

IEU11-A,
IEQ11-A

IEU/IEQ STATIC DIAG
CZIEABO

AH-T066B-MC
FICHE 1 OF 2

MAY 1983
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Table with 16 columns and 16 rows of data. The data is organized into a grid, with each cell containing a small table or set of data. The columns are labeled with various codes and values, and the rows are labeled with various codes and values. The data is presented in a structured, tabular format, typical of a technical or scientific report.

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IDENTIFICATION

PRODUCT CODE: AC-T064B-MC
PRODUCT NAME: CZIEAB0 IEU/IEQ STATIC DIAG
PRODUCT DATE: SEPTEMBER 1982
MAINTAINER: CSS MUNICH
AUTHOR: PETER SEEBACH

REMARKS TO VERSION B
+++++

INITCODE MODIFIED SO THAT SEVERAL UNITS CAN BE RUN .
THE CHANGES ARE MARKED WITH *B*
UPDATED TO VERSION B BY PETER SEEBACH, 6-SEP-82

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THE IEU-11/IEQ-11 DIAGNOSTIC PROGRAM PROVIDES A SERIES OF TESTS DESIGNED TO VERIFY THE INTEGRITY AND FUNCTIONALITY OF THE IEU-11 OR IEQ-11 INTERFACE. TEST 3,27 AND 28 ARE DEPENDENT ON THE INTERFACE AND ON THE SOFTWARE P-TABLE ANSWERS (SEE 6.27 AND 6.28).

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

1.2 SYSTEM REQUIREMENTS

PDP-11/LSI-11 PROCESSOR WITH 32K MEMORY OR MORE
IEQ-11 INTERFACE (M-8634) FOR THE LSI
IEU-11 INTERFACE (M-5648) FOR THE PDP
CONSOLE TERMINAL (VT100, LA36, ECT.)
XXDP+ LOAD DEVICE (RX, RK, RL ECT.)

1.3 RELATED DOCUMENTS AND STANDARDS

XXDP+ USER MANUAL (CHQUSA)
IEU11-A OPTION DESCRIPTION (YG-C03KC-00) OR
IEQ11-A OPTION DESCRIPTION
IEU/IEQ DIAGNOSTIC LISTING

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

ALL PDP-11 OR LSI-11 PROCESSOR DIAGNOSTIC SHOULD RUN SUCCESSFULLY

1.5 ASSUMPTIONS

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NONE

1.6 EXECUTION TIME

EXECUTION TIME IS DEPENDENT ON THE PROCESSOR SPEED AND THE TYPE OF
TEST EXECUTION (QUICK VERIFY PASS OR NOT):
THE FOLLOWING ARE TYPICAL EXECUTION TIMES OBSERVED ON A PDP-11/60:

QUICK VERIFY PASS ?YES ,EXECUTION TIME FOR THE WHOLE PASS IS 28 SEC.

QUICK VERIFY PASS ? NO ,EXECUTION TIME FOR THE WHOLE PASS IS 6,75 MIN.

2.0 OPERATING INSTRUCTIONS

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

2.1 COMMANDS

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

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

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

2.2 SWITCHES

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

SWITCH	EFFECT
/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE - /TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDDD	EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
/UNITS:LIST	TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10-12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0-63)

EXAMPLE OF SWITCH USAGE:

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

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

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

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

2.3 FLAGS

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

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

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

2.3.1 FLAG COMMANDS

 FLA(GS) THIS COMMAND PRINTED THE CURRENT SETTING
 ----- OF ALL FLAGS

 ZFL(AGS) THIS COMMAND CLEARED ALL FLAGS

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

/FLAGS:LOE:IER:BOE

2.4 HARDWARE QUESTIONS

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

EXAMPLE OF THE DIALOGUE:

CHANGE HW (L) ? Y

#UNITS (D) ? 1

UNIT 0

DEVICE ADDRESS	(0)	760150	?
INTERRUPT VECTOR	(0)	420	?
PRIORITY LEVEL	(0)	6	?
DEVICE PRIMARY ADDRESS CH 0	(0)	0	?
DEVICE PRIMARY ADDRESS CH 1	(0)	1	?
IS TESTCABLE IN	(L)	N/Y	?

2.5 SOFTWARE QUESTIONS

AFTER YOU HAVE ANSWERED THE HARDWARE QUESTIONS OR AFTER A RESTART OR CONTINUE COMMAND, THE RUNTIME SERVICES WILL ASK FOR SOFTWARE PARAMETERS. THESE PARAMETERS WILL GOVERN SOME DIAGNOSTIC SPECIFIC OPERATION MODES. YOU WILL BE PROMPTED BY "CHANGE SW (L) ?". IF YOU WISH TO CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUE ARE :

QUICK VERIFY PASS (L) Y ?

IF 'Y', THEN EACH TEST WILL ITERATE ONLY ONCE BEFORE CONTINUING TO THE NEXT TEST IN SEQUENCE.

IF 'N', THEN EACH TEST WILL ITERATE 20 TIMES BEFORE CONTINUING ON THE NEXT TEST IN SEQUENCE.
ALSO SOME TESTS WILL DO WITH MORE TEST PATTERNS .

NUMBER OF MATCH CHARACTER COUNTS (0) 63.?

AFTER THIS QUESTION YOU CAN CHANGE THE NUMBER OF DMA CYCLES

NUMBER OF BYTE COUNTS (0) 2047. ?

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AFTER THIS QUESTION YOU CAN SELECT THE ADDITIONAL STANDBY TEST
WICH CHECK EXTENDED ADDRESS BITS FOR THE Q-22 BUS WITHOUT
MEMORY.

DO YOU WANT THE ADDITIONAL STANDBY TEST (L) ? N

2.6 EXTENDED P-TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES
IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST
WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH
UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS
A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION
DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF
THE ANSWERS ARE REPETITIOUS.

TO ILLUSTRATE A MORE EFFICIENT METHOD, SUPPOSE YOU ARE TESTING
A FICTIONAL DEVICE, THE XY11. SUPPOSE THIS DEVICE CONSISTS OF
A CONTROL MODULE WITH EIGHT UNITS (SUB-DEVICES) ATTACHED TO IT.
THESE UNITS ARE DESCRIBED BY THE OCTAL NUMBERS 0 THROUGH 7. THERE
IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE
Q-FACTOR. THIS Q-FACTOR MAY BE 0 OR 1. BELOW IS A SIMPLE WAY
TO BUILD A TABLE FOR ONE XY11 WITH EIGHT UNITS.

UNITS (D) ? 8<CR>

UNIT 1
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 0<CR>
Q-FACTOR (O) 0 ? 1<CR>

UNIT 2
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 1<CR>
Q-FACTOR (O) 1 ? 0<CR>

UNIT 3
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 2<CR>
Q-FACTOR (O) 0 ? <CR>

UNIT 4
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 3<CR>
Q-FACTOR (O) 0 ? <CR>

UNIT 5
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 4<CR>
Q-FACTOR (O) 0 ? <CR>

UNIT 6
CSR ADDRESS (O) ? 160000<CR>
SUB-DEVICE # (O) ? 5<CR>

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Q-FACTOR (0) 0 ? <CR>

UNIT 7

CSR ADDRESS (0) ? 160000<CR>

SUB-DEVICE # (0) ? 6<CR>

Q-FACTOR (0) 0 ? 1<CR>

UNIT 8

CSR ADDRESS (0) 160000<CR>

SUB-DEVICE # (0) ? 7<CR>

Q-FACTOR (0) 1 ? <CR>

NOTICE THAT THE DEFAULT VALUE FOR THE Q-FACTOR CHANGES WHEN A NON-DEFAULT RESPONSE IS GIVEN. BE CAREFUL WHEN SPECIFYING MULTIPLE UNITS!

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

THE RUNTIME SERVICES CAN TAKE MULTIPLE UNIT SPECIFICATIONS HOWEVER. LET'S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION FEATURE.

UNITS (0) ? 8<CR>

UNIT 1

CSR ADDRESS (0) ? 160000<CR>

SUB-DEVICE # (0) ? 0,1<CR>

Q-FACTOR (0) 0 ? 1,0<CR>

UNIT 3

CSR ADDRESS (0) ? 160000<CR>

SUB-DEVICE # (0) ? 2-5<CR>

Q-FACTOR (0) 0 ? 0<CR>

UNIT 7

CSR ADDRESS (0) ? 160000<CR>

SUB-DEVICE # (0) ? 6,7<CR>

Q-FACTOR (0) 0 ? 1<CR>

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL BUILD AS MANY ENTRIES AS IT CAN WITH THE INFORMATION GIVEN IN ANY ONE PASS THROUGH THE QUESTIONS. IN THE FIRST PASS, TWO ENTRIES ARE BUILT SINCE TWO SUB-DEVICES AND Q-FACTORS WERE SPECIFIED. THE SERVICES ASSUME THAT THE CSR ADDRESS IS 160000 FOR BOTH SINCE IT WAS SPECIFIED ONLY ONCE. IN THE SECOND PASS, FOUR ENTRIES WERE BUILT. THIS IS BECAUSE FOUR SUB-DEVICES WERE SPECIFIED. THE "-" CONSTRUCT TELLS THE RUNTIME SERVICES TO INCREMENT THE DATA FROM THE FIRST NUMBER TO THE SECOND. IN THIS CASE, SUB-DEVICES 2, 3, 4 AND 5 WERE SPECIFIED. (IF THE SUB-DEVICE WERE SPECIFIED BY ADDRESSES, THE INCREMENT WOULD BE BY 2 SINCE ADDRESSES MUST BE ON AN EVEN BOUNDARY.) THE CSR ADDRESSES AND Q-FACTORS FOR THE FOUR ENTRIES ARE ASSUMED TO BE 160000 AND 0 RESPECTIVELY SINCE THEY WERE ONLY SPECIFIED ONCE. THE LAST TWO UNITS ARE SPECIFIED IN THE THIRD PASS.

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THE WHOLE PROCESS COULD HAVE BEEN ACCOMPLISHED IN ONE PASS AS
SHOWN BELOW.

UNITS (D) ? 8<CR>

UNIT 1

CSR ADDRESS (O) ? 160000<CR>

SUB-DEVICE # (O) ? 0-7<CR>

Q-FACTOR (O) 0 ? 0,1,0,,,,1,1<CR>

AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING
A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

2.7 QUICK START-UP PROCEDURE (XXDP+)

TO START-UP THIS PROGRAM:

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

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.5.

2.7.1 CONTROL CHARACTERS

A CONTROL C ENTERED DURING THE EXECUTION OF A DIAGNOSTIC CAUSES A RETURN TO COMMAND MODE.

A CONTROL Z ENTERED DURING ONE OF THE OPERATOR DIALOGUES, CAUSES THE DEFAULTS TO BE TAKEN FOR THE REMAINDER OF THAT DIALOGUE.

3.0 ERROR INFORMATION

3.1 TYPES OF ERROR MESSAGES

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

NAME ,TYPE,NUMBER,UNIT NUMBER,TST NUMBER,PC:XXXXXX

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

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

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

EXAMPLES:

CZIEA SOFT ERR 00301 ON UNIT 00 TST 003 SUB 000 PC: 001234
 READ-WRITE BITS NOT CORRECT
 REGISTER : IIR , CHANNEL : 1 , GOOD DATA :00000 ,BAD DATA :00001

NOTE THAT THE ERROR NUMBER IS IN THE FORMAT 'TNN' WHERE:

T IS THE TEST NUMBER AND
 NN IS THE ERROR NUMBER WITHIN THE TEST

IE. 00302 = ERROR 2 IN TEST 03.
 00504 = ERROR 4 IN TEST 05.

3.2 SPECIFIC ERROR MESSAGES AND REPORTS

ERROR MESSAGES:

CALL	MESSAGE
E101	REGISTER ADDRESSING ERROR - TRAP 4
E200	REGISTER INCORRECT AFTER BUS RESET
E301	READ - WRITE BITS INCORRECT
E302	BITS NOT CLEARED AFTER BUS RESET
E303	MUX BIT IN CSR NOT SETTABLE
E401	CSR CONTENTS INCORRECT
E402	NO INTERRUPT WHEN EXPECTED
E403	INCORRECT PRIORITY LEVEL
E501	BITS IN IIR REGISTER INCORRECT
E502	BITS IN ISR REGISTER INCORRECT
E801	DATA TRANSFER FROM CHANNEL 1 TO 2 INCORRECT
E802	DATA TRANSFER FROM CHANNEL 2 TO 1 INCORRECT
E901	ICR CONTENTS INCORRECT
E222	DIR CONTENTS INCORRECT
E250	RX BUFFER CONTENTS INCORRECT AFTER DMA (2 TO 1)
E231	RX BUFFER CONTENTS INCORRECT AFTER DMA (1 TO 2)
E232	NO INTERRUPT AFTER DMA
E233	NO INTERRUPT AFTER READ FROM A NXM ADDRESS
E234	BAR CONTENTS INCORRECT
E235	BCR CONTENTS INCORRECT

ERROR REPORTS:

CALL	MESSAGE
ERR101	REGISTER AT (AAAAAA) DOES NOT RESPOND
ERR201	REGISTER: (CSR,CHA:((C) ,GOOD DATA:NNNN,BAD DATA:NNNN (FOR IEU11A IGNORE BIT 9-12)
ERR202	REGISTER: (RRR),CHA:((C) ,GOOD DATA:NNNN,BAD DATA:NNN
ERR401	CHAN.:((C),CORRECT PRIORITY:(PPP) ,WRONG PRIORITY:(PPP)
ERR402	CHANNEL :((C) IS SELECTED
ERR501	CHAN.: (CC),GOOD DATA:NNNN ,BAD DATA:NNNN,ITERATION:NN
ERR231	GOOD DATA TXADDR BAD DATA RXADDR BYTE CNT# DDDDDD AAAAAA DDDDD AAAAAA CCCCC

4.0 PERFORMANCE AND PROGRESS REPORTS

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

5.0 DEVICE INFORMATION TABLES

6.0 TEST SUMMARIES

6.1 TEST 1 - IEX11 : REGISTER ADDRESSING TEST

VERIFY THAT ADDRESSING THE 8 BUS DEVICE REGISTERS DOES NOT CAUSE A NON-EXISTENT MEMORY TRAP.
 AN ERROR IN THIS TEST COULD MEAN THAT THE DEVICE IS INCORRECTLY CONFIGURED OR THAT THE ADDRESS IS WRONG.
 COMMUNICATION BETWEEN THE MAIN CPU AND THE IEX11 IS ACCOMPLISHED THROUGH A SET OF SIXTEEN REGISTERS. THE SIXTEEN REGISTERS ARE ASSIGNED ADDRESSES IN THE I/O PAGE.

6.2 IEX - TEST 2 : INITIALIZATION TEST

RESETS THE IEX AND ENSURES THAT REGISTERS CSR, IIR, ISR, ICR, IDR, MCR IN BOTH CHANNELS ARE IN THEIR PROPER INITIALIZATION STATE.
 REGISTERS BAR AND BCR ARE NOT IN A DEFINITIVE STATE AFTER RESET SO THEY ARE NOT TESTED HERE.
 THE MUX BIT IN CSR IS ALSO TESTED.

6.3 IEX - TEST 3 : R/W BIT TEST

THIS TEST CHECKS ALL R/W BITS OF CSR, BAR, BCR AND MCR REGISTERS IN BOTH CHANNELS. IT ALSO TESTS THE MASTER CLEAR FUNCTION IN CSR1 + CSR2.
 THE TMS 9914 REGISTERS IIR, ISR, ICR, IDR ARE NOT CHECKED IN THIS TEST.

