 004737 007604 CALL      CHKMAX
1748 025606 ENDMMSG
1749
1750 025610 BGNMSG PD MAB2
1751 025610 004737 025626 CALL      PEVTBG      ;PRINT FLAGWORD
1752 025614 004737 025372 CALL      PD MRTG      ;PRINT TRX AND RCV DMA REGISTERS
1753 025620 004737 007604 CALL      CHKMAX
1754 025624 ENDMMSG
1755
1756 025626 016137 020106 002352 PEVTBG: MOV      RATETB(R1),BAD
1757 025634 PRINTB  #MRATE,BAD
1758 025660 012701 002430 MOV      #BUF01,R1
1759 025664 016502 000010 MOV      SEL10(R5),R2
1760 025670 012703 000001 MOV      #BIT0,R3
1761 025674 005011 1$: CLR      (R1)
1762 025676 030302 BIT      R3,R2
1763 025700 001401 BEQ      2$
1764 025702 005211 INC      (R1)
1765 025704 2$:
1766 025704 005721 TST      (R1),
1767 025706 006303 ASL      R3
1768 025710 001371 BNE      1$
1769 025712 PRINTB  #MEVT
1770 025732 PRINTX  #EVT0,BUF01      ;BIT0
1771 025756 PRINTX  #EVT1,BUF01.2    ;BIT1
1772 026002 PRINTX  #EVB2,BUF01.4    ;BIT2
1773 026026 PRINTX  #EVB3,BUF01.6    ;BIT3
1774 026052 PRINTX  #EVB4,BUF01.10   ;BIT4
1775 026076 PRINTX  #EVB5,BUF01.12   ;BIT5
1776 026122 PRINTX  #EVT7,BUF01.16   ;BIT7

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1777	026146				PRINTX	#EVT8,BUF01.20		;BIT8
1778	026172				PRINTX	#EVT9,BUF01.22		;BIT9
1779	026216				PRINTX	#EVB10,BUF01.24		;BIT10
1780	026242				PRINTX	#EVT15,BUF01.36		;BIT15
1781	026266				PRINTB	#NULL		
1782	026306	000207			RETURN			
1783	026310	045	116	045	EVB2:	.ASCIZ /#N#A- TIMEOUT DURING TRANSMIT DMA		BIT - #81/
1784	026370	045	116	045	EVB3:	.ASCIZ /#N#A- END OF TRX DMA WITHOUT BCNTIN		BIT - #81/
1785	026450	045	116	045	EVB4:	.ASCIZ /#N#A- OVERFLOW DURING RCV DMA		BIT - #81/
1786	026530	045	116	045	EVB5:	.ASCIZ /#N#A- TIMEOUT DURING RECEIVE DMA		BIT - #81/
1787	026610	045	116	045	EVB10:	.ASCIZ /#N#A- UNDERRUN INTERRUPT OCCURS		BIT - #81/
1788								

VKMM40 KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```
1790
1791      ;**
1792      ; ERROR REPORT FOR MODEM SIGNAL TEST
1793      ;
1794      BGNMSG  PRMDM
1795      PRINTB  @MMOD0,DATA
1796      PRINTB  @MMOD1,BAD,GOOD
1797      CALL    CHKMAX
1798      ENDMMSG
1799
1800      026752      045      116      045  MMOD0:  .ASCIZ  /%N%A  MODEM CONTROL BITS SET IN PORT B = %88/
1801      027026      045      116      045  MMOD1:  .ASCII  /%N%A  MODEM CONTROL BITS READ IN PORT A = %88/
1802      027102      045      101      040      .ASCIZ  /%A  EXPECTED BITS = %88/
1803
1804      .EVEN
```

VKMMAO KMV11C STATIC DIAG
GLOBAL ERROR REPORT SECTION

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```

1806
1807
1808
1809
1810
1811      ;**
1812      ; ERROR REPORT FOR KMV11 R/W INTERNAL REGISTERS
1813      ;--
1814 027134      BGNMSG  INREG
1815 027134      013702  002352      MOV      BAD,R2
1816 027140      005742      TST      -(R2)
1817 027142      016237  027230  027226      MOV      REGTB(R2),REGIN
1818 027150      PRINTB  REGIN
1819 027170      PRINTB  @INDAT,BDDAT,DATA
1820 027220      004737  007604      CALL     CHKMAX
1821 027224      ENDMMSG
1822
1823 027226      000000      REGIN:  0
1824
1825 027230      027244  027276  027331  REGTB:  INRG1,INRG2,INRG3,INRG4,INRG5,INRG6
1826
1827 027244      045      116      045  INRG1:  .ASCIZ  /%N%A BYTE COUNT OUT ERROR/
1828 027276      045      116      045  INRG2:  .ASCIZ  /%N%A BUS ADDRESS OUT ERROR/
1829 027331      045      116      045  INRG3:  .ASCIZ  /%N%A EXT. ADDRESS OUT ERROR/
1830 027365      045      116      045  INRG4:  .ASCIZ  /%N%A BYTE COUNT IN ERROR/
1831 027416      045      116      045  INRG5:  .ASCIZ  /%N%A BUS ADDRESS IN ERROR/
1832 027450      045      116      045  INRG6:  .ASCIZ  /%N%A EXT. ADDRESS IN ERROR/
1833
1834 027503      045      101      040  INDAT:  .ASCIZ  /%A DATA READ = %06%A   EXPECTED DATA = %06/
1835      .EVEN
1836
1837
1838

```

VKMMAO KMV11C STATIC DIAG
INITIALIZE SECTION

MACRO M1200 22 AUG-83 14:36 PAGE 56

```

1840 .SBTTL INITIALIZE SECTION
1841
1842
1843 ;**
1844 ; THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
1845 ; AT THE BEGINNING OF EACH PASS.
1846 ;
1847 027556 BGNINIT
1848
1849
1850 .IF NE HELP
1851 ;*****
1852 ; THE INITIALIZE CODE IS EXECUTED UNDER FIVE CONDITIONS. THERE
1853 ; ARE SUPERVISOR EVENT FLAGS THAT ARE USED TO LET THE
1854 ; DIAGNOSTIC KNOW UNDER WHICH CONDITION THE EXECUTION IS TAKING
1855 ; PLACE. THE EVENT FLAGS ARE READ USING THE "READEF" MACRO.
1856 ; THE CONDITIONS UNDER WHICH THE INIT CODE IS EXECUTED AND THE
1857 ; CORRESPONDING EVENT FLAGS ARE:
1858 ; START COMMAND EF.START
1859 ; RESTART COMMAND EF.RESTART
1860 ; CONTINUE COMMAND EF.CONTINUE
1861 ; POWERDOWN/POWERUP EF.PWR
1862 ; NEW PASS EF.NEW
1863 ; EXAMPLE OF EVENT FLAG USE:
1864 ; READEF #EF.START
1865 ; BCOMPLETE STARTCODE
1866 ; DURING THE INIT CODE, USE THE "GPHARD" MACRO TO OBTAIN P-TABLE
1867 ; INFORMATION FOR DEVICE TESTING. GET ONE UNIT'S INFORMATION IF
1868 ; THIS IS A SEQUENTIAL DIAGNOSTIC. GET INFORMATION ON ALL
1869 ; UNITS AVAILABLE FOR TESTING IF THIS IS AN EXERCISER. THE NUMBER
1870 ; OF UNITS AVAILABLE IS IN A HEADER LOCATION: "L$UNIT".
1871 ;*****
1872 .ENDC
1873 .IF NE HELP
1874 ;*****
1875 ; INSERT LOCAL STORAGE THAT IS USED ONLY
1876 ; DURING THE INITIALIZE SECTION.
1877 ;*****
1878
1879 ;*****
1880 ; INSERT MESSAGES THAT ARE USED ONLY
1881 ; DURING THE INITIALIZE SECTION.
1882 ;*****
1883 .ENDC
1884
1885 .EVEN
1886
1887
1888
1889
1890 027556 005737 002340 TST FTIME ;IS THE FIRST PASS?
1891 027562 001011 BNE 1$ ;IF NOT
1892 027564 013737 000004 002344 MOV @#4,SAVE4 ;SAVE TIME-OUT TRAP VECTOR IF YES
1893 027572 013737 000006 002346 MOV @#6,SAVE6
1894 027600 012737 000001 002340 MOV #1,FTIME ;THEN SET FIRST PASS FLAG
1895
1896 027606 013737 002344 000004 1$: MOV SAVE4,@#4 ;RESTORE TRAP VECTOR

```

VKMMAO KMV11C STATIC DIAG
INITIALIZE SECTION

MACRO M1200 22-AUG-83 14:36 PAGE 56-1

```

1897 027614 013737 002346 000006      MOV      SAVE6,B#6
1898
1899                                ;SEE IF PROGRAM WAS JUST CONTINUE      ; /V01.04/
1900 027622                                READDEF #EF.CONTINUE
1901 027630                                BCOMPLETE      ENDINI
1902
1903                                ;SEE IF PROGRAM JUST STARTED, BR IF YES
1904 027632                                READDEF #EF.START
1905 027640                                BCOMPLETE      SETUP
1906
1907                                ;SEE IF THIS IS A NEW PASS, BR IF YES
1908 027642                                READDEF #EF.NEW
1909 027650                                BNCOMPLETE      NEXT
1910
1911
1912 027652                                SETUP:
1913 027652 012737 177777 002514      MOV      #-1,UUT      ;INIT UNIT NUMBER
1914 027660                                NEXT:
1915                                ;TEST IF ALL UNITS TESTED
1916 027660 005237 002514      INC      UUT
1917
1918                                ;GET P-TABLE IF AVAILABLE FOR THIS UNIT
1919 027664                                GPHARD UUT,R1
1920 027674                                BNCOMPLETE      NEXT      ;IF NOT, TRY THE NEXT ONE
1921
1922                                ;GET KMV11-C CSR ADDRESS
1923 027676 012137 002474      MOV      (R1)+,KMVCSR      ;LOAD CSR ADDRESS
1924
1925                                ;GET KMV11 INTERRUPT VECTORS
1926 027702 011137 002476      MOV      (R1),KMVV00
1927 027706 012137 002500      MOV      (R1)+,KMVV04
1928 027712 062737 000004 002500      ADD      #4,KMVV04
1929
1930                                ;GET KMV11 PRIORITY
1931 027720 012137 002502      MOV      (R1)+,KMVLVL
1932
1933                                ;GET LOOP INDICATOR
1934 027724 012137 002366      MOV      (R1)+,LCLOOP
1935
1936                                ;GET KMV11 LINE CLOCK RATE
1937 027730 012137 002362      MOV      (R1)+,RATE
1938
1939 027734      10$:
1940
1941                                ; LONG RAM TEST SELECTION
1942 027734 012137 002406      MOV      (R1)+,RMTST      ; KEEP ANSWER
1943
1944                                ; PRINT RUNNING MESSAGE
1945 027740 013701 002514      MOV      UUT,R1
1946 027744      PRINTF #RUNNING,R1      ;PRINT RUNNING MESSAGE
1947
1948                                ;INCREMENT LOGICAL UNIT (DEVICE) NUMBER
1949 027766 005037 002524      CLR      ERRCNT      ;CLEAN ERROR COUNTER
1950 027772      EXIT      INIT
1951
1952                                ENDINI:
1953 027776                                ENDINIT

```

VKMMAO KHV11C STATIC DIAG
INITIALIZE SECTION

MACRO M1200 22 AUG 83 14:36 PAGE 56-2

1954
1955 030000 045 116 045 RUNNING: .ASCIZ /ENBA RUNNING ON UNIT #D2BA, PASS TIME IS 2 MIN WITHOUT LONG RAM TEST/
1956 .EVEN
1957
1958
1959
1960
1961
1962

VKMM40 KMV11C STATIC DIAG
AUTODROP SECTION

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```

1964      .SBTTL  AUTODROP SECTION
1965
1966      ;
1967      ; THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
1968      ; THE "ADR" FLAG WAS SET.  THE UNIT(S) UNDER TEST ARE CHECKED TO
1969      ; SEE IF THEY WILL RESPOND.  THOSE THAT DON'T ARE IMMEDIATELY
1970      ; DROPPED FROM TESTING.
1971      ;
1972      .EVEN
1973 030106      BGNAUTO
1974
1975      .IF NE HELP
1976      ;*****
1977      ;      INSERT CODE HERE TO CHECK DEVICE(S) TO SEE IF THEY RESPOND.
1978      ;      ISSUE A "DODU" FOR THOSE THAT DON'T.
1979      ;*****
1980      .ENDC
1981
1982
1983
1984      ;DEVICE DOES NOT HAVE A "READY"
1985 030106 013701 002474      MOV      KMVCSR,R1      ;R1 CONTAINS BASE KMV11 ADDRESS
1986 030112 012705 000020      MOV      #16.,R5      ;16 REGISTERS TO BE TESTED
1987 030116 012737 030150 000004      MOV      #21.4      ;SET OUT TIMEOUT TRAP
1988 030124 012737 000340 000006      MOV      #340.6      ;LEVEL 7
1989 030132 005711      11:      TST      (R1)      ;REFERENCE DEVICE REGISTERS
1990 030134 000240      NOP
1991 030136 062701 000002      ADD      #2,R1      ;NEXT REGISTER
1992 030142 005305      DEC      R5      ;DEC REGISTER COUNT
1993 030144 001372      BNE      11      ;BR IF NOT LAST REGISTER
1994 030146 000405      BR      31
1995
1996 030150 062706 000004      21:      ADD      #4,SP
1997 030154      DODU      LOGDEV
1998
1999 030162 013737 002344 000004      31:      MOV      SAVE4.4
2000 030170 013737 002346 000006      MOV      SAVE6.6
2001 030176      ENDAUTO
2002
2003
2004
2005

```

VKMM40 KMV11C STATIC DIAG
CLEANUP CODING SECTION

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2007
2008
2009
2010
2011
2012
2013
2014 030200
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039 030200
2040
2041 030202
2042
2043
2044
2045
2046

.SBTTL CLEANUP CODING SECTION

;/;;;
;/ THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
;/ AT THE END OF EACH PASS.
;/;;;

BGNCLN

.IF NE HELP

; INSERT YOUR CLEANUP CODING. THIS CODING SHOULD
; RESTORE YOUR TEST-DEVICE TO A NEUTRAL STATE.
; THIS CODE WILL BE EXECUTED AFTER EACH PASS AND AFTER THE
; PROGRAM IS INTERRUPTED BY "PC".

.ENDC

.IF NE HELP

; INSERT LOCAL STORAGE THAT IS USED ONLY
; DURING THE CLEANUP SECTION.

; INSERT MESSAGES THAT ARE USED ONLY
; DURING THE CLEANUP SECTION.

.ENDC

BRESET

ENDCLN

VKMMA0 KMV11C STATIC DIAG
DROP UNIT SECTION

MACRO M1200 22 AUG-83 14:36 PAGE 59

```

2048 .SBTTI DROP UNIT SECTION
2049
2050 ;////////////////////////////////////
2051 ; THE DROP UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
2052 ; TO NO LONGER BE TESTED.
2053 ;////////////////////////////////////
2054
2055 030204 BGNDU
2056
2057
2058
2059 .IF NE HELP
2060 ;*****
2061 ; INSERT DROP CODE HERE. THIS CODE WILL BE EXECUTED AFTER
2062 ; A "DROP" COMMAND OR A "DODU" MACRO EXECUTION. THE PURPOSE
2063 ; OF THIS CODE IS TO DO ANY NECESSARY HOUSEKEEPING AFTER A
2064 ; UNIT HAS BEEN DROPPED. THIS SECTION IS OPTIONAL.
2065 ;*****
2066 .ENDC
2067
2068 .EVEN
2069 030204 PRINTF @DROPD,RO ;PRINT "UNIT DROPPED" MESSAGE
2070 030226 EXIT DU
2071
2072 030232 045 116 045 DROPD: .ASCIZ /%N%A UNIT %D2%A DROPPED/
2073 .EVEN
2074
2075
2076 .IF NE HELP
2077 ;*****
2078 ; INSERT LOCAL STORAGE THAT IS USED ONLY
2079 ; DURING THE DROP-UNIT SECTION.
2080 ;*****
2081
2082 ;*****
2083 ; INSERT MESSAGES THAT ARE USED ONLY
2084 ; DURING THE DROP-UNIT SECTION.
2085 ;*****
2086 .ENDC
2087
2088 .EVEN
2089
2090
2091 ;ISSUE Q-BUS RESET TO CLEAN UP
2092 030262 BRESET
2093 030264 ENDDU
2094
2095
2096
2097
2098

```

VKMMA0 KVM11C STATIC DIAG
ADD UNIT SECTION

MACRO M1200 22 AUG 83 14:36 PAGE 60

2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119 030266
2120 030266
2121
2122
2123
2124
2125
2126

.SBTTL ADD UNIT SECTION

;/;;;
;/ THE ADD UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
;/ TO BE (A) TESTED FOR THE FIRST TIME, OR (B) RESUMED IN TESTING. IF
;/ "EF.AUNIT" IS SET, THE UNIT WILL BE TESTED AS A NEW UNIT.
;/;;;

.IF NE HELP

;;
; INSERT ADD CODE HERE. THIS CODE WILL BE EXECUTED AFTER
; AN "ADD" COMMAND. THE PURPOSE OF THIS CODE IS TO DO ANY
; HOUSEKEEPING THAT MAY BE NECESSARY AFTER A UNIT HAS BEEN ADDED.
; THIS SECTION IS OPTIONAL.
;;
.ENDC

BGNAU
ENDAU

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

M CRO M1700 22 AUG-83 14:36 PAGE 61

```

2131
2132 .IF NE HELP
2133 ; TEST TO ...
2134
2135 ;*****
2136 ; CHANGE THE PHRASE "TEST TO ..." TO BE A FUNCTIONAL
2137 ; DESCRIPTION OF THE HARDWARE TEST WHICH FOLLOWS.
2138 ;*****
2139 .ENDC
2140
2141 .IF NE HELP
2142 ;*****
2143 ; INSERT PROGRAM EQUATES THAT ARE USED ONLY IN THIS TEST.
2144 ;*****
2145
2146 ; BGNTST
2147
2148 ;*****
2149 ; INSERT THE CODING FOR THIS HARDWARE TEST.
2150 ;*****
2151
2152 ; EXIT TST
2153
2154 ;*****
2155 ; INSERT LOCAL STORAGE THAT IS USED ONLY
2156 ; DURING THIS TEST.
2157 ;*****
2158
2159 ;*****
2160 ; INSERT MESSAGES THAT ARE USED ONLY
2161 ; DURING THIS TEST.
2162 ;*****
2163
2164 ; .EVEN
2165 ; .ENDTST
2166
2167 ;*****
2168 ; BEGIN THE REMAINING TESTS ON NEW PAGES.
2169 ;*****
2170
2171
2172
2173 .ENDC
2174
2175 030270 BADHEAD
2176 ;**
2177 ;
2178 ;
2179 ;
2180 ; ** TEST1 **
2181 ;
2182 ;
2183 ;
2184 ;
2185 ; TEST Q BUS ACCESS ON ALL KMV11 CSR'S

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

MACRO M1200 22 AUG 83 14:36 PAGE 61 1

```

2178
2179      ;
2180      ; DESCRIPTION:  VERIFY THAT REFERENCING KMV11 CSR'S DOES NOT CAUSE A
2181      ;                  TIME OUT TRAP
2182      ;
2183      ; REPORT:        ERROR 1          TIME-OUT ERROR
2184      ;
2185
2186 030270      BGNTST
2187 030270      013705 002474      MOV      KMVCSR,R5      ;R5 CONTAINS BASE KMV11 ADDRESS
2188 030274      012701 000020      MOV      @CSRLN,R1      ;16 REGISTERS TO BE TESTED
2189 030300      012737 030330 000004      MOV      @2,.4      ;SET OUT TIMEOUT TRAP
2190 030306      012737 000340 000006      MOV      @340.6      ;LEVEL 7
2191 030314      005715      1$:      TST      (R5)      ;REFERENCE DEVICE REGISTERS
2192 030316      000240      NOP
2193 030320      062705 000002      ADD      @2,R5      ;NEXT REGISTER
2194 030324      077105      SOB      R1,1$      ;LOOP ON ALL CSR REGISTERS
2195 030326      000417      BR      3$
2196 030330      062706 000004      2$:      ADD      @4,SP
2197 030334      010537 002520      MOV      R5,ADDR
2198 030340      013737 002514 002516      MOV      UUT,UNIT
2199 030346      ERRHRD 0,EM0001,PADFLT ;TIMEOUT ERROR
2200
2201 030356      DODU      UUT      ; DROP THIS UNIT /V01.04/
2202 030364      DOCLN      ; END OF SUBPASS /V01.04/
2203 030366      013737 002344 000004      3$:      MOV      SAVE4.4
2204 030374      013737 002346 000006      MOV      SAVE6.6
2205 030402      ESCAPE  TST
2206
2207
2208 030406      ENDTST
2209      .EVEN

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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2211 030410

BADHEAD

:

:

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** TEST2 **

TEST THAT ALL CSR'S CAN BE CLEARED

DESCRIPTION: THE HOST CLEARS ALL CSR'S THEN IT TESTS THEM FOR ALL ZERO.

REPORTS: ERROR 3 ALL CSR'S CAN'T BE CLEARED

BGNTST

2212
2213
2214
2215
2216
2217
2218
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2240
2241
2242
2243
2244
2245
2246
2247
2248

030410
030410
030414
030420
030426
030432
030436
030442
030446
030452
030456
030462
030466
030472
030476
030500
030510
030514
030516

013705 002474
012701 002532
012737 000020
004737 011052
012701 002532
013702 002474
004737 011074
013701 002474
012702 002572
004737 011074
012701 002532
012702 002572
004737 010356
103006

002470

BGNTST

MOV KMVCSR,R5
MOV #REGSPC,R1
MOV #CSRLN,BUFLEN
CALL CLEAR
MOV #REGSPC,R1
MOV KMVCSR,R2
CALL COPY
MOV KMVCSR,R1
MOV #WRKSPC,R2
CALL COPY
MOV #REGSPC,R1
MOV #WRKSPC,R2
CALL COMPAR
BCC 14
ERRHRD 3,EM0003,PRALL
ESCAPE TST

;GET CSR ADDRESS
;GET IMAGE SPACE ADDRESS
;LOAD LENGTH IN BYTES
;CLEAR REGSPC BUFFER
;SOURCE BUFFER ADDRESS
;DESTINATION BUFFER ADDRESS
;COPY REGSPC BUFFER IN CSR
;GET SOURCE
;GET DESTINATION BUFFER ADDRESS
;COPY CSR IN WORK SPACE
;GET SOURCE BUFFER 1
;GET SOURCE BUFFER 2
;COMPARE BOTH
;NO ERROR

14:
ENDTST
.EVEN

NOP

VKMM40 KHV11C STATIC DIAG
HARDWARE TESTS

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2250 030520

BADHEAD

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.. TEST3 ..

: TEST THAT THE KHV11 CAN BE INITIALIZED

: DESCRIPTION: THE HOST SETS SELO TO ENTER MAINTENANCE MODE 3
: AFTER MASTER CLEAR.
: UPON COMPLETION OF INITIALISATION , THE DCT11
: MUST CLEAR MCLR THEN ENTER MODE 3 (THE DCT11 LOOPS
: ON ITSELF)

: REPORT: ERROR . MASTER CLEAR FAILS TO RESET

: -

BGNTST

MODE 3

ENDTST

.EVEN

2251
2252
2253
2254
2255
2256
2257
2258
2259
2260
2261
2262
2263
2264
2265 030520
2266 030520
2267 030524
2268
2269

VKMAG KMV11C STATIC DIAG
HARDWARE TESTS

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2271 030526

BADHEAD

** TEST4 **

2272

2273

2274

2275

2276

2277

2278

2279

2280

2281

2282

2283

2284

2285

2286

2287

2288

2289

2290

2291

2292

2293

2294 030526

2295 030526 012704 000002

2296 030532 004737 011116

2297 030536

2298 030542 103002

2299 030544

2300 030550

2301 030550 005065 000000

2302

2303 030554 012701 002532

2304 030560 004737 011052

2305

2306 030564 060405

2307 030566 012703 007204

2308 030572 012337 002360

2309 030576 013715 002360

2310 030602 013764 002360 002532

2311

2312 030610 013701 002474

2313 030614 012702 002572

2314 030620 004737 011074

2315

2316 030624 012701 002532

2317 030630 012702 002572

BGNTST

```

1$:  MOV    #2,R4          ;START AT OFFSET 2, TO SAVE SELO
      CALL  CLRKMV         ;CLEAN CSR'S AND GET CSR ADDRESS IN R5
      MODE  3              ;SELECT MODE 3
      BCC   1000$         ;
      ESCAPE TST
1000$: CLR    SELO(R5)      ;CLEAN SELO

      MOV    #REGSPC,R1    ;GET SOURCE BUFFER ADDRESS
      CALL   CLEAR        ;CLEAR REGSPC IMAGE SPACE

      ADD    R4,R5         ;ADD OFFSET TO CSR
      MOV    #PATTRN,R3    ;INIT PATTERN TABLE OFFSET
      MOV    (R3)+,DATA    ;READ CURRENT PATTERN
      MOV    DATA,(R5)    ;WRITE IT IN THE SELECTED CSR
      MOV    DATA,REGSPC(R4) ;SAVE IT IN CSR GOOD IMAGE SPACE

2$:  MOV    KMVCSR,R1      ;GET SOURCE BUFFER ADDRESS
      MOV    #WRKSPC,R2    ;GET DESTINATION BUFFER ADDRESS
      CALL   COPY         ;COPY CSR IN WORK SPACE

      MOV    #REGSPC,R1    ;GET SOURCE BUFFER 1 ADDRESS
      MOV    #WRKSPC,R2    ;GET SOURCE BUFFER 2 ADDRESS

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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2318	030634	004737	010356	CALL	COMPAR	;COMPARE BOTH
2319	030640	103010		BCC	38	;CORRECT
2320	030642	010437	002404	MOV	R4,NUM1	;SAVE OFFSET FOR ERROR REPPORT
2321	030646			ERRHRD	4,EM0004,PRREG	;IF NOT, REPORT
2322	030656			ESCAPE	TST	
2323						
2324	030662	005713		38:	TST (R3)	;ANY MORE PATTERN?
2325	030664	001342			BNE 28	;YES LOOP
2326						
2327	030666	005724			TST (R4).	;NEXT OFFSET
2328	030670	022704	000040		CMP 040,R4	;ANY-MORE?
2329	030674	003316			BGT 18	;YES-LOOP
2330						
2331	030676	000240			NOP	
2332	030700			ENDTST		
2333				.EVEN		
2334						

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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2336 030702

BADHEAD

*** TEST5 ***

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2360 030702

2361 030702 004737 011116

2362 030706

2363 030712 103002

2364 030714

2365 030720

2366 030720 005065 000000

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2368 030724 012701 002532

2369 030730 004737 011052

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2371 030734 012703 007204

2372 030740 012337 002360

2373 030744 042737 040000 002360

2374 030752 013737 002360 002532

2375 030760 013765 002360 000000

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2377 030766 013701 002474

2378 030772 012702 002572

2379 030776 004737 011074

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2381 031002 012701 002532

2382 031006 012702 002572

TEST Q-BUS ACCESS ON SELO CSR

DESCRIPTION: THE HOST CLEARS ALL CSR'S THEN WRITES ONE PATTERN
IN SELO SUCH AS:
SELO=PATTERN & 1'S COMP OF MCLR
THEN THE HOST CHECKS SELO FOR PATTERN & 1'S COMP MCLR
AND ALL OTHER CSR FOR ZERO.