6.4 IEX - TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

PART 1 CHANNEL 1 WHICH IS SELECTED AS SYSTEM CONTROLLER, SENDS THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND SRE.
 ALSO, BOTH IIR AS WELL AS ISR REGISTERS ARE CHECKED.
 PART 2 CHANNEL 2 WHICH IS SELECTED AS SYSTEM CONTROLLER, SENDS THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND SRE.
 ALSO BOTH IIR AS WELL AS ISR REGISTERS ARE CHECKED.

6.5 IEX - TEST 5 : INTERRUPT TEST

PART 1 CHECKS THE DEVICE PRIORITY LEVEL AND THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 1.
 INITIATING THIS SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB BITS IN CSR1 AND BO BIT IN IIR 1 REGISTER.
 PART 2 CHECKS THE DEVICE PRIORITY LEVEL AND THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 2.
 INITIATING THIS SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB

BITS IN CSR2 AND BO BIT IN IIR 2 REGISTER.

6.6 IEX - TEST 6 : ADDRESS REGISTER TEST (ICR) OF CHANNEL 1

PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 1 (ADR)
BY LOADING ITS DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING THE
ASSIGNED LISTEN OR TALKER ADDRESS VIA THE IEC/IEEE BUS.

NOTE: THE ULPA BIT IN THE ISR1 REGISTER IS DEPENDENT
FROM THE STATUS OF DPA1 (DPA1=ULPA IS SET)

PART 2 CHECKS THE FUNCTION OF THE 'DAT', 'DAL' AND 'EDPA' BIT OF ADR1 REGISTER
IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION WILL DO
IT WITH DIFFERENT DPA'S.

6.7 IEX - TEST 7 : ADDRESS REGISTER TEST (ICR) OF CHANNEL 2

TH. TEST IS THE SAME TEST AS TEST 6 EXCEPT THE CHANNEL IS CHANGED

PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 2 (ADR)
BY LOADING ITS DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING THE
ASSIGNED LISTEN OR TALKER ADDRESS VIA THE IEC/IEEE BUS.

NOTE: THE ULPA BIT IN THE ISR2 REGISTER IS DEPENDENT
FROM THE STATUS OF DPA2 (DPA2=ULPA IS SET)

PART 2 CHECKS THE FUNCTION OF THE 'DAT', 'DAL' AND 'EDPA' BIT OF ADR2 REGISTER
IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION WILL DO
IT WITH DIFFERENT DPA'S.

6.8 IEX - TEST 8 : DATA TRANSFER TEST

THIS TEST IS DIVIDED INTO TWO PARTS.

IT CHECKS THE DATA OUT (DOR) AND DATA IN (DIR) REGISTERS.

PART 1 CHECKS DOR AND DIR REGISTERS BY LOADING THE DOR1 WITH A DATA BYTE
AND READING IT FROM THE DIR2 (PROGRAMMED DATA TRANSFER FROM
CHAN.1 TO CHAN.2).

PART 2 CHECKS DOR AND DIR REGISTERS BY LOADING THE DOR2 WITH A DATA BYTE
AND READING IT FROM THE DIR1 (PROGRAMMED DATA TRANSFER FROM
CHAN.2 TO CHAN.1).

IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION IS
CARRIED OUT WITH A DIFFERENT DATA PATTERN

6.9 IEX - TEST 9 : SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION.

PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA1)

6.10 IEX - TEST 10 : SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

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THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION.
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA1)

6.11 IEX - TEST 11 : SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA2)

6.12 IEX - TEST 12 : SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION .
PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AN INVALID MY
SECONDARY ADDRESS (MSA2)

6.13 IEX - TEST 13 : DEVICE CLEAR INTERFACE FUNCTION TEST

PART 1 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 2 BY MEANS OF
RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS COMMAND
(SDC)
PART 2 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 1 BY MEANS OF
RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS COMMAND
(SDC)

6.14 IEX - TEST 14 : DEVICE TRIGGER INTERFACE FUNCTION TEST

PART 1 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 2 BY MEANS OF
RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY
COMMAND NOT FGET.
PART 2 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 1 BY MEANS OF
RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY
COMMAND NOT FGET.

6.15 IEX - TEST 15 : INCOMPLETE SOURCE HANDSHAKE TEST

PART 1 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 1.
SOURCE HANDSHAKE DOES NOT OCCUR DURING THE DATA TRANSFER,
BECAUSE CHANNEL 2 IS NOT SELECTED AS LISTENER.
PART 2 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 2.
SOURCE HANDSHAKE DOES NOT OCCUR DURING THE DATA TRANSFER,
BECAUSE CHANNEL 1 IS NOT SELECTED AS LISTENER.

6.16 IEX - TEST 16 : CHANGING OF THE CONTROLLER CONFIGURATION

- PART 1 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 1 TO 2
BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.
PART 2 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 2 TO 1
BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.

6.17 IEX - TEST 17 : REMOTE/LOCAL INTERFACE FUNCTION TEST

- PART 1 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 2 USING THE FOLLOWING
COMMANDS GTL, LLO, NOT RTL.
PART 2 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 1 USING THE FOLLOWING
COMMANDS GTL, LLG, NOT RTL.

6.18 IEX - TEST 18 : SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

- THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 1
PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 1
AND CHECKS THE SRQ BIT IN ISR2.
PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 1.
IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
OUT WITH DIFFERENT DATA.

6.19 IEX - TEST 19 : SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2

- THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 2.
PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 2 AND
CHECKS THE SRQ BIT IN ISR1.
PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 2.
IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
OUT WITH DIFFERENT DATA.

6.20 IEX - TEST 20 : PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

- PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).

6.21 IEX - TEST 21 : PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

- PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).

6.22 IEX - TEST 22 : END OF A MESSAGE BLOCK TEST

- PART 1 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 1. CHANNEL 2 SENDS THE
EOI MESSAGE VIA THE IEC/IEEE BUS.
- PART 2 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 2. CHANNEL 1 SENDS THE
EOI MESSAGE VIA THE IEC/IEEE BUS.

6.23 IEX - TEST 23 : DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

- PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 1 TO 2 BY MEANS OF A DMA
I.E. CHAN. 1 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE,
WHEREAS CHAN.2 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB CYCLE.
THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS 2K BYTES
AND THE HIGHEST BUS ADDRESS IS BELOW 32 K.
- PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1.
THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS
SELECTED IN THE BUS ADDRESS REGISTER OF CHAN 1 (DATI CYCLE).
- PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
- PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).

6.24 IEX - TEST 24 : DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

- PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 2 TO 1 BY MEANS OF A DMA
I.E. CHAN. 2 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE,
WHEREAS CHAN.1 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB CYCLE.
THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS 2K BYTES
AND THE HIGHEST BUS ADDRESS IS BELOW 32 K.
- PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1
THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS
SELECTED IN THE BUS ADDRESS REGISTER OF CHAN 2 (DATOB CYCLE).
- PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
- PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).

6.25 IEX - TEST 25 : MCR FUNCTION TEST OF CHANNEL 1

- PART 1 CHANNEL 2 TRANSMITS 9 DATA BYTES (50) THAN
A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177)
VIA THE IEC/IEEE BUS TO CHANNEL 1. AFTER RECEIVING THESE CHARACTERS
THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 1 (COMP END).
- PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE
EOS CHARACTER ARE TRANSMITTED.
I.E. 2 EOS CHAR.(25), 1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25).

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6.26 IEX - TEST 26 MCR FUNCTION TEST OF CHANNEL 2

PART 1

CHANNEL 1 TRANSMITS 9 DATA BYTES (50) THAN
A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177)
VIA THE IEC/IEEE BUS TO CHANNEL 2. AFTER RECEIVING THESE CHARACTERS
THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 2 (COMP END).

PART 2

SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE
EOS CHARACTER ARE TRANSMITTED.
I.E. 2 EOS CHAR.(25), 1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25).

6.27 IEX - TEST 27 EXTENDED ADDRESS BIT (Q22-BUS) TEST

THIS TEST IS ONLY BE CARRIED OUT IF A Q-BUS IS USED AND IF THE AVAILABLE
MEMORY IS GREATER THAN 128K (Q22-BUS).

PART 1

FINDS OUT IF THE AVAILABLE MEMORY IS GREATER THAN 128K.
IF YES, THEN A DMA IS CARRIED OUT BY SENDING DATA VIA THE
IEC/IEEE BUS FROM CHANNEL 1 TO 2.
THE SEQUENCE DESCRIBED ABOVE IS ALSO EXECUTED WITH 256K (BA 19 SET),
512K (BA 20 SET) AND 1024K (BA 21 SET).

PART 2

SAME AS PART 1 EXCEPT THE CHANNELS. THE DMA DATA TRANSFER IS
CARRIED OUT FROM CHANNEL 2 TO 1.

6.28 IEX - TEST 28 ADDITIONAL STANDBY TEST

THIS TEST CAN BE USED IF YOU WANT TO CHECK THE EXTENDED ADDRESS BITS
WITHOUT MEMORY.

IT MOVES A SLIDING ONE'S BIT PATTERN ACROSS THE ADDRESS LINE 16,17,
18,19,20,21 IGNORING NXM ERRORS BUT CHECKING THE ADDRESS REGISTER LINES TO
THE BUS.

THE PATTERN SHOULD BE CHECKED ON A LOGIC ANALYSER.
THE LOGIC ANALYSER HAS TO BE CONNECT TO THE ADDRESS LINES 16-21
THE TRIGGER HAS TO BE CONNECT TO THE SIGNAL ADREN L(E9, PIN 4).

THIS TEST IS ONLY CARRIED OUT IF A Q-BUS IS USED AND IF YOU ANSWER
THE SOFTWARE QUESTION.

7.0 PROGRAM LISTING

PROGRAM HEADER AND TABLES

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```

1011      .TITLE PROGRAM HEADER AND TABLES
1012      .SBTTL PROGRAM HEADER
1038
1040 000000      .ENABL AMA,ABS
1041      002000      = 2000
1043
1044
1045 002000      BGNMOD
1046
1047      :++
1048      : THE PROGRAM HEADER IS THE INTERFACE BETWEEN
1049      : THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
1050      :--
1051
1052 002000      POINTER BGNDU,BGNAU,BGNSETUP,BGNSW,BGNSFT,ERRTBL
1053
1054
1071
1072 002000      HEADER CZIEA,B,0,0,0
002000      L$NAME::      ;DIAGNOSTIC NAME
002000      .ASCII /C/
002001      132      .ASCII /Z/
002002      111      .ASCII /I/
002003      105      .ASCII /E/
002004      101      .ASCII /A/
002005      000      .BYTE 0
002006      000      .BYTE 0
002007      000      .BYTE 0
002010      L$REV::      ;REVISION LEVEL
002010      102      .ASCII /B/
002011      L$DEPO::      ;0
002011      060      .ASCII /O/
002012      L$UNIT::      ;NUMBER OF UNITS
002012 000001      .WORD T$PTHV
002014      L$TIML::      ;LONGEST TEST TIME
002014 000000      .WORD 0
002016      L$HPCP::      ;POINTER TO H.W. QUES.
002016 076724      .WORD L$HARD
002020      L$SPCP::      ;POINTER TO S.W. QUES.
002020 077336      .WORD L$SOFT
002022      L$HPTP::      ;PTR. TO DEF. H.W. PTABLE
002022 002216      .WORD L$HW
002024      L$SPTP::      ;PTR. TO S.W. PTABLE
002024 002234      .WORD L$SW
002026      L$LADP::      ;DIAG. END ADDRESS
002026 100004      .WORD L$LAST
002030      L$STA::      ;RESERVED FOR APT STATS
002030 000000      .WORD 0
002032      L$CO::      .WORD 0
002032 000000      .WORD 0
002034      L$DTYP::      ;DIAGNOSTIC TYPE
002034 000000      .WORD 0
002036      L$APT::      ;APT EXPANSION
002036 000000      .WORD 0
002040      L$DTP::      ;PTR. TO DISPATCH TABLE
002040 002124      .WORD L$DISPATCH
002042      L$PRIO::      ;DIAGNOSTIC RUN PRIORITY

```

PROGRAM HEADER AND TABLES
PROGRAM HEADER

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002042 000000
 002044 000000
 002046 000000
 002050 000000
 002050 003
 002051 003
 002052 000000
 002054 000000
 002056 000000
 002060 003352
 002062 000000
 002064 000000
 002066 000000
 002070 012422
 002072 012340
 002074 000000
 002076 003414
 002100 104035
 002102 002504
 002104 011120
 002106 012314
 002110 012230
 002112 011112
 002114 000000
 002116 000000
 002120 000000

L\$ENVI:: .WORD 0 ;FLAGS DESCRIBE HOW IT WAS SETUP
 L\$EXP1:: .WORD 0 ;EXPANSION WORD
 L\$MREV:: .WORD 0 ;SVC REV AND EDIT #
 L\$EF:: .BYTE C\$REVISION ;DIAG. EVENT FLAGS
 .BYTE C\$EDIT
 L\$SPC:: .WORD 0
 L\$DEVP:: .WORD 0 ; POINTER TO DEVICE TYPE LIST
 L\$REPP:: .WORD L\$DVTYP ;PTR. TO REPORT CODE
 L\$EXP4:: .WORD 0
 L\$EXP5:: .WORD 0
 L\$AUT:: .WORD 0 ;PTR. TO ADD UNIT CODE
 L\$DUT:: .WORD L\$AU ;PTR. TO DROP UNIT CODE
 L\$LUN:: .WORD L\$DU ;LUN FOR EXERCISERS TO FILL
 L\$DESP:: .WORD 0 ;POINTER TO DIAG. DESCRIPTION
 L\$LOAD:: .WORD L\$DESC ;GENERATE SPECIAL AUTOLOAD EMT
 EMT E\$LOAD
 L\$ETP:: .WORD L\$ERRTBL ;POINTER TO ERRRTBL
 L\$ICP:: .WORD L\$INIT ;PTR. TO INIT CODE
 L\$CCP:: .WORD L\$CLEAN ;PTR. TO CLEAN-UP CODE
 L\$ACP:: .WORD L\$AUTO ;PTR. TO AUTO CODE
 L\$PRT:: .WORD L\$PROT ;PTR. TO PROTECT TABLE
 L\$TEST:: .WORD L\$PROT ;TEST NUMBER
 L\$DLY:: .WORD 0 ;DELAY COUNT
 L\$HIME:: .WORD 0 ;PTR. TO HIGH MEM

PROGRAM HEADER AND TABLES
DISPATCH TABLE

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1085
1086
1087
1088
1089
1090
1091
1092 002122
002122 000034
002124
002124 012430
002126 012704
002130 013424
002132 014076
002134 015574
002136 016762
002140 023062
002142 027416
002144 031764
002146 033550
002150 035316
002152 037066
002154 040744
002156 043116
002160 044022
002162 044776
002164 046344
002166 050722
002170 052032
002172 053142
002174 054212
002176 055262
002200 057250
002202 063270
002204 067270
002206 071012
002210 072544
002212 075456
1093

.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 28
.L$DISPATCH::
.WORD 28
.WORD T1
.WORD T2
.WORD T3
.WORD T4
.WORD T5
.WORD T6
.WORD T7
.WORD T8
.WORD T9
.WORD T10
.WORD T11
.WORD T12
.WORD T13
.WORD T14
.WORD T15
.WORD T16
.WORD T17
.WORD T18
.WORD T19
.WORD T20
.WORD T21
.WORD T22
.WORD T23
.WORD T24
.WORD T25
.WORD T26
.WORD T27
.WORD T28