MAINT MODE: 3

PATTERNS: ALL 0
ALL 1
052525
125252
ROTATING 0
ROTATING 1

REPORTS: ERROR 2 MASTER FAILS TO RESET
ERROR 5 DATA COMPARE ERROR ON SELO

BGNTST

CALL CLRKMV ;CLEAR ALL CSR'S AND GET CSR ADDR. IN R5
MODE 3 ;SELECT MAINTENANCE MODE 2
BCC 1000\$

ESCAPE TST

1000\$:

CLR SELO(R5) ;CLEAN SELO

MOV #REGSPC,R1 ;GET SOURCE BUFFER ADDRESS
CALL CLEAR ;CLEAR REGSPC BUFFER IMAGE SPACE

1\$:

MOV #PATTRN,R3 ;INIT PATTERN OFFSET
MOV (R3)+,DATA ;READ CURRENT PATTERN
BIC #MCLR,DATA ;CLEAR "MASTER CLEAR" BIT
MOV DATA,REGSPC ;SAVE IT IN CSR'S GOOD IMAGE
MOV DATA,SELO(R5) ;WRITE IT IN SELO

MOV KMVCSR,R1 ;GET CSR ADDRESS
MOV #WRKSPC,R2 ;GET WORK SPACE ADDRESS
CALL COPY ;COPY CSR IN WORK SPACE

MOV #REGSPC,R1 ;GET SOURCE BUFFER 1 ADDRESS
MOV #WRKSPC,R2 ;GET SOURCE BUFFER 2 ADDRESS

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2383	031012	004737	010356	CALL	COMPAR		;COMPARE BOTH
2384	031016	103010		BCC	2\$		;CORRECT
2385							
2386	031020	005037	002404	CLR	NUM1		;GET OFFSET FOR ERROR REPPORT
2387	031024			ERRHRD	5,EM0004,PRREG		;NO-REPORT
2388	031034			ESCAPE	TST		
2389							
2390	031040	005713		2\$: TST	(R3)		;ANY-MORE PATTERN
2391	031042	001356		BNE	1\$		;YES-LOOP
2392							
2393	031044	000240		NOP			
2394	031046			ENDTST			
2395				.EVEN			
2396							
2397							

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•• TEST6 ••

TEST DATA TRANSFER THROUGH SELO

DESCRIPTION: TEST IN TWO PARTS:

THE FIRST TRIES TO ENTER CORRECTLY
MAINTENANCE MODE 2(MAINT1) AFTER MASTER CLEAR,
GIVEN THE DCT11 THE POSSIBILITY TO RUN TEST ROUTINES.
THE HOST SETS SELO WITH MAINTENANCE MODE 2 AND THE
PATTERN 252 IN THE LOW BYTE.THE DCT11 MUST READ THAT
THEN WRITE BACK SELO WITH MCLR CLEARED AND PATTERN
125 IN THE LOW BYTE.

THE SECOND TESTS THAT THE DCT11 CAN READ THE RUN, READ, WRITE BITS AND PATTERN 125 IN THE LOW BYTE. THE DCT11 MUST CLEAR ALL BITS THEN WRITE BACK IN SEL0 ERROR BIT AND PATTERN 252.

MAINT MODE: 2

KMV ROUTINES: 25 AND 52

REPORTS: ERROR 6

DATA COMPARE ERROR ON SELO DUE TO THE
IMPOSSIBILITY FOR THE DCT11 TO CORREC-
TLY ACCESS SELO OR TO ENTER MAINT MODE 1

BGNTST
BGNSUB

```

CLR      @KMVCSR      ;CLEAN CSR
MOV      @MCLR!MAINT1!TSTNUM!252,@KMVCSR ;SELECT TEST 52 IN KMW
WAIT     2,1          ;WAIT 1 MS
CMP      @MAINT1!125,@KMVCSR ;CORRECT ANSWER ?
BEQ      1$           ;YES

MOV      @KMVCSR,BAD   ;LOAD BAD VALUE OF CSR
MOV      @MAINT1!125,GOOD ;LOAD EXPECTED VALUE
CLR      NUMO          ;OFFSET IS 0
ERRMRD   6,EM0005,PRSEL
ESCAPE   TST

DELAY    1

MOV      @RUN!WRITE!READ!TSTNUM!125,@KMVCSR ;SELECT TEST 25 IN KMW
WAIT     2,1          ;WAIT 1 MS
CMP      @ERR!252,@KMVCSR ;CORRECT ANSWER ?

```

C10

SEQ 0119

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HARDWARE TESTS

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2446	031220	001416			BEG	18		YES
2447								
2448	031222	017737	151246	002352	MOV	8XMVCSR,BAD		LOAD BAD VALUE
2449	031230	012737	000652	002350	MOV	ERR:252,GOOD		LOAD EXPECTED VALUE
2450	031236	005037	002402		CLR	NUMO		OFFSET IS 0
2451	031242				ERRHWD	6,EM0005,PRSEL		
2452	031252				ESCAPE	TST		
2453								
2454	031256	000240			18:	NOP		
2455	031260				ENDSUB			
2456	031262				EXIT	TST		
2457								
2458	031266				ENDTST			
2459					.EVEN			
2460								

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; TEST THAT ALL THE NATIVE FIRMWARE CAN BE ACCESSED
;
; DESCRIPTION:  THE HOST ASKS THE DCT11 FOR CALCULATING AND VERIVYING
;               CHECKSUM OF THE NATIVE CODE.THE HOST WAITS FOR 500MS
;               AND POLLS SEL0 FOR DCT11 ANSWER:
;               SEL0=TEST NUMBER IF KMV11 CAN'T ANSWER
;               SEL0=0 IF TEST OKE
;               SEL0=100 IF ANY ERROR
;               SEL2 CONTAINS THE OBTAINED CHECKSUM VALUE
;
; MAINT MODE:   2
;
; KMV ROUTINE:  01
;
; REPORTS:      ERROR 11          NO ANSWER FROM THE KMV11
;               ERROR 2          MASTER CLEAR FAILS TO RESET
;               ERROR 7          CHECKSUM ERROR

```

```

MODE      2          ;SELECT MAINTENANCE MODE 1
BCC       1000$
ESCAPE    TST

TESTNB    1          ;CALL TEST NUMBER 1 IN FW
WAIT      1,500.     ;WAIT 500 MS AND CHECK SELO
BR        1$         ;SELO IS 0. CORRECT ANSWER
BR        2$         ;SELO IS 10C. ERROR

ERRHRD    11,EM0011  ;TIMEOUT ERROR
ESCAPE    TST

MOV        KMVCSR,R5  ;/V01.01/
MOV        SEL2(R5),BAD ;/V01.01/ LOAD WRONG CHECKSUM VALUE
ERRHRD     7,EM0006,PRCHK ;/V01.01/
ESCAPE    TST

NOP

```

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HARDWARE TESTS

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BADHEAD

.. TEST8 ..

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2525 031372

2526 031372 013705 002514

2527 031376 006305

2528 031400 005765 006622

2529 031404 001070

2530 031406 013705 002474

2531 031412

2532 031416 103002

2533 031420

2534 031424

2535 031424

2536 031432

2537 031442 000407

2538 031444 000240

2539

2540 031446

2541 031456

2542

2543 031462 016502 000002

2544 031466 062702 000002

2545 031472 010265 000002

2546 031476 005065 000006

2547

2548 031502

2549 031510

2550 031520 000407

2551 031522 000240

2552

; TEST THE NATIVE FIRMWARE REVISION CODE

; DESCRIPTION: THIS CONTROL IS CARRIED OUT ON FIRST PASS ONLY.
; THE HOST ASKS THE DCT11 FOR THE CURRENT REVISION
; CODE. THEN IT COMPARES TO THE ACTUAL ONE LOADED
; IN THE PROGRAM.

; MAINT MODE: 2

; KMV ROUTINE: 23,24

; REPORTS: ERROR 11 KMV11 CAN'T ANSWER
; ERROR 2 MASTER CLEAR FAILS TO RESET
; ERROR 10 BAD REVISION CODE

; --

BGNTST

MOV UUT,R5

ASL R5

TST PNTBL(R5)

BNE 10

MOV KMVCSR,R5

MODE 2

BCC 10000

ESCAPE TST

10000:

TESTNB 24

WAIT 1,2

BR 24

NOP

ERRHRD 11,EM0011

ESCAPE TST

24:

MOV SEL2(R5),R2

ADD #2,R2

MOV R2,SEL2(R5)

CLR SEL6(R5)

TESTNB 23

WAIT 1,2

BR 34

NOP

; /V01.04/ IS IT THE FIRST PASS FOR THIS UNIT ?

; /V01.04/

; /V01.04/

;EXIT IF NOT

;GET CSR ADDRESS

;SELECT MAINTENANCE MODE 1

;TO READ THE ROM BASE ADDRESS

;WAIT 2 MS AND CHECK SELO

;SELO IS 0, CORRECT

;NO POSSIBLE ERROR

;TIMEOUT ERROR

;READ ROM ADDRESS

;TO POINT TO REVISION CODE

;SET PARAMETERS FOR MAILBOX ROUTINE

;CODE TO READ THE WORD, WHICH ADDRESS IS

;IN SEL2

;TO OBTAINED REVISION

;WAIT 2 MS AND CHECK SELO

;SELO IS 0, CORRECT ANSWER

;NO POSSIBLE ERROR

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HARDWARE TESTS

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2553	031524			ERRMRD	11,EM0011		;TIMEOUT ERROR
2554	031534			ESCAPE	TST		
2555							
2556	031540						
2557	031540	016501	000004	34:	MOV	SEL4(R5),R1	;READ CODE
2558	031544	023701	002472		CMP	REVCOD,R1	;IS THE ACTUAL REVISION?
2559	031550	001406			BEQ	14	;YES
2560							
2561	031552				ERRMRD	10,EM0007,PRREV	;NO, REPORT
2562	031562				ESCAPE	TST	
2563							
2564	031566	000240		14:	NOP		
2565	031570			ENDTST			
2566				.EVEN			
2567							

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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TEST DATA TRANSFER THROUGH REGISTER SEL2

DESCRIPTION: THE HOST WRITES ONE PATTERN IN SEL2, WHICH
MUST BE READ BY THE DCT11. THE DCT11 ANSWERS
BY LOADING IN SELO THE CORRESPONDING RANGE
OF THE PATTERN IT HAS READ.

SELO	PATTERN RANGE	FOR	PATTERN
0			ALL 0
1			ALL 1
2			052525
3			125252
4 - 19.			ROTATING 0
20. - 35.			ROTATING 1
36.			UNKNOWN

THEN THE HOST TESTS THE CODE RETURNED.

MAINT MODE: 2

KMV ROUTINE: 03

REPORTS: ERROR 11 NO ANSWER FROM THE KMV11
ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 12 DCT11 CAN'T CORRECTLY READ
SEL2

BGNTST

MOV	KMVCSR,R5	;GET CSR ADDRESS
MODE	2	;SELECT MAINTENANCE MODE 1
BCC	1000:	
ESCAPE	TST	
1000:		
MOV	@PATRN,R2	;POINT TO PATTERN TABLE
1:		
MOV	(R2)+,DATA	;READ CURRENT PATTERN
MOV	DATA,SEL2(R5)	;WRITE IT IN SEL2
TESTNB	3	;SELECT TEST03 IN FW
WAIT	2,2	;WAIT FOR 2 MS
MOVB	SELO(R5),R1	;GET SELO
CMP	R1,#36.	;IS DATA RETURN CORRECT?
BLO	2:	;YES, CORRECT.
MOV	R1,BAD	;IF NOT, SET BAD
CLR	NUMO	;POINT TO SELO

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2598	031572			
2599	031572	013705	002474	
2600	031576			
2601	031602	103002		
2602	031604			
2603	031610			
2604	031610	012702	007204	
2605	031614			
2606	031614	012237	002360	
2607	031620	013765	002360	000002
2608	031626			
2609	031634			
2610	031644	116501	000000	
2611	031650	020127	000044	
2612	031654	103412		
2613				
2614	031656	010137	002352	
2615	031662	005037	002402	

VKMMA0 KMV11C STATIC DIAG
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```
2616 031666          ERRHRD 12,EM0010,PRBAD      ;REPORT
2617 031676          ESCAPE TST
2618
2619 031702 006301      2$:  ASL      R1          ;CREATE OFFSET
2620 031704 013737 002360 002350      MOV      DATA,GOOD      ;SET GOOD
2621 031712 012737 000002 002402      MOV      #2,NUMO          ;POINT TO SEL2
2622 031720 016137 007204 002352      MOV      PATRN(R1),BAD      ;READ RESULT IN BAD
2623 031726 023737 002352 002350      CMP      BAD,GOOD          ;THE SAME?
2624 031734 001406      BEQ      3$          ;IF YES
2625
2626 031736          ERRHRD 12,EM0010,PRSEL      ;IF NOT, REPORT
2627 031746          ESCAPE TST
2628
2629 031752 005712      3$:  TST      (R2)          ;ANY-MORE PATTERN?
2630 031754 001317      BNE      1$          ;YES, LOOP
2631
2632 031756          ENDTST
2633          .EVEN
```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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2635 031760

BADHEAD

** TEST10 **

TEST DATA TRANSFER THROUGH ALL CSR'S EXCEPT SELO

DESCRIPTION: THE HOST WRITES ONE PATTERN IN ONE CSR AND
 ASKS THE DCT11 FOR READING THEN WRITING IT
 IN ANOTHER CSR. THE DCT11 INDICATES COMPLE
 TION OF THE TRANSFER BY CLEARING SELO. THEN
 THE HOST TESTS THE SELECTED CSR'S FOR PAT
 TERN AND ALL OTHER CSR'S FOR ZERO.
 ALL CSR ARE CLEARED BEFORE SELECTION OF NEW
 CSR'S FOR TEST.
 THE HOST USES SEL2 TO PASS THE SOURCE AND
 DESTINATION CSR OFFSETS IN THE FOLLOWING WAY.

	15	8 7	0
SEL2	)	SOURCE	) DESTINATION)

THE TEST INCLUDES THE FOLLOWING TRANSFERS:

FROM	TO
------	----

SEL4	SEL2
SEL4	SEL6
SEL6	SEL10
SEL10	SEL12
SEL12	SEL14
SEL14	SEL16
SEL16	SEL20
SEL20	SEL22
SEL22	SEL24
SEL24	SEL26
SEL26	SEL30
SEL30	SEL32
SEL32	SEL34
SEL34	SEL36
SEL36	SEL4

MAINT MODE: 2

KMV ROUTINE: 04

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
 ERROR 11 KMV11 CAN'T ANSWER
 ERROR 13 Q-BUS CAN'T CORRECTLY ACCESS
 CSR'S

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2638
2639
2640
2641
2642
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HARDWARE TESTS

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2682									
2683									
2684									
2685	031760					BGNTST			
2686									
2687	031760	012704	007316			MOV	#REGTAB,R4		;POINT TO REGISTER TRANSFER TABLE
2688	031764					1\$:			
2689	031764	012701	002532			MOV	#REGSPC,R1		;POINT TO CSR GOOD IMAGE
2690	031770	012737	000020	002470		MOV	#CSRLEN,BUFLEN		;LOAD LENGTH IN BYTES
2691	031776	004737	011052			CALL	CLEAR		;CLEAN IMAGE SPACE
2692	032002	004737	011116			CALL	CLRKMV		;CLEAN CSR'S
2693	032006					MODE	2		;SELECT MAINTENANCE MODE 1
2694	032012	103002				BCC	1000\$		
2695	032014					ESCAPE	TST		
2696	032020					1000\$:			
2697	032020	012703	007204			MOV	#PATTRN,R3		;POINT TO PATTERN TABLE
2698	032024					2\$:			
2699	032024	111401				MOVB	(R4),R1		;GET "FROM" POINTER
2700	032026	001474				BEQ	5\$		;QUIT IF NO MORE ENTRY IN REGTAB TABLE
2701	032030	116402	000001			MOVB	1(R4),R2		;GET "TO" POINTER
2702	032034	012337	002360			MOV	(R3)+,DATA		;READ CURRENT PATTERN
2703	032040	110165	000003			MOVB	R1,SEL3(R5)		;LOAD SOURCE OFFSET IN CSR
2704	032044	110265	000002			MOVB	R2,SEL2(R5)		;LOAD DESTINATION OFFSET IN CSR
2705	032050	010546				MOV	R5,-(SP)		;SAVE CSR ADDRESS
2706	032052	060116				ADD	R1,(SP)		;GET SELECTED CSR ADDRESS IN SP
2707	032054	013736	002360			MOV	DATA,8(SP)+		;LOAD THE PATTERN IN THE SELECTED CSR
2708	032060	013761	002360	002532		MOV	DATA,REGSPC(R1)		;LOAD PATTERN IN IMAGE SPACE AT SOURCE OFFSET
2709	032066	013762	002360	002532		MOV	DATA,REGSPC(R2)		;LOAD PATTERN IN IMAGE SPACE AT DEST. OFFSET
2710	032074					TESTNB	4		;CALL TEST04 IN FW
2711									
2712	032102					WAIT	1,2		;WAIT 2 MS AND CHECK SELO
2713	032112	000407				BR	3\$		;SELO=0, CORRECT ANSWER
2714	032114	000240				NOP			;NO POSSIBLE ERROR
2715	032116					ERRHRD	11,EM0011		;TIMEOUT ERROR
2716	032126					ESCAPE	TST		
2717									
2718	032132	013701	002474			3\$:			
2719	032136	012702	002572			MOV	KMVCSR,R1		;GET SOURCE BUFFER ADDRESS = CSR
2720	032142	004737	011074			MOV	#WRKSPC,R2		;GET DESTINATION BUFFER ADDRESS
2721						CALL	COPY		;COPY CSR IN WORK SPACE
2722	032146	012701	002532			MOV	#REGSPC,R1		;GET BUFFER 1 ADDRESS
2723	032152	012702	002572			MOV	#WRKSPC,R2		;GET BUFFER 2 ADDRESS
2724	032156	004737	010356			CALL	COMPAR		;COMPARE WRKSPC BUFFER TO REGSPC BUFFER
2725	032162	103011				BCC	4\$		;IF THE SAME
2726									
2727	032164	116437	000001	002404		MOVB	1(R4),NUM1		;LOAD "TO" OFFSET FOR ERROR MESSAGE
2728	032172					ERRHRD	13,EM0012,PRREG		;IF NOT, REPORT
2729	032202					ESCAPE	TST		
2730									
2731	032206	005713				4\$:			
2732	032210	001305				TST	(R3)		;ANY-MORE PATTERN?
2733						BNE	2\$		;IF YES, LOOP
2734	032212								
2735	032214	005724				BREAK			
2736	032216	000662				TST	(R4)+		;NEXT ENTRY IN REGISTER TABLE
2737	032220	000240				BR	1\$		;CONTINUE
2738						5\$:			
						NOP			

K10

SEQ 0127

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2739 032222
2740

ENDTST
.EVEN

BADHEAD

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♦♦ TEST11 ♦♦

KMV11-C EPROM'S PART NUMBER PRINT OUT

DESCRIPTION: THIS CONTROL IS CARRIED OUT ON FIRST PASS ONLY. THE GOAL IS TO GET THE PART NUMBER STORED IN THE KMV EPROM THEN TO PRINT IT. IN ORDER TO DO THAT, THE HOST ASKS THE DCT11 TO RETURN BACK THE ROM BASE ADDRESS, SUCH AS:

```
SEL0 = 0 FOR KMV ROUTINE 24 JOB DONE
SEL2 = ROM BASE ADDRESS
```

THEN THE HOST BY MEANS OF THE KMV 'MAILBOX' ROUTINE READS ALL PART NUMBER CHARACTERS. FOR THIS ROUTINE THE HOST PASSES PARAMETERS:

SEL2 - PART NUMBER ADDRESS

SEL4 - BYTE READ

SEL6 - 4 FOR READ BYTE INDICATION

THEN THE HOST PRINTS PART NUMBER.