```

PROGRAM HEADER AND TABLES
DEFAULT HARDWARE P-TABLE

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1101
1102
1103
1104
1105
1106
1107
1108
1109
1110 002214
002214 000006
002216
002216
1111
1121 002216 160140
1122 002220 000420
1123 002222 000300
1124 002224 000000
1125 002226 000001
1126 002230 000000
1127
1128
1129 002232
002232

.SBTTL DEFAULT HARDWARE P-TABLE

;;
; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
; THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
; IS IDENTICAL TO THE STRUCTURE OF THE HARDWARE P-TABLES.
; AND IS USED AS A "TEMPLATE" FOR BUILDING THE P-TABLES.
;--

BGNHW DFPTBL
.WORD L10000-L\$HW/2
L\$HW::
DFPTBL::

.WORD 160140 ;1ST (OF 8) REGISTER ADDRESS
.WORD 420 ;1ST (OF 2) VECTOR ADDRESS
.WORD PRI06 ;DEVICE PRIORITY LEVEL
.WORD 0 ;DEVICE PRIMARY ADDRESS FOR CH.1
.WORD 1 ;DEVICE PRIMARY ADDRESS FOR CH.2
.WORD 0 ;DEFAULT VALUE FOR TESTCABLE

ENDHW

L10000:

PROGRAM HEADER AND TABLES
SOFTWARE P-TABLE

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```

1132      .SBTTL  SOFTWARE P-TABLE
1133
1134      :++
1135      : THE SOFTWARE TABLE CONTAINS VARIOUS DATA USED BY THE
1136      : PROGRAM AS OPERATIONAL PARAMETERS.  THESE PARAMETERS ARE
1137      : SET UP AT ASSEMBLY TIME AND MAY BE VARIED BY THE OPERATOR
1138      : AT RUN TIME.
1139      :--
1140 002232      BGNSW  SFPTBL
          002232      .WORD  L10001-L$SW/2
          002234      000004
          002234
1141
1149
1150 002234      000001
1151 002236      000077
1152 002240      003777
1153 002242      000000
1154 002244
          002244
1155
1156 002244
          ENDSW
          ENDMOD
          L10001:
          QVP:: .WORD 1 ;QUICK VERIFY SWITCH
          MCINP:: .WORD 63. ;NUMBER OF DEFAULT MATCH CHARACTER COUNTS
          BCINP:: .WORD 2047. ;NUMBER OF DEFAULT BYTE COUNTS IS 2047 DECIMAL
          MAINB:: .WORD 0 ;STANDBY TEST 28,DEFAULT IS NO

```

PROGRAM HEADER AND TABLES
SOFTWARE P-TABLE

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1159
1170
1171
1199
1209
1210 002244
1211
1212
1213
1214
1215
1216
1231
1232 002244

.TITLE GLOBAL AREAS
.SBTTL GLOBAL EQUATES SECTION

BGNMOD

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

EQUALS

;
; BIT DEFINITIONS
;

100000	B1T15==	100000
040000	B1T14==	40000
020000	B1T13==	20000
010000	B1T12==	10000
004000	B1T11==	4000
002000	B1T10==	2000
001000	B1T09==	1000
000400	B1T08==	400
000200	B1T07==	200
000100	B1T06==	100
000040	B1T05==	40
000020	B1T04==	20
000010	B1T03==	10
000004	B1T02==	4
000002	B1T01==	2
000001	B1T00==	1
001000	B1T9==	B1T09
000400	B1T8==	B1T08
000200	B1T7==	B1T07
000100	B1T6==	B1T06
000040	B1T5==	B1T05
000020	B1T4==	B1T04
000010	B1T3==	B1T03
000004	B1T2==	B1T02
000002	B1T1==	B1T01
000001	B1T0==	B1T00

;
; 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
;

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 19-1
GLOBAL EQUATES SECTION

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	PRJ== 2000
004000	IXE== 4000
010000	IBE== 10000
020000	IER== 20000
040000	LOE== 40000
100000	HOE== 100000

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 20
GLOBAL DATA SECTION

```

1234      .SBTTL  GLOBAL DATA SECTION
1235
1236      :++
1237      : THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
1238      : IN MORE THAN ONE TEST.
1239      :--
1240
1253      :*****
1254      : IEX11 VECTOR AND REGISTER INDIRECT POINTERS
1255      :*****
1256      VECC1::      .WORD  0      ; INTERRUPT VECTOR FOR CHANNEL 1
1257      VECC2::      .WORD  0      ; INTERRUPT VECTOR FOR CHANNEL 2
1258      IIRX::       .WORD  0      ; POINTER TO IEEE INTERRUPT REGISTER
1259      IIRLX::      .WORD  0      ; POINTER TO LOW BYTE OF IIR REGISTER
1260      IIRHX::      .WORD  0      ; POINTER TO HIGH BYTE OF INTERRUPT REGISTER
1261      ISRX::       .WORD  0      ; POINTER TO IEEE STATUS REGISTER
1262      ISRLX::      .WORD  0      ; POINTER TO LOW BYTE OF ISR REGISTER
1263      ISRHX::      .WORD  0      ; POINTER TO HIGH BYTE OF STATUS REGISTER
1264      ICRX::       .WORD  0      ; POINTER TO IEEE COMMAND REGISTER
1265      ICRLX::      .WORD  0      ; POINTER TO LOW BYTE OF ICR REGISTER
1266      ICRHX::      .WORD  0      ; POINTER TO HIGH BYTE OF COMMAND REGISTER
1267      IDR1X::      .WORD  0      ; POINTER TO IEEE DATA REGISTER
1268      IDR1LX::     .WORD  0      ; POINTER TO LOW BYTE OF IDR REGISTER
1269      IDR1HX::     .WORD  0      ; POINTER TO HIGH BYTE OF DATA REGISTER
1270      CSRX::       .WORD  0      ; POINTER TO CONTROL & STATUS REGISTER
1271      BARX::       .WORD  0      ; POINTER TO BUS ADDRESS REGISTER
1272      BCRX::       .WORD  0      ; POINTER TO BYTE COUNT REGISTER
1273      MCRX::       .WORD  0      ; POINTER TO MATCH CHARACTER REGISTER
1274      MCRHX::      .WORD  0      ; POINTER TO HIGH BYTE OF MCR REGISTER
1275      DPA1::       .WORD  0      ; POINTER TO DEVICE PRIMARY ADDRESS FOR CH.1
1276      DPA2::       .WORD  0      ; POINTER TO DEVICE PRIMARY ADDRESS FOR CH.2
1277      PLEV::      .WORD  0      ; POINTER TO THE PRIORITY LEVEL
1278
1280      :*****
1281      : PROGRAM CONTROL PARAMETERS
1282      :*****
1283      ITRDEF::      .WORD  20     ; ITERATION DEFAULT
1284      ITRCNT::      .WORD  0      ; ITERATION COUNTER
1285
1286      :*****
1287      : PROGRAM VARIABLES
1288      :*****
1289      PNTF::        .WORD  0      ; FLAG FOR TEST HEADER PRINTOUT
1290      NXMFLG::      .WORD  0      ; FLAG USED WHEN ADDRESS IS NXM.
1291      MM22::        .WORD  0      ; FLAG INDICATING 22 BIT MMU
1292      MMFLG::       .WORD  0      ; FLAG TO SEE IF MEMORY MANAGEMENT THERE
1293      PHHIGH::      .WORD  0      ; LOCATION FOR MEMORY SIZE
1294      PHLOW::       .WORD  0      ; LOCATION FOR MEMORY SIZE
1295      VIADD::       .WORD  0      ; LOCATION FOR VIRTUAL MEMORY SIZE
1296      PHHSIZ::      .WORD  0      ; LOCATION FOR MEMORY SIZE
1297      PHLSIZ::      .WORD  0      ; LOCATION FOR MEMORY SIZE
1298      SIZEPA::      .WORD  0      ; LOCATION FOR MEMORY SIZE IN PAGE FORM
1299      MASK::        .WORD  0      ; BIT MASK OF READ/WRITE BITS
1300      MASCOM::      .WORD  0      ; COMPLEMENT OF MASK
1301      REGADD::      .WORD  0      ; ADDRESS OF REGISTER TO BE TESTED
1302

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 20-1
GLOBAL DATA SECTION

```

1303 002356 000000 BUFAB:: .WORD 0 ;LOCATION FOR START ADDR. OF BUFFER A
1304 002360 000000 BUFBB:: .WORD 0 ;LOCATION FOR START ADDR. OF BUFFER B
1305 002362 000000 CSRMSK:: .WORD 0 ;WORK LOCATION USED IN TEST 27
1306 002364 000000 CSRMS1:: .WORD 0 ;WORK LOCATION USED IN TEST 27
1307 002366 000000 CSRMS2:: .WORD 0 ;WORK LOCATION USED IN TEST 27
1308 002370 000000 ANS:: .WORD 0 ;STORE FOR OPERATOR ANSWER USED IN T28
1309 002372 000000 LOGDEV:: .WORD 0 ;LOGICAL DEVICE NUMBER
13 0 002374 000000 CHAN:: .WORD 0 ;FLAG FOR CHANNEL
1311 002376 000000 INTFC1:: .WORD 0 ;INTERRUPT FLAG FOR CHA.1.
1312 002400 000000 INTFC2:: .WORD 0 ;INTERRUPT FLAG FOR CHA.2
1313 002402 000000 RSAVE:: .WORD 0 ;TEMPORARY LOCATION TO SAVE DATA
1314 002404 000000 CNT1:: .WORD 0 ;COUNTER USED IN TEST 23-26
1315 002406 000000 SDPA:: .WORD 0 ;TEMPORARY STORE TO SAVE DEVICE PRIM. ADDR.
1316 002410 000000 MLA1:: .WORD 0 ;STORE TO SAVE MY LISTENER ADDRESS
1317 002412 000000 MLA2:: .WORD 0 ;STORE TO SAVE MY LISTENER ADDRESS
1318 002414 000000 MTA1:: .WORD 0 ;STORE TO SAVE MY TALKER ADDRESS CH.1
1319 002416 000000 MTA2:: .WORD 0 ;STORE TO SAVE MY TALKER ADDRESS CH.2
1320 002420 000000 MSA1:: .WORD 0 ;STORE TO SAVE MSA
1321 002422 000000 RXADRH:: .WORD 0 ;LOCATION FOR RX HIGH ADDRESS
1322 002424 000000 RXADRL:: .WORD 0 ;LOCATION FOR RX LOW ADDRESS
1323 002426 000000 TXADRH:: .WORD 0 ;LOCATION FOR DMA TX HIGH ADDRESS
1324 002430 000000 TXADRL:: .WORD 0 ;LOCATION FOR DMA TX LOW ADDRESS
1325 002432 000000 ERNU:: .WORD 0 ;LINE COUNTER FOR ERROR PRINTOUT
1326 002434 000000 CDAT1:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1327 002436 000000 CDAT2:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1328 002440 000000 CDAT3:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1329 002442 000000 CDAT4:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1330 002444 000000 CDAT5:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1331 002446 000000 CDAT6:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1332 002450 000000 CDAT7:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1333 002452 000000 CDAT8:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1334 002454 000000 CDAT9:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1335 002456 000000 CDAT10:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1336 002460 000000 CDAT11:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1337 002462 000000 CDAT12:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1338 002464 000000 CDAT13:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1339 002466 000000 CDAT14:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1340 002470 000000 CDAT15:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1341 002472 000000 CDAT16:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1342 002474 000000 CDAT17:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
1343 002476 000000 CDAT18:: .WORD 0 ;VARIABLE COMPARE DATA FOR ISR REGISTER
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1348 002500 000000 GOOD:: .WORD 0 ;WORD USED FOR ERROR PRINTOUT
1349 002502 000000 BAD:: .WORD 0 ;WORD USED FOR ERROR PRINTOUT
1350 002504 000000 ERRRTBL
1351 002504 000000 L$ERRTBL::
1352 002506 000000 ERRTP:: .WORD 0
1353 002510 000000 ERRNBR:: .WORD 0
1354 002512 000000 ERRMSG:: .WORD 0
1355 002512 000000 ERRBLK:: .WORD 0
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```


GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 20-2
GLOBAL DATA SECTION

```

1355
1356 002514      050      050      050  TABD:: .NLIST BEX          50,50,50,50,50,50,50,50,50,50          ;9DATA,63 EOS
1357 002525      125      125      125          .BYTE          125,125,125,125,125,125,125,125,125,125
1358 002537      125      125      125          .BYTE          125,125,125,125,125,125,125,125,125,125
1359 002551      125      125      125          .BYTE          125,125,125,125,125,125,125,125,125,125
1360 002563      125      125      125          .BYTE          125,125,125,125,125,125,125,125,125,125
1361 002575      125      125      125          .BYTE          125,125,125,125,125,125,125,125,125,125
1362 002607      125      125      125          .BYTE          125,125,125,125,125,125,125,125,125,125
1363 002621      125      125      125          .BYTE          125,125,125
1364
1365
1366 002624 000007          TABE::          .REPT          7          ;72 DATA BYTES
1367          .BYTE          0,0,0,0,0,0,0,0,0,0,0
1368          .ENDR
1369 002732      000      000          .BYTE          0,0
1370          .EVEN
1371
1372 002734      050      050      050  TABF::          .BYTE          50,50,50,50,50,50,50,50,50          ;9 DATA,63 EOS
1373 000006          .REPT          6
1374          .BYTE          177,177,177,177,177,177,177,177,177,177
1375          .ENDR
1376 003041      177      177      177          .BYTE          177,177,177
1377          .EVEN
1378
1379 003044      012      012      050  TABG::          .BYTE          12,12,50,12,12,12          ;2EOS,1DATA,63EOS
1380 000006          .REPT          6
1381          .BYTE          12,12,12,12,12,12,12,12,12,12
1382          .ENDR
1383          .EVEN
1384
1385 003146      000      000      000  TABH::          .BYTE          0,0,0,0,0,0          ;66 DATA BYTES
1386 000006          .REPT          6
1387          .BYTE          0,0,0,0,0,0,0,0,0,0,0
1388          .ENDR
1389          .EVEN
1390
1391 003250      025      025      050  TABK::          .BYTE          25,25,50,25,25,25          ;2 EOS,1 DATABYTE,63 EOS
1392 000006          .REPT          6
1393          .BYTE          25,25,25,25,25,25,25,25,25,25
1394          .ENDR
1395          .EVEN
1396          .LIST BEX
1397
1398