MAINT MODE: 2

KMV ROUTINES: 23.24

```
REPORTS:      ERROR 2      MASTER CLEAR FAILS TO RESET
             ERROR 11     NO KMV11 RESPONSE
```

BGNTST

```
MOV      UUT,R1
ASL      R1
TST      PNTBL(R1)
BEQ      S$
EXIT      TST
```

; /V01.04/ IS IT THE FIRST PASS FOR THIS UNIT ?

```
; /VOL.04/  
;CONTINUE IF NOT  
;IF NOT, EXIT
```

58:

CALL	CLRKMV
MODE	2
BCC	1000\$
ESCAPE	TST

```
;CLEAN CSR'S AND GET CSR ADDRESS IN R5
;SELECT MAINTENANCE MODE 1
```

1000\$:

```
MOV      OUT,R1
ASL      R1
INC      PNTBL(R1)
TESTNB   24
WAIT     1,2
```

```

; /V01.04/
; /V01.04/
; /V01.04/ MARK THAT THE FIRST PASS IS DONE
; SELECT TEST 24 IN FW
; WAIT 2 MS AND CHECK SELO

```

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HARDWARE TESTS

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2789	032312	000407		BR	1\$		;SELO IS 0, CORRECT
2790	032314	000240		NOP			;NO POSSIBLE ERROR
2791	032316			ERRHRD	11,EM0011		;REPORT TIMEOUT ERROR
2792	032326			ESCAPE	TST		
2793							
2794	032332					1\$:	
2795	032332	012702	006764	MOV	#PARTNB,R2		;PART NUMBER BUFFER ADD.
2796	032336	016503	000002	MOV	SEL2(R5),R3		;GET ROM BASE ADD.
2797	032342	062703	000004	ADD	#4,R3		;POINT TO PART NUMBER
2798	032346	012765	000004	MOV	#4,SEL6(R5)		;SET FLAG FOR BYTE READ
2799	032354					2\$:	
2800	032354	010365	000002	MOV	R3,SEL2(R5)		;LOAD PART NUMBER ADDRESS
2801	032360			TESTNB	23		;SELECT TEST 23 IN FW
2802	032366			WAIT	1,2		;WAIT 2MS AND CHECK SELO
2803	032376	000407		BR	3\$		;SELO IS 0, CORRECT
2804	032400	000240		NOP			;NO POSSIBLE ERROR
2805	032402			ERRHRD	11,EM0011		;REPORT TIMEOUT ERROR
2806	032412			ESCAPE	TST		
2807							
2808	032416					3\$:	
2809	032416	116522	000004	MOVB	SEL4(R5),(R2)+		;GET BYTE AND LOAD IT IN PART NB BUFFER
2810	032422	005203		INC	R3		;NEXT BYTE
2811	032424	020227	007030	CMP	R2,#PARTNB+36.		;BOTTOM OF BUFFER? /V01.04/
2812	032430	002751		BLT	2\$		;NOT, LOOP
2813							
2814	032432	012737	006764	MOV	#PARTNB,GOOD		;LOAD LOW ROM PART NUMBER ADDRESS
2815	032440			PRINTF	#MPNUML,GOOD		;PRINT OUT LOW PART NUMBER
2816	032464	012737	007006	MOV	#PARTNB+18.,GOOD		;LOAD HIGH ROM PART NUMBER ADDRESS /V01.04/
2817	032472			PRINTF	#MPNUMH,GOOD		;PRINT OUT HIGH PART NUMBER
2818							
2819	032516					ENDTST	
2820						.EVEN	
2821							

VKMMAO KVM11C STATIC DIAG
HARDWARE TESTS

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2823 032520

BADHEAD

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** TEST12 **

SHORT RAM TEST

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING THE RAM
BY ITSELF. PERIODICALLY THE HOST CHECKS THE
REGISTER SELO FOR ANY DCT11 RESPONSE:
SELO = 0 IF TEST SUCCEEDED
SELO = 100 IF ANY ERROR
IN THE LATTER CASE, THE FOLLOWING REGISTERS
CONTAINS THE ERROR REPORTS AS FOLLOW:

- IF THE DCT11 CAN'T CLEAR ALL THE RAM
SEL2 = 2
SEL4 = FIRST BAD WORD ADDRESS
SEL6 = FIRST BAD WORD

- IF DATA COMPARE ERROR AT LOCATION TESTED
SEL2 = 4
SEL4 = RAM ADDRESS
SEL6 = BAD WORD
SEL10 = EXPECTED VALUE

MAINT MODE: 2

KMV ROUTINE: 26

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO ANSWER FROM THE KVM11
ERROR 14 ALL THE RAM CAN'T BE CLEARED
ERROR 15 DATA COMPARE ERROR ON RAM AT
LOCATION UNDER TEST

BGNTST

MOV KMVCSR,R5
MODE 2
BCC 1000\$
ESCAPE TST

;GET CSR ADDRESS
;SELECT MAINTENANCE MODE 1

1000\$:

TESTNB 26

;SELECT TEST 26 IN FW

WAIT 1,10000.
BR 6\$
BR 2\$

;WAIT AND CHECK SELO
;SELO IS 0, CORRECT
;IF ANY ERROR

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2859 032520
2860 032520 013705 002474
2861 032524
2862 032530 103002
2863 032532
2864 032536
2865 032536
2866
2867 032544
2868 032554 000451
2869 032556 000406

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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```

2870
2871 032560          ERRMRD 11,EM0011          ; IF NO RESPONSE
2872 032570          ESCAPE TST
2873
2874 032574          2$: DSPACH 3
2875 032602 000403    BR      3$              ; FOR ERROR 14
2876 032604 000416    BR      4$              ; FOR ERROR 15
2877
2878 032606          ESCAPE TST
2879
2880 032612 016537 000004 002414 3$: MOV      SEL4(R5),BADLOC          ; GET BAD RAM ADDRESS
2881 032620 016537 000006 002352    MOV      SEL6(R5),BAD          ; GET BAD VALUE
2882 032626          ERRMRD 14,EM0013,PRRAM1 ; REPORT
2883 032636          ESCAPE TST
2884
2885 032642 016537 000004 002416 4$: MOV      SEL4(R5),TSTLOC          ; GET SELECTED RAM ADDRESS
2886 032650 016537 000006 002412    MOV      SEL6(R5),BDDAT          ; GET BAD VALUE
2887 032656 016537 000010 002360    MOV      SEL10(R5),DATA          ; GET EXPECTED VALUE
2888 032664          ERRMRD 15,EM0014,PRRAM2 ; REPORT
2889 032674          ESCAPE TST
2890
2891
2892 032700 000240          6$: NOP
2893 032702          ENDTST
2894          .EVEN
2895

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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2897 032704

BADHEAD

...

.. TEST13 ..

TEST OF INTERNAL KMV11 R/W REGISTERS

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING ALL R/W
REGISTERS BY ITSELF. PERIODICALLY, THE HOST
POLLS SEL0 FOR ANY DCT11 RESPONSE:

SEL0 = 0 FOR TEST OKE

SEL0 = 100 FOR ANY ERROR

IN THE LATTER CASE, THE FOLLOWING REGISTERS
CONTAINS ERROR REPORTS, SUCH AS:

SEL2 = 2 BYTE COUNT OUT REG.

= 4 BUS ADDRESS OUT REG.

= 6 EXT ADDRESS OUT REG.

= 10 BYTE COUNT IN REG.

= 12 BUS ADDRESS IN REG.

= 14 EXT ADDRESS IN REG.

SEL4 = CURRENT PATTERN

SEL6 = BAD WORD

MAINT MODE: 2

KMV ROUTINE: 06

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO RESPONSE FROM THE KMV11
ERROR 17 DATA COMPARE ERROR ON KMV11
INTERNAL R/W REGISTER

...

BGNTST

2929 032704		CALL	CLRKMV		;CLEAN CSR'S AND GET CSR ADDRESS
2930 032704	004737 011116	MODE	2		;SELECT MAINTENANCE MODE 1
2931 032710		BCC	10001		
2932 032714	103002	ESCAPE	TST		
2933 032716					
2934 032722		10001:			
2935 032722		TESTNB	6		;SELECT TEST 6 IN FW
2936 032730		WAIT	1,100.		;WAIT 100MS AND CHECK SEL0
2937 032740	000426	BR	31		;SEL0 IS 0, CORRECT
2938 032742	000406	BR	11		;IF ANY ERROR
2939					
2940 032744		ERRMRD	11,EM0011		;IF NO RESPONSE
2941 032754		ESCAPE	TST		
2942					
2943 032760	016537 000002 002352 11:	MOV	SEL2(R5),BAD		;GET ERROR CODE

VKMMAO KMV11C SIMTIC DIAG
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2944	032766	016537	000004	002360	MOV	SEL4(R5),DATA	;GET PATTERN
2945	032774	016537	000006	002412	MOV	SEL6(R5),BDDAT	;GET BAD VALUE
2946	033002				ERRHRD	17,EM0016,INREG	;REPUM1
2947	033012				ESCAPE	TST	
2948							
2949	033016	000240			31:	NOP	
2950	033020				ENDTST		
2951					.EVEN		
2952							
2953							

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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.. TEST14 ..

TEST INTERRUPT CAPABILITY OF KMV11-C ON Q-BUS

DESCRIPTION: THE HOST GETS ACTUAL VECTOR AND PRIORITY
FROM P.TABLE. THE HOST PREPARES VECTOR AREA
AND SETS ITS PRIORITY TO 7 THEN IT ASKS THE
DCT11 FOR REQUESTING AN INTERRUPT ON Q-BUS.
SINCE THE DCT11 CAN REQUEST INTERRUPT ON
Q-BUS THROUGH VECTORS XX0 AND XX4 THE TEST
IS COMPOSED OF TWO SUBTESTS, ONE FOR EACH
VECTOR. THE HOST INDICATES TO THE DCT11 THE
VECTOR UNDER TEST BY MEANS OF SEL2:

SEL2 = 0 FOR XX0

SEL2 = 1 FOR XX4

THE DCT11 RESPONSE AFTER COMPLETION IS:

SELO = 0

THEN,

FOR LEVEL=6 TO 3 DO

NOP

NOP

READ INTERRUPT FLAG

IF FLAG SET THEN

IF AT LEGAL PRIORITY THEN

GOOD EXIT

ELSE

ERROR REPORTS

ENDIF

ENDIF

ENDDO

REPORT ERROR FOR NO INTERRUPT

MAINT MODE: 2

KMV ROUTINE: 07

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET

ERROR 11 NO KMV11 RESPONSE

ERROR 20 Q-BUS INTERRUPT AT AN UNEXPECTED PRIORITY LEVEL (NOT USED)

ERROR 21 NO Q-BUS INTERRUPT OCCURS

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BGNTST

BGNSUB

MOV KMVCSR,R5

MODE 2

;GET CSR ADDRESS

;SELECT MAINTENANCE MODE 1

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2998 033022

2999 033022

3000 033024 013705 002474

3001 033030

VKMHA0 KMV11C STATIC DIAG
HARDWARE TESTS

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3002	033034	103002		BCC	10004	
3003	033036			ESCAPE	TST	
3004	033042			10004:		
3005	033042	005065	000002	CLR	SEL2(R5)	;FOR VECTOR XX0
3006	033046	013701	002476	MOV	KMVV00,R1	;SET VECTOR XX0 ADDRESS
3007	033052	004737	033130	CALL	QBUSIT	;RUN TEST
3008	033056			ENDSUB		
3009						
3010	033060			BGNSUB		
3011	033062	013705	002474	MOV	KMVCSR,R5	;GET CSR ADDRESS
3012	033066			MODE	2	;SELECT MAINTENANCE MODE 1
3013	033072	103002		BCC	10004	
3014	033074			ESCAPE	TST	
3015	033100			10004:		
3016	033100	012765	000001	MOV	#1,SEL2(R5)	;FOR VECTOR XX4
3017	033106	013701	002500	MOV	KMVV04,R1	;SET VECTOR XX4 ADDRESS
3018	033112	004737	033130	CALL	QBUSIT	;RUN TEST
3019	033116			ENDSUB		
3020						
3021	033120	012703	000340	MOV	#PRI07,R3	; RESTORE HOST PRIORITY /V01.04/
3022	033124	106403		MTPS	R3	; /V01.04/
3023						
3024						
3025	033126			ENDTST		
3026				.EVEN		
3027						
3028						
3029						
3030						
3031						
3032	033130			QBUSIT:		
3033	033130	005037	002356	CLR	INTFLG	;RESET INT. FLAG
3034	033134	010137	002424	MOV	R1,GDVEC	;SAVE VECTOR
3035	033140	012721	033304	MOV	#T14A00,(R1).	;LOAD ADDRESS IN VECTOR
3036	033144	012711	000340	MOV	#PRI07,(R1)	;LOAD PRIORITY IN 2ND WORD
3037	033150	013737	002502	MOV	KMVLVL,GDLVL	;SAVE GOOD LEVEL
3038	033156			DO	<ASR GDLVL>,4	;GET PRIORITY LEVEL RIGTH JUSTIFIED
3039	033176	012703	000340	MOV	#PRI07,R3	;INIT PRIORITY LEVEL TO 7
3040	033202	106403		MTPS	R3	;SET HOST PRIORITY
3041	033204			TESTNB	7	;SELECT TEST07 IN FW
3042	033212			WAIT	1,1	;WAIT 1 MS AND CHECK SELO
3043	033222	000406		BR	14	;SELO IS 0, CORRECT ANSWER
3044	033224	000240		NOP		;NO POSSIBLE ERROR
3045	033226			ERRHRD	11,EM0011	;IF NO RESPONSE
3046	033236	000207		RETURN		
3047						
3048	033240	162703	000040	14:	SUB	#40,R3
3049	033244	022703	000100	CMP	#PRI02,R3	;DEC PRIORITY LEVEL OF ONE
3050	033250	001407		BEQ	24	;LOWEST REACHED ?
3051	033252	106403		MTPS	R3	;IF YES
3052	033254			WAIT	0,1	;IF NOT, SET NEW HOST PRIORITY
3053	033264	000406		BR	34	;WAIT 1 MS AND CHECK IF INTERRUPT OCCURS
3054	033266	000764		BR	14	;IF ANY INTERRUPT
3055						;IF TIME-OUT
3056	033270			24:	ERRHRD	21,EM0020,PRVEC
3057	033300	000207		RETURN		;NO INTERRUPT OCCURS
3058						

VKMM40 KMV11C STATIC DIAG
HARDWARE TESTS

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```

3059 033302      3$:
3060      :      INT LEVEL NOT CHECKED ON 11/23 /V01.03/
3061      :
3062      :      ADD      040,R3      ;ADJUST LEVEL
3063      :      MOV      R3,BDLVL    ;SAVE IT
3064      :      CMP      BDLVL,GDLVL ;IS AT THE GOOD ONE?
3065      :      BEQ      4$          ;IF YES
3066      :      DO      <ASR      BDLVL>,.5 ;GET CURRENT PRIORITY RIGHT JUSTIFIED
3067      :      DO      <ASR      GDLVL>,.5
3068      :      ERRHRD   20,EM0017,PRLVL ;UNEXPECTED PRIORITY LEVEL
3069
3070 033302 000207 4$:      RETURN
3071
3072
3073      :
3074      :      TEST14 INTERRUPT ROUTINE
3075      :
3076
3077 033304      T14A00:
3078 033304 005237 002356      INC      INTFLG      ;SET INT. FLAG
3079 033310 000002      RTI
3080
3081

```

VKMM40 KMV11C STATIC DIAG
HARDWARE TESTS

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3083 033312

BADHEAD

.. TEST15 ..

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```

; TEST THAT ACCESS TO BSEL0/BSEL2 INTERRUPTS THE DCT11
;
; DESCRIPTION:  THE HOST ASKS THE DCT11 FOR SERVICING INTER-
;                RUPT ON BSEL0/BSEL2 INTERRUPT.  SINCE BSEL0
;                AND BSEL2 ACCESSES CAN PRODUCE AN INTERRUPT,
;                THE HOST USES SEL2 TO SPECIFY TO THE DCT11
;                WHICH CSR ACCESS IS TESTED:
;                SEL2 = 0      FOR BSEL0 ACCESS
;                SEL2 = 2      FOR BSEL2 ACCESS
;                DCT11 RESPONSE WILL BE:
;                SEL0 = 0      IF EXPECTED INTERRUPT
;                = 100        IF INTERRUPT AT ILLEGAL VECTOR
;                = OTHER      IF NOT INTERRUPTED
;                THEN AFTER ASKING THE DCT11,
;
;                DO FOR BSEL=0 TO 37 EXCEPT BSEL0/2
;                ACCESS ON CSR
;                WAIT FOR 1 MS
;                READ SEL0
;                CASE SEL0 OF
;                0 : REPORT ERROR 23 AND EXIT
;                100 : REPORT ERROR 23 AND EXIT
;                ENDCASE
;                ENDDO
;                SET BITS IN BSEL0/2
;                WAIT FOR 1 MS
;                READ SEL0
;                IF SEL0=0 THEN
;                GOOD EXIT
;                IF SEL0=100 THEN
;                REPORT ERROR 24 AND EXIT
;                ELSE
;                IF SEL4=2 THEN
;                REPORT ERROR 22 AND EXIT
;                ELSE
;                REPORT ERROR 11 AND EXIT
;                ENDIF
;                ENDDIF
;
; MAINT MODE:  2
;
; KMV ROUTINE: 10
;
; REPORTS:     ERROR 2      MASTERCLEAR FAILS TO RESET
;              ERROR 11     NO KMV11 RESPONSE
;              ERROR 22     DCT11 NOT INTERRUPTED

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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```

3130      ;                               ERROR 23      UNEXPECTED KMV11 INTERRUPT ON CSR ACCESS
3131      ;                               ERROR 24      KMV11 INTERRUPTED AT ILLEGAL VECTOR
3132      ;
3133      ; --
3134
3135
3136 033312  BGNTST
3137 033312  BGNSUB
3138 033314      MODE      2
3139 033320 103002      BCC      1000$
3140 033322      ESCAPE    TST
3141 033326      1000$:
3142 033326 005001      CLR      R1                      ;SET FLAG FOR BSELO TEST
3143 033330 004737 033370      CALL    BSELIT              ;RUN TEST
3144 033334      ENDSUB
3145
3146 033336  BGNSUB
3147 033340      MODE      2
3148 033344 103002      BCC      1000$
3149 033346      ESCAPE    TST
3150 033352      1000$:
3151 033352 012701 000002      MOV      #2,R1              ;SET FLAG FOR BSEL2 TEST
3152 033356 004737 033370      CALL    BSELIT              ;RUN TEST
3153 033362      ENDSUB
3154
3155 033364      EXIT      TST
3156
3157      ;
3158      ;      TEST15 COMMON TEST PART
3159      ;
3160
3161 033370      BSELIT:
3162 033370 013705 002474      MOV      KMVCSR,R5          ;GET CSR ADDRESS
3163 033374 010137 002402      MOV      R1,NUM0          ;SAVE CSR OFFSET FOR ERROR MESSAGE
3164 033400 010165 000002      MOV      R1,SEL2(R5)        ;INFORM DCT11 OF THE SELECTED OFFSET
3165 033404      TESTNB    10          ;SELECT TEST10 IN FW
3166 033412      WAIT      2.10        ;WAIT FOR 10 MS
3167
3168      ;
3169      ;      ACCESS ALL CSR EXCEPT BSELO/2
3170      ;
3171 033422 012702 000001      MOV      #1,R2              ;START WITH BSEL1
3172 033426 060502          ADD      R5,R2              ;GET CORRESPONDING CSR ADDRESS
3173 033430 152722 000210 1$:      BISB      #210,(R2)+    ;ACCESS THIS CSR AND POINTS TO NEXT ONE
3174 033434      WAIT      2.1          ;WAIT 1 MS
3175 033444 016504 000000      MOV      SELO(R5),R4        ;GET SELO
3176 033450 042704 000100      BIC      #BIT6,R4          ;CLEAR BIT 6, RESULT IS 0 IF SELO WAS
3177          ;0 OR 100
3178 033454 001432          BEQ      3$              ;RESULT IS NULL, SOMETHING HAPPENS
3179 033456 022702 177002      CMP      #177002,R2        ;NEXT TO TEST IS BSEL2 ?
3180 033462 001001          BNE      2$              ;NO, OK CONTINUE
3181 033464 105722          TSTB      (R2)+              ;SKIP BSEL2
3182 033466 020227 177037 2$:      CMP      R2,#177037    ;END REACHED ?
3183 033472 101756          BLOS      1$              ;NO CONTINUE
3184
3185      ;
3186      ;      NOW, TEST BSELO/2 ACCESS

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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3188
3189 033474 060501
3190 033476 152711 000210
3191 033502
3192 033512 000207
3193 033514 060427
3194
3195 033516 016503 000004
3196 033522 032703 000002
3197 033526 001415
3198
3199 033530
3200 033540 000207
3201
3202 033542
3203 033542 160502
3204 033544 010237 002404
3205 033550
3206 033560 000207
3207
3208 033562
3209 033562
3210 033572 000207
3211
3212 033574
3213 033574
3214 033604 000207
3215
3216 033606
3217
3218

;
ADD R5,R1 ;GET SELECTED CSR ADDRESS
BISB #210,(R1) ;ACCESS THIS CSR
WAIT 1,1 ;WAIT 1 MS
RETURN ;IF TEST OKE
BR 5$ ;IF ILLEGAL VECTOR

MOV SEL4(R5),R3 ;OTHER,CHECK SEL4=2
BIT #BIT1,R3 ;IS IT?
BEQ 4$ ;IF NOT

ERRHRD 22,EM0021,PGCSR ;NO INTERRUPT OCCURS
RETURN

3$:
SUB R5,R2 ;KEEP ONLY CURRENT OFFSET IN CSR
MOV R2,NUM1 ;SET BAD CSR
ERRHRD 23,EM0022,PRCSR ;ACCESS ON CSR X CAUSES AN INTERRUPT
RETURN

4$:
ERRHRD 11,EM0011 ;NO KMV11 RESPONSE
RETURN

5$:
ERRHRD 24,EM0023,PGCSR ;INTERRUPT AT ILLEGAL VECTOR
RETURN

ENDTST
.EVEN

```

VKMMA0 KMV11C STATIC DIAG
HARDWARE TESTS

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3220 033610

BADHEAD

** TEST16 **

TEST OF THE REAL TIME CLOCK

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING THE REAL TIME
CLOCK BY ITSELF. THE DCT11 TEST AT CLOCK INTERRUPT
FOR TWO PERIODS OF CLOCK THEN IT DISABLES INTERRUPT
PERIODICALLY THE HOST POLLS SEL0 FOR ANY
DCT11 RESPONSE:

SEL0 = 0 IF TEST OKE

SEL0 = 100 IF ANY ERROR

IN THE LATTER CASE, THE FOLLOWING CSR'S CON
TAIN THE ERROR REPORT AS FOLLOW:

- DCT11 INTERRUPTED BEFORE TIME ELAPSED

SEL2 = 2

SEL4 = CLOCK PERIOD

- COUNTER DECREMENTED BUT NO INTERRUPT

SEL2 = 4

SEL4 = CLOCK PERIOD

- COUNTER STOPPED

SEL2 = 6

SEL4 = CLOCK PERIOD

- INTERRUPT AT ILLEGAL VECTOR

SEL2 = 10

SEL4 = CLOCK PERIOD

- DCT11 INTERRUPTED WHILE CLOCK DISABLED

SEL2 = 12

THEN THE HOST REPORTS CORRESPONDING ERROR.

MAINT MODE: 2

KMV ROUTINE: 11

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO KMV11 RESPONSE
	ERROR 25	INTERRUPT OCCURS TOO EARLY
	ERROR 26	COUNTER DECREMENTED BUT NO
		INTERRUPT
	ERROR 27	COUNTER STOPPED
	ERROR 30	KMV11 INTERRUPTED AT ILLEGAL VECTOR
	ERROR 31	INTERRUPT WHILE CLOCK DISABLED

```

3267
3268
3269 033610          BGNTST
3270 033610 004737 011116      CALL  CLRKMV      ;CLEAN CSR'S AND GET CSR ADDRESS
3271 033614          MODE 2          ;SELECT MAINTENANCE MODE 1
3272 033620 103002      BCC  1000$
3273 033622          ESCAPE TST
3274 033626          1000$:
3275 033626          TESTNB 11      ;SELECT TEST11 IN FW
3276 033634          WAIT  1,400.  ;WAIT 400MS AND CHECK SELO
3277 033644 000462      BR  20$     ;SELO IS 0, CORRECT
3278 033646 000406      BR  1$     ;SELO IS 100, ERROR
3279
3280 033650          ERRHRD 11,EM0011 ;IF NO ANSWER
3281 033660          ESCAPE TST
3282
3283 033664 016537 000004 002402 1$: MOV  SEL4(R5),NUMO ;GET PARAMETER FOR ERROR MESSAGE
3284 033672          DSPACH 5
3285 033700 000406      BR  2$     ;FOR ERROR 25
3286 033702 000413      BR  3$     ;FOR ERROR 26
3287 033704 000420      BR  4$     ;FOR ERROR 27
3288 033706 000425      BR  5$     ;FOR ERROR 30
3289 033710 000432      BR  6$     ;FOR ERROR 31
3290
3291 033712          ESCAPE TST
3292
3293 033716          2$:  ERRHRD 25,EM0024,PRPER ;REPORT
3294 033726          ESCAPE TST
3295
3296 033732          3$:  ERRHRD 26,EM0025,PRPER ;REPORT
3297 033742          ESCAPE TST
3298
3299 033746          4$:  ERRHRD 27,EM0026,PRPER ;REPORT
3300 033756          ESCAPE TST
3301
3302 033762          5$:  ERRHRD 30,EM0027,PRPER ;REPORT
3303 033772          ESCAPE TST
3304
3305 033776          6$:  ERRHRD 31,EM0030,PRPER ;REPORT
3306 034006          ESCAPE TST
3307
3308 034012 000240      20$:  NOP
3309 034014          ENDTST
3310          .EVEN
3311

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3313 034016

BADHEAD

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** TEST17 **

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; TEST OF TRANSMIT DATA IN INTERRUPT MODE

DESCRIPTION: THE HOST ASKS DCT11 FOR TESTING DATA TRANSMISSION IN INTERRUPT MODE. THE DCT11 TESTS ALL XMT RELATIVE CONTROL BITS AND INTERRUPTS WHILE THE RECEIVER IS DISABLED. IT TESTS LINE CLOCK COUNTER TOO. THE LINE CLOCK RATIO DIVIDER IS PREVIOUSLY LOADED IN SEL2 BY THE HOST:

SEL2 = 226	FOR	72K
= 410	FOR	64K
= 444	FOR	56K
= 504	FOR	48K
= 1540	FOR	19.2K
= 3440	FOR	9.6K
= 24200	FOR	2.4K

THE HOST SELECTS SPEED BY MEANS OF P.TABLE. IN THE CASE OF ALL SPEED REQUESTED, THE TEST IS REPEATED FOR EACH SPEED. PERIODICALLY THE HOST POLLS SEL0 FOR ANY DCT11 RESPONSE:

SEL0 = 0	IF TEST OKE
SEL0 = 100	IF ANY ERROR

IN THE LATTER CASE, THE FOLLOWING CSR'S CONTAIN ERROR REPORTS, SUCH AS:

SEL2 = 2	ERROR 32
= 4	ERROR 33
= 6	ERROR 34
= 10	ERROR 40
= 12	ERROR 41
= 14	ERROR 42
= 16	ERROR 43
SEL4 =	INTERRUPT COUNT

THEN, THE HOST REPORTS ERROR AND EXIT.

; MAINT MODE: 2

; KMV ROUTINE: 12

REPORTS:

ERROR 2	MASTER CLEAR FAILS TO RESET
ERROR 11	NO KMV11 RESPONSE
ERROR 32	LINE CLOCK COUNTER STOPPED
ERROR 33	TIMEOUT WITHOUT INTERRUPT
ERROR 34	INTERRUPT AT ILLEGAL VECTOR
ERROR 40	UNEXPECTED INTERRUPT WHILE
	XMT INTERRUPT DISABLE
ERROR 41	NO INTERRUPT WHILE WAITING UNDERRUN

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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```

3360      ;          ERROR 42          UNDERRUN INTERRUPT AT ILLEGAL VECTOR
3361      ;          ERROR 43          UNDERRUN INTERRUPT WHILE NOT EXPECTED
3362      ;
3363
3364
3365 034016      BGNTST
3366
3367      ;          INIT LINE RATE WITH P.TABLE
3368
3369 034016 013701 002362      MOV      RATE,R1          ;SAVE CURRENT RATE
3370 034022 022701 000007      CMP      47,R1          ;TEST FOR ALL LINE RATES?
3371 034026 001001          BNE      1$          ;IF NOT
3372 034030 005001          CLR      R1          ;IF YES, SET FIRST RATE
3373 034032 006301      1$:      ASL      R1          ;TO MAKE OFFSET
3374
3375      ;          START TEST
3376
3377 034034      2$:
3378 034034 016137 007356 002426      MOV      RATIO(R1),RATIO      ;READ CURRENT RATE
3379 034042          SAVE      1          ;SAVE R1
3380 034046 004737 011116          CALL     CLRKMV          ;CLEAN CSR'S AND GET CSR ADDRESS
3381 034052          MODE      2          ;SELECT MAINTENANCE MODE 1
3382 034056 103002          BCC      1000$
3383 034060          ESCAPE     TST
3384 034064      1000$:
3385 034064 013765 002426 000002      MOV      RATIO,SEL2(R5)      ;INFORM DCT11 FOR RATE
3386 034072          TESTNB    12          ;SELECT TEST12 IN FW
3387 034100          GET      1          ;RESTORE R1
3388 034104          WAIT      1,1000.      ;WAIT 1S AND CHECK SELO
3389 034114 000473          BR      20$      ;SELO IS 0, CORRECT
3390 034116 000406          BR      3$      ;SELO IS 100, ERROR
3391
3392 034120          ERRHRD     11,EM0011      ;IF NO RESPONSE
3393 034130          ESCAPE     TST
3394
3395 034134      3$:      DSPACH    10.
3396 034142 000406          BR      4$
3397 034144 000413          BR      5$
3398 034146 000420          BR      6$
3399 034150 000425          BR      10$
3400 034152 000432          BR      11$
3401 034154 000437          BR      12$
3402 034156 000444          BR      13$
3403
3404 034160      4$:      ERRHRD     32,EM0031,PRRATE      ;REPORT
3405 034170          ESCAPE     TST
3406
3407 034174      5$:      ERRHRD     33,EM0032,PRITRX      ;REPORT
3408 034204          ESCAPE     TST
3409
3410 034210      6$:      ERRHRD     34,EM0033,PRRATE      ;REPORT
3411 034220          ESCAPE     TST
3412
3413 034224      10$:     ERRHRD     40,EM0037,PRRATE      ;REPORT
3414 034234          ESCAPE     TST
3415
3416 034240      11$:     ERRHRD     41,EM0040,PRRATE      ;REPORT

```

BLP

SEQ 0144

VKMMAO KMV11C STATIC DIAG
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3417	034250			ESCAPE	TST	
3418						
3419	034254			121:	ERRMRD 42,EM0041,PRRATE	;REPORT
3420	034264				ESCAPE TST	
3421						
3422	034270			131:	ERRMRD 43,EM0034,PRRATE	;REPORT
3423	034300				ESCAPE TST	
3424						
3425				;	NEXT LINE RATE IF REQUESTED	
3426						
3427	034304			201:		
3428	034304	022737	000007		CMP #7,RATE	;IS IT?
3429	034312	001004	002362		BNE 211	;IF NOT
3430	034314	005721			TST (R1).	;IF YES, SFT RATE
3431	034316	022701	000016		CMP #16,R1	;ANY MORE?
3432	034322	001244			BNE 211	;IF YES, LOOP
3433	034324			211:		
3434	034324	000240			NOP	
3435	034326				ENDTST	
3436					.EVEN	
3437						

VKMMAO KHV11C STATIC DIAG
HARDWARE TESTS

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3439 034330

BADHEAD

...

.. TEST18 ..

TEST OF DATA RECEPTION IN INTERRUPT MODE

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING DATA RE
CEPTION BY ITSELF. IN ORDER TO DO THAT, IT
PASSES TO THE DCT11 :
SEL2 = LINE CLOCK RATE (AS DEFINED IN
TEST16)

THE TEST IS COMPOSED OF 5 SUBTESTS:

- TEST 18
TEST OF INTERRUPTS ON NON ZERO STATUS AND
DATA RECEPTION FOR ONE FRAME SENT, SUCH AS:

```

)TSOM---)
)1      )
)2      )
)3      )
)4      )
)5      )
)6      )
)1      )
)2      )
)TEOM   )
-----)
XMT FIFO)
)
)
)RSOM!1)
)2      )
)3      )
)4      )
)5      )
)6      )
)1      )
)REOM!2)
-----)
RCV FIFO

```

- TEST 19
TEST OF TWO FRAMES CONSECUTIVELY SENT BUT
ONLY THE SECOND ONE IS TAKEN INTO ACCOUNT.

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HARDWARE TESTS

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:      )TSOM      )
:      )1         )
:      )2         )
:      )3         )
:      )4         )
:      )5         )
:      )TEOM      )
:      )TSOM      )
:      )1         )
:      )2         )
:      )3         )
:      )4         )
:      )5         )
:      )6         )
:      )1         )
:      )2         )
:      )TEOM      )
:      -----
:      XMT FIFO
:
:
:      - TEST 20
:      AN ABORT CHARACTER IS RECEIVED DUE TO A TRANSMIT
:      UNDERRUN AND ANOTHER ONE DUE TO A REAL ONE TRANSMITTED.
:
:      )TSOM-----)
:      )1         )
:      )2         )
:      )3         )
:      )4         )
:      )5         )
:      )6         )
:      )1         )
:      THEN STOP
:      UNTIL UNDERRUN
:
:      )TSOM      )
:      )1         )
:      )2         )
:      )3         )
:      )4         )
:      )TXAB      )
:      -----
:      XMT FIFO
:
:      )RSOM!1    )
:      )REOM!5    )
:      )RSOM!1    )
:      )2         )
:      )3         )
:      )4         )
:      )5         )
:      )6         )
:      )1         )
:      )REOM!2    )
:      -----
:      RCV FIFO
:
:
:      )RSOM!1    )
:      )2         )
:      )3         )
:      )4         )
:
:      RABO+REOM!4
:
:      RSOM!1
:      RABO+REOM!1

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)1          )
)2          )
)3          )

UP TO 68 INCREMENTAL DATA

)104       )
)TEOM       )
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VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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```

3573      ; PERIODICALLY THE MOST POLLS SELO FOR ANY DCT11
3574      ; RESPONSE:
3575      ;         SELO = 0          FOR TEST OKE
3576      ;         SELO = 100       IF ANY ERROR
3577      ; IN THE LATTER CASE SEL2 POINTS TO THE ERROR,
3578      ; POSSIBLE ERRORS ARE :
3579      ;         SEL2 = 2          FOR ERROR 32
3580      ;         . 4             FOR ERROR 45
3581      ;         . 6             FOR ERROR 40
3582      ;         . 10            FOR ERROR 46
3583      ;         . 12            FOR ERROR 47
3584      ;         . 14            FOR ERROR 50
3585      ;         . 16            FOR ERROR 51
3586      ;         . 20            FOR ERROR 35
3587      ;         . 22            FOR ERROR 43
3588      ;         SEL4 = OBTAINED STATUS&DATA
3589      ;         SEL6 = EXPECTED ONE
3590      ;         SEL10 = EVENT FLAGS
3591      ;
3592      ; MAINT MODE: 2
3593      ;
3594      ; KMV ROUTINE: 13          FOR TEST 18
3595      ;               14          FOR TEST 19
3596      ;               15          FOR TEST 20
3597      ;               16          FOR TEST 21
3598      ;               17          FOR TEST 22
3599      ;
3600      ; REPORTS:  ERROR 2        MASTER CLEAR FAILS TO RESET
3601      ;             ERROR 11      NO KMV11 RESPONSE
3602      ;             ERROR 32      LINE CLOCK FAILURE
3603      ;             ERROR 40      TRANSMIT INTERRUPT WHILE DISABLED
3604      ;             ERROR 35      UNDERRUN INTERRUPT
3605      ;             ERROR 43      UNEXPECTED UNDERRUN INTERRUPT AFTER ACK
3606      ;             ERROR 45      XMT/RCV PROCESSING FAILS
3607      ;             ERROR 46      UNEXPECTED STATUS RECEIVED
3608      ;             ERROR 47      UNEXPECTED DATA RECEIVED
3609      ;             ERROR 50      RECEIVE INTERRUPT WHILE DISABLED
3610      ;             ERROR 51      INTERRUPT AT ILLEGAL VECTOR
3611      ;
3612      ; --
3613      ;
3614      ;
3615      ; TEST 18
3616 034330 BGNTST
3617      ;
3618 034330 004737 034626      CALL STRS80      ;CALL START SUBROUTINE 0
3619 034334 004737 034646      1$: CALL STRS81      ;CALL START SUBROUTINE 1
3620 034340      TESTNB 13      ;SELECT TEST13 IN FW
3621 034346 004737 034710      CALL T18800      ;CHECK ERROR
3622 034352 022737 000007 002362 CMP #7,RATE  ;NEXT LINE RATE REQUESTED ?
3623 034360 001004      BNE 2$      ;IF NOT
3624 034362 005721      TST (R1),      ;IF YES, SET RATE
3625 034364 022701 000016      CMP #16,R1      ;ANY-MORE?
3626 034370 001361      BNE 1$      ;IF YES, LOOP
3627 034372      2$:
3628 034372 000240      NOP
3629 034374      ENDTST

```

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

MACRO M1200 22-AUG-83 14:36 PAGE 81-1

3630
3631 034376

BADHEAD

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BGNTST

** TEST19 **

3632

3633

3634 034376

3635 034376 004737 034626

3636 034402 004737 034646

3637 034406

3638 034414 004737 034710

3639 034420 022737 000007 002362

3640 034426 001004

3641 034430 005721

3642 034432 022701 000016

3643 034436 001361

3644 034440

3645 034440 000240

3646 034442

3647

3648 034444

1\$: CALL STRSBO
CALL STRSB1
TESTNB 14
CALL T18800
CMP #7,RATE
BNE 2\$
TST (R1),
CMP #16,R1
BNE 1\$;CALL START SUBROUTINE 0
;CALL START SUBROUTINE 1
;SELECT TEST14 IN FW
;CHECK ERROR
;NEXT LINE RATE REQUESTED ?
;IF NOT
;IF YES, SET RATE
;ANY-MORE?
;IF YES, LOOP

2\$:

NOP

ENDTST

BADHEAD

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BGNTST

** TEST20 **

3649

3650

3651

3652 034444

3653 034444 004737 034626

3654 034450 004737 034646

3655 034454

3656 034462 004737 034710

3657 034466 022737 000007 002362

3658 034474 001004

3659 034476 005721

3660 034500 022701 000016

3661 034504 001361

3662 034506

3663 034506 000240

3664 034510

3665

3666 034512

1\$: CALL STRSBO
CALL STRSB1
TESTNB 15
CALL T18800
CMP #7,RATE
BNE 2\$
TST (R1),
CMP #16,R1
BNE 1\$;CALL START SUBROUTINE 0
;CALL START SUBROUTINE 1
;SELECT TEST15 IN FW
;CHECK ERROR
;NEXT LINE RATE REQUESTED ?
;IF NOT
;IF YES, SET RATE
;ANY-MORE?
;IF YES, LOOP

2\$:

NOP

ENDTST

BADHEAD

```

3667
3668
3669
3670 034512
3671 034512 004737 034626
3672 034516 004737 034646
3673 034522
3674 034530 004737 034710
3675 034534 022737 000007 002362
3676 034542 001004
3677 034544 005721
3678 034546 022701 000016
3679 034552 001361
3680 034554
3681 034554 000240
3682 034556
3683
3684 034560
3685
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3688 034560
3689 034560 004737 034626
3690 034564 004737 034646
3691 034570
3692 034576 004737 034710
3693 034602 022737 000007 002362
3694 034610 001004
3695 034612 005721
3696 034614 022701 000016
3697 034620 001361
3698 034622
3699 034622 000240
3700 034624
3701
3702
3703

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VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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```

3704      ; THESE SUBROUTINES ARE CALLED AT THE BEGINNING OF EACH TEST.
3705      ; THEY INIT THE LINE RATE, INIT THE KMV11-C AND SELECT THE MODE 2.
3706      ;
3707 034626 STRSB0:      MOV     RATE,R1      ;SAVE CURRENT RATE
3708 034626 013701 002362      CMP     #7,R1      ;TEST FOR ALL LINE RATES?
3709 034632 022701 000007      BNE     1$      ;IF NOT
3710 034636 061001      CLR     R1      ;IF YES, SET FIRST RATE
3711 034640 005001      ASL     R1      ;TO MAKE OFFSET
3712 034642 006301 1$:      RETURN
3713 034644 000207
3714
3715 034646 016137 007356 002426 STRSB1: MOV     RATIO(R1),RATIO      ;READ CURRENT RATE
3716 034654      SAVE     1      ;SAVE R1
3717 034660 004737 011116      CALL    CLRMV      ;CLEAN CSR'S AND GET CSR ADDRESS
3718 034664      MODE     2      ;SELECT MAINTENANCE MODE 1
3719 034670 103001      BCC     1000$
3720 034672 000207      RETURN
3721 034674
3722 034674 013765 002426 000002 1000$: MOV     RATIO,SEL2(R5)      ;INFORM DCT11 FOR RATE
3723 034702      GET      1      ;RESTORE R1
3724 034706 000207      RETURN
3725      ;
3726      ;      CHECK ERROR
3727      ;
3728 034710
3729 034710 T18800:      WAIT     1,1000.      ;WAIT 400MS AND CHECK SELO
3730 034720 000207      RETURN      ;SELO IS 0, CORRECT
3731 034722 000405      BR      3$      ;SELO IS 100, ERROR
3732
3733 034724      ERRHRD    11,EM0011      ;IF NO RESPONSE
3734 034734 000207      RETURN
3735
3736 034736 3$:      DSPACH    9.
3737 034744 000410      BR      4$      ;ERROR WHEN LOADING THE LINE COUNTER
3738 034746 000433      BR      5$      ;GENERAL ERROR
3739 034750 000413      BR      6$      ;XMT INTERRUPT WHILE DISABLED
3740 034752 000436      BR      7$      ;UNEXPECTED RECEIVE STATUS INTERRUPT
3741 034754 000450      BR      8$      ;UNEXPECTED RECEIVE DATA INTERRUPT
3742 034756 000462      BR      9$      ;RECEIVE INTERRUPT WHILE DISABLED
3743 034760 000474      BR     10$      ;INTERRUPT AT ILLEGAL VECTOR
3744 034762 000413      BR     11$      ;UNDERRUN INTERRUPT
3745 034764 000417      BR     12$      ;UNEXPECTED INTERRUPT AFTER ACK
3746
3747 034766 4$:      ERRHRD    32,EM0031,PRRATE      ;REPORT
3748 034776 000207      RETURN
3749
3750 035000 6$:      ERRHRD    40,EM0037,PREVT      ;REPORT
3751 035010 000207      RETURN
3752
3753 035012 11$:      ERRHRD    35,EM0034,PREVT      ;REPORT
3754 035022 000207      RETURN
3755
3756 035024 12$:      ERRHRD    43,EM0042,PREVT      ;REPORT
3757 035034 000207      RETURN
3758
3759 035036 5$:      ERRHRD    45,EM0044,PREVT      ;REPORT
3760 035046 000207      RETURN

```

VKMMAO KVM11C STATIC DIAG
HARDWARE TESTS

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```

3761
3762 035050 016537 000004 002412 78:  MOV    SEL4(R5),BDDAT      ;GET RCV STATUS AND DATA REGISTER
3763 035056 016537 000006 002410      MOV    SEL6(R5),GDDAT      ;GET EXPECTED ONE
3764 035064      ERRMRD 46,EM0045,PRDAT ;REPORT
3765 035074 000207      RETURN
3766
3767 035076 016537 000004 002412 88:  MOV    SEL4(R5),BDDAT      ;GET RCV STATUS AND DATA REGISTER
3768 035104 016537 000006 002410      MOV    SEL6(R5),GDDAT      ;GET EXPECTED ONE
3769 035112      ERRMRD 47,EM0046,PRDAT ;REPORT
3770 035122 000207      RETURN
3771
3772 035124 016537 000004 002412 98:  MOV    SEL4(R5),BDDAT      ;GET RCV STATUS AND DATA REGISTER
3773 035132 016537 000006 002410      MOV    SEL6(R5),GDDAT      ;GET EXPECTED ONE
3774 035140      ERRMRD 50,EM0047,PRDAT ;REPORT
3775 035150 000207      RETURN
3776
3777 035152      108:  ERRMRD 51,EM0050,PREVT ;REPORT
3778 035162 000207      RETURN
3779
3780      .EVEN
3781

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VKMMAD KMV11C STATIC DIAG
HARDWARE TESTS

MACRO M1200 22 AUG 83 14:36 PAGE 82

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.. TEST23 ..

TEST OF DMA IN (TRX) TRANSFER USING A SHORT FRAME OF DATA

DESCRIPTION: THE HOST LOADS A FRAME OF 36 PATTERNS INSIDE ITS MEMORY. THEN IT ASKS THE DCT11 TO TRANSFER BY DMA THE FRAME INTO THE XMT FIFO AND TO TRANSMIT. RECEIVE BACK THIS FRAME. DCT11 CHECKS THE RECEIVED FRAME. IN ORDER TO INIT DMA TRANSFER THE HOST PASSES PARAMETERS TO THE DCT11, SUCH AS:

SEL2 = LINE CLOCK RATE

SEL4 = DMA IN BYTE COUNT(2'S COMP)

SEL6 = DMA IN BUS ADDRESS(EVEN)

SEL10 = EXT ADDRESS

SEL12 = SUBTEST CODE

THE FRAME TO TRANSFER IS:

ALL 0

ALL 1

052525

125252

ROTATING 0

ROTATING 1

NOTICE THAT DMA IN IS WORD WIDE BUT, EACH WORD IS LOADED IN FIFO BYTE BY BYTE.

PERIODICALLY THE HOST POLLS SEL0 FOR ANY RESPONSE FROM THE KMV11:

SEL0 = 0 IF TEST CORRECTLY ENDED

SEL0 = 100 IF ANY ERROR

IN THE LATTER CASE:

SEL2 = 2 FOR ERROR 32

4 FOR ERROR 45

6 FOR ERROR 54

10 FOR ERROR 55

12 FOR ERROR 56

14 FOR ERROR 46

16 FOR ERROR 57

20 FOR ERROR 50

22 FOR ERROR 51

24 FOR ERROR 35

SEL10 = FLAGWORD DESCRIBING PROCESSING

SEL12 = CURRENT TRX DMA BYTE COUNT

SEL14 = CURRENT TRX DMA BUFFER ADDRESS (LOW)

SEL16 = CURRENT TRX DMA BUFFER ADDRESS (HIGH)

IF ERROR 46,50,57 :

SEL4 = RCV STATUS AND DATA REGISTER

SEL6 = EXPECTED VALUE

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3808

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VKMMAO KVM11C STATIC DIAG
HARDWARE TESTS

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```

3830      ;          THEN THE MOST BUILDS  ERROR REPORT  AND EXIT
3831      ;
3832      ; MAINT MODE:  2
3833      ;
3834      ; KVM ROUTINE: 20
3835      ;
3836      ; REPORTS:      ERROR 2          MASTER CLEAR FAILS TO RESET
3837      ;                  ERROR 11       NO KVM11 RESPONSE
3838      ;                  ERROR 32       LINE COUNTER ERROR
3839      ;                  ERROR 35       UNDERRUN INTERRUPT OCCURS
3840      ;                  ERROR 45       TRX/RCV ERROR
3841      ;                  ERROR 46       UNEXPECTED STATUS RECEIVED
3842      ;                  ERROR 50       UNEXPECTED RCV INT. WHILE DISABLED
3843      ;                  ERROR 51       INTERRUPT AT ILLEGAL VECTOR
3844      ;                  ERROR 54       UNEXPECTED END OF RCV DMA INT.
3845      ;                  ERROR 55       END OF TRX DMA WITHOUT BIT "BCNTIN" SET
3846      ;                  ERROR 56       TIMEOUT DURING TRX DMA
3847      ;                  ERROR 57       DATA COMPARE ERROR DURING TRX DMA
3848      ; --
3849
3850
3851 035164      BGNTS
3852 035164 004737 034626      1$: CALL STRSB0          ;CALL START SUBROUTINE 0
3853 035170 004737 034646      CALL STRSB1          ;CALL START SUBROUTINE 1
3854 035174 012765 007204 000006      MOV #PATTRN,SEL6(R5) ;LOAD TRX BUFFER ADDRESS
3855 035202 005065 000010      CLR SEL10(R5)          ;LOAD EXT. ADDRESS
3856 035206 012765 000112 000004      MOV #PATLGH,SEL4(R5) ;LOAD BYTE COUNT
3857 035214 005465 000004      NEG SEL4(R5)          ;GET IT IN 2'S COMPLEMENT
3858 035220 005065 000012      CLR SEL12(R5)         ;LOAD SUBTEST CODE FOR FW TEST
3859 035224 005037 002364      CLR NXMTST          ;CLEAN NXM TEST FLAG
3860 035230 004737 035470      CALL DMAINS          ;CALL COMMON SUBROUTINE
3861 035234 103410      BCS 20$          ;ERROR
3862 035236 022737 000007 002362      CMP #7,RATE      ;WAS IT ALL LINE RATE SELECTED ?
3863 035244 001004      BNE 20$          ;NO, QUIT THIS IS THE END
3864 035246 005721      TST (R1),        ;NEXT SPEED
3865 035250 022701 000016      CMP #16,R1          ;END OF TABLE ?
3866 035254 001345      BNE 1$          ;NO CONTINUE WITH NEXT LINE RATE
3867 035256 000240      20$: NOP
3868 035260      ENDTST
3869 035262      BADHEAD
3870      ;
3871      ;
3872      ;
3873      ;
3874      ;
3875      ;
3876      ;
3870      ;
3871      ; TEST OF DMA TRANSFER IN (TRX) USING A LONG FRAME OF DATA
3872      ;
3873      ; A 1020. BYTE LONG FRAME IS TRANSMITTED IN DMA MODE WHILE THE RECEPTION
3874      ; IS DONE IN INTERRUPT MODE.
3875      ;
3876      ; INPUT: SEL2 = LINE CLOCK RATE