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 21
GLOBAL TEXT SECTION

```

1400      .SBTTL  GLOBAL TEXT SECTION
1401
1402      : **
1403      : THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
1404      : MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
1405      : MORE THAN ONE TEST.
1406      : --
1407
1408      : *****
1409      : NAMES OF DEVICES SUPPORTED BY PROGRAM
1410      : *****
1411
1412      DEV TYP  <IEU11 FOR UNIBUS \IEQ11 FOR Q-BUS>
      L$DVTYP::
      .ASCIZ  /IEU11 FOR UNIBUS \IEQ11 FOR Q-BUS/
      111      105      125
      061      061      040
      106      117      122
      040      125      116
      111      102      125
      123      040      134
      111      105      121
      061      061      040
      106      117      122
      040      121      055
      102      125      123
      000

      .EVEN

1413      : *****
1419      : TITEL OF PROGRAM
1420      : *****
1421
1422      DESCRIPT      <IEU\IEQ DIAGNOSTIC AC-T064A-MC>
1423      L$DESC::
      .ASCIZ  /IEU\IEQ DIAGNOSTIC AC-T064A-MC/
      111      105      125
      131      111      105
      121      040      104
      111      101      107
      116      117      123
      124      111      103
      040      101      103
      055      124      060
      066      064      101
      055      115      103
      000

      .EVEN

      .EVEN

1424
1425
1426
1433      :
1434      :
1435      : FORMAT STATEMENTS USED IN PRINT CALLS
1436      :
1437
1447
1455      000001      SVCGBL= 1
1456      000001      SVCINS= 1

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 22
GLOBAL ERROR REPORT SECTION

```

1458 .SBTTL GLOBAL ERROR REPORT SECTION
1459
1460
1461 :++
1462 : THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
1463 : USED BY MORE THAN ONE TEST TO OUTPUT ADDITIONAL ERROR INFORMATION. PRINTB
1464 : (BASIC) AND PRINTX (EXTENDED) CALLS ARE USED TO CALL PRINT SERVICES.
1465 :--
1466
1467 003454 BGNMSG ERR101
1468 003454 PRINTB #EMG101,R1
1469 003454 010146 004116
1470 003456 012746 000002
1471 003462 012746 000002
1472 003466 010600
1473 003470 104414
1474 003472 062706 000006
1475
1476 003476 ENDMSG
1477 003476 104423
1478
1479
1480 003500 BGNMSG ERR201
1481 003500 PRINTB #EMG201,CHAN,GOOD,BAD
1482 003500 013746 002502
1483 003504 013746 002500
1484 003510 013746 002374
1485 003514 012746 004170
1486 003520 012746 000004
1487 003524 010600
1488 003526 104414
1489 003530 062706 000012
1490 003534 PRINTB #EMG203
1491 003534 012746 004265
1492 003540 012746 000001
1493 003544 010600
1494 003546 104414
1495 003550 062706 000004
1496
1497 003554 ENDMSG
1498 003554 104423
1499
1500 003556 BGNMSG ERR202
1501 003556 PRINTB #EMG202,R2,CHAN,GOOD,BAD
1502 003556 013746 002502
1503 003562 013746 002500
1504 003566 013746 002374
1505 003572 010246
1506 003574 012746 004330
1507 003600 012746 000005
1508 003604 010600
1509 003606 104414
1510 003610 062706 000014

```

ERR101::

```

MOV R1,-(SP)
MOV #EMG101,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTB
ADD #6,SP

```

L10002:

```

TRAP C$MSG

```

ERR201::

```

MOV BAD,-(SP)
MOV GOOD,-(SP)
MOV CHAN,-(SP)
MOV #EMG201,-(SP)
MOV #4,-(SP)
MOV SP,R0
TRAP C$PNTB
ADD #12,SP

```

L10003:

```

MOV #EMG203,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C$PNTB
ADD #4,SP

```

L10003:

```

TRAP C$MSG

```

ERR202::

```

MOV BAD,-(SP)
MOV GOOD,-(SP)
MOV CHAN,-(SP)
MOV R2,-(SP)
MOV #EMG202,-(SP)
MOV #5,-(SP)
MOV SP,R0
TRAP C$PNTB
ADD #14,SP

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 22-1
GLOBAL ERROR REPORT SECTION

```

1495 003614          ENDMSG
      003614
      003614 104423
1496
1497 003616          BGNMSG  ERR401
      003616
1498 003616          PRINTB  #EMG401,CHAN,GOOD,BAD
      003616 013746 002502
      003622 013746 002500
      003626 013746 002374
      003632 012746 004425
      003636 012746 000004
      003642 010600
      003644 104414
      003646 062706 000012
1499 003652          ENDMSG
      003652
      003652 104423
1500
1501 003654          BGNMSG  ERR402
      003654
1502 003654          PRINTB  #EMG402,CHAN
      003654 013746 002374
      003660 012746 004521
      003664 012746 000002
      003670 010600
      003672 104414
      003674 062706 000006
1503 003700          ENDMSG
      003700
      003700 104423
1504
1505 003702          BGNMSG  ERR501
      003702
1506 003702          PRINTB  #EMG501,CHAN,GOOD,BAD,ITRCNT
      003702 013746 002322
      003706 013746 002502
      003712 013746 002500
      003716 013746 002374
      003722 012746 004560
      003726 012746 000005
      003732 010600
      003734 104414
      003736 062706 000014
1507 003742          ENDMSG
      003742
      003742 104423
1508
1509 003744          BGNMSG  ERR231
      003744
1510 003744          PRINTB  #DMAHAD
      003744 012746 004715
      003750 012746 000001
      003754 010600
      003756 104414
      003760 062706 000004
1511 003764          ASL      TXADRH
      006337 002426

```

L10004: TRAP C\$MSG

ERR401::

```

MOV  BAD,-(SP)
MOV  GOOD,-(SP)
MOV  CHAN,-(SP)
MOV  #EMG401,-(SP)
MOV  #4,-(SP)
MOV  SP,R0
TRAP C$PNTB
ADD  #12,SP

```

L10005: TRAP C\$MSG

ERR402::

```

MOV  CHAN,-(SP)
MOV  #EMG402,-(SP)
MOV  #2,-(SP)
MOV  SP,R0
TRAP C$PNTB
ADD  #6,SP

```

L10006: TRAP C\$MSG

ERR501::

```

MOV  ITRCNT,-(SP)
MOV  BAD,-(SP)
MOV  GOOD,-(SP)
MOV  CHAN,-(SP)
MOV  #EMG501,-(SP)
MOV  #5,-(SP)
MOV  SP,R0
TRAP C$PNTB
ADD  #14,SP

```

L10007: TRAP C\$MSG

ERR231::

```

MOV  #DMAHAD,-(SP)
MOV  #1,-(SP)
MOV  SP,R0
TRAP C$PNTB
ADD  #4,SP

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 22-2
GLOBAL ERROR REPORT SECTION

```

1512 003770 006337 002422      ASL      RXADRH
1513 003774 005737 002430      TST      TXADRL
1514 004000 002005                BGE      1$
1515 004002 042737 100000 002430      BIC      #100000,TXADRL
1516 004010 005237 002426                INC      TXADRH
1517 004014 005737 002424                TST      RXADRL
1518 004020 002005                BGE      2$
1519 004022 042737 100000 002424      BIC      #100000,RXADRL
1520 004030 005237 002422                INC      RXADRH
1521 004034                2$: PRINTB #EMG231,GOOD,TXADRH,TXADRL,BAD,RXADRH,RXADRL,CNT1
                                MOV      CNT1,-(SP)
                                MOV      RXADRL,-(SP)
                                MOV      RXADRH,-(SP)
                                MOV      BAD,-(SP)
                                MOV      TXADRL,-(SP)
                                MOV      TXADRH,-(SP)
                                MOV      GOOD,-(SP)
                                MOV      #EMG231,-(SP)
                                MOV      #1C,-(SP)
                                MOV      SP,R0
                                TRAP     C$PNTB
                                ADD      #22,SP
                                004034 013746 002404
                                004040 013746 002424
                                004044 013746 002422
                                004050 013746 002502
                                004054 013746 002430
                                004060 013746 002426
                                004064 013746 002500
                                004070 012746 004651
                                004074 012746 000010
                                004100 010600
                                004102 104414
                                004104 062706 000022
1522 004110                ENDMSG
                                004110
                                004110 104423
1523
1524 004112                EXIT      MSG
                                004112 000167
                                004114 177772
                                .WORD    J$JMP
                                .WORD    L10010-2-.
                                L10010: TRAP     C$MSG

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1530 004116      045      123      063      EMG101: .ASCIIZ /%S3%AREGISTER AT %06%A DOES NOT RESPOND%/
1531 004170      045      101      122      EMG201: .ASCIIZ /%AREGISTER: CSR ,CHA.:%01%A ,GOOD DATA:%06%A, BAD DATA:%06%A/
1532 004265      045      101      050      EMG203: .ASCIIZ /%(FOR IEU11-A IGNORE BIT 9-12).%/
1533 004330      045      101      122      EMG202: .ASCIIZ /%AREGISTER:%T%A ,CHA.:%01%A ,GOOD DATA:%06%A ,BAD DATA:%06%A/
1534 004425      045      101      103      EMG401: .ASCIIZ /%ACHAN.:%01%A ,CORRECT PRIORITY:%03%A ,WRONG PRIORITY:%03%A/
1535 004521      045      101      103      EMG402: .ASCIIZ /%ACHANNEL :%01%A IS SELECTED%/
1536 004560      045      101      103      EMG501: .ASCIIZ /%ACHAN.:%01%A ,GOOD :%06%A ,BAD :%06%A ,ITERATION :%03%A/
1537 004651      045      117      066      EMG231: .ASCIIZ /%06%S6%03%05%S6%06%S6%03%05%S6%06%A/
1538 004715      045      101      107      LMAHAD: .ASCIIZ /%AGOOD DATA TXADDR BAD DATA RXADDR BYTE CNT#%/
1539
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1543 005012      040      122      105      E101:: .ASCIIZ / REGISTER ADDRESSING ERROR - TRAP 4 /
1544 005057      040      122      105      E200:: .ASCIIZ / REGISTER INCORRECT AFTER BUS RESET /
1545 005124      040      122      105      E301:: .ASCIIZ / READ - WRITE BITS INCORRECT /
1546 005162      040      102      111      E302:: .ASCIIZ / BITS NOT CLEARED AFTER MASTER RESET /
1547 005230      040      115      125      E303:: .ASCIIZ / MUX BIT IN CSR NOT SETABLE /
1548 005265      040      103      123      E401:: .ASCIIZ / CSR CONTENTS INCORRECT /
1549 005316      040      116      117      E402:: .ASCIIZ / NO INTERRUPT WHEN EXPECTED /
1550 005353      040      111      116      E403:: .ASCIIZ / INCORRECT PRIORITY LEVEL /
1551 005406      040      102      111      E501:: .ASCIIZ / BITS IN IIR REGISTER INCORRECT /
1552 005447      040      102      111      E502:: .ASCIIZ / BITS IN ISR REGISTER INCORRECT /

```


GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 22-3
GLOBAL ERROR REPORT SECTION

1553	005510	040	104	101	E801::	.ASCIIZ	/ DATA TRANSFER FROM CHANNEL 1 TO 2 INCORRECT /
1554	005566	040	104	101	E802::	.ASCIIZ	/ DATA TRANSFER FROM CHANNEL 2 TO 1 INCORRECT /
1555	005644	040	111	103	E901::	.ASCIIZ	/ ICR CONTENTS INCORRECT /
1556	005675	040	104	111	E222::	.ASCIIZ	/ DIR CONTENTS INCORRECT /
1557	005726	040	122	130	E250::	.ASCIIZ	/ RX BUFFER CONTENTS INCORRECT AFTER DMA (2 TO 1) /
1558	006010	040	122	130	E231::	.ASCIIZ	/ RX BUFFER CONTENTS INCORRECT AFTER DMA (1 TO 2) /
1559	006072	040	116	117	E232::	.ASCIIZ	/ NO INTERRUPT AFTER DMA /
1560	006123	040	116	117	E233::	.ASCIIZ	/ NO INTERRUPT AFTER READ FROM A NXM ADDRESS /
1561	006200	040	102	101	E234::	.ASCIIZ	/ BAR CONTENTS INCORRECT /
1562	006231	040	102	103	E235::	.ASCIIZ	/ BCR CONTENTS INCORRECT /
1563							
1564						.EVEN	
1565						.LIST	BEX
1566							
1567							
1568							

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 23
LOCAL MACRO DEFINITIONS

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```
.SBTTL LOCAL MACRO DEFINITIONS

;+
;THIS SECTION CONTAINS ONLY MACROS WHICH ARE USED
;SEPARATE FROM THE MACRO LIBRARY (SVC34R)(LIBA.MLB)
;---

;*****
;PRIT MACRO - THIS MACRO CHECKS IF INTERRUPT OCCURES
;AND WHAT IS THE PRIORITY.
;*****
MACRO PRIT ARG,ENUM,ERRM,?A
    IST ARG ;INTERRUPT OCCURED?
    BNE A ;BRANCH IF YES
    DEC R1 ;CHECKSUM = 7
    SETPRI #PRI06 ;CHANGE PROCESSOR PRIORITY TO 6
    TST ARG ;INTERRUPT OCCURED?
    BNE A ;BRANCH IF YES
    DEC R1 ;CHECKSUM = 6
    SETPRI #PRI05 ;CHANGE PROCESSOR PRIORITY TO 5
    TST ARG ;INTERRUPT OCCURED?
    BNE A ;BRANCH IF YES
    DEC R1 ;CHECKSUM = 5
    SETPRI #PRI04 ;CHANGE PROCESSOR PRIORITY TO 4
    TST ARG ;INTERRUPT OCCURED?
    BNE A ;BRANCH IF YES
    DEC R1 ;CHECKSUM = 4
    SETPRI #PRI03 ;CHANGE PROCESSOR PRIORITY TO 3
    TST ARG ;INTERRUPT OCCURED?
    BNE A ;BRANCH IF YES
    ERRSOFT ENUM,E402,ERRM ;NO INTERRUPT ERROR
A: NOP
    .ENDM PRIT
.SBTTL GLOBAL SUBROUTINES SECTION
```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 24
GLOBAL SUBROUTINES SECTION

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:++
: THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
: THAT ARE USED IN MORE THAN ONE TEST.
:++
:*****
: SUBROUTINE REGTST - GENERAL PURPOSE REGISTER TEST.
:*****
:
: FUNCTIONAL DESCRIPTION:
:
:     CHECKS THAT ALL READ/WRITE BITS OF THE SELECTED REGISTER CAN BE
:     SET, CLEARED, AND INDIVIDUALLY SET (SLIDING ONES PATTERN).
:
: INPUTS:
:
:     IF ENTERED AT LOCATION REGTST, THE LOCATIONS FOLLOWING THE
:     SUBROUTINE CALL MUST CONTAIN THE READ/WRITE BIT MASK, THE
:     ADDRESS OF THE REGISTER TO BE TESTED, AND THE FIRST ERROR NUMBER
:     TO BE USED (SEE CALLING SEQUENCE).
:
:     IF ENTERED AT LOCATION REGTS1, THE READ/WRITE BIT MASK, REGISTER
:     ADDRESS TO BE TESTED, AND THE FIRST ERROR NUMBER MUST BE LOADED
:     INTO LOCATIONS MASK, REGADD, AND ERNBR RESPECTIVELY. THIS
:     ALLOWS THE ARGUMENTS TO BE VARIED AT RUN TIME.
:
: IMPLICIT INPUTS:      NONE.
:
: OUTPUTS:              ERROR MESSAGES IF ERRORS OCCUR.
:
: IMPLICIT OUTPUTS:
:
:     IF ENTERED AT LOCATION REGTST,
:
:     MASK   - CONTAINS THE READ/WRITE BIT MASK
:     REGADD - CONTAINS THE ADDRESS OF THE REGISTER BEING TESTED
:
:     ALWAYS,
:
:     MASLOM - CONTAINS THE COMPLEMENT OF THE MASK
:     GOOD   - CONTAINS LAST EXPECTED DATA
:     BAD    - CONTAINS LAST ACTUAL DATA
:     ERNBR  - CONTAINS THE INPUT ERROR NUMBER + 2
:     ERRTP  - CONTAINS 3 (SOFT ERROR)
:     ERRBK  - CONTAINS ADDRESS OF REGERR (REGISTER ERROR MESSAGE)
:     ERRMSG - CONTAINS 3RD REGISTER ERROR MESSAGE
:
: SUBORDINATE ROUTINES USED:  DRS ERROR MACRO
:
: FUNCTIONAL SIDE EFFECTS:   NONE.
:
: CALLING SEQUENCE:
:

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GLOBAL SUBROUTINES SECTION

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1662      :      EITHER FIXED PARAMETERS FOLLOW THE SUBROUTINE CALL :
1663      :
1664      :      EG.      CALL      REGTST
1665      :                  177              ; BIT MASK OF R/W BITS
1666      :                  CSR              ; REGISTER ADDRESS
1667      :                  200.             ; FIRST ERROR NUMBER
1668      :
1669      :      OR PARAMETERS ARE SET DYNAMICALLY :
1670      :
1671      :      EG.      MOV      #177,MASK    ; BIT MASK OF R/W BITS
1672      :                  MOV      CSR,REGADD ; REGISTER ADDRESS
1673      :                  MOV      #200.,ERRNBR ; FIRST ERROR NUMBER
1674      :                  CALL      REGTS1
1675      :
1676      :      *****
1677      :
1678 006262 REGTST::
1679 006262      MOV      @ (SP),MASK        ; GET R/W BIT MASK
1680 006270      ADD      #2,(SP)            ; JUMP OVER ARGUMENT
1681 006274      MOV      @ (SP),REGADD      ; GET REGISTER ADDRESS
1682 006302      ADD      #2,(SP)            ; JUMP OVER ARGUMENT
1683 006306      MOV      @ (SP),ERRNBR      ; GET FIRST ERROR NUMBER
1684 006314      ADD      #2,(SP)            ; JUMP OVER ARGUMENT
1685 006320 REGTS1::
1686 006320      MOV      MASK,MASCOM        ; SET UP COMPLEMENT
1687 006326      COM      MASCOM            ; OF R/W BIT MASK
1688 006332      MOV      #3,ERRTYP         ; SET UP FOR SOFT ERROR
1689 006340      MOV      #REGERR,ERRBLK    ; SET UP ERROR MESSAGE ROUTINE
1690 006346      MOV      #RERR1,ERRMSG     ; FIRST ERROR MESSAGE
1691      :
1692      :      CHECK THAT ALL R/W BITS CAN BE SET
1693      :
1694 006354      MOV      MASK,GOOD          ; SET UP EXPECTED DATA
1695 006362      BGNSEG
1696 006364      BIS      GOOD,@REGADD        ; SET ALL R/W BITS
1697 006372      MOV      @REGADD,BAD        ; READ THE RESULT
1698 006400      BIC      MASCOM,BAD         ; KEEP ONLY R/W BITS
1699 006406      CMP      BAD,GOOD           ; ALL R/W BITS SET?
1700 006414      BEQ      1$                ; IF YES, BRANCH
1701 006416      ERROR                     ; ELSE REPORT ERROR
1702 006420      1$:      ENDSEG
1703      :
1704      :      CHECK THAT ALL R/W BITS CAN BE CLEARED
1705      :
1706 006422      CLR      GOOD              ; SET UP EXPECTED DATA
1707 006426      INC      ERRNBR            ; NEXT ERROR NUMBER
1708 006432      MOV      #RERR2,ERRMSG    ; NEXT ERROR MESSAGE
1709      :
1710 006440      BGNSEG
1711 006442      BIC      MASK,@REGADD        ; CLEAR ALL R/W BITS
1712 006450      MOV      @REGADD,BAD        ; READ THE RESULT
1713 006456      BIC      MASCOM,BAD         ; KEEP ONLY R/W BITS

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GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 24-2
GLOBAL SUBROUTINES SECTION

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1714 006464 023737 002502 002500      CMP      BAD,GOOD      ; ALL R/W BITS CLEAR?
1715 006472 001401                      BEQ        2$              ; IF YES, BRANCH
1716 006474                      ERROR      ; ELSE REPORT ERROR
1717 006476 104460                      ; TRAP      C$ERROR
006476                      2$:      ENDSEG
006476 104405                      10001$: TRAP      C$ESEG
1718                      ; CHECK THAT EACH R/W BIT CAN BE SET
1719                      ;
1720                      ;
1721 006500 005237 002506                      INC      ERRNBR      ; NEXT ERROR NUMBER
1722 006504 012737 007010 002510          MOV      #RERR3,ERRMSG ; NEXT ERROR MESSAGE
1723 006512 012737 000001 002500          MOV      #1,GOOD    ; FIRST BIT TO TEST
1724 006520 033737 002500 002350          BIT      GOOD,MASK  ; R/W BIT?
1725 006526 001004                      BNE      5$              ; IF YES, TEST IT
1726 006530 006337 002500          4$:      ASL      GOOD      ; ELSE FIND NEXT R/W BIT
1727 006534 103425                      BCS      7$              ; IF ALL DONE, RETURN
1728 006536 000770                      BR       3$              ; ELSE CHECK IF NEXT IS R/W
1729
1730 006540                      5$:      BGNSEG
006540 104404                      ; TRAP      C$BSEG
1731 006542 042777 177767 173604          BIC      #177767,@REGADD ; CLEAR ALL BITS EXCEPT THE MUX BIT
1732 006550 053777 002500 173576          BIS      GOOD,@REGADD ; SET THE BIT
1733 006556 017737 173572 002502          MOV      @REGADD,BAD ; READ IT BACK
1734 006564 043737 002352 002502          BIC      MASCOM,BAD  ; KEEP ONLY R/W BITS
1735 006572 023737 002502 002500          CMP      BAD,GOOD  ; ALL OTHER BITS CLEAR?
1736 006600 001401                      BEQ        6$              ; IF YES, BRANCH
1737 006602                      ERROR      ; ELSE REPORT ERROR
006602 104460                      ; TRAP      C$ERROR
1738 006604                      6$:      ENDSEG
006604                      10002$: TRAP      C$ESEG
006604 104405
1739 006606 000750                      BR       4$              ; TEST NEXT BIT
1740
1741 006610 000207                      7$:      RETURN
1742
1743
1744
1745 006612                      BGNMSG  REGERR
006612
1746 006612                      PRINTB  #REGMSG,REGADD,CHAN,GOOD,BAD,MASK
006612 013746 002350                      MOV      MASK,-(SP)
006616 013746 002502                      MOV      BAD,-(SP)
006622 013746 002500                      MOV      GOOD,-(SP)
006626 013746 002374                      MOV      CHAN,-(SP)
006632 013746 002354                      MOV      REGADD,-(SP)
006636 012746 007077                      MOV      #REGMSG,-(SP)
006642 012746 000006                      MOV      #6,-(SP)
006646 010600                      MOV      SP,R0
006650 104414                      TRAP      C$PNTB
006652 062706 000016                      ADD      #16,SP
1747 006656                      ENDMSG
006656 104423                      L10011: TRAP      C$MSG
1748
1749                      .NLIST BEX
1750

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GLOBAL SUBROUTINES SECTION

1751 006660 122 105 107 RERR1: .ASCIZ %REGISTER READ/WRITE BITS COULD NOT BE SET%
1752 006732 122 105 107 RERR2: .ASCIZ %REGISTER READ/WRITE BITS COULD NOT BE CLEARED%
1753 007010 122 105 107 RERR3: .ASCIZ %REGISTER READ/WRITE BITS COULD NOT BE INDIVIDUALLY SET%
1754
1755 007077 045 101 101 REGMSG: .ASCIZ .%AADD: %06%A,CHAN %01%A,GOOD %06%A, BAD %06%A, R/W BITS %06%N.
1756
1757 .LIST BEX
1758 .EVEN

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GLOBAL SUBROUTINES SECTION

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*****
SUBROUTINE MEMINI - MEMORY SIZING AND MEMORY MANAGEMENT INIT ROUTINE.
*****
**
FUNCTIONAL DESCRIPTION:
    DETERMINES THE SIZE OF CONTIGUOUS USABLE MEMORY AND OUTPUTS IT
    TO THE CONSOLE. IF MEMORY MANAGEMENT IS AVAILABLE, THE KERNEL
    PAGE ADDRESS AND DESCRIPTOR REGISTERS ARE INITIALISED.

INPUTS:
    NONE.

IMPLICIT INPUTS:
    NONE.

OUTPUTS:
    PHHSIZ - HIGH WORD OF MEMORY SIZE
    PHLOW  - LOW WORD OF MEMORY SIZE
    MMFLG  - FLAG SET TO 1 IF MEMORY MANAGEMENT AVAILABLE
    MM22   - FLAG SET TO 1 IF 22 BIT MEMORY MANAGEMENT AVAILABLE

    MEMORY SIZE IN K WORDS IS PRINTED

IMPLICIT OUTPUTS:
    IF MEMORY MANAGEMENT IS AVAILABLE, THE KERNEL PAGE DESCRIPTOR
    AND PAGE ADDRESS REGISTERS ARE SET AS FOLLOWS :-

    KPDR0 TO KPDR7 ARE SET TO 77406

    KPAR0 IS SET TO 0
    KPAR1 IS SET TO 200
    KPAR2 IS SET TO 400
    KPAR3 IS SET TO 600
    KPAR4 IS SET TO 1000
    KPAR6 IS SET TO 1400

    KPAR5 POINTS TO THE HIGHEST ADDRESSABLE MEMORY BANK
    KPAR7 POINTS TO THE I/O PAGE

    IF 22 BIT MAPPING IS AVAILABLE, IT IS ENABLED VIA SR3. MEMORY
    MANAGEMENT IS LEFT DISABLED VIA SR0.

SUBORDINATE ROUTINES USED:
    NXM    - NON EXISTANT MEMORY TRAP SERVICE ROUTINE
    VPCON  - VIRTUAL TO PHYSICAL ADDRESS CONVERSION ROUTINE

FUNCTIONAL SIDE EFFECTS:
    NONE
*****
```

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GLOBAL SUBROUTINES SECTION

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1817      ; CALLING SEQUENCE:
1818      :
1819      :       CALL    MEMINI
1820      :
1821      :--
1822
1823      ; K111 STATUS REGISTER ADDRESSES
1824
1825      SR0=    177572
1826      SR1=    177574
1827      SR2=    177576
1828      SR3=    172516
1829
1830      ; KERNEL PAGE DESCRIPTOR REGISTERS
1831
1832      KPDR0=   172300
1833      KPDR1=   172302
1834      KPDR2=   172304
1835      KPDR3=   172306
1836      KPDR4=   172310
1837      KPDR5=   172312
1838      KPDR6=   172314
1839      KPDR7=   172316
1840
1841      ; KERNEL PAGE ADDRESS REGISTERS
1842
1843      KPAR0=   172340
1844      KPAR1=   172342
1845      KPAR2=   172344
1846      KPAR3=   172346
1847      KPAR4=   172350
1848      KPAR5=   172352
1849      KPAR6=   172354
1850      KPAR7=   172356
1851
1852      MEMINI::
1853      007176 010046      MOV     R0,-(SP)      ; SAVE REGISTERS USED IN
1854      007200 010146      MOV     R1,-(SP)      ; THIS ROUTINE
1855      007202 010246      MOV     R2,-(SP)
1856      007204      SETVEC  #4,#NXM,#340        ; SET UP NON-EXISTENT MEMORY TRAP VEC.
1857      007204 012746 000340      MOV     #340,-(SP)
1858      007210 012746 010132      MOV     #NXM,-(SP)
1859      007214 012746 000004      MOV     #4,-(SP)
1860      007220 012746 000003      MOV     #3,-(SP)
1861      007224 104437      TRAP    C$SVEC
1862      007226 062706 000010      ADD     #10,SP
1863      007232 005037 002326      CLR     NXMFLG      ; CLEAR NXM FLAG
1864      007236 005037 002344      CLR     PHLS1Z      ; START WITH 1ST 2K BANK OF MEMORY
1865      007242 005037 002342      CLR     PHHS1Z
1866
1867      ; SIZE MEMORY UP TO 32K
1868      :
1869      :
1870      10$: TST     @PHLS1Z      ; CHECK THIS BANK EXISTS
1871      TST     NXMFLG          ; WAS THERE AN NXM TRAP?
1872      BNE     140$           ; IF YES, PRINT THE MEMORY SIZE
1873      ADD     #10000,PHLS1Z   ; ELSE GET NEXT 2K BANK
1874      CMP     PHLS1Z,#160000 ; HAVE WE REACHED THE I/O PAGE?

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 25-2
GLOBAL SUBROUTINES SECTION

```

1868 007274 001364          BNE      10$          ; IF NOT, TRY NEXT 2K BANK
1869
1870          ; 28K OR MORE - CHECK IF MEMORY MANAGEMENT UNIT PRESENT.
1871
1872 007276 005037 002332    CLR      MMFLG          ; ASSUME NO MEMORY MANAGEMENT
1873 007302 005737 177572    TST      SRO          ; ADDRESS MMU STATUS REGISTER 0
1874 007306 005737 002326    TST      NXMFLG        ; WAS THERE AN NXM TRAP?
1875 007312 001131          BNE      140$        ; IF YES, PRINT THE MEMORY SIZE
1876
1877          ; MEMORY MANAGEMENT AVAILABLE - SET UP MMU REGISTERS
1878
1879 007314 012737 000001 002332  MOV     #1,MMFLG          ; FLAG MEMORY MANAGEMENT AVAILABLE
1880 007322 012700 172340      MOV     #KPAR0,R0        ; LOAD FIRST KPAR ADDRESS
1881 007326 005001          CLR      R1          ; SET UP CONTENTS OF FIRST KPAR
1882 007330 012702 000006      MOV     #6,R2          ; SET UP FIRST 6 KPAR'S
1883 007334 010120 50$:      MOV     R1,(R0)+        ; LOAD KPAR VALUE
1884 007336 062701 000200      ADD     #200,R1        ; NEXT KPAR VALUE
1885 007342 005302          DEC     R2          ; ALL KPAR'S LOADED?
1886 007344 001373          BNE     50$          ; IF NOT, LOAD NEXT
1887 007346 012737 177600 172356  MOV     #177600,KPAR7 ; ELSE LOAD KPAR7 WITH I/O PAGE ADDRESS
1888
1889 007354 012700 172300      MOV     #KPDRO,R0        ; LOAD FIRST PDR ADDRESS
1890 007360 012701 000010      MOV     #10,R1         ; SET UP 8 PDR'S
1891 007364 012720 077406 60$:  MOV     #77406,(R0)+    ; LOAD ALL PDR'S WITH 77406
1892 007370 005301          DEC     R1          ; ALL LOADED?
1893 007372 001374          BNE     60$          ; IF NOT, LOAD NEXT
1894
1895          ; USE THE MEMORY MANAGEMENT UNIT TO SIZE THE MEMORY UP TO 128K
1896
1897 007374 005037 172352      CLR      KPAR5          ; POINT KPAR5 TO FIRST PAGE
1898 007400 012737 000001 177572  MOV     #1,SRO        ; ENABLE MEMORY MANAGEMENT
1899 007406 005737 120000 70$:  TST      120000        ; ADDRESS PAGE POINTED TO BY KPAR5
1900 007412 005737 002326      TST      NXMFLG        ; WAS THERE AN NXM TRAP?
1901 007416 001053          BNE     130$          ; IF YES, PRINT THE MEMORY SIZE
1902 007420 062737 000200 172352  ADD     #200,KPAR5    ; ELSE POINT KPAR5 TO NEXT PAGE
1903 007426 023727 172352 007600  CMP     KPAR5,#760    ; ARE WE IN THE I/O PAGE?
1904 007434 001364          BNE     70$          ; IF NOT, TEST NEXT PAGE
1905
1906          ; 128 K OR MORE - CHECK IF 22 BIT MMU PRESENT
1907
1908 007436 005037 002330 90$:  CLR      MM22          ; ASSUME NO 22 BIT MAPPING
1909 007442 005000          CLR      R0          ; COMPARE DATA AT ADDRESS 0
1910 007444 012737 010000 172352  MOV     #10000,KPAR5    ; WITH DATA AT 128 K
1911 007452 012701 120000      MOV     #120000,R1        ; USING KPAR5
1912 007456 012702 000010      MOV     #10,R2         ; WILL CHECK 8 WORDS
1913 007462 012737 000020 172516  MOV     #20,SR3        ; ENABLE 22 BIT MAPPING
1914
1915 007470 022021 100$:      CMP     (R0)+,(R1)+        ; DATA IDENTICAL?
1916 007472 001006          BNE     110$          ; IF NOT, WE HAVE 22 BIT MMU
1917 007474 005302          DEC     R2          ; ELSE CHECKED 8 WORDS?
1918 007476 001374          BNE     100$          ; IF NOT, CHECK NEXT
1919 007500 012737 007600 172352  MOV     #7600,KPAR5    ; ELSE CAN ONLY USE 124 K
1920 007506 000417          BR      130$          ; PRINT OUT MEMORY SIZE
1921
1922          ; 22 BIT MEMORY MANAGEMENT AVAILABLE - USE TO SIZE MEMORY UP TO 4 MBYTES
1923
1924 007510 012737 000001 002330 110$:  MOV     #1,MM22          ; FLAG 22 BIT MMU AVAILABLE