```

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Address	Op Code	Op 1	Op 2	Op 3	Op 4	Op 5	Op 6	Op 7	Op 8	Op 9	Op 10	Op 11	Op 12	Op 13	Op 14	Op 15	Op 16	Op 17	Op 18	Op 19	Op 20	Op 21	Op 22	Op 23	Op 24	Op 25	Op 26	Op 27	Op 28	Op 29	Op 30	Op 31	Op 32	Op 33	Op 34	Op 35	Op 36	Op 37	Op 38	Op 39	Op 40	Op 41	Op 42	Op 43	Op 44	Op 45	Op 46	Op 47	Op 48	Op 49	Op 50	Op 51	Op 52	Op 53	Op 54	Op 55	Op 56	Op 57	Op 58	Op 59	Op 60	Op 61	Op 62	Op 63	Op 64	Op 65	Op 66	Op 67	Op 68	Op 69	Op 70	Op 71	Op 72	Op 73	Op 74	Op 75	Op 76	Op 77	Op 78	Op 79	Op 80	Op 81	Op 82	Op 83	Op 84	Op 85	Op 86	Op 87	Op 88	Op 89	Op 90	Op 91	Op 92	Op 93	Op 94	Op 95	Op 96	Op 97	Op 98	Op 99	Op 100	Op 101	Op 102	Op 103	Op 104	Op 105	Op 106	Op 107	Op 108	Op 109	Op 110	Op 111	Op 112	Op 113	Op 114	Op 115	Op 116	Op 117	Op 118	Op 119	Op 120	Op 121	Op 122	Op 123	Op 124	Op 125	Op 126	Op 127	Op 128	Op 129	Op 130	Op 131	Op 132	Op 133	Op 134	Op 135	Op 136	Op 137	Op 138	Op 139	Op 140	Op 141	Op 142	Op 143	Op 144	Op 145	Op 146	Op 147	Op 148	Op 149	Op 150	Op 151	Op 152	Op 153	Op 154	Op 155	Op 156	Op 157	Op 158	Op 159	Op 160	Op 161	Op 162	Op 163	Op 164	Op 165	Op 166	Op 167	Op 168	Op 169	Op 170	Op 171	Op 172	Op 173	Op 174	Op 175	Op 176	Op 177	Op 178	Op 179	Op 180	Op 181	Op 182	Op 183	Op 184	Op 185	Op 186	Op 187	Op 188	Op 189	Op 190	Op 191	Op 192	Op 193	Op 194	Op 195	Op 196	Op 197	Op 198	Op 199	Op 200	Op 201	Op 202	Op 203	Op 204	Op 205	Op 206	Op 207	Op 208	Op 209	Op 210	Op 211	Op 212	Op 213	Op 214	Op 215	Op 216	Op 217	Op 218	Op 219	Op 220	Op 221	Op 222	Op 223	Op 224	Op 225	Op 226	Op 227	Op 228	Op 229	Op 230	Op 231	Op 232	Op 233	Op 234	Op 235	Op 236	Op 237	Op 238	Op 239	Op 240	Op 241	Op 242	Op 243	Op 244	Op 245	Op 246	Op 247	Op 248	Op 249	Op 250	Op 251	Op 252	Op 253	Op 254	Op 255	Op 256	Op 257	Op 258	Op 259	Op 260	Op 261	Op 262	Op 263	Op 264	Op 265	Op 266	Op 267	Op 268	Op 269	Op 270	Op 271	Op 272	Op 273	Op 274	Op 275	Op 276	Op 277	Op 278	Op 279	Op 280	Op 281	Op 282	Op 283	Op 284	Op 285	Op 286	Op 287	Op 288	Op 289	Op 290	Op 291	Op 292	Op 293	Op 294	Op 295	Op 296	Op 297	Op 298	Op 299	Op 300	Op 301	Op 302	Op 303	Op 304	Op 305	Op 306	Op 307	Op 308	Op 309	Op 310	Op 311	Op 312	Op 313	Op 314	Op 315	Op 316	Op 317	Op 318	Op 319	Op 320	Op 321	Op 322	Op 323	Op 324	Op 325	Op 326	Op 327	Op 328	Op 329	Op 330	Op 331	Op 332	Op 333	Op 334	Op 335	Op 336	Op 337	Op 338	Op 339	Op 340	Op 341	Op 342	Op 343	Op 344	Op 345	Op 346	Op 347	Op 348	Op 349	Op 350	Op 351	Op 352	Op 353	Op 354	Op 355	Op 356	Op 357	Op 358	Op 359	Op 360	Op 361	Op 362	Op 363	Op 364	Op 365	Op 366	Op 367	Op 368	Op 369	Op 370	Op 371	Op 372	Op 373	Op 374	Op 375	Op 376	Op 377	Op 378	Op 379	Op 380	Op 381	Op 382	Op 383	Op 384	Op 385	Op 386	Op 387	Op 388	Op 389	Op 390	Op 391	Op 392	Op 393	Op 394	Op 395	Op 396	Op 397	Op 398	Op 399	Op 400	Op 401	Op 402	Op 403	Op 404	Op 405	Op 406	Op 407	Op 408	Op 409	Op 410	Op 411	Op 412	Op 413	Op 414	Op 415	Op 416	Op 417	Op 418
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VKMMAD KMV11C STATIC DIAG
HARDWARE TESTS

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3924	035466				ENDTST	
3925						
3926	035470				DMAINS: TESTNB 20	;LOAD KMV ROUTINE NUMBER
3927						
3928	035476				WAIT 1,1000.	;WAIT
3929	035506	000542			BR 25	;SELO = 0, CORRECT ANSWER
3930	035510	000406			BR 10	;SELO = 100, ERROR
3931						
3932	035512				ERRHRD 11,EM0011	;IF NO RESPONSE
3933	035522	000261			9: SEC	
3934	035524	000207			RETURN	
3935						
3936	035526	005737	002364		10: TST NXMTST	; LOOK FOR NXM TEST
3937	035532	001404			BEQ 26	; NO DISPATCH
3938	035534	122765	000012	000002	CMPB #12,SEL2(R5)	; REAL TIMEOUT ?
3939	035542	001124			BNE 25	
3940						
3941	035544				26: DSPACH 10.	
3942	035552	000411			BR 11	;LINE COUNTER ERROR
3943	035554	000415			BR 12	;TRX/RCV ERROR
3944	035556	000421			BR 13	;UNEXPECTED END OF RCV DMA INT.
3945	035560	000425			BR 14	;END OF TRX DMA WITHOUT BIT "BCNTIN" SET
3946	035562	000431			BR 15	;TIMEOUT DURING TRX DMA
3947	035564	000440			BR 16	;UNEXPECTED STATUS RECEIVED
3948	035566	000452			BR 17	;DATA COMPARE ERROR DURING TRX DMA
3949	035570	000464			BR 18	;UNEXPECTED RCV INT. WHILE DISABLED
3950	035572	000476			BR 19	;INTERRUPT AT ILLEGAL VECTOR
3951	035574	000502			BR 20	;UNDERRUN INTERRUPT OCCURS
3952						
3953	035576				11: ERRHRD 32,EM0032,PRRATE	
3954	035606	000745			BR 9	
3955						
3956	035610				12: ERRHRD 45,EM0044,PDMAT3	
3957	035620	000740			BR 9	
3958						
3959	035622				13: ERRHRD 54,EM0054,PDMAT1	
3960	035632	000733			BR 9	
3961						
3962	035634				14: ERRHRD 55,EM0055,PDMAT1	
3963	035644	000726			BR 9	
3964						
3965	035646	005737	002364		15: TST NXMTST	;NXM TEST RUNNING ?
3966	035652	001070			BNE 5	;YES , SUCCESS
3967	035654				ERRHRD 56,EM0056,PDMAT1	
3968	035664	000716			BR 9	
3969						
3970	035666	016537	000004	002412	16: MOV SEL4(R5),BDDAT	;LOAD RECEIVED STATUS&DATA
3971	035674	016537	000006	002410	MOV SEL6(R5),GDDAT	;LOAD EXPECTED ONE
3972	035702				ERRHRD 46,EM0045,PDMAT2	
3973	035712	000703			BR 9	
3974						
3975	035714	016537	000004	002412	17: MOV SEL4(R5),BDDAT	;LOAD RECEIVED STATUS&DATA
3976	035722	016537	000006	002410	MOV SEL6(R5),GDDAT	;LOAD EXPECTED ONE
3977	035730				ERRHRD 57,EM0057,PDMAT2	
3978	035740	000670			BR 9	
3979						
3980	035742	016537	000004	002412	18: MOV SEL4(R5),BDDAT	;LOAD RECEIVED STATUS&DATA

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3981	035750	016537	000006	002410	MOV	SEL6(R5),GDDAT	;LOAD EXPECTED ONE
3982	035756				ERRHRD	50,EM0047,PDMAT2	
3983	035766	000655			BR	98	
3984							
3985	035770			198:	ERRHRD	51,EM0050,PDMAT3	
3986	036000	000650			BR	98	
3987							
3988	036002			208:	ERRHRD	35,EM0034,PDMAT3	
3989	036012	000643			BR	98	
3990							
3991	036014	005737	002364	258:	TST	NXMTST	;NXM TEST RUNNING ?
3992	036020	001405			BEQ	58	;NO, REAL SUCCESS
3993	036022				ERRHRD	65,EM0065	;UNEXPECTED SUCCESS
3994	036032	000633			BP	98	
3995	036034	000241		58:	CLC		
3996	036036	000207			RETURN		

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3998 036040

BADHEAD

.. TEST26 ..

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; TEST OF DMA OUT (RCV) TRANSFER USING A SHORT FRAME OF DATA
;
; DESCRIPTION: THE HOST PREPARES A SPACE IN ITS MEMORY FOR
;               THE TRANSFERRED FRAME. THEN, THE HOST ASKS
;               THE DCT11 FOR PROCESSING. IN ORDER TO INIT
;               DMA OUT, THE HOST PASSES PARAMETERS TO THE
;               KVM, SUCH AS:
;                   SEL2 = LINE CLOCK RATE
;                   SEL4 = DMA OUT BYTE COUNT(2'S COMP.)
;                   SEL6 = RECEIVE BUFFER ADDRESS(EVEN)
;                   SEL10 = EXT. ADDRESS
;                   SEL12 = SUBTEST CODE (0 OR 2)
;               THE DCT11 SENDS, RECEIVES AND TRANSFERS BY
;               DMA THE SAME FRAME AS NOTICE IN TEST 23.
;               DMA OUT IS BYTE WIDE.
;               PERIODICALLY THE HOST POLLS SELO FOR ANY RES
;               PONSE FROM THE KVM11:
;                   SELO = 0 IF TEST OKE
;                   SELO = 100 IF ANY ERROR
;               IN THE FORMER CASE, THE HOST CHECK THE FRAME
;               LOADED BY DMA AND REPORT ERROR 70 IF A DATA
;               COMPARE ERROR.
;               IN THE LATTER CASE,
;                   SEL2 = 2      FOR ERROR 32
;                   4      FOR ERROR 45
;                   6      FOR ERROR 61
;                   10     FOR ERROR 62
;                   12     FOR ERROR 63
;                   14     FOR ERROR 46
;                   16     FOR ERROR 51
;                   20     FOR ERROR 35
;                   SEL4 = RCV STATUS AND DATA REGISTER
;                   SEL6 = EXPECTED STATUS AND DATA REGISTER
;                   SEL10 = FLAGWORD
;                   SEL12 = CURRENT RCV BYTE COUNT
;                   SEL14 = CURRENT RCV BUFFER ADDRESS (LOW)
;                   SEL16 = CURRENT RCV BUFFER ADDRESS (HIGH)
;               THEN THE HOST BUILDS ERROR REPORTS DEPENDING
;               ON SELO THEN EXIT.
;
; MAINT MODE: 2
;
; KVM ROUTINE: 21
;
; REPORTS:      ERROR 2      MASTER CLEAR FAILS TO RESET
;                ERROR 11     NO KVM11 RESPONSE

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4045      ; ERROR 35 UNDERRUN INTERRUPT OCCURS
4046      ; ERROR 45 TRX/RCV ERROR
4047      ; ERROR 46 UNEXPECTED RECEIVED STATUS
4048      ; ERROR 61 UNEXPECTED END OF TRX DMA
4049      ; ERROR 62 RCV BYTE COUNT OVERFLOW
4050      ; ERROR 63 TIMEOUT DURING RCV DMA
4051      ; ERROR 51 INTERRUPT AT ILLEGAL VECTOR
4052      ; --
4053
4054
4055 BGNTST
4056 036040 004737 034626 CALL STRSBO ;CALL START SUBROUTINE 0
4057 036040 004737 034646 1$: CALL STRSB1 ;CALL START SUBROUTINE 1
4058 036050 SAVE 1
4059 036054 012701 004626 MOV #RCVBUF,R1 ;GET RECEIVE BUFFER
4060 036060 012737 000776 002470 MOV #1020./2,BUFLEN ;LOAD CORRESPONDING LENGTH
4061 036066 004737 011052 CALL CLEAR ;CLEAR THE RECEIVE BUFFER
4062 036072 GET 1
4063 036076 012765 004626 000006 MOV #RCVBUF,SEL6(R5) ;LOAD RCV BUFFER ADDRESS
4064 036104 005065 000010 CLR SEL10(R5) ;LOAD EXT. ADDRESS
4065 036110 012765 000112 000004 MOV #PATLGH,SEL4(R5) ;LOAD BYTE COUNT
4066 036116 005465 000004 NEG SEL4(R5) ;GET IT IN 2'S COMPLEMENT VALUE
4067 036122 005065 000012 CLR SEL12(R5) ;SELECT SUBTEST 0 IN FW
4068 036126 005037 002364 CLR NXMTST ;CLEAR NXM FLAG
4069 036132 004737 036610 CALL DMAOSB ;CALL COMMON SUBROUTINE
4070 036136 103443 BCS 20$ ;ERROR
4071 036140 SAVE 1
4072 036144 012701 007206 MOV #PATTRN+2,R1 ;GET EXPECTED BUFFER ADDRESS
4073 036150 012702 004626 MOV #RCVBUF,R2 ;GET RECEIVE BUFFER ADDRESS
4074 036154 012737 000106 002470 MOV #PATLGH-4,BUFLEN ;LOAD LENGTH OF BUFFER TO COMPARE
4075 036162 004737 010444 CALL COMPRB ;COMPARE BOTH BUFFERS BYTE PER BYTE
4076 036166 103015 BCC 15$ ;SUCCESS
4077 036170 012737 000020 002470 MOV #CSRLEN,BUFLEN ;REINIT BUFLEN
4078 036176 012703 007312 MOV #PATTRN+PATLGH-4,R3 ;LOAD TRANSMIT END BUFFER ADDRESS
4079 036202 ERRHRD 60,EM0060,PRDMAR ;DATA COMPARE ERROR DURING RCV DMA
4080 036212 GET 1
4081 036216 ESCAPE TST
4082 036222 15$: GET 1
4083 036226 022737 000007 002362 CMP #7,RATE ;WAS IT ALL LINE RATE SELECTED ?
4084 036234 001064 BNE 20$ ;NO, QUIT THIS IS THE END
4085 036236 005721 TST (R1), ;NEXT SPEED
4086 036240 022701 000016 CMP #16,R1 ;END OF TABLE ?
4087 036244 001277 BNE 1$ ;NO CONTINUE WITH NEXT LINE RATE
4088 036246 012737 000020 002470 20$: MOV #CSRLEN,BUFLEN ;REINIT BUFLEN
4089 036254 000240 NOP
4090 036256 ENDTST
4091 036260 BADHEAD
;..
;
;
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4092      ; TEST OF DMA OUT (RCV) TRANSFER USING A LONG FRAME OF DATA
4093      ; --
4094      BGNTST
4095      036260 004737 034626      CALL      STRSBO      ;CALL START SUBROUTINE 0
4096      036264 004737 034646      1$:      CALL      STRSB1      ;CALL START SUBROUTINE 1
4097      036270      SAVE      1
4098      036274 012701 004626      MOV      @RCVBUF,R1      ;GET RECEIVE BUFFER
4099      036300 012737 000776 002470      MOV      @1020./2,BUFLEN      ;LOAD CORRESPONDING LENGTH
4100      036306 004737 011052      CALL      CLEAR      ;CLEAR THE RECEIVE BUFFER
4101      036312      GET      1
4102      036316 012765 004626 000006      MOV      @RCVBUF,SEL6(R5)      ;LOAD RCV BUFFER ADDRESS
4103      036324 005065 000010      CLR      SEL10(R5)      ;LOAD EXT. ADDRESS
4104      036330 012765 001774 000004      MOV      @1020.,SEL4(R5)      ;LOAD BYTE COUNT
4105      036336 005465 000004      NEG      SEL4(R5)      ;GET IT IN 2'S COMPLEMENT VALUE
4106      036342 012765 000002 000012      MOV      @2,SEL12(R5)      ;SELECT SUBTEST 2 IN FW
4107      036350 005037 002364      CLR      NXMTST      ;CLEAR NXM FLAG
4108      036354 004737 036610      CALL      DMAOSB      ;CALL COMMON SUBROUTINE
4109      036360 103443      BCS      20$      ;ERROR
4110      036362      SAVE      1
4111      036366 012701 002633      MOV      @TRXBUF+1,R1      ;GET EXPECTED BUFFER ADDRESS
4112      036372 012702 004626      MOV      @RCVBUF,R2      ;GET RECEIVE BUFFER ADDRESS
4113      036376 012737 001773 002470      MOV      @1019.,BUFLEN      ;LOAD BYTE COUNT
4114      036404 004737 010444      CALL      COMPRB      ;COMPARE BOTH BUFFERS BYTES PER BYTE
4115      036410 103015      BCC      15$      ;SUCCESS
4116      036412 012737 000020 002470      MOV      @CSRLN,BUFLEN      ;REINIT BUFLEN
4117      036420 012703 004625      MOV      @TRXBUF+1019.,R3      ;LOAD END OF EXPECTED RCV BUFFER
4118      036424      ERHRD      60,EM0060,PRDMAH      ;DATA COMPARE ERROR
4119      036434      GET      1
4120      036440      ESCAPE TST
4121      036444      15$:      GET      1
4122      036450 022737 000007 002362      CMP      @7,RATE      ;WAS IT ALL LINE RATE SELECTED ?
4123      036456 001004      BNE      20$      ;NO, QUIT THIS IS THE END
4124      036460 005721      TST      (R1).      ;NEXT SPEED
4125      036462 022701 000016      CMP      @16,R1      ;END OF TABLE ?
4126      036466 001276      BNE      1$      ;NO CONTINUE WITH NEXT LINE RATE
4127      036470 012737 000020 002470 20$:      MOV      @CSRLN,BUFLEN      ;REINIT BUFLEN
4128      036476 000240      NOP
4129      036500      ENDTST
4130      036502      BADHEAD
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4139	036520	004737	034646		1\$:	CALL	STRSB1		; START SUBROUTINE 1
4140	036524	013765	002526	000006		MOV	NXMLOW,SEL6(R5)		; LOAD LOW NXM ADDRESS /V01.04/
4141	036532	013765	002530	000010		MOV	NXMHIG,SEL10(R5)		; LOAD HIGH NXM ADDRESS /V01.04/
4142	036540	012765	000012	000004		MOV	#10.,SEL4(R5)		; LOAD BYTE COUNT
4143	036546	005465	000004			NEG	SEL4(R5)		; GET IT IN 2'S COMPL. FORM
4144	036552	005065	000012			CLR	SEL12(R5)		; SURTEST 1 SELECTED IN FW
4145	036556	064737	036610			CALL	DMAOSB		; CALL COMMON SUBROUTINE
4146	036562	103410				BCS	20\$		; UNEXPECTED RESULT
4147	036564	022737	000007	002362		CMP	#7,RATE		; WAS IT ALL LINE RATE SELECTED ?
4148	036572	001004				BNE	20\$		; NO, QUIT THIS IS THE END
4149	036574	005721				TST	(R1).		; NEXT SPEED
4150	036576	022701	000016			CMP	#16,R1		; END OF TABLE ?
4151	036602	001346				BNE	1\$		; NO CONTINUE WITH NEXT LINE RATE
4152	036604	000240			20\$:	NOP			
4153	036606					ENDTST			
4154									
4155	036610					DMAOSB: TESTNB	21		; LOAD KMV ROUTINE NUMBER
4156									
4157	036616					WAIT	1,1000.		; WAIT
4158	036626	000512				BR	20\$		; SEL0 = 0, CORRECT
4159	036630	000406				BR	2\$		; SEL0 = 100, ERROR
4160									
4161	036632					ERRHRD	11,EM0011		; IF NO RESPONSE
4162	036642	000261			11\$:	SEC			
4163	036644	000207				RETURN			
4164									
4165	036646	005737	002364		2\$:	TST	NXMTST		; LOOK FOR NXM TEST
4166	036652	001404				BEQ	21\$		; NO DISPATCH
4167	036654	122765	000012	000002		CMPB	#12,SEL2(R5)		; REAL NXM ?
4168	036662	001074				BNE	20\$		
4169									
4170	036664				21\$:	DSPACH	8.		
4171	036672	000407				BR	3\$		; SEL2=2, LINE COUNTER ERROR
4172	036674	000413				BR	4\$		; SEL2=4, TRX/RCV ERROR
4173	036676	000417				BR	5\$		; SEL2=6, UNEXPECTED TIMEOUT DURING TRX DMA
4174	036700	000423				BR	6\$		; SEL2=10, BYTE COUNT OVERFLOW RCV DMA
4175	036702	000427				BR	7\$		; SEL2=12, TIMEOUT DURING RCV DMA
4176	036704	000436				BR	8\$		; SEL2=14, UNEXPECTED STATUS RECEIVED
4177	036706	000450				BR	9\$		; SEL2=16, INTERRUPT AT ILLEGAL VECTOR
4178	036710	000454				BR	12\$		; SEL2=20, UNDERRUN INTERRUPT OCCURS
4179									
4180	036712				3\$:	ERRHRD	32,EM0032,PRRATE		
4181	036722	000747				BR	11\$		
4182									
4183	036724				4\$:	ERRHRD	45,EM0044,PDMA3		
4184	036734	000742				BR	11\$		
4185									
4186	036736				5\$:	ERRHRD	61,EM0061,PDMA1		
4187	036746	000735				BR	11\$		
4188									
4189	036750				6\$:	ERRHRD	62,EM0062,PDMA1		
4190	036760	000730				BR	11\$		
4191									
4192	036762	005737	002364		7\$:	TST	NXMTST		; NXM TEST RUNNING ?
4193	036766	001042				BNE	10\$		; YES, CORRECT TIMEOUT EXPECTED
4194	036770					ERRHRD	63,EM0063,PDMA1		
4195	037000	000720				BR	11\$		