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GLOBAL SUBROUTINES SECTION

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1925 007516 005737 120000      120$: TST      120000      : ADDRESS PAGE POINTED TO BY KPAR5
1926 007522 005737 002326      TST      NXMFLG      : WAS THERE AN NXM TRAP?
1927 007526 001007      BNE      130$      : IF YES, SAVE THE MEMORY SIZE
1928 007530 062737 000200 172352  ADD      #200,KPAR5 : ELSE POINT TO NEXT PAGE
1929 007536 023727 172352 177600  CMP      KPAR5,#177600 : REACHED THE I/O PAGE?
1930 007544 001364      BNE      120$      : IF NOT, TEST THE NEXT PAGE
1931
1932      : CONVERT VIRTUAL SIZE TO PHYSICAL SIZE
1933
1934 007546 005037 177572      130$: CLR      SRO      : DISABLE MEMORY MANAGEMENT
1935 007552 005037 002340      CLR      VIADD      : CONVERT KPAR5 TO PHYSICAL
1936 007556 004737 010024      JSR      PC,VPCON      : MEMORY SIZE
1937 007562 013737 002334 002342  MOV      PHHIGH,PHHSIZ : SAVE MEMORY SIZE
1938 007570 013737 002336 002344  MOV      PHLOW,PHLSIZ :
1939
1940      : PRINT OUT MEMORY SIZE AND RETURN FROM THE SUBROUTINE
1941
1942 007576 013701 002342      140$: MOV      PHHSIZ,R1      : GET SIZE HIGH WORD
1943 007602 013700 002344      MOV      PHLSIZ,R0      : AND LOW WORD
1944      000005      .REPT      5      : SHIFT HIGH AND LOW
1945      ASL      R0      : WORDS TO GET THE
1946      ROL      R1      : NUMBER OF K WORDS
1947      .ENDR
1948      PRINTF #MSIZE,R1      : PRINT THE SIZE
1949
1949 007632      MOV      R1,-(SP)
1949 007632 010146      MOV      #MSIZE,-(SP)
1949 007634 012746 007672      MOV      #2,-(SP)
1949 007640 012746 000002      MOV      SP,R0
1949 007644 010600      TRAP      C$PNTF
1949 007646 104417      ADD      #6,SP
1949 007650 062706 000006      CLRVEC #4      : RESET THE NXM VECTOR
1949 007654      MOV      #4,R0
1949 007654 012700 000004      TRAP      C$CVEC
1949 007660 104436
1950 007662 012602      MOV      (SP)+,R2      : RESTORE THE REGISTERS
1951 007664 012601      MOV      (SP)+,R1      : USED BY THE ROUTINE
1952 007666 012600      MOV      (SP)+,R0
1953 007670 000207      RETURN
1954
1955
1956      .NLIST BEX
1957 007672      045      101      115 MSIZE: .ASCIZ /%MEMORY SIZE = %D4%A K%N/
1958      .LIST BEX
1959      .EVEN

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GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 26
GLOBAL SUBROUTINES SECTION

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2009 007736 042737 177700 002340
2010 007744 052737 120000 002340
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2014 007752 013700 002336
2015 007756 013701 002334
2016 000006
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*****
SUBROUTINE PVCON - PHYSICAL TO VIRTUAL ADDRESS CONVERSION ROUTINE
*****
**
FUNCTIONAL DESCRIPTION:
    CONVERTS A PHYSICAL ADDRESS OF UP TO 22 BITS INTO A VIRTUAL
    ADDRESS USING KPAR 5.
INPUTS:
    PHHIGH - HIGH WORD OF PHYSICAL ADDRESS
    PHLOW  - LOW WORD OF PHYSICAL ADDRESS
IMPLICIT INPUTS:
    NONE.
OUTPUTS:
    VIADD  - VIRTUAL ADDRESS USING KPAR5
    KPAR5  - POINTS TO PHYSICAL PAGE
IMPLICIT OUTPUTS:
    NONE.
SUBORDINATE ROUTINES USED:
    NONE.
FUNCTIONAL SIDE EFFECTS:
    NONE.
CALLING SEQUENCE:
    CALL    PVCON
--
PVCON::
    MOV     R0,-(SP)          ; SAVE REGISTERS USED IN
    MOV     R1,-(SP)          ; THIS ROUTINE
    ;
    ; PUT ADDRESS BITS 0 TO 6 INTO THE VIRTUAL ADDRESS
    MOV     PHLOW,VIADD        ; LOAD LOWEST 15 BITS OF PHYSICAL ADDR.
    BIC     #177700,VIADD      ; CLEAR PAGE AND BLOCK INFORMATION
    BIS     #120000,VIADD      ; SET THE PAGE REGISTER TO KPAR5
    ;
    ; PUT ADDRESS BITS 6 TO 21 INTO KPAR5
    MOV     PHLOW,R0           ; INITIALISE OUR SHIFT REGISTER
    MOV     PHHIGH,R1          ; HIGH WORD WILL BE SHIFTED IN
    .REPT   6
    ASR     R1                 ; SHIFT HIGH WORD
    ;

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GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 26-1
GLOBAL SUBROUTINES SECTION

2018			ROR	RO	; INTO LOW WORD
2019			.ENDR		
2020	010012	010037	MOV	RO,KPAR5	; SAVE AS KPAR5
2021	010016	012601	MOV	(SP)+,R1	; RESTORE THE REGISTERS
2022	010020	012600	MOV	(SP)+,RO	; USED BY THIS ROUTINE
2023	010022	000207	RETURN		;

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 27
GLOBAL SUBROUTINES SECTION

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*****
SUBROUTINE VPCON - VIRTUAL TO PHYSICAL ADDRESS CONVERSION ROUTINE
*****
**
FUNCTIONAL DESCRIPTION:
    CONVERTS A VIRTUAL ADDRESS TOGETHER WITH KPAR 5 INTO A PHYSICAL
    ADDRESS OF UP TO 22 BITS.

INPUTS:
    VIADD - VIRTUAL ADDRESS (BITS 13 TO 15 ARE IGNORED)
    KPAR5 - PAGE ADDRESS REGISTER 5

IMPLICIT INPUTS:
    NONE.

OUTPUTS:
    PHHIGH - PHYSICAL ADDRESS HIGH WORD
    PHLOW - PHYSICAL ADDRESS LOW WORD

IMPLICIT OUTPUTS:
    NONE.

SUBORDINATE ROUTINES USED:
    NONE.

FUNCTIONAL SIDE EFFECTS:
    NONE.

CALLING SEQUENCE:
    CALL VPCON

--
```

```
VPCON::
MOV    R0, -(SP)           ; SAVE R0
MOV    VIADD, PHLOW        ; SET UP LOW WORD
BIC    #160000, PHLOW      ; DISCARD PAGE INFORMATION
MOV    KPAR5, R0           ; PAGE WILL GO IN HIGH WORD
CLR    PHHIGH             ; INITIALISE HIGH WORD
.REPT  6
    ASL    R0              ; SHIFT PAGE NUMBER
    ROL    PHHIGH         ; INTO HIGH WORD
.ENDR
ADD    R0, PHLOW           ; ADD BLOCK NO. TO LOW WORD
ADC    PHHIGH             ; CARRY ACROSS TO HIGH WORD
MOV    (SP)+, R0          ; RESTORE R0
RETURN
```

```
010024
010024 010046
010026 013737 002340 002336
010034 042737 160000 002336
010042 013700 172352
010046 005037 002334
000006
060037 002336
010122 005537 002334
010126 012600
010130 000207
```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 28
GLOBAL SUBROUTINES SECTION

```

2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115

```

```

:*****:
:  INTERRUPT SERVICE ROUTINES  :
:*****:
.SBTTL  GLOBAL INTERRUPT HANDLING ROUTINES

:++
:THE INTERRUPT HANDLING SECTION CONTAINS CODING REQUIRED TO USE
:THE 'SETVEC' MACRO. NOTE EVERY INTERRUPT ROUTINE SHOULD SAVE
:AND RESTOR RO.
:---

:*****
:      NXM - INTERRUPT SERVICE ROUTINE
:
:FUNCTION:      THIS ROUTINE IS ASSIGNED TO VECTOR 4
:                WHEN ADDRESSING THE IEX FOR THE FIRST TIME.
:                IF THIS INTERRUPT IS GENERATED THE IEX
:                IS INCORRECTLY ADDRESSED.
:                THIS ROUTINE IS ALSO USED IN MEMORY MANAGEMENT
:                SUBROUTINE
:
:ENTRY CONDITON:
:
:EXIT CONDITON: WHEN THIS INTERRUPT IS SERVICED THE
:                NXMFLG IS SET.
:
:USED IN TESTS: AUTO DROP,23,24,
:*****

      BGNSRV  NXM
      MOV     #1,NXMFLG      ;SET FLAG IF MEMORY IS NON-EXISTENT.
      ENDSRV
                                L10012:
                                RTI

```

```

010132
010132
010132 012737 000001 002326
010140
010140
010140 000002

```


GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 32
GLOBAL INTERRUPT HANDLING ROUTINES

```

2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184 010220
      010220 104404
2185 010222
      010222 104433
2186 010224 112777 000000 172036
2187 010232 012777 000010 172040
2188 010240 112777 000000 172022
2189 010246 112777 000000 172000
2190 010254 005077 172020
2191 010260 052777 000002 172012
2192 010266 112777 000217 171774
2193 010274 012701 000100
2194 010300 005301
2195 010302 001376
2196 010304 112777 000017 171756
2197 010312 112777 000040 171756
2198 010320 004737 011060
2199 010324 112777 000077 171744
2200 010332 004737 011060
2201 010336 112777 000200 171724
2202 010344 112777 000000 171716
2203 010352 112777 000002 171674
2204 010360 012777 000010 171712
2205 010366 052777 000002 171704
2206 010374 112777 000217 171666
2207 010402 012701 000100
2208 010406 005301
2209 010410 001376
2210 010412 112777 000017 171650
2211 010420 112777 000042 171650
2212 010426 004737 011060
2213 010432 112777 000077 171636
2214 010440 004737 011060
2215 010444 112777 000200 171616
2216 010452 112777 000000 171610
2217 010460 112777 000000 171572
2218 010466 112777 000000 171566
2219 010474 005077 171600
2220 010500 112777 000000 171552
2221 010506 112777 000000 171546
2222 010514 112777 000200 171546
2223 010522 112777 000000 171540
2224 010530
      010530
      010530 104405
2225 010532 000207

*****
SUBROUTINE CULPA
=====
FUNCTION: THIS SUBROUTINE CLEARS THE ULPA BIT IN ISR REGISTER
          AND THE MASK BITS IN IIR REGISTER FOR BOTH CHANNELS .
CALLING FORMAT: JSR PC,CULPA
CALLED BY TEST: ALL TESTS EXCEPT TEST 1,2,3,14,23,24,25,26,27
*****
CULPA:: BGNSEG

                                TRAP CSBSEG
                                TRAP CSRESET
                                TRAP CSESEG

BRESET                          :RESET HARDWARE
                                :LOAD NOT SWRST INTO ACR 1
                                :SELECT CHANNEL 2
                                :LOAD NOT SWRST INTO ACR 2
                                :LOAD EVEN DPA INTO ADR 2
                                :SELECT CHANNEL 1
                                :SELECT CHA. 1 AS SYSTEM CONTROLLER
                                :LOAD SIC INTO ACR1
                                :WAIT 100 US
                                :...
                                :LOAD NOT SIC INTO ACR1
                                :LOAD EVEN MLA 2 INTO DOR 1
                                :WAIT A LITTLE
                                :LOAD UNL INTO DOR 1
                                :WAIT A LITTLE
                                :SET SYSTEM CONTROLLER 1 IN IDLE STATE
                                :...
                                :LOAD EVEN DPA INTO ADR 1
                                :SELECT CHANNEL 2
                                :SELECT CHANNEL 2 AS SYS. CONTROLLER
                                :LOAD SIC INTO ACR2
                                :WAIT 100 US
                                :...
                                :LOAD NOT SIC INTO ACR2
                                :LOAD EVEN MLA INTO DOR 2
                                :WAIT A LITTLE
                                :LOAD UNL INTO DOR 2
                                :WAIT A LITTLE
                                :SET SYSTEM CONTROLLER 2 IN IDLE STATE
                                :...
                                :CLEAR LOW BYTE OF ISR2
                                :CLEAR HIGH BYTE OF ISR2
                                :SELECT CHANNEL 1
                                :CLEAR LOW BYTE OF ISR1
                                :CLEAR HIGH BYTE OF ISR1
                                :SET SYSTEM CONTROLLER 1 IN IDLE STATE
                                :...

2$: DEC R1
    BNE 2$
    MOVB #17,@ICRHX
    MOVB #40,@IDRHX
    JSR PC,LOOP
    MOVB #77,@IDRHX
    JSR PC,LOOP
    MOVB #200,@ICRHX
    MOVB #0,@ICRHX
    MOVB #2,@IIRHX
    MOV #10,@CSRX
    BIS #2,@CSRX
    MOVB #217,@ICRHX
    MOV #100,R1
    DEC R1
    BNE 3$
    MOVB #17,@ICRHX
    MOVB #42,@IDRHX
    JSR PC,LOOP
    MOVB #77,@IDRHX
    JSR PC,LOOP
    MOVB #200,@ICRHX
    MOVB #0,@ICRHX
    MOVB #0,@ISR1X
    MOVB #0,@ISRHX
    CLR @CSRX
    MOVB #0,@ISR1X
    MOVB #0,@ISRHX
    MOVB #200,@ICRHX
    MOVB #0,@ICRHX
    ENDSEG

3$: DEC R1
    BNE 3$
    MOVB #17,@ICRHX
    MOVB #42,@IDRHX
    JSR PC,LOOP
    MOVB #77,@IDRHX
    JSR PC,LOOP
    MOVB #200,@ICRHX
    MOVB #0,@ICRHX
    MOVB #0,@ISR1X
    MOVB #0,@ISRHX
    CLR @CSRX
    MOVB #0,@ISR1X
    MOVB #0,@ISRHX
    MOVB #200,@ICRHX
    MOVB #0,@ICRHX
    ENDSEG

10000$: TRAP CSESEG

RETURN

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 32-1
GLOBAL INTERRUPT HANDLING ROUTINES

2226

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 33
GLOBAL INTERRUPT HANDLING ROUTINES

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```

2228
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2240
2241 010534
      010534 104404
2242 010536
      010536 104433
2243 010540 113777 002312 171506
2244 010546 012777 000010 171524
2245 010554 113777 002314 171472
2246 010562 005077 171512
2247 010566 112777 000000 171474
2248 010574 112777 000000 171456
2249 010602 112777 000000 171452
2250 010610 112777 000010 171462
2251 010616 112777 000000 171444
2252 010624 112777 000000 171426
2253 010632 112777 000000 171422
2254 010640 005077 171434
2255 010644 012737 000001 002374
2256 010652 052777 000002 171420
2257 010660 112777 000217 171402
2258 010666 012701 000100
2259 010672 005301
2260 010674 001376
2261 010676 112777 000017 171364
2262 010704
      010704
      010704 104405
2263 010706 000207

*****
SUBROUTINE BGIN1
=====
FUNCTION: THIS SUBROUTINE LOADS THE DPA ADDRESS AND THE
          SOFTWARE RESET INTO BOTH CHANNELS,
          IT ALSO SELECTS CHANNEL 1 AS SYSTEM CONTROLLER
          AND CLEARS MASK0+MASK1 REGISTER .

CALLING FORMAT: JSR PC,BGIN1

CALLED BY TEST: 5,7,8,11,12,13,14,15,16,17,19,21,22,23,26
*****
BGIN1:: BGNSEG
          TRAP CSBSEG
          BRESET
          TRAP CSRESET
          MOV DPA1,@IIRHX ;LOAD DEVICE PRIM. ADDR.1
          MOV #10,@CSRX ;SELECT CHANNEL 2
          MOV DPA2,@IIRHX ;LOAD DEVICE PRIM. ADDR. 2
          CLR @CSRX ;SELECT CHANNEL 1
          MOVB #0,@ICRHX ;LOAD NOT SWRST IN ACR 1
          MOVB #0,@ISRLX ;CLEAR LOW BYTE OF ISR1
          MOVB #0,@ISRHX ;CLEAR HIGH BYTE OF ISR1
          MOVB #10,@CSRX ;SELECT CHANNEL 2
          MOVB #0,@ICRHX ;LOAD NOT SWRST IN ACR 2
          MOVB #0,@ISRLX ;CLEAR LOW BYTE OF ISR2
          MOVB #0,@ISRHX ;CLEAR HIGH BYTE OF ISR2
          CLR @CSRX ;SELECT CHANNEL 1
          MOV #1,CHAN ;LOAD CHANNEL NUMBER
          BIS #2,@CSRX ;SELECT CHANNEL 1 AS SYSTEM CONTROLLER
          MOVB #217,@ICRHX ;LOAD SIC IN ACR 1
          MOV #100,R1 ;WAIT 100 US
          DEC R1
          BNE 1$
          MOVB #17,@ICRHX ;LOAD NOT SIC IN ACR1
          ENDSEG
          10001$:
          TRAP CSESEG
          RETURN

```

GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 34
GLOBAL INTERRUPT HANDLING ROUTINES

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```

2265
2266
2267
2268
2269
2270
2271
2272
2273
2274
2275
2276
2277
2278 010710
      010710 104404
2279 010712
      010712 104433
2280 010714 113777 002312 171332
2281 010722 012777 000010 171350
2282 010730 113777 002314 171316
2283 010736 005077 171336
2284 010742 112777 000000 171320
2285 010750 112777 000000 171302
2286 010756 112777 000000 171276
2287 010764 012777 000010 171306
2288 010772 012737 000002 002374
2289 011000 112777 000000 171262
2290 011006 112777 000000 171244
2291 011014 112777 000000 171240
2292 011022 052777 000002 171250
2293 011030 112777 000217 171232
2294 011036 012701 000100
2295 011042 005301
2296 011044 001376
2297 011046 112777 000017 171214
2298 011054
      011054
      011054 104405
2299 011056 000207

*****
SUBROUTINE BGIN2
=====
FUNCTION: THIS SUBROUTINE LOADS THE DPA ADDRESSES AND THE
          SOFTWARE RESET INTO BOTH CHANNELS.
          IT ALSO SELECTS CHANNEL 2 AS SYSTEM CONTROLLER
          AND CLEARS MASK0+MASK1 REGISTER.
          CALLING FORMAT: JSR PC,BGIN2
          CALLED BY TEST: 5,6,8,9,10,13,14,15,16,17,18,20,22,24,25
*****
BGIN2:: BGNSEG
          BRESET
          ;RESET HARDWARE
          TRAP CSBSEG
          TRAP CSRESET
          ;LOAD DEVICE PRIM. ADDR. 1
          ;SELECT CHANNEL 2
          ;LOAD DEVICE PRIM. ADDR. 2
          ;SELECT CHANNEL 1
          ;LOAD NOT SWRST IN ACR 1
          ;CLEAR LOW BYTE OF ISR1
          ;CLEAR HIGH BYTE OF ISR1
          ;SELECT CHANNEL 2
          ;LOAD CHANNEL FLAG
          ;LOAD NOT SWRST IN ACR 2
          ;CLEAR LOW BYTE OF ISR2
          ;CLEAR HIGH BYTE OF ISR2
          ;SELECT CHANNEL 2 AS SYSTEM CONTROLLER
          ;LOAD SIC IN ACR 2
          ;WAIT 100 US
          ....
          ;LOAD NOT SIC IN ACR2
          10002$:
          TRAP CSESEG
          RETURN

```


GLOBAL AREAS MACRO M1113 06-SEP-82 16:46 PAGE 35
GLOBAL INTERRUPT HANDLING ROUTINES

```

2301
2302
2303 .....
2304 SUBROUTINE LOOP
2305 =====
2306 FUNCTION : ROUTINE FOR WAIT (AT LEAST) 1 US.
2307
2308 CALLING FORMAT: JSR PC,LOOP
2309
2310 CALLED BY TEST: ALL TESTS EXCEPT 1,2,3,4,5
2311 .....
2312 011060 012701 000001
2313 011064 005301
2314 011066 001376
2315 011070 000207
2316
2317
2318
2319
2320 .....
2321 SUBROUTINE WAIT
2322 =====
2323 FUNCTION: ROUTINE FOR WAIT (AT LEAST) 100 US.
2324
2325 CALLING FORMAT: JSR PC,WAIT
2326
2327 CALLED BY TEST: 4,6,8,13,17
2328 .....
2329 011072 012701 000100
2330 011076 005301
2331 011100 001376
2332 011102 000207
2333
2334 011104
2335

```

LOOP: MOV #1,R1 ;LOAD LOOP COUNTER
 1\$: DEC R1 ;DECREMENT LOOP COUNTER
 BNE 1\$;LOOP UNTIL DONE
 RETURN

WAIT:: MOV #100,R1
 1\$: DEC R1 ;DECREMENT COUNTER
 BNE 1\$;WAIT UNTIL DONE
 RETURN
 ENDMOD

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 36
 GLOBAL INTERRUPT HANDLING ROUTINES

M
 TI

```

2348      .TITLE MISCELLANEOUS SECTIONS
2349      .SBTTL  REPORT CODING SECTION
2377
2378 011104      BGNMOD
2379
2380      ;**
2381      ; THE REPORT CODING SECTION CONTAINS THE
2382      ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
2383      ;--
2384
2385 011104      BGNRPT
2386      011104
2398
2399 011104      EXIT    RPT
2399 011104      000167
2399 011106      000000
2400
2412
2413      .EVEN
2414
2415 011110      ENDRPT
2415 011110
2415 011110      104425
  
```

LSRPT::

.WORD JSJMP
 .WORD L10016-2-

L10016: TRAP CSRPT

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 37
PROTECTION TABLE

2417
2418
2419
2420
2421
2422
2423
2424
2425
2426
2427
2428
2429
2430
2431

.SBTTL PROTECTION TABLE

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

BGNPROT

.SPROT::

.WORD 0
.WORD -1
.WORD -1

:CHECK CSR ADDRESS
:DON'T CHECK MASSBUS UNIT NUMBER
:DON'T CHECK DRIVE NUMBER

ENDPROT

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 38
INITIALIZE SECTION

```

2446      .SBTTL  INITIALIZE SECTION
2447
2448      : **
2449      : THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
2450      : AT THE BEGINNING OF EACH PASS.
2451      : --
2452
2453      011120      BGNINIT
2454      011120
2455
2456      .SINIT::
2457
2479      011120      RFLAGS  RO      ;GET THE OPERATOR FLAGS
2480      011120      104421      TRAP  C$RFLA
2481      011122      032700      001000      BIT  #1000,RO      ;IS PNT FLAG SET?
2482      011126      001404      BEQ  2$      ;BRANCH IF NO
2483      011130      012737      000001      002324      MOV  #1,PNTF      ;SET FLAG FOR TEST HEADER PRINTOUT
2484      011136      000402      BR  3$      ;
2485      011140      005037      002324      2$: CLR  PNTF      ;CLEAR FLAG FOR DISABLE TEST HEADER PRINTOUT
2486      011144      012700      000040      3$: REDEF  #EF.START      ;IS THIS JUST STARTED ?
2487      011150      104447      MOV  #EF.START,RO
2488      011152      BCOMPLETE STARST      ;IF YES - BRANCH.
2489      011152      103424      TRAP  C$REFG
2490      011154      REDEF  #EF.RESTART      ;IS THIS A RESTART ?
2491      011154      012700      000037      BCS  STARST
2492      011160      104447      MOV  #EF.RESTART,RO
2493      011162      BCOMPLETE NEWST      ;IF YES - BRANCH
2494      011162      103425      TRAP  C$REFG
2495      011164      REDEF  #EF.NEW      ;IS THIS A NEW PASS ?
2496      011164      012700      000035      BCS  NEWST
2497      011170      104447      MOV  #EF.NEW,RO
2498      011172      BCOMPLETE NEWST      ;IF YES - FIRST UNIT AGAIN
2499      011172      103421      TRAP  C$REFG
2500      011174      REDEF  #EF.CONTINUE      ;IS THIS A CONTINUE ?
2501      011174      012700      000036      BCS  NEWST
2502      011200      104447      MOV  #EF.CONTINUE,RO
2503      011202      BCOMPLETE EXINI      ;IF YES - DON'T INITIALIZE
2504      011202      103406      TRAP  C$REFG
2505      011204      REDEF  #EF.PWR      ;IS THIS A POWER FAIL
2506      011204      012700      000034      BCS  EXINI
2507      011210      104447      MOV  #EF.PWR,RO
2508      011212      BCOMPLETE GETPRM      ;IF NOT-MUST BE A NEW UNIT
2509      011212      103014      TRAP  C$REFG
2510      011214      004737      007176      BCC  GETPRM
2511      011220      EXINI: JSR  PC,MEMINI      ;IF YES-MUST BE A POWER FAIL,RELOAD MMU
2512      011220      104432      EXIT  INIT      ;
2513      011222      001004      TRAP  C$EXIT
2514      011224      STARST: SETPRI  #PRI07      ;SET DIAGNOSTIC TO PRIORITY 7
2515      011224      012700      000340      .WORD  L10020-.
2516      011230      104441      MOV  #PRI07,RO
2517      011232      004737      007176      TRAP  C$SPRI
2518      011236      012737      177777      002372      NEWST: JSR  PC,MEMINI      ;INITIATE MEMORY MANAGEMENT
2519      011244      005237      002372      GETPRM: MOV  #-1,LOGDEV      ;INITIALIZE LOGICAL UNIT NUMBER.
2520      011250      023737      002372      002012      INC  LOGDEV      ;NEXT LOGICAL UNIT TO BE TESTED ?
2521      011256      002367      BGE  LOGDEV,LSUNIT      ;IS THE MAXIMUM UNIT # EXCEEDED ?
2522      011260      000240      : BGE  NEWST      ;IF YES - A NEW START
2523      : SETVEC  #14,#34716,#340      ;***JUST FOR DEBUG PROGRAM;*****
2524      : NOP      ;SPACE FOR DEBUG PROGRAM