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```
4196
4197 037002 016537 000004 002412 8$: MOV SEL4(R5),BDDAT ;LOAD RECEIVED STATUS&DATA
4198 037010 016537 000006 002410 MOV SEL6(R5),GDDAT ;LOAD EXPECTED STATUS&DATA
4199 037016 ERRHRD 46,EM0045,PDMA2
4200 037026 000705 BR 11$
4201
4202 037030 9$: ERRHRD 51,EM0050,PDMA3
4203 037040 000700 BR 11$
4204
4205 037042 12$: ERRHRD 35,EM0034,PDMA3
4206 037052 000673 BR 11$
4207
4208 037054 005737 002364 20$: TST NXMTST ;NXM TEST RUNNING ?
4209 037060 001405 BEQ 10$ ;NO, REAL SUCCESS
4210 037062 ERRHRD 65,EM0065
4211 037072 000663 BR 11$
4212 037074 000241 10$: CLC
4213 037076 000207 RETURN
4214
4215 .EVEN
4216
```

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4218 037100

BADHEAD

** TEST29 **

TEST OF DMA TRANSFER IN BOTH DIRECTIONS

DESCRIPTION: THE HOST ASKS THE DCT11 FOR INITIALIZING A
DMA TRANSFER IN BOTH DIRECTIONS .
IN ORDER TO RUN TEST, THE HOST PASSES TO THE
DCT11 PARAMETERS, SUCH AS:

SEL2 = LINE CLOCK RATE
SEL4 = DMA TRX BYTE COUNT(2'S COMP.)
SEL6 = DMA TRX BUS ADDRESS(EVEN)
SEL10 = DMA TRX IN EXT. ADDRESS
SEL12 = DMA RCV BYTE COUNT
SEL14 = DMA RCV OUT BUS ADDRESS
SEL16 = DMA RCV OUT EXT. ADDRESS
BIT15 OF SEL16 IS SET IF SEL20 IS NOT VALID
THAT MEANS THE DATA BYTE MUST BE IGNORED WHEN
A STATUS IS RECEIVED.
SEL20 = LAST EXPECTED DATA TO BE RECEIVED

THEN THE HOST PERIODICALLY POLLS SELO FOR A
RESPONSE FROM THE DCT11:

SELO = 0 IF TEST COMPLETED
SELO = 100 IF ANY ERROR

IN THE FORMER CASE THE HOST COMPARES THE XMT
TABLE WITH THE RCV ONE AND REPORT ERROR 64
IF ANY DATA COMPARE ERROR.

IN THE LATTER CASE:

SEL2 = 2 FOR ERROR 32
= 4 FOR ERROR 45
= 6 FOR ERROR 56
= 10 FOR ERROR 62
= 12 FOR ERROR 63
= 14 FOR ERROR 55
= 16 FOR ERROR 46
= 20 FOR ERROR 51
= 22 FOR ERROR 35

SEL4 = RECEIVED STATUS&DATA REGISTER (ERROR 46)

SEL6 = EXPECTED STATUS&DATA REGISTER (ERROR 46)

SEL10 = FLAGWORD

SEL12 = TRX DMA BYTE COUNT

SEL14 = TRX DMA BUS ADDRESS

SEL16 = TRX DMA EXT. ADDRESS

SEL20 = RCV DMA BYTE COUNT

SEL22 = RCV DMA BUS ADDRESS

SEL24 = RCV DMA EXT. ADDRESS

THEN THE HOST BUILDS REPORT AND EXIT

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4264

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```

4265      ;
4266      ; MAINT MODE:    2
4267      ;
4268      ; KMV ROUTINE:   22
4269      ;
4270      ; REPORTS:       ERROR 2          MASTER CLEAR FAILS TO RESET
4271      ;                 ERROR 11        NO KMV11 RESPONSE
4272      ;                 ERROR 32        LINE COUNTER ERROR WHEN STARTED
4273      ;                 ERROR 35        UNDERPRUN INTERRUPT OCCURS
4274      ;                 ERROR 45        TRX/R V ERRORS
4275      ;                 ERROR 46        UNEXPECTED STATUS RECEIVED
4276      ;                 ERROR 51        INTERRUPT AT ILLEGAL VECTOR
4277      ;                 ERROR 55        BIT "BCNTIN" NOT SET AT END OF TRX DMA
4278      ;                 ERROR 56        Q-BUS TIMEOUT DURING TRX DMA
4279      ;                 ERROR 62        BYTE COUNT OVERFLOW DURING RCV DMA
4280      ;                 ERROR 63        Q-BUS TIMEOUT DURING RCV DMA
4281      ;                 ERROR 64        DATA COMPARE ERROR
4282      ;
4283      ; --
4284                000017              RXLNG1=15.
4285                000010              RXLNG2=8.
4286                000006              RXLNG3=6.
4287                001774              RXLNG4=1020.
4288                000013              TXLNG1=11.
4289                000012              TXLNG2=10.
4290                001774              TXLNG4=1020.
4291
4292 037100      BGNTST
4293      ;
4294      ; THE FIRST TEST OF THIS CLASS CORRESPONDS TO A 11 BYTES LONG TRANSMIT BUFFER
4295      ; AND A 15 BYTES LONG RECEIVE BUFFER.
4296      ;
4297 037100      004737      034626             CALL     STRSB0           ;CALL START SUBROUTINE 0
4298 037104      004737      034646             1$:   CALL     STRSB1           ;CALL START SUBROUTINE 1
4299 037110      012702      000017             MOV      #RXLNG1,R2         ;GET LENGTH OF RECEIVE BUFFER
4300 037114      012703      000013             MOV      #TXLNG1,R3         ;LOAD TRANSMIT BUFFER LENGTH
4301 037120      004737      037350             CALL     DMASUB            ;CALL COMMON SUBROUTINE
4302 037124      103410                               BCS      20$           ;ERROR
4303 037126      022737      000007      002362      CMP      #7,RATE         ;WAS IT ALL LINE RATE SELECTED ?
4304 037134      001004                               BNE      20$           ;NO, QUIT THIS IS THE END
4305 037136      005721                               TST      (R1),+               ;NEXT SPEED
4306 037140      022701      000016             CMP      #16,R1           ;END OF TABLE ?
4307 037144      001357                               BNE      1$                   ;NO CONTINUE WITH NEXT LINE RATE
4308 037146      000240
4309 037150      20$:   NOP
4310                      ENDTST
4311 037152                      .EVEN
                        BADHEAD
                        ;**
                        ;
                        ;
                        ;
                        ;
                        ;

```

```

; THE SECOND TEST OF THIS CLASS CORRESPONDS TO A 10 BYTES LONG TRANSMIT BUFFER
; AND A 8 BYTES LONG RECEIVE BUFFER.
; --
BGNTST
    CALL STRSBO ;CALL START SUBROUTINE 0
1$:   CALL STRSB1 ;CALL START SUBROUTINE 1
      MOV #RXLNG2,R2 ;LOAD RECEIVE BUFFER LENGTH
      MOV #TXLNG2,R3 ;LOAD TRANSMIT BUFFER LENGTH
      CALL DMASUB ;CALL COMMON SUBROUTINE
      BCS 20$ ;ERROR
      CMP #7,RATE ;WAS IT ALL LINE RATE SELECTED ?
      BNE 20$ ;NO, QUIT THIS IS THE END
      TST (R1),+ ;NEXT SPEED
      CMP #16,R1 ;END OF TABLE ?
      BNE 1$ ;NO CONTINUE WITH NEXT LINE RATE
      NOP
20$: 
ENDTST
.EVEN
BADHEAD
***
;
;
;
; ** TEST31 **
;
;
;
;
; THE THIRD TEST OF THIS CLASS CORRESPONDS TO A 10 BYTES LONG TRANSMIT BUFFER
; AND A 6 BYTES LONG RECEIVE BUFFER. THIS TEST PERMITS TO TEST THE BUFFER
; OVERFLOW.
; --
BGNTST
    CALL STRSBO ;CALL START SUBROUTINE 0
1$:   CALL STRSB1 ;CALL START SUBROUTINE 1
      MOV #RXLNG3,R2 ;LOAD RECEIVE BUFFER LENGTH
      MOV #TXLNG2,R3 ;LOAD TRANSMIT BUFFER LENGTH
      CALL DMASUB ;CALL COMMON SUBROUTINE
      BCS 20$ ;ERROR
      CMP #7,RATE ;WAS IT ALL LINE RATE SELECTED ?
      BNE 20$ ;NO, QUIT THIS IS THE END
      TST (R1),+ ;NEXT SPEED
      CMP #16,R1 ;END OF TABLE ?
      BNE 1$ ;NO CONTINUE WITH NEXT LINE RATE
      NOP
20$: 
ENDTST
.EVEN
BADHEAD
***
;
;
;
; ** TEST32 **

```

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4357 037276
4358 037276 004737 034626
4359 037302 004737 034646
4360 037306 012702 001774
4361 037312 012703 001774
4362 037316 004737 037350
4363 037322 103410
4364 037324 022737 000007 002362
4365 037332 001004
4366 037334 005721
4367 037336 022701 000016
4368 037342 001357
4369 037344 000240
4370 037346
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4380 037350
4381 037350
4382 037354 012701 004626
4383 037360 006202
4384 037362 010237 002470
4385 037366 006302
4386 037370 004737 011052
4387 037374
4388 037400 012765 004626 000014
4389 037406 005065 000016
4390 037412 010265 000012
4391 037416 005465 000012
4392 037422 012765 002632 000006
4393 037430 005065 000010
4394 037434 010365 000004
4395 037440 005465 000004
4396 037444 062703 002631
4397 037450 111365 000020
4398 037454 162703 002631
4399 037460
4400
4401 037466
4402 037476 000517
4403 037500 000411
4404 037502
4405 037512 012737 000020 002470 1$:

;
;
;
; THE FOURTH TEST OF THIS CLASS CORRESPONDS TO A LONG DMA TRANSFER.
; 1020 BYTES WILL BE TRANSMITTED AND RECEIVED.
;
BGNTST
1$: CALL STRSB0 ;CALL START SUBROUTINE 0
CALL STRSB1 ;CALL START SUBROUTINE 1
MOV @RXLNG4,R2 ;LOAD RECEIVE BUFFER LENGTH
MOV @TXLNG4,R3 ;LOAD TRANSMIT BUFFER LENGTH
CALL DMASUB ;CALL COMMON SUBROUTINE
BCS 20$ ;ERROR
CMP @7,RATE ;WAS IT ALL LINE RATE SELECTED ?
BNE 20$ ;NO, QUIT THIS IS THE END
TST (R1), ;NEXT SPEED
CMP @16,R1 ;END OF TABLE ?
BNE 1$ ;NO CONTINUE WITH NEXT LINE RATE
20$: NOP
ENDTST
.EVEN
;
; COMMON SUBROUTINE FOR DMA TESTS IN BOTH DIRECTIONS
; IT ACTIVATES FIRMWARE ROUTINE TEST22 AFTER HAVING LOADED THE CSR WITH
; THE CORRESPONDING PARAMETERS.
;
; INPUT: R2 CONTAINS THE RECEIVE BUFFER LENGTH (IN BYTES)
; R3 CONTAINS THE TRANSMIT BUFFER LENGTH (IN BYTES)
;
DMASUB:
SAVE 1
MOV @RCVBUF,R1 ;GET RECEIVE BUFFER
ASR R2 ;GET BYTE COUNT IN WORDS
MOV R2,BUFLEN ;LOAD CORRESPONDING LENGTH
ASL R2 ;RESTORE R2
CALL CLEAR ;CLEAR THE RECEIVE BUFFER
GET 1
MOV @RCVBUF,SEL14(R5) ;LOAD RECEIVE BUFFER ADDRESS
CLR SEL16(R5) ;LOAD EXT. RECEIVE BUFFER ADDRESS
MOV R2,SEL12(R5) ;LOAD RECEIVE BUFFER LENGTH
NEG SEL12(R5) ;GET IT IN 2'S COMPLEMENT
MOV @TRXBUF,SEL6(R5) ;LOAD TRANSMIT BUFFER LENGTH
CLR SEL10(R5) ;LOAD EXT. TRANSMIT BUFFER ADDRESS
MOV R3,SEL4(R5) ;LOAD TRANSMIT BUFFER LENGTH
NEG SEL4(R5) ;GET IT IN 2'S COMPLEMENT
ADD @TRXBUF-1,R3 ;GET LAST TRX DATA ADDRESS
MOVB (R3),SEL20(R5) ;LOAD LAST DATA IN SEL20
SUB @TRXBUF-1,R3 ;RESTORE R3
TESTNB 22 ;ACTIVATE TEST22 IN FIRMWARE

WAIT 1,1000. ;WAIT
BR 20$ ;SELO=0 .SUCCESS
BR 2$ ;SELO=100 . ERROR
ERRHRD 11,EM0011 ;TIMEOUT, NO KMV11 C RESPONSE
MOV @CSRLN,BUFLEN ;RESTORE CSR LENGTH

```

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4406	037520	000261			SEC		
4407	037522	000207			RETURN		
4408							
4409	037524			2\$:	DSPACH	9.	;DISPATCH FOLLOWING SEL2 VALUE
4410	037532	000410			BR	3\$	;SEL2=2 LINE COUNTER ERROR
4411	037534	000414			BR	4\$	;SEL2=4 TRX/RCV ERRORS
4412	037536	000420			BR	5\$	;SEL2=6 Q-BUS TIMEOUT DURING TRX DMA
4413	037540	000424			BR	6\$	;SEL2=10 BYTE COUNT OVERFLOW DURING RCV DMA
4414	037542	000436			BR	7\$	;SEL2=12 Q-BUS TIMEOUT DURING RCV DMA
4415	037544	000442			BR	8\$	;SEL2=14 BIT "BCNTIN" NOT SET AT END OF TRX DMA
4416	037546	000446			BR	9\$	;SEL2=16 UNEXPECTED STATUS RECEIVED
4417	037550	000460			BR	10\$	;SEL2=20 INTERRUPT AT ILLEGAL VECTOR
4418	037552	000464			BR	11\$	;SEL2=22 UNDERRUN INTERRUPT OCCURS
4419							
4420	037554			3\$:	ERRHRD	32,EM0032,PRRATE	
4421	037564	000752			BR	1\$	
4422							
4423							
4424	037566			4\$:	ERRHRD	45,EM0044,PDMAB2	
4425	037576	000745			BR	1\$	
4426							
4427	037600			5\$:	ERRHRD	56,EM0056,PDMART	
4428	037610	000740			BR	1\$	
4429							
4430	037612	020203		6\$:	CMP	R2,R3	;RCV LENGTH > TRX LENGTH ?
4431	037614	003004			BGT	22\$	;YES, REAL ERROR
4432	037616	012737	000020	002470	MOV	#CSRLN,BUFLEN	;RESTORE CSR LENGTH
4433	037624	000207			RETURN		;EXPECTED BYTE COUNT OVERFLOW
4434	037626			22\$:	ERRHRD	62,EM0062,PDMART	
4435	037636	000725			BR	1\$	
4436							
4437	037640			7\$:	ERRHRD	63,EM0063,PDMART	
4438	037650	000720			BR	1\$	
4439							
4440	037652			8\$:	ERRHRD	55,EM0055,PDMART	
4441	037662	000713			BR	1\$	
4442							
4443	037664	016537	000004	002412	9\$:	MOV	SEL4(R5),BDDAT
4444	037672	016537	000006	002410		MOV	SEL6(R5),GDDAT
4445	037700				ERRHRD	46,EM0045,PDMAB1	;LOAD RECEIVED STATUS&DATA
4446	037710	000700			BR	1\$	;LOAD EXPECTED STATUS&DATA
4447							
4448	037712			10\$:	ERRHRD	51,EM0050,PDMAB2	
4449	037722	000673			BR	1\$	
4450							
4451	037724			11\$:	ERRHRD	35,EM0034,PDMAB2	
4452	037734	000666			BR	1\$	
4453							
4454	037736			20\$:	SAVE	1	
4455	037742	010337	002470		MOV	R3,BUFLEN	;LOAD BUFFER LENGTH TO CHECK FOR
4456							;COMPAR SUBROUTINE
4457	037746	162737	000001	002470	SUB	#1,BUFLEN	;MINUS 1 FOR 1ST DATA
4458							;RECEIVED IN INTERRUPT MODE
4459	037754	012701	002633		MOV	#TRXBUF+1,R1	;LOAD SOURCE BUFFER ADDRESS
4460	037760	012702	004626		MOV	#RCVBUF,R2	;LOAD RECEIVE BUFFER ADDRESS
4461	037764	004737	010444		CALL	COMPRB	;COMPARE BOTH BYTE PER BYTE
4462	037770	103406			BCS	25\$	;ERROR

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4463	037772					GET	1	
4464	037776	012737	000020	002470		MOV	#CSRLEN,BUFLEN	;RESTORE CSR LENGTH IN BUFLEN
4465	040004	000207				RETURN		
4466	040006	012737	000020	002470	254:	MOV	#CSRLEN,BUFLEN	;RESTORE CSR LENGTH IN BUFLEN
4467	040014	062703	002631			ADD	#TRXBUF-1,R3	;GET END TRANSMIT BUFFER ADDRESS
4468	040020					ERRHRD	64,EM0064,PRDMAR	; "DATA COMPARE ERROR"
4469	040030					GET	1	
4470	040034	000261				SEC		
4471	040036	000207				RETURN		

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BADHEAD

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** TEST33 **

; TEST OF DMA TRANSFER IN BOTH DIRECTIONS AND IN THE HIGHER PART OF THE
; HOST MEMORY TO CHECK THE EXTENDED ADDRESS COUNTER

; INPUT PARAMETERS FOR FW ROUTINE:

; SEL2 = LINE CLOCK RATE

; SEL4 = TRX DMA BYTE COUNT (IN 2'S COMP FORM)

; SEL6 = TRX DMA BUFFER ADDRESS (LOW)

; SEL10 = TRX DMA BUFFER ADDRESS (HIGH)

; SEL12 = RCV DMA BYTE COUNT (IN 2'S COMP FORM)

; SEL14 = RCV DMA BUFFER ADDRESS (LOW)

; SEL16 = RCV DMA BUFFER ADDRESS (HIGH)

; BIT 15 SET IF SEL20 MUST NOT BE TAKEN INTO ACCOUNT IN FW TEST22

; SEL20 = LAST EXPECTED DATA TO BE RECEIVED

; OUTPUT:

; SEL0 = 0 IF SUCCESS

; SEL0 = 100 IF ANY ERROR

; WITH SEL2 =

SEL12 = TRX DMA BYTE COUNT

SEL14 = TRX DMA BUFFER ADDRESS (LOW)

SEL16 = TRX EXT ADDRESS

SEL20 = RCV DMA BYTE COUNT

SEL22 = RCV DMA BUFFER ADDRESS (HIGH)

SEL24 = RCV DMA EXT. BUFFER ADDRESS

; MAINT MODE: 2

; KMV ROUTINE: 22

; --

TRXBFH = 0

TRXBFL = 107700

TRXLNG = 1000

RCVLNG = 1000

; TRX BUFFER ADDRESS (BITS 16-21)

; TRX BUFFER ADDRESS (BITS 0-15) /V01.05/

; TRX BUFFER LENGTH

; RCV BUFFER LENGTH

RCVBFH: .WORD 0

RCVBFL: .WORD 0

; RCV BUFFER ADDRESS (BITS 16-21) /V01.05/

; RCV BUFFER ADDRESS (BITS 0-15) /V01.05/

BGNTST

CLR NXMTST

JSR PC,\$SIZE

; CLEAR NXM FLAG

; CALL SUBROUTINE SIZE TO GET MAX ADDRESS

; VALUE IN THE HOST MEMORY

; CHECK EXTENDED ADDRESS RETURNED BY \$SIZE

; IF IT IS NULL, NO MORE 16-BITS IN MEMORY

; CANNOT CHECK EXTENDED ADDRESS, QUIT

; DO THE TEST OTHERWISE

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4499
4500
4501
4502
4503
4504
4505 000000
4506 107700
4507 001000
4508 001000
4509
4510 040040 000000
4511 040042 000000
4512 040044
4513 040044 005037 002364
4514 040050 004737 041542
4515
4516 040054 005737 042070
4517 040060 001002
4518 040062 000137 040506
4519

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4520 040066          301:  SAVE      4          ; /V01.05/
4521 040072 013704 042066      MOV      $LSTAD,R4      ; CALCULATE RX BUF STARTING ADDRESS /V01.05/
4522 040076 162704 001000      SUB      @RCVLNG,R4      ; /V01.05/
4523 040102 162704 001000      SUB      @RCVLNG,R4      ; /V01.05/
4524 040106 010437 040042      MOV      R4,RCVBFL      ; /V01.05/ LOAD BITS 0 TO 15
4525 040112 013737 042070 040040      MOV      $LSTBK,RCVBFL      ; /V01.05/ LOAD BITS 16 TO 21
4526 040120          GET      4          ; /V01.05/
4527
4528 040124 004737 034626          CALL     STRSB0
4529 040130 004737 034646          11:    CALL     STRSB1
4530 040134 005037 107700          CLR      @TRXBFL      ; /V01.05/ FIRST TX CHAR MUST BE ZERO
4531 040140 012765 001000 000004      MOV      @TRXLNG,SEL4(R5)      ; LOAD TRX BYTE COUNT
4532 040146 005465 000004          NEG      SEL4(R5)      ; GET IT IN 2'S COMPLEMENT
4533 040152 012765 107700 000006      MOV      @TRXBFL,SEL6(R5)      ; LOAD TRX BUFFER ADDRESS
4534 040160 012765 000000 000010      MOV      @TRXBFL,SEL10(R5)      ; LOAD EXTENDED ADDRESS
4535 040166 012765 001000 000012      MOV      @RCVLNG,SEL12(R5)      ; LOAD RCV BYTE COUNT
4536 040174 005465 000012          NEG      SEL12(R5)      ; GET IT IN 2'S COMPLEMENT
4537 040200 013765 040042 000014      MOV      RCVBFL,SEL14(R5)      ; LOAD RCV BUFFER ADDRESS (LOW) /V01.05/
4538 040206 013765 040040 000016      MOV      RCVBFL,SEL16(R5)      ; LOAD RCV EXTENDED ADDRESS /V01.05/
4539 040214 052765 100000 000016      BIS      @100000,SEL16(R5)      ; SET FLAG FOR TEST22 FW ROUTINE
4540 040222          TESTNB 22      ; ACTIVATE FW ROUTINE 22
4541 040230          WAIT     1,1000.      ; WAIT
4542 040240 000512          BR      201      ; SEL0=0 , SUCCESS
4543 040242 000406          BR      21      ; SEL0=100 , ERROR
4544 040244          ERRHRD 11,EM0011      ; TIMEOUT, NO KHV11-C RESPONSE
4545 040254          ESCAPE  TST
4546
4547 040260          21:    DSPACH 9.          ; DISPATCH FOLLOWING SEL2 VALUE
4548 040266 000410          BR      31      ; SEL2=2 LINE COUNTER ERROR
4549 040270 000415          BR      41      ; SEL2=4 TRX/RCV ERRORS
4550 040272 000422          BR      51      ; SEL2=6 Q-BUS TIMEOUT DURING TRX DMA
4551 040274 000427          BR      61      ; SEL2=10 BYTE COUNT OVERFLOW DURING RCV DMA
4552 040276 000427          BR      71      ; SEL2=12 Q-BUS TIMEOUT DURING RCV DMA
4553 040300 000434          BR      81      ; SEL2=14 BIT "BCNTIN" NOT SET AT END OF TRX DMA
4554 040302 000441          BR      91      ; SEL2=16 UNEXPECTED STATUS RECEIVED
4555 040304 000454          BR      101     ; SEL2=20 INTERRUPT AT ILLEGAL VECTOR
4556 040306 000461          BR      111     ; SEL2=22 UNDERRUN INTERRUPT OCCURS
4557
4558 040310          31:    ERRHRD 32,EM0032,PRRATE
4559 040320          ESCAPE  TST
4560
4561
4562 040324          41:    ERRHRD 45,EM0044,PDMA82
4563 040334          ESCAPE  TST
4564
4565 040340          51:    ERRHRD 56,EM0056,PDMA87
4566 040350          ESCAPE  TST
4567
4568 040354 000444          61:    BR      201      ; RCV AND TRX LENGTH ARE EQUAL
4569
4570
4571 040356          71:    ERRHRD 63,EM0063,PDMA87
4572 040366          ESCAPE  TST
4573
4574 040372          81:    ERRHRD 55,EM0055,PDMA87
4575 040402          ESCAPE  TST
4576

```

VKMMA0 KMV11C STATIC DIAG
HARDWARE TESTS

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4577	040406	016537	000004	002412	9:	MOV	SEL4(R5),BDDAT		
4578	040414	016537	000006	002410		MOV	SEL6(R5),GDDAT		
4579	040422					ERRHRD	46,EM0045,PDMA81		
4580	040432					ESCAPE	TST		
4581									
4582	040436				10:	ERRHRD	51,EM0050,PDMA82		
4583	040446					ESCAPE	TST		
4584									
4585	040452				11:	ERRHRD	35,EM0034,PDMA82		
4586	040462					ESCAPE	TST		
4587									
4588	040466				20:	CMP	#7,RATE		
4589	040466	022737	000007	002362		BNE	ENDT33		
4590	040474	001004				TST	(R1).		
4591	040476	005721				CMP	#16,R1		
4592	040500	022701	000016			BNE	18		
4593	040504	001211							
4594	040506				ENDT33:				
4595	040506	000240				NOP			
4596	040510				ENDTST				
4597									

;LOAD RECEIVED STATUS&DATA
 ;LOAD EXPECTED STATUS&DATA

 ;WAS IT ALL LINE RATE SELECTED ?
 ;NO, QUIT THIS IS THE END
 ;NEXT SPEED
 ;END OF TABLE ?
 ;NO CONTINUE WITH NEXT LINE RATE

VKM40 KMV11C STATIC DIAG
HARDWARE TESTS

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4599 040512

BADHEAD

...

.. TEST34 ..

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TEST OF MODEM SIGNALS (EXTERNAL LOOP-BACK MODE)

DESCRIPTION: THIS TEST CAN BE RUN IN THE CASE OF EXTERNAL
LOOP ONLY. AN ERROR MESSAGE IS PRINTED IF NO
LOOP-BACK CONNECTOR PLUGGED.
OTHERWISE, THE HOST ASKS THE DCT11 TO SET UP
MODEM CONTROLS BY MEANS OF THE 'MAILBOX' ROU
TINE WITH THE FOLLOWING INPUTS:
SEL2 = PORT B ADDRESS
SEL4 = MODEM CONTROL BIT(S)
SEL6 = 6 FOR WRITE BYTE

THEN TO READ LOOP BACK RESULT BY MEANS OF THE
'MAILBOX' ROUTINE WITH THE FOLLOWING INPUTS:

SEL2 = PORT A ADDRESS
SEL4 = 377
SEL6 = 4 FOR READ BYTE

THE HOST POLLS SEL0 FOR 'MAILBOX' ROUTINE JOB
COMPLETED:

SEL0 = 0 FOR JOB COMPLETE
IN THE LOOP BACK RESULT CASE,
SEL4 = EXPECTED LOOP BACK RESULT
THEN THE HOST TESTS/REPORTS AND EXITS.

NOTICE, THAT MODEM SIGNALS ARE LOOPED, SUCH
AS:

CCITT 108/2 --- - - - -
CCITT 105 - - - - -
CCITT 107 < - - - - -
CCITT 106 < - - -
CCITT 109 < - - -

MODEM CCITT 108/2 AND 105 WILL BE SET ONE BY
ONE THEN TOGETHER.

MAINT MODE: 2

KMV ROUTINE: 23

REPORTS: ERROR 2 HASTER CLEAR FAILS TO RESET
ERROR 11 NO KMV11 RESPONSE

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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```

4646      ;          ERROR 74      MODEM SIGNAL BIT SETTING NOT
4647      ;          ;          CORRECT
4648      ;          ERROR 75      NO LOOP BACK CONNECTOR
4649      ;
4650
4651
4652      BGNTST
4653      040512      004737      011116      CALL      CLRKMV      ;CLEAN CSR'S AND GET CSR ADDRESS
4654      040516      ;          MODE      2      ;SELECT MAINTENANCE MODE 1
4655      040522      103002      BCC      1000$      ;
4656      040524      ;          ESCAPE      TST
4657      040530      1000$:      TST      LCLoop      ;EXTERNAL LOOP BACK POSSIBLE?
4658      040530      005737      002366      BNE      1$      ;IF YES
4659      040534      001012      ;
4660
4661      040536      ;          PRINTF      #EM0052      ;IF NOT, REPORT /V01.04/
4662      040556      000137      041070      JMP      T23A01      ; /V01.04/
4663
4664      040562      1$:
4665
4666      040562      BGNSUB
4667      040564      012737      000100      002360      MOV      #BIT6,DATA      ;SET "DATA TERMINAL READY" (PORTB)
4668      040572      012737      000002      002350      MOV      #BIT1,GOOD      ;"DATA SET READY" EXPECTED (PORTA)
4669      040600      004737      040676      CALL      T23A00      ;TEST
4670      040604      ;          ESCAPE      TST
4671      040610      ENDSUB
4672
4673      040612      BGNSUB
4674      040614      012737      000200      002360      MOV      #BIT7,DATA      ;SET "REQUEST TO SEND" (PORTB)
4675      040622      012737      000005      002350      MOV      #BIT0!BIT2,GOOD      ;"CLEAR TO SEND AND CARRIER DETECT"
4676      ;          ;EXPECTED (PORTA)
4677      040630      004737      040676      CALL      T23A00      ;TEST
4678      040634      ;          ESCAPE      TST
4679      040640      ENDSUB
4680
4681      040642      BGNSUB
4682      040644      012737      000300      002360      MOV      #BIT6!BIT7,DATA      ;SET BOTH IN PORTB
4683      040652      012737      000007      002350      MOV      #BIT0!BIT1!BIT2,GOOD      ;RESULT=ALL SET IN PORTA
4684      040660      004737      040676      CALL      T23A00      ;TEST
4685      040664      ;          ESCAPE      TST
4686      040670      ENDSUB
4687      040672      EXIT      TST
4688
4689      040676      T23A00:
4690      040676      013765      002360      000004      MOV      DATA,SEL4(R5)      ;SET CORRESPONDING BITS IN SEL4
4691      040704      012765      130012      000002      MOV      #130012,SEL2(R5)      ;LOAD PORTB ADDRESS
4692      040712      012765      000006      000006      MOV      #6,SEL6(R5)      ;LOAD "WRITE" CODE FOR TEST23 SUB.
4693      040720      ;          TESTNB      23      ;SELECT TEST23 IN FW
4694      040726      ;          WAIT      1.1      ;WAIT 1 MS AND CHECK SELO
4695      040736      000406      ;          BR      1$      ;SELO IS 0, CORRECT
4696      040740      000240      ;          NOP      ;NO POSSIBLE ERROR
4697      040742      ;          ERRHRD      11,EM0011      ;IF NO RESPONSE
4698      040752      000207      ;          RETURN
4699
4700      040754      012765      130000      000002      1$:      MOV      #130000,SEL2(R5)      ;LOAD PORT A ADDRESS
4701      040762      012765      000377      000004      MOV      #377,SEL4(R5)      ;!!!
4702      040770      012765      000004      000006      MOV      #4,SEL6(R5)      ;LOAD "READ CODE" FOR TEST23 SUB.

```

4703	040776					TESTN8	23		;SELECT TEST23 IN FW
4704	041004					WAIT	1,1		;WAIT 1 MS AND CHECK SEL0
4705	041014	000406				BR	2:		;SEL0 IS 0, CORRECT
4706	041016	000240				NOP			;NO POSSIBLE ERROR
4707	041020					ERRHRD	11,EM0011		;IF NO RESPONSE
4708	041030	000207				RETURN			
4709									
4710	041032	016537	000004	002352	2:	MOV	SEL4(R5),BAD		;READ PORT A
4711	041040	042737	177770	002352		BIC	#177770,BAD		;KEEP ONLY VALID MODEM BITS
4712	041046	023737	002352	002350		CMP	BAD,GOOD		;EXPECTED RESULT ?
4713	041054	001404				BEQ	3:		;YES
4714	041056					ERRHRD	74,EM0051,PRMDM		;IF ERROR
4715	041066				3:				
4716	041066	000207				RETURN			
4717	041070				T23A01:				; /V01.04/
4718	041070				ENDTST				
4719					.EVEN				

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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4721 041072

BADHEAD

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** TEST35 **

: THIS TEST LOADS A ROUTINE IN THE RAM AND CHECKS IF ITS
: EXECUTION IS CORRECT.
: THE ROUTINE LOADED IS THE FW TEST06: DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING ALL R/W
: REGISTERS BY ITSELF. PERIODICALLY, THE HOST
: POLLS SELO FOR ANY DCT11 RESPONSE:
: SELO = 0 FOR TEST OKE
: SELO = 100 FOR ANY ERROR
: IN THE LATTER CASE, THE FOLLOWING REGISTERS
: CONTAINS ERROR REPORTS, SUCH AS:
: SEL2 = 2 BYTE COUNT OUT REG.
: = 4 BUS ADDRESS OUT REG.
: = 6 EXT ADDRESS OUT REG.
: = 10 BYTE COUNT IN REG.
: = 12 BUS ADDRESS IN REG.
: = 14 EXT ADDRESS IN REG.
: SEL4 = CURRENT PATTERN
: SEL6 = BAD WORD

: MAINT MODE: 2

: KMV ROUTINE: 27

: REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
: ERROR 11 NO RESPONSE FROM THE KMV11
: ERROR 17 DATA COMPARE ERROR ON KMV11
: INTERNAL R/W REGISTER

: --

BGNTST

CALL CLRKMV
MODE 2
BCC 1000\$
ESCAPE TST; CLEAN CSR'S AND GET CSR ADDRESS
; SELECT MAINTENANCE MODE 1

1000\$:

TESTNB 27
WAIT 1,100.
BR 3\$
BR 1\$; SELECT TEST 6 IN FW
; WAIT 100MS AND CHECK SELO
; SELO IS 0, CORRECT
; IF ANY ERRORERRHRD 11,EM0011
ESCAPE TST

; IF NO RESPONSE

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4753
47544755 041072
4756 041072 004737 011116
4757 041076
4758 041102 103002
4759 041104
4760 041110
4761 041110
4762 041116
4763 041126 000426
4764 041130 000406
4765
4766 041132
4767 041142

VKMHA0 KMV11C STATIC DIAG
HARDWARE TESTS

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```
4768
4769 041146 016537 000002 002352 1$: MOV SEL2(R5),BAD ;GET ERROR CODE
4770 041154 016537 000004 002360 MOV SEL4(R5),DATA ;GET PATTERN
4771 041162 016537 000006 002412 MOV SEL6(R5),BDDAT ;GET BAD VALUE
4772 041170 ERRHRD 17,EM0016,INREG ;REPORT
4773 041200 ESCAPE TST
4774
4775 041204 000240 3$: NOP
4776 041206 ENDTST
4777
```

VKMHAO KMV11C STATIC DIAG
HARDWARE TESTS

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4779 041210

BADHEAD

.. TEST36 ..

4780

; RECEIVE DATA TEST USING THE POLLING FACILITY INSTEAD OF INTERRUPT

4781

; DESCRIPTION:

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4822 041210

4823 041210 004737 034626

4824 041214 004737 034646

4825 041220

THIS TEST SELECT IN THE NATIVE FIRMWARE THE TEST30,
WHICH TESTS RECEPTION OF DATA USING THE POLLING FACILITY,
INSTEAD OF INTERRUPT.
PERIODICALLY THE HOST POLLS SEL0 FOR ANY DCT11
RESPONSE:

SEL0 = 0 FOR TEST OKE

SEL0 = 100 IF ANY ERROR

IN THE LATTER CASE SEL2 POINTS TO THE ERROR,
POSSIBLE ERRORS ARE :

SEL2 = 2 FOR ERROR 32

= 4 FOR ERROR 45

= 6 FOR ERROR 40

= 10 FOR ERROR 46

= 12 FOR ERROR 47

= 14 FOR ERROR 50

= 16 FOR ERROR 51

= 20 FOR ERROR 35

= 22 FOR ERROR 43

SEL4 = OBTAINED STATUS&DATA

SEL6 = EXPECTED ONE

SEL10 = EVENT FLAGS

; MAINT MODE: 2

; KMV ROUTINE: 30

REPORTS: ERROR 2 MASTER CLEAR FAILS TO RESET
ERROR 11 NO KMV11 RESPONSE
ERROR 32 LINE CLOCK FAILURE
ERROR 40 TRANSMIT INTERRUPT WHILE DISABLED
ERROR 35 UNDERRUN INTERRUPT
ERROR 43 UNEXPECTED UNDERRUN INTERRUPT AFTER ACK
ERROR 45 XMT/RCV PROCESSING FAILS
ERROR 46 UNEXPECTED STATUS RECEIVED
ERROR 47 UNEXPECTED DATA RECEIVED
ERROR 50 RECEIVE INTERRUPT WHILE DISABLED
ERROR 51 INTERRUPT AT ILLEGAL VECTOR

BGNTST

1\$: CALL STRSBO ;CALL START SUBROUTINE 0
CALL STRSB1 ;CALL START SUBROUTINE 1
TESTNB 30 ;SELECT TEST30 IN FW

J14

SEQ 0170

VKMMAO KMV11C STATIC DIAG
HARDWARE TESTS

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4826	041226	004737	034710		CALL	T18B00		;CHECK ERROR
4827	041232	022737	000007	002362	CMP	07,RATE		;NEXT LINE RATE REQUESTED ?
4828	041240	001004			BNE	2:		;IF NOT
4829	041242	005721			TST	(R1).		;IF YES, SET RATE
4830	041244	022701	000016		CMP	016,R1		;ANY-MORE?
4831	041250	001361			BNE	1:		;IF YES, LOOP
4832	041252	060240			NOP			
4833	041254			2:				
				ENDTST				
4834								
4835								

VKMHA0 KMV11C STATIC DIAG
HARDWARE TESTS

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4837 041256

BADHEAD

.. TEST37 ..

LONG RAM TEST

DESCRIPTION: THE HOST ASKS THE DCT11 FOR TESTING THE RAM
BY ITSELF. PERIODICALLY THE HOST CHECKS THE
REGISTER SELO FOR ANY DCT11 RESPONSE:

SELO = 0 IF TEST SUCCEEDED

SELO = 100 IF ANY ERROR

IN THE LATTER CASE, THE FOLLOWING REGISTERS
CONTAINS THE ERROR REPORTS AS FOLLOW:

- IF THE DCT11 CAN'T CLEAR ALL THE RAM

SEL2 = 2

SEL4 = FIRST BAD WORD ADDRESS

SEL6 = FIRST BAD WORD

- IF DATA COMPARE ERROR AT LOCATION TESTED

SEL2 = 4

SEL4 = RAM ADDRESS

SEL6 = BAD WORD

SEL10 = PATTERN

- IF WRITTEN PATTERN IN ONE LOCATION PRODU
CES FALSE DATA IN OTHER LOCATIONS

SEL2 = 6

SEL4 = FIRST BAD WORD ADDRESS

SEL6 = FIRST BAD WORD

SEL10 = PATTERN

SEL12 = LOCATION UNDER TEST

MAINT MODE: 2

KMV ROUTINE: 05

REPORTS:	ERROR 2	MASTER CLEAR FAILS TO RESET
	ERROR 11	NO ANSWER FROM THE KMV11
	ERROR 14	ALL THE RAM CAN'T BE CLEARED
	ERROR 15	DATA COMPARE ERROR ON RAM AT
		LOCATION UNDER TEST
	ERROR 16	DATA COMPARE ERROR ON RAM AT
		LOCATION NOT UNDER TEST

BGNTST

TST

RMTST

; TEST TO BE DONE ?

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4881

4882 041256

4883 041256 005737 002406

VKMMA0 KMV11C STATIC DIAG
HARDWARE TESTS

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```

4884 041262 001002      BNE      20$      ; YES CONTINUE
4885 041264      EXIT      TST
4886
4887 041270      20$:      MOV      KMVCSR,R5      ;GET CSR ADDRESS
4888 041270 013705 002474      MODE      2      ;SELECT MAINTENANCE MODE 1
4889 041274      BCC      1000$
4890 041300 103002      ESCAPE      TST
4891 041302      1000$:    TESTB      5      ;SELECT TEST 5 IN FW
4892 041306      PRINTB      0MTST37      ;PRINT A MESSAGE TO PREVENT USER OF
4893 041306      ;THE TEST DURATION (ABOUT 1H15)
4894 041314
4895
4896
4897 041334      WAIT      1,65535.,10.      ;WAIT AND CHECK SELO
4898 041344 000474      BR      6$      ;SELO IS 0, CORRECT
4899 041346 000406      BR      2$      ;IF ANY ERROR
4900
4901 041350      ERRHRD      11,EM0011      ;IF NO RESPONSE
4902 041360      ESCAPE      TST
4903
4904 041364      2$:      DSPACH      3
4905 041372 000404      BR      3$      ;FOR ERROR 14
4906 041374 000417      BR      4$      ;FOR ERROR 15
4907 041376 000435      BR      5$      ;FOR ERROR 16
4908
4909 041400      ESCAPE      TST
4910
4911 041404 016537 000004 002414 3$:      MOV      SEL4(R5),BADLOC      ;GET BAD RAM ADDRESS
4912 041412 016537 000006 002352      MOV      SEL6(R5),BAD      ;GET BAD VALUE
4913 041420      ERRHRD      14,EM0013,PRRAM1      ;REPORT
4914 041430      ESCAPE      TST
4915
4916 041434 016537 000004 002416 4$:      MOV      SEL4(R5),TSTLOC      ;GET SELECTED RAM ADDRESS
4917 041442 016537 000006 002412      MOV      SEL6(R5),BDDAT      ;GET BAD VALUE
4918 041450 016537 000010 002360      MOV      SEL10(R5),DATA      ;GET PATTERN
4919 041456      ERRHRD      15,E:10014,PRRAM2      ;REPORT
4920 041466      ESCAPE      TST
4921
4922 041472 016537 000004 002414 5$:      MOV      SEL4(R5),BADLOC      ;GET BAD RAM ADDRESS
4923 041500 016537 000006 002352      MOV      SEL6(R5),BAD      ;GET BAD VALUE
4924 041506 016537 000010 002360      MOV      SEL10(R5),DATA      ;GET PATTERN
4925 041514 016537 000012 002416      MOV      SEL12(R5),TSTLOC      ;GET SELECTED RAM ADDRESS
4926 041522      ERRHRD      16,EM0015,PRRAM0      ;REPORT
4927 041532      ESCAPE      TST
4928
4929 041536 000240      6$:      NOP
4930 041540      ENDTST
4931      .EVEN

```

VKMMAO KMV11C STATIC DIAG
\$SIZE ROUTINE TO SIZE MEMORY

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```

4933 .SBTTL $SIZE ROUTINE TO SIZE MEMORY
4934
4935
4936 ;*****
4937 ;* NOTE: THIS ROUTINE MUST RESIDE WITHIN THE
4938 ;* FIRST 24K OF MEMORY.
4939 ;*
4940 ;*
4941 ;*
4942 ;* CALL : JSR PC,$SIZE
4943 ;*$KT11 IS THE MEMORY MANAGEMENT KEY
4944 ;*$BIT07 = 0 DON'T USE MEMORY MANAGEMENT
4945 ;* MUST BE SETUP BEFORE THE CALL
4946 ;*$BIT15 = 0 DON'T HAVE MEMORY MANAGEMENT OPTION
4947 ;* DETERMINED BY ROUTINE
4948 ;*$LSTAD WILL CONTAIN THE LAST AVAILABLE MEMORY LOCATION (BITS 15-0)
4949 ;*$LSTBK WILL CONTAIN THE LAST AVAILABLE MEMORY LOCATION (BITS 21 16)
4950 ;*****
4951
4952
4953
4954
4955
4956
4957
4958
4959
4960
4961
4962 ; HOW TO USE THIS SUBROUTINE WITH A D.M.A. INTERFACE ?
4963
4964
4965
4966 ; 1) CLR $KT11 TO DISABLE MEMCRY MANAGEMENT
4967 ; 2) JSR PC,$SIZE
4968 ; $LSTAD IS THE HIGHEST ADDRESS ACCESSIBLE BY SOFTWARE
4969 ; $LSTBK=0
4970 ; 3) TEST D.M.A. AND DATA PATTERN IN THE MEMORY BETWEEN
4971 ; ADDRESS 0 AND THAT HIGHEST ADDRESS
4972 ; 4) IF $LSTAD < 157776 , JUMP TO 9)
4973 ; 5) MOV #200,$KT11 TO ENABLE MEMORY MANAGEMENT
4974 ; 6) JSR PC,$SIZE
4975 ; $LSTAD,$LSTBK IS THE HIGHEST MEMORY ADDRESS
4976 ; 7) IF $LSTAD,$LSTBK > 157776,3 , FORCE $LSTAD=157776
4977 ; AND $LSTBK=3 (124 K FOR A 18 BITS INTERFACE)
4978 ; 8) TEST THAT D.M.A. IS POSSIBLE UP TO THAT ADDRESS
4979 ; 9) TEST THAT D.M.A. GENERATES NXM BETWEEN THAT ADDRESS
4980 ; AND ADDRESS 760000 (ALWAYS UNUSED ON UNIBUS).

```

VKMMAO KMV11C STATIC DIAG
\$SIZE ROUTINE TO SIZE MEMORY

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```

4982          000004          ERRVEC=4
4983          172340          KIPAR0=172340
4984          172356          KIPAR7=172356
4985          177572          SR0=177572
4986          172516          SR3=172516
4987
4988
4989
4990
4991
4992 041542 010046          $SIZE: MOV R0,-(SP)          ;;SAVE R0 ON THE STACK
4993 041544 010146          MOV R1,-(SP)          ;;SAVE R1 ON THE STACK
4994 041546 010246          MOV R2,-(SP)          ;;SAVE R2 ON THE STACK
4995 041550 010346          MOV R3,-(SP)          ;;SAVE R3 ON THE STACK
4996 041552 013746 000004   MOV @ERRVEC,-(SP)      ;;SAVE PRESENT ERROR VECTOR PS & PC
4997 041556 013746 000006   MOV @ERRVEC+2,-(SP)
4998 041562 010600          MOV SP,R0          ;;SAVE THE STACK POINTER
4999          ;;SET THE ERRVEC PS TO THE PRESENT PS
5000 041564 106737 000006   MFPS @ERRVEC+2
5001 041570 012701 003776   MOV @3776,R1          ;;SETUP ADDRESS
5002 041574 105727          TSTB (PC)+          ;;USE MEMORY MANAGEMENT?
5003 041576 000200          $KT11: .WORD 200          ;;SET TO USE MEMORY MANAGEMENT
5004 041600 100062          BPL @CORE          ;;BR IF NO
5005 041602 012737 041740 000004   MOV @KTINEX,@ERRVEC      ;;SET FOR TIMEOUT
5006 041610 005737 177572          TST @SR0          ;;KT11 ARE YOU THERE?
5007 041614 052737 100000 041576   BIS @100000,$KT11      ;;YES--SET KT11 KEY
5008 041622 005046          CLR -(SP)          ;;INITIALIZE FOR "PAR" LOADING
5009 041624 012702 172340          MOV @KIPAR0,R2      ;;ADDRESS OF FIRST "PAR"
5010 041630 012703 000010          MOV @D8,R3          ;;LOAD EIGHT "PAR.'S" AND EIGHT "PDR.'S"
5011 041634 012762 077406 177740 1$: MOV @77406,-40(R2)    ;;PDR = 4K, UP, READ/WRITE
5012 041642 011622          MOV (SP),(R2)+        ;;LOAD "PAR"
5013 041644 062716 000200          ADD @200,(SP)      ;;UPDATE FOR NEXT "PAR"
5014 041650 077307          SOB R3,1$          ;;LOOP UNTIL ALL EIGHT ARE LOADED
5015 041652 012742 177600          MOV @177600,-(R2)    ;;SETUP KIPAR7 FOR I/O
5016 041656 005042          CLR -(R2)          ;;SETUP KIPAR6 FOR TESTING
5017 041660 012737 041676 000004   MOV @2$,@ERRVEC      ;;CATCH TIMEOUT IF NO SR3
5018 041666 012737 000020 172516   MOV @20,@SR3        ;;ENABLE 22 BIT MODE
5019 041674 000401          BR 3$          ;;THIS PDP-11 HAS A SR3 REGISTER
5020 041676 022626          2$: CMP (SP)+,(SP)+    ;;CLEAN OFF THE STACK--NO SR3
5021 041700 005237 177572          3$: INC @SR0          ;;TURN ON MEMORY MANAGEMENT
5022 041704 012737 041730 000004   MOV @KTOUT,@ERRVEC    ;;SET FOR TIME OUT
5023 041712 005737 143776          4$: TST @143776      ;;TRAP ON NON-EX-MEM
5024 041716 062712 000040          ADD @40,(R2)        ;;MAKE A 1K STEP
5025 041722 023712 172356          CMP @KIPAR7,(R2)    ;;LAST ONE?
5026 041726 101371          BHI 4$          ;;NO--TRY IT
5027 041730 011202          $KTOUT: MOV (R2),R2      ;;GET LAST BANK+1
5028 041732 005037 177572          CLR @SR0          ;;TURN OFF MEMORY MANAGEMENT
5029 041736 000421          BR $SIZEX
5030 041740 042737 100000 041576 $KTINEX: BIC @100000,$KT11  ;;KT11 NON-EXISTENT
5031 041746 012737 041776 000004 $CORE: MOV @CROUT,@ERRVEC  ;;SET FOR TIMEOUT
5032 041754 005002          CLR R2          ;;SET UP BANK
5033 041756 062701 004000          1$: ADD @4000,R1      ;;INCREMENT BY 1K
5034 041762 062702 000040          ADD @40,R2          ;;1K STEP
5035 041766 005711          TST (R1)          ;;TRAP ON TIME OUT
5036 041770 022701 177776          CMP @177776,R1      ;;LAST ONE
5037 041774 001370          BNE 1$          ;;NO--TRY AGAIN
5038 041776 162701 004000          $CROUT: SUB @4000,R1

```

VKMMAU KMV11C STATIC DIAG
\$SIZE ROUTINE TO SIZE MEMORY

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5039	042002	005737	002364	\$SIZE:	TST	NXMTST	;;NXM FLAG SET ?
5040	042006	001002			BNE	2:	;;YES KEEP NXM ADDRESS
5041	042010	162702	000040		SUB	#40,R2	;;DROP BACK
5042	042014	010006		2:	MOV	R0,SP	;;RESTORE THE STACK
5043	042016	012637	000006		MOV	(SP)+,B#ERRVEC+2	;;RESTORE ERROR VECTOR
5044	042022	012637	000004		MOV	(SP)+,B#ERRVEC	
5045	042026	010137	042066		MOV	R1,\$LSTAD	;;LAST ADDRESS (BITS 10-0)
5046	042032	000241			CLC		
5047	042034	006002			ROR	R2	;;ROTATE BANK
5048	042036	006002			ROR	R2	
5049	042040	150237	042067		BISB	R2,\$LSTAD+1	;;LAST ADDRESS (BITS 15-11)
5050	042044	105002			CLRB	R2	;;CLEAR BITS 15-11
5051	042046	000302			SWAB	R2	;;SWAP R2
5052	042050	010237	042070		MOV	R2,\$LSTBK	;;LAST ADDRESS (BITS 21-16)
5053	042054	012603			MOV	(SP)+,R3	;;RESTORE R3
5054	042056	012602			MOV	(SP)+,R2	;;RESTORE R2
5055	042060	012601			MOV	(SP)+,R1	;;RESTORE R1
5056	042062	012600			MOV	(SP)+,R0	;;RESTORE R0
5057	042064	000207			RTS	PC	
5058							
5059							
5060	042066	000000		\$LSTAD:	.WORD	0	;;CONTAINS THE LAST ADDRESS (BITS 15-0)
5061	042070	000000		\$LSTBK:	.WORD	0	;;CONTAINS THE LAST ADDRESS (BITS 21-16)

VKMMA0 KMV11C STATIC DIAG
 \$SIZE ROUTINE TO SIZE MEMORY

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5063
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 5077 042072
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 5079 042074
 5080 042104
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 5082 042114
 5083 042122
 5084 042134
 5085 042142
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 5096 042142
 5097 042170
 5098 042227
 5099 042260
 5100 042315
 5101 042360
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.SBTTL HARDWARE PARAMETER CODING SECTION

;/;;;/

;/ THE HARDWARE 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.

;/;;;/

BGNHRD

GPRMA ADDRES,0,0,160000,177776,YES

GPRMA VECTOR,2,0,0,674,YES

GPRMD PRIRTY,4,0,7000,4,7,YES

GPRML LOOPBK,6,-1,YES

GPRMD LINRAT,10,0,7,0,7,YES

GPRML ST37,12,-1,YES ; /V01.04/

ENDHRD

.IF NE HELP

;*****

; INSERT MESSAGES THAT ARE USED ONLY

; DURING THE HARDWARE PARAMETER CODING SECTION.

;*****

.ENDC

104	105	126	ADDRES: .ASCIZ /DEVICE CSR ADDRESS : /
104	105	126	VECTOR: .ASCIZ /DEVICE FIRST VECTOR ADDRESS : /
104	105	126	PRIRTY: .ASCIZ /DEVICE PRIORITY LEVEL : /
114	117	117	LOOPBK: .ASCIZ /LOOPBACK CONNECTOR USED ? : /
104	105	126	LINRAT: .ASCIZ /DEVICE LINE CLOCK RATE SELECTED : /
104	117	040	ST37: .ASCIZ /DO YOU WANT TO RUN LONG RAM TEST ? /

.EVEN

.IF NE HELP

;*****

; INSERT SOFTWARE PARAMETER INTERPRETIVE CODING HERE. THIS CODE

; IS USED BY THE SUPERVISOR TO INTERROGATE THE OPERATOR FOR

; SOFTWARE INFORMATION WHICH WILL BE PLACED IN THE SOFTWARE

; TABLE. THIS SECTION IS OPTIONAL.

;*****

.ENDC

VKMAU KMV11C STATIC DIAG MACRO M1200 22 AUG-83 14:36 PAGE 92 1
HARDWARE PARAMETER CODING SECTION

```

5120 .IF NE HELP
5121 ;*****
5122 ;   INSERT MESSAGES THAT ARE USED ONLY
5123 ;   DURING THE SOFTWARE PARAMETER CODING SECTION.
5124 ;*****
5125 .ENDC
5126
5127

```

VKMMAO KMV11C STATIC DIAG MACRO M1200 22 AUG-83 14:36 PAGE 93
HARDWARE PARAMETER CODING SECTION

```
5129
5130 042426          $PATCH::
5131
5132          .IF NE HELP
5133          ;*****
5134          ;      THIS IS A PATCH AREA THAT SHOULD BE INCLUDED IN ALL DIAGNOSTICS.
5135          ;      ADJUST THE SIZE TO FIT YOUR OWN PREFERENCES.
5136          ;*****
5137          .ENDC
5138
5139          .BLKB    200
5140 042626          LASTAD
5141          042632
5142          L$LAST::
5143          ENDMOD
```

VKMMAO KMV11C STATIC DIAG MACRO M1200 22 AUG 83 14:36 PAGE 94
HARDWARE PARAMETER CODING SECTION

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5145
5146
5147 .IF NE HELP
5148 ;*****
5149 ;      HARDCODED P-TABLES MAY BE PLACED HERE BY USING THE SETUP MACROS.
5150 ;      THIS SECTION IS OPTIONAL AND SHOULD BE REMOVED IF IT IS NOT BEING
5151 ;      USED.  CHANGE THE POINTER MACRO ARGUMENT TO REFLECT THE REMOVAL.
5152 ;
5153 ;      THE P-TABLES ARE DELIMITED BY THE "BGNSETUP" AND "ENDSETUP" MACROS.
5154 ;      THE "BGNSETUP" MACRO HAS ONE ARGUMENT WHICH IS THE NUMBER OF
5155 ;      P-TABLE ENTRIES.  EACH ENTRY IS DELIMITED BY THE "BGNPTAB" AND
5156 ;      "ENDPTAB" MACROS.  NEITHER OF THESE MACROS REQUIRE AN ARGUMENT.
5157 ;*****
5158 .ENDC
5159 ;      BGNSETUP          1
5160 ;      BGNPTAB
5161 ;      .WORD    177000
5162 ;      .WORD    300
5163 ;      .WORD    4000
5164 ;      .WORD    1
5165 ;      .WORD    3
5166 ;      .WORD    0          ; /V01.04/
5167 ;      ENDPTAB
5168 ;      ENDSETUP
5169
5170 000001 .END

```

VKMMAO KMV11C STATIC DIAG
SYMBOL TABLE

MACRO M1200 22-AUG-83 14:36 PAGE 94-1

A	=	000377	C#CVEC=	000036	EF.NEW=	000035	G	ERR	=	000400	GOOD	002350		
ADDR		002520	C#DCLN=	000044	EF.PWR=	000034	G	ERRBLK		002332	G#CNT0=	000200		
ADDRES		042142	C#DODU=	000051	EF.RES=	000037	G	ERRCNT		002524	G#DELM=	000372		
ADR	=	000020	C#DRPT=	000024	EF.STA=	000040	G	ERRMSG		002330	G#DISP=	000003		
ASSEMB=		000010	C#DU	=	000053	EM0000		ERRNBR		002326	G#EXCP=	000400		
BAD		002352	C#EDIT=	000003	EM0001	011166		ERRTYP		002324	G#HILI=	000002		
BADLOC		002414	C#ERDF=	000055	EM0002	011317		ERRVEC=		000004	G#LOLI=	000001		
BDDAT		002412	C#ERMR=	000056	EM0003	011364		EVB10		026610	G#NO	=	000000	
BDLVL		002420	C#ERRO=	000060	EM0004	011452		EVB2		026310	G#OFFS=	000400		
BIT0	=	000001	C#ERSF=	000054	EM0005	011524		EVB3		026370	G#OF SI=	000376		
BIT00	=	000001	C#ERSO=	000057	EM0006	011614		EVB4		026450	G#PRMA=	000001		
BIT01	=	000002	C#ESCA=	000010	EM0007	011662		EVB5		026530	G#PRMD=	000002		
BIT02	=	000004	C#ESEG=	000005	EM0010	011720		EVL	=	000004	G#PRML=	000000		
BIT03	=	000010	C#ESUB=	000003	EM0011	011761		EVR10		024626	G#RADA=	000140		
BIT04	=	000020	C#ETST=	000001	EM0012	012006		EVR2		024546	G#RAD8=	000000		
BIT05	=	000040	C#EXIT=	000032	EM0013	012056		EVT12		023472	G#RADD=	000040		
BIT06	=	000100	C#GETB=	000026	EM0014	012116		EVT0		021270	G#RADL=	000120		
BIT07	=	000200	C#GETW=	000027	EM0015	012173		EVT1		021350	G#RADO=	000020		
BIT08	=	000400	C#GMAN=	000043	EM0016	012261		EVT10		022070	G#XFER=	000004		
BIT09	=	001000	C#GPHR=	000042	EM0017	012345		EVT11		022150	G#YES	=	000010	
BIT1	=	000002	C#GPLO=	000030	EM0020	012426		EVT12		022230	HELP	=	000000	
BIT10	=	002000	C#GPRI=	000040	EM0021	012464		EVT13		022310	HOE	=	100000	G
BIT11	=	004000	C#INIT=	000011	EM0022	012542		EVT15		022370	IBE	=	010000	G
BIT12	=	010000	C#INLP=	000020	EM0023	012622		EVT2		021430	IDU	=	000040	G
BIT13	=	020000	C#MANI=	000050	EM0024	012717		EVT3		021510	IER	=	020000	G
BIT14	=	040000	C#MEM	=	000031	EM0025	012773	EVT4		021570	INDAT		027503	
BIT15	=	100000	C#MSG	=	000023	EM0026	013061	EVT7		021650	INIFLG		002510	
BIT2	=	000004	C#OPEN=	000034	EM0027	013127		EVT8		021730	INREG		027134	G
BIT3	=	000010	C#PNTB=	000014	EM0030	013223		EVT9		022010	INRG1		027244	
BIT4	=	000020	C#PNTF=	000017	EM0031	013271		E#END	=	002100	INRG2		027276	
BIT5	=	000040	C#PNTS=	000016	EM0032	013334		E#LOAD=		000035	INRG3		027331	
BIT6	=	000100	C#PNTX=	000015	EM0033	013426		FLGP11		002342	INRG4		027365	
BIT7	=	000200	C#QIO	=	000377	EM0034	013474	FTIME		002340	INRG5		027416	
BIT8	=	000400	C#RDBU=	000007	EM0037	013527		F#AU	=	000015	INRG6		027450	
BIT9	=	001000	C#REFG=	000047	EM0040	013620		F#AUTO=		000020	INTFLG		002356	
BOE	=	000400	C#RESE=	000033	EM0041	013700		F#BGN	=	000040	ISR	=	000100	G
BSELIT		033370	C#REVI=	000003	EM0042	013745		F#CLEA=		000007	IXE	=	004000	G
BUFLEN		002470	C#RFLA=	000021	EM0043	014045		F#DU	=	000016	I#AU	=	000041	
BUF01		002430	C#RPT	=	000025	EM0044	014123	F#END	=	000041	I#AUTO=		000041	
CHKMAX		007604	C#SEFG=	000046	EM0045	014211		F#HARD=		000004	I#CLN	=	000041	
CLEAR		011052	C#SPRI=	000041	EM0046	014244		F#HW	=	000013	I#DU	=	000041	
CLRKMV		011116	C#SVEC=	000037	EM0047	014275		F#INIT=		000006	I#HRD	=	000041	
COMFLG		020446	C#TPRI=	000013	EM0050	014356		F#JMP	=	000050	I#INIT=		000041	
COMPAR		010356	DATA		002360	EM0051	014440	F#MOD	=	000000	I#MOD	=	000041	
COMPRB		010444	DFPTBL		002246	EM0052	007032	F#MSG	=	000011	I#MSG	=	000041	
COPY		011074	DIAGMC=		000000	EM0054	014505	F#PROT=		000021	I#PROT=		000040	
CSRLN=		000020	DMAINS		035470	EM0055	014555	F#PWR	=	000017	I#PTAB=		000041	
C#AU	=	000052	DMAOSB		036610	EM0056	014632	F#RPT	=	000012	I#PWR	=	000041	
C#AUTO=		000061	DMARG1		024706	EM0057	014666	F#SEG	=	000003	I#RPT	=	000041	
C#BRK	=	000022	DMARG2		024761	EM0060	014735	F#SOFT=		000005	I#SEG	=	000041	
C#BSEG=		000004	DMAR1		025220	EM0061	015004	F#SRV	=	000010	I#SETU=		000041	
C#BSUB=		000002	DMAR2		025305	EM0062	015053	F#SUB	=	000002	I#SRV	=	000041	
C#CEFG=		000045	DMA SUB		037350	EM0063	015122	F#SW	=	000014	I#SUB	=	000041	
C#CLCK=		000062	DMATG1		023552	EM0064	015155	F#TEST=		000001	I#TST	=	000041	
C#CLEA=		000012	DMATG2		023625	EM0065	015247	GDDAT		002410	J#JMP	=	000167	
C#CLOS=		000035	DROPD		030232	ENDINI	027776	GDLVL		002422	KIPAR0=		172340	
C#CLP1=		000006	EF.CON=		000036	ENDT33	040506	GDEEC		002424	KIPAR7=		172356	

VKMAAO KMV11C STATIC DIAG
SYMBOL TABLE

MACRO M1200 22 AUG-83 14:36 PAGE 94 2

KMVCSR	002474	L\$SPCP	002020 G	L10063	032516	MRAM2	017174	PRIRAT	020052
KMVLVL	002502	L\$SPTP	002024 G	L10064	032702	MRATE	020173	PRIPTY	042227
KMVVOO	002476	L\$STA	002030 G	L10065	033020	MREV	016570	PRITRX	020224 G
KMVVO4	002500	L\$SW	002504	L10066	033126	MSCHEK	016470	PRI00	= 000000 G
LCLOOP	002366	L\$TEST	002114 G	L10067	033056	MSEL	016104	PRI01	= 000040 G
LINRAT	042315	L\$TIML	002014 G	L10070	033116	MSTACK	016362	PRI02	= 000100 G
LOCK	002506	L\$UNIT	002012 G	L10071	033606	MTMOTX	020270	PRI03	= 000140 G
LOE	= 040000 G	L10001	002262	L10072	033334	MTST37	007116	PRI04	= 000200 G
LOGDEV	002334	L10002	015402	L10073	033362	MVEC	017520	PRI05	= 000240 G
LOKFLG	002512	L10003	015540	L10074	034014	NERRS	007676	PRI06	= 000300 G
LOOPBK	042260	L10004	015576	L10075	034326	NEXT	027660	PRI07	= 000340 G
LOT	= 000010 G	L10005	015756	L10076	034374	NUM0	002402	PRLVL	017310 G
L\$ACP	002110 G	L10006	016102	L10077	034442	NUM1	002404	PRMDM	026670 G
L\$APT	002036 G	L10007	016326	L10100	034510	NXMHIG	002530	PRPER	017746 G
L\$AU	030266 G	L10010	016360	L10101	034556	NXML0W	002526	PRRAM0	016650 G
L\$AUT	002070 G	L10011	016566	L10102	034624	NXMTST	002364	PRRAM1	016736 G
L\$AUTO	030106 G	L10012	016734	L10103	035260	O\$APTS	= 000000	PRRAM2	016774 G
L\$CCP	002106 G	L10013	016772	L10104	035360	O\$AU	= 000001	PRRATE	020040 G
L\$CLEA	030200 G	L10014	017034	L10105	035466	O\$BGNR	= 000000	PRREG	015600 G
L\$CO	002032 G	L10015	017350	L10106	036256	O\$BGNS	= 000000	PRREV	016526 G
L\$DEPO	002011 G	L10016	017516	L10107	036500	O\$DU	= 000001	PRSEL	015500 G
L\$DESC	002262 G	L10017	017616	L10110	036606	O\$ERRT	= 000000	PRSTAK	016266 G
L\$DESP	002076 G	L10020	017704	L10111	037150	O\$GNSW	= 000001	PRVEC	017466 G
L\$DEVP	002060 G	L10021	017776	L10112	037222	O\$POIN	= 000001	PSTACK	002336
L\$DISP	002132 G	L10022	020050	L10113	037274	O\$SETU	= 000001	QBUSIT	033130
L\$DLY	002116 G	L10023	020266	L10114	037346	PADFLT	015346 G	QV.FLG	002513
L\$DTP	002040 G	L10024	020360	L10115	040510	PARTNB	006764	RATE	002362
L\$DTYP	002034 G	L10025	022460	L10116	041070	PATLGH	= 000112	RATETB	020106
L\$DU	030204 G	L10026	022656	L10117	040610	PATRN	007204	RATE0	020124
L\$DUT	002072 G	L10027	022674	L10120	040640	PDMA81	025572 G	RATE1	020132
L\$DVTY	007576 G	L10030	022712	L10121	040670	PDMA82	025610 G	RATE2	020140
L\$EF	002052 G	L10031	024052	L10122	041206	PDMA83	023736	RATE3	020147
L\$ENVI	002044 G	L10032	024070	L10123	041254	PDMA84	025560 G	RATE4	020154
L\$ERRT	002324 G	L10033	024106	L10124	041540	PDMA85	024042 G	RATE5	020161
L\$ETP	002102 G	L10034	025216	L10125	042142	PDMA86	024054 G	RATE6	020166
L\$EXP1	002046 G	L10035	025570	MAIERR	010606	PDMA87	024072 G	RATIO	002426
L\$EXP4	002064 G	L10036	025606	MAINM2	010634	PDMA88	022542	RATIO1	007356
L\$EXP5	002066 G	L10037	025624	MAINM3	010522	PDMA89	022646 G	RCVBFH	040040
L\$HARD	042074 G	L10040	026750	MAINT1	= 001000	PDMA90	022660 G	RCVBFL	040042
L\$HIME	002120 G	L10041	027224	MAINT2	= 004000	PDMA91	022676 G	RCVBUF	004626
L\$HPCP	002016 G	L10042	027776	MAXERR	002522	PDMA92	025372	RCVLNG	= 001000
L\$HPTP	002022 G	L10043	030176	MBAD	016161	PEVTBG	025626	READ	= 002000
L\$HW	002246 G	L10044	030202	MCLR	= 040000	PEVTRG	024110	REGIN	027226
L\$ICP	002104 G	L10045	030264	MCSR	017620	PEVTIG	022714	REGSPC	002532
L\$INIT	027556 G	L10046	030266	MDAT	021126	PGCSR	017654 G	REGTAB	007316
L\$LADP	002026 G	L10047	030406	MEVT	021227	PNT	= 001000 G	REGTB	027230
L\$LAST	042632 G	L10050	030516	MGCSR	017706	PNTBL	006622	REG1	002370
L\$LOAD	002100 G	L10051	030524	MLVL	017352	PRALL	015760 G	REG2	002372
L\$LUN	002074 G	L10052	030700	MMOD0	026752	PRBAD	015542 G	REG3	002374
L\$MREV	002050 G	L10053	031046	MMOD1	027026	PRCHEK	016330 G	REG4	002376
L\$NAME	002000 G	L10054	031266	MNULL	021214	PRCSR	017566 G	REG5	002400
L\$PRIO	002042 G	L10055	031170	MPAT	016212	PRDAT	020324 G	REVCOD	002472
L\$PROT	002122 G	L10056	031260	MPER	020000	PRDATG	020362	RMTST	002406
L\$PRT	002112 G	L10057	031370	MPNUMH	006723	PRDMAR	025072 G	RUN	= 100000
L\$REPP	002062 G	L10060	031570	MPNUML	006662	PREVT	022450 G	RUNIN	030000
L\$REV	002010 G	L10061	031756	MRAM0	017036	PREVTG	022462	RXLNG1	= 000017
L\$SPC	002056 G	L10062	032222	MRAM1	017122	PRI	= 002000 G	RXLNG2	= 000010

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SYMBOL TABLE

RXLNG3= 000006	SVCTST= 177777	T\$PTNU= 000000	T15.2 033336	T6 031050 G
RXLNG4= 001774	S\$LSYM= 010000	T\$SAVL= 177777	T16 033610 G	T6.1 031050
SAVE4 002344	TDHALG= 001774	T\$SEGL= 177777	T17 034016 G	T6.2 031172
SAVE6 002346	TFM36 015404	T\$SIZE= ***** GX	T18 034330 G	T7 031270 G
SEL0 = 000000	TIM 011150	T\$SUBN= 000000	T18B00 034710	T8 031372 G
SEL10 = 000010	TRXBFL= 000000	T\$TAGL= 177777	T19 034776 G	T9 031572 G
SEL12 = 000012	TRXBFL= 107700	T\$TAGN= 010126	T2 030410 G	UAM = 000200 G
SEL14 = 000014	TRXBFL= 002632	T\$TEMP= 000000	T20 034444 G	UNIT 002516
SEL16 = 000016	TRXLNG= 001000	T\$TEST= 000045	T21 034512 G	UUT 002514
SEL2 = 000002	TSTLOC 002416	T\$TSTM= 177777	T22 034560 G	VECTOR 042170
SEL20 = 000020	TSTNB 010772	T\$TSTS= 000001	T23 035164 G	VKMMAO 002000 G
SEL22 = 000022	TSTNUM= 010000	T\$AU = 010046	T23A00 040676	WAIT0 010070
SEL24 = 000024	TSTSL2 007746	T\$AUT= 010043	T23A01 041070	WAIT1 010154
SEL26 = 000026	TXLNG1= 000013	T\$CLE= 010044	T24 035262 G	WAIT2 010304
SEL3 = 000003	TXLNG2= 000012	T\$DU = 010045	T25 035362 G	WRITE = 020000
SEL30 = 000030	TXLNG4= 001774	T\$HAR= 010125	T26 036040 G	WRKSPC 002572
SEL32 = 000032	T\$ARGC= 000001	T\$HW = 010001	T27 036260 G	X\$ALWA= 000000
SEL34 = 000034	T\$CODE= 005130	T\$INI= 010042	T28 036502 G	X\$FALS= 000040
SEL36 = 000036	T\$ERRN= 000020	T\$MSG= 010041	T29 037100 G	X\$OFFS= 000400
SEL4 = 000004	T\$EXCP= 000000	T\$PRO= 010000	T3 030520 G	X\$TRUE= 000020
SEL6 = 000006	T\$FLAG= 000040	T\$SUB= 010121	T30 037152 G	\$CORE 041746
SETUP 027652	T\$FREE= ***** GX	T\$TES= 010124	T31 037224 G	\$CROUT 041776
SPADDR 002354	T\$GMAN= 000000	T1 030270 G	T32 037276 G	\$KTNEX 041740
SRO = 177572	T\$HILI= 000007	T10 031760 G	T33 040044 G	\$KTOUT 041730
SR3 = 172516	T\$LAST= 000001	T11 032224 G	T34 040512 G	\$KT11 041576
SSTACK 007576	T\$LOLI= 000000	T12 032520 G	T34.1 040562	\$LSTAD 042066
STRS80 034626	T\$LSYM= 010000	T13 032704 G	T34.2 040612	\$LSTBK 042070
STRS81 034646	T\$LTNO= 000045	T14 033022 G	T34.3 040642	\$LSTIN= 177777
ST37 042360	T\$NEST= 177777	T14A00 033304	T35 041072 G	\$LSTTA= 177777
SVCGBL= 000000	T\$NS0 = 000000	T14.1 033022	T36 041210 G	\$PATCH 042426 G
SVCINS= 177777	T\$NS1 = 000004	T14.2 033060	T37 041256 G	\$SIZE 041542
SVCSUB= 177777	T\$NS2 = 000002	T15 033312 G	T4 030526 G	\$SIZEX 042002
SVCTAG= 177777	T\$PTHV= ***** GX	T15.1 033312	T5 030702 G	

. ABS. 042632 000
000000 001

ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 30000 WORDS (118 PAGES)

DYNAMIC MEMORY: 21924 WORDS (84 PAGES)

ELAPSED TIME: 00:06:02

VKMMAO.BIN,VKMMAO.SEQ/-SP=LIBA/ML,VKMMAO.DOC,VKMMAO.P11