```

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 38-1
INITIALIZE SECTION

```

2505 011262 000240      NOP      :...
2506 011264 000240      NOP      :...
2507 011266 000240      NOP      :...
2508 011270 000240      NOP      :...
2509 011272 000240      NOP      :...
2510 011274      GPHARD LOGDEV,R1  :GET THE P-TABLE POINTER INTO R1
      011274 013700 002372      MOV      LOGDEV,R0
      011300 104442      TRAP      ($GPHRD
      011302 010001      MOV      R0,R1
2511 011304      BNCOMPLETE GETPRM  :IF NOT AVAILABLE ,GET THE NEXT ONE
      011304 103357      BCC      GETPRM
2512 011306 011100      MOV      (R1),R0      :SAVE THE ADDRESS
2513 011310 032700 000007      BIT      #7,R0      :DOES THIS DEVICE ADDRESS END IN NON-ZERO?
2514 011314 001414      BEQ      10$      :IF NOT - OK (76XXX0)
2515 011316 042711 000007      BIC      #7,(R1)      :MAKE IT 76XXX0
2516 011322      PRINTB #FINI11,(R1),R0 :INFORM THE USER
      011322 010046      MOV      R0,-(SP)
      011324 011146      MOV      (R1),-(SP)
      011326 012746 012046      MOV      #FINI11,-(SP)
      011332 012746 000003      MOV      #3,-(SP)
      011336 010600      MOV      SP,R0
      011340 104414      TRAP      ($PNTB
      011342 062706      ADD      #10,SP
2517 011346 011137 002256      10$: MOV      (R1),ISRX      :LOAD ADDRESS 0
2518 011352 013737 002256 002260      MOV      ISRX,ISRLX      :LOAD LOW BYTE LABEL OF ADDRESS 0
2519 011360 011137 002262      MOV      (R1),ISRHx      :LOAD HIGH BYTE, ADDRESS 1
2520 011364 062737 000001 002262      ADD      #1,ISRHx      :...
2521 011372 011137 002250      MOV      (R1),IIRX      :LOAD ADDRESS 2
2522 011376 062737 000002 002250      ADD      #2,IIRX      :...
2523 011404 013737 002250 002252      MOV      IIRX,IIRLX      :LOAD LOW BYTE LABEL OF ADDRESS 2
2524 011412 011137 002254      MOV      (R1),IIRHx      :LOAD HIGH BYTE, ADDRESS 3
2525 011416 062737 000003 002254      ADD      #3,IIRHx      :...
2526 011424 011137 002264      MOV      (R1),ICRX      :LOAD ADDRESS 4
2527 011430 062737 000004 002264      ADD      #4,ICRX      :...
2528 011436 013737 002264 002266      MOV      ICRX,ICRLX      :LOAD LOW BYTE LABEL OF ADDRESS 4
2529 011444 011137 002270      MOV      (R1),ICRHx      :LOAD HIGH BYTE,ADDRESS 5
2530 011450 062737 000005 002270      ADD      #5,ICRHx      :...
2531 011456 011137 002272      MOV      (R1),IDRX      :LOAD ADDRESS 6
2532 011462 062737 000006 002272      ADD      #6,IDRX      :...
2533 011470 013737 002272 002274      MOV      IDRX,IDRLX      :LOAD LOW BYTE LABEL OF ADDRESS 6 (PPR)
2534 011476 011137 002276      MOV      (R1),IDRHx      :LOAD HIGH BYTE,ADDRESS 7 (DOR)
2535 011502 062737 000007 002276      ADD      #7,IDRHx      :...
2536 011510 011137 002300      MOV      (R1),CSRX      :LOAD ADDRESS OF CONTROL&STATUS REGISTER
2537 011514 062737 000010 002300      ADD      #10,CSRX      :...
2538 011522 011137 002302      MOV      (R1),BARX      :LOAD ADDRESS OF BUS ADDRESS REGISTER
2539 011526 062737 000012 002302      ADD      #12,BARX      :...
2540 011534 011137 002304      MOV      (R1),BCRX      :LOAD ADDRESS OF BYTE COUNT REGISTER
2541 011540 062737 000014 002304      ADD      #14,BCRX      :...
2542 011546 011137 002306      MOV      (R1),MCRX      :LOAD ADDRESS OF MATCH CHARACTER REGISTER
2543 011552 062737 000016 002306      ADD      #16,MCRX      :...
2544 011560 012137 002310      MOV      (R1)+,MCRHx      :LOAD HIGH BYTE OF MCR REGISTER
2545 011564 062737 000017 002310      ADD      #17,MCRHx      :...
2546 011572 011100      MOV      (R1),R0      :GET VECTOR
2547 011574 032700 000007      BIT      #7,R0      :DOES THIS VECTOR END IN NON - ZERO ?
2548 011600 001414      BEQ      11$      :IF NOT - OK (XX0)
2549 011602 042711 000007      BIC      #7,(R1)      :MAKE IT XX0
2550 011606      PRINTB #FINI12,(R1),R0 :INFORM THE USER

```

	011606	010046									MOV	R0,-(SP)
	011610	011146									MOV	(R1),-(SP)
	011612	012746	012136								MOV	#FINIT2,-(SP)
	011616	012746	000003								MOV	#3,-(SP)
	011622	010600									MOV	SP,R0
	011624	104414									TRAP	(\$PNTB
	011626	062706	000010								ADD	#10,SP
2551	011632	011137	002244		11\$:	MOV	(R1),VECC1	:	LOAD VECTOR FOR CHANNEL 1			
2552	011636	012137	002246			MOV	(R1)+,VECC2	:	LOAD VECTOR FOR CHANNEL 2			
2553	011642	062737	000004	002246		ADD	#4,VECC2	:	:::			
2554	011650	012102				MOV	(R1)+,R2	:	GET PRIORITY			
2555	011652	010237	002316			MOV	R2,PLEV	:	SAVE THE LEVEL			
2556	011656	012137	002312			MOV	(R1)+,DPA1	:	SAVE THE DEVICE PRIMARY ADDRESS 1			
2557	011662	011137	002314			MOV	(R1),DPA2	:	SAVE THE DEVICE PRIMARY ADDRESS 2			
2558	011666	012737	120040	002434		MOV	#120040,CDAT1	:	LOAD COMPARE DATA FOR ISR CHECK			
2559	011674	012737	120050	002436		MOV	#120050,CDAT2	:	LOAD COMPARE DATA FOR ISR CHECK			
2560	011702	012737	120052	002440		MOV	#120052,CDAT3	:	LOAD COMPARE DATA FOR ISR CHECK			
2561	011710	012737	120060	002442		MOV	#120060,CDAT4	:	LOAD COMPARE DATA FOR ISR CHECK			
2562	011716	012737	120064	002444		MOV	#120064,CDAT5	:	LOAD COMPARE DATA FOR ISR CHECK			
2563	011724	012737	170060	002446		MOV	#170060,CDAT6	:	LOAD COMPARE DATA FOR ISR CHECK			
2564	011732	012737	020024	002450		MOV	#20024,CDAT7	:	LOAD COMPARE DATA FOR ISR CHECK			
2565	011740	012737	170050	002452		MOV	#170050,CDAT8	:	LOAD COMPARE DATA FOR ISR CHECK			
2566	011746	012737	170044	002454		MOV	#17C044,CDAT9	:	LOAD COMPARE DATA FOR ISR CHECK			
2567	011754	012737	170042	002456		MOV	#170042,CDAT10	:	LOAD COMPARE DATA FOR ISR CHECK			
2568	011762	012737	120664	002460		MOV	#120664,CDAT11	:	LOAD COMPARE DATA FOR ISR CHECK			
2569	011770	012737	120464	002462		MOV	#120464,CDAT12	:	LOAD COMPARE DATA FOR ISR CHECK			
2570	011776	012737	120744	002464		MOV	#120744,CDAT13	:	LOAD COMPARE DATA FOR ISR CHECK			
2571	012004	012737	120540	002466		MOV	#120540,CDAT14	:	LOAD COMPARE DATA FOR ISR CHECK			
2572	012012	012737	030012	002470		MOV	#30012,CDAT15	:	LOAD COMPARE DATA FOR ISR CHECK			
2573	012020	012737	104040	002472		MOV	#104040,CDAT16	:	LOAD COMPARE DATA FOR ISR CHECK			
2574	012026	012737	030004	002474		MOV	#30004,CDAT17	:	LOAD COMPARE DATA FOR ISR CHECK			
2575	012034	012737	034004	002476		MOV	#34004,CDAT18	:	LOAD COMPARE DATA FOR ISR CHECK			
2576												
2577	012042					EXIT	INIT				TRAP	(\$EXIT
	012042	104432									.WORD	L10020-
	012044	000162										
2578												
2590						.NLIST BEX						
2591	012046	045	101	052		FINIT1: .ASCIIZ	/XA**WARNING-WILL ASSUME IEX ADDRESS %06XA (NOT %06XA)%N/					
2592	012136	045	101	052		FINIT2: .ASCIIZ	/XA**WARNING-WILL ASSUME IEX VECTOR %03XA (NOT %03XA)%N/					
2593												
2594						.EVEN						
2595						.LIST BEX						
2596												

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 39
AUTODROP SECTION

```

2599      .SBTTL AUTODROP SECTION
2600
2601      :++
2602      : THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
2603      : THE "ADR" FLAG WAS SET. THE UNIT(S) UNDER TEST ARE CHECKED TO
2604      : SEE IF THEY WILL RESPOND. THOSE THAT DON'T ARE IMMEDIATELY
2605      : DROPPED FROM TESTING.
2606      :--
2607
2608 012230      BGNAUTO
2609      012230
2610
2611      L$AUTO::
2612
2613      SETVEC #4,#NXM,#PRI07 ;SET UP NON -EXISTENT MEMORY TRAP VECTOR.
2614
2615      MOV #PRI07,-(SP)
2616      MOV #NXM,-(SP)
2617      MOV #4,-(SP)
2618      MOV #3,-(SP)
2619      TRAP C$SVEC
2620      ADD #10,SP
2621
2622      CLR NXMFLG ;CLEAR NON -EXISTENT MEMORY FLAG
2623      TST @IIRX ;REFERENCE MEMORY ADDRESS FOR THE DEVICE
2624      ;TO SEE IF IT EXISTS.
2625
2626      :*****
2627      : IF THE DEVICE DOESN'T EXIST THE RESULTANT TRAP TO VECTOR 04 WILL
2628      : CAUSE THE DEVICE TO BE DROPPED (SEE INTERRUPT ROUTINE)
2629      : OTHERWISE THE MEMORY REFERENCE IS UNEVENTFUL AND THE DEVICE IS READY.
2630      :*****
2631
2632      TST NXMFLG ;WAS THERE A TRAP ?
2633      BEQ 10$ ;BR IF NOT
2634      DODU LOGDEV ;DROP THE DEVICE
2635
2636      MOV LOGDEV,R0
2637      TRAP C$DODU
2638
2639      DOCLN ;CLEAN UP CODE.
2640
2641      TRAP C$DOCLN
2642
2643      CLRVEC #4 ;RETURN VECTOR 04 TO NORMAL STATE
2644
2645      MOV #4,R0
2646      TRAP C$CVEC
2647
2648      10$:
2649      ENDAUTO
2650
2651      L10021:
2652      TRAP C$AUTO

```

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 40
 CLEANUP CODING SECTION

```

2633      .SBTTL  CLEANUP CODING SECTION
2634
2635      : **
2636      : THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
2637      : AFTER THE HARDWARE TESTS HAVE BEEN PERFORMED.
2638      : --
2639
2640 012314      BGNCLN
2641 012314
2642
2643      L$CLEAN::
2644
2645 012314      SETPRI  #PRI07      ;DISABLE INTERRUPTS
2646 012314 012700 000340      MOV  #PRI07,R0
2647 012320 104441      TRAP  C$SPRI
2648
2649 012322      BRESET      ;RESET THE IEX11
2650 012322 104433      TRAP  C$RESET
2651
2652 012324      CLRVEC  #4      ;RETURN VECTOR 04 TO NORMAL STATE
2653 012324 012700 000004      MOV  #4,R0
2654 012330 104436      TRAP  C$CVEC
2655
2656 012332      EXIT  CLN
2657 012332 104432      TRAP  C$EXIT
2658 012334 000002      .WORD  L10022-
2659
2660
2661      .EVEN
2662
2663      ENDCLN
2664
2665
2666
2667
2668
2669
2670 012336
2671 012336
2672 012336 104412      L10022:  TRAP  C$CLEAN
  
```


MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 41
 DROP UNIT SECTION

```

2672      .SBTTL  DROP UNIT SECTION
2673
2674      :++
2675      : THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
2676      : TO NO LONGER BE TESTED.
2677      :
2678      : SUPVSR DOES THE 'DROPPING'. THIS IS JUST TO TELL THE MAN.
2679      : 'DROPPED' UNITS ARE RE-SELECTED ON OPERATOR 'STA' OR 'ADC'
2680      : COMMAND, OTHERWISE REMAIN INACTIVE. THE DISPLAY COMMAND
2681      : WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
2682      : WHICH ARE STILL ACTIVE.
2683      :--
2684
2685      012340      BGNDU
2686      012340
2687
2688      L$DU::
2689      PRINTF  #FMDROP,LOGDEV ;UNIT DROPPED
2690
2691      012340      013746  002372
2692      012344      012746  012370
2693      012350      012746  000002
2694      012354      010600
2695      012356      104417
2696      012360      062706  000006
2697
2698      012364      EXIT    DU
2699      012364      000167
2700      012366      000030
2701
2702      012370      045      116      045  FMDROP: .ASCIZ  /%N%AUNIT %D2%A DROPPED/
2703      012373      101      125      116
2704      012376      111      124      040
2705      012401      045      104      062
2706      012404      045      101      040
2707      012407      104      122      117
2708      012412      120      120      105
2709      012415      104      000
2710
2711
2712      .EVEN
2713
2714      ENDDU
2715
2716      012420
2717      012420
2718      012420  104453
2719
2720      L10023:
2721      TRAP      C$DU

```

MISCELLANEOUS SECTIONS MACRO M1113 06-SEP-82 16:46 PAGE 42
ADD UNIT SECTION

```

2716          .SBTTL  ADD UNIT SECTION
2717
2718          :++
2719          : THE ADD-UNIT SECTION CONTAINS ANY CODE THE PROGRAMMER WISHES
2720          : TO BE EXECUTED IN CONJUNCTION WITH THE ADDING OF A UNIT BACK
2721          : TO THE TEST CYCLE.
2722          :--
2723
2724 012422      BGNAU
2725 012422
2726
2727          L$AU::
2728
2729
2730 012422      EXIT    AU
2731 012422      .WORD   JSJMP
2732 012424      000167   .WORD   L10024-2-.
2733      000000
2734
2735
2736
2737          .EVEN
2738
2739          ENDAU
2740
2741 012426
2742 012426      L10024:
2743 012426      104452  TRAP    C$AU
2744 012430
2745
2746          ENDMOD
2747
2748
2749
2750
2751
2752
2753

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 43
ADD UNIT SECTION

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2756 .TITLE HARDWARE TESTS
2767 .SBTTL TEST 1: REGISTER ADDRESSING TEST
2803
2804 012430 BGNMOD
2805
2806 *****
2807 TEST 1 -IEX11
2808
2809 :VERIFY THAT ADDRESSING THE 8 BUS DEVICE REGISTERS DOES NOT CAUSE
2810 :A NON-EXISTENT MEMORY TRAP.
2811
2812 :AN ERROR IN THIS TEST COULD MEAN THAT THE DEVICE IS INCORRECTLY
2813 :CONFIGURED OR THAT THE ADDRESS IS WRONG.
2814
2815 :COMMUNICATION BETWEEN THE MAIN CPU AND THE IEX11 IS ACCOMPLISHED
2816 :THROUGH A SET OF SIXTEEN REGISTERS. THE SIXTEEN REGISTERS ARE
2817 :ASSIGNED ADDRESSES IN THE I/O PAGE.
2818 *****
2819
2820
2827
2833
2834 012430 BGNTEST
2835 012430 005737 002324 T1::
2836 012434 001410 TST PNTF ;IS THE PNT FLAG SET
2837 012436 PRINTF #TSHD1 ;IF YES, PRINT THE TEST HEADER
2838
2839 012436 012746 012642 MOV #TSHD1,-(SP)
2840 012442 012746 000001 MOV #1,-(SP)
2841 012446 010600 MOV SP,R0
2842 012450 104417 TRAP C$PNTF
2843 012452 062706 000004 ADD #4,SP
2844
2845 012456 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
2846 012462 SETVEC #4,#LOCATE,#PRI07 ;
2847
2848 012462 012746 000340 MOV #PRI07,-(SP)
2849 012466 012746 012636 MOV #LOCATE,-(SP)
2850 012472 012746 000004 MOV #4,-(SP)
2851 012476 012746 000003 MOV #3,-(SP)
2852 012502 104437 TRAP C$SVEC
2853 012504 062706 000010 ADD #10,SP
2854
2855 012510 013701 002256 ITRAC1: MOV ISRX,R1 ;GET REGISTER ADDRESS
2856 012514 162701 000002 SUB #2,R1 ;
2857 012520 012702 000010 MOV #8.,R2 ;SET COUNTER FOR 8 REGISTER ADDRESSES
2858 012524 005003 CLR R3 ;
2859 012526 062701 000002 10$: ADD #2,R1 ;GET NEXT REGISTER ADDRESS
2860
2861 012532 BGNSEG
2862
2863 TRAP C$BSEG
2864
2865 CLR R4 ;
2866 012534 005004 TST (R1) ;TEST REGISTER ADDRESS
2867 012536 005711 TST R4 ;WAS THERE A TRAP
2868 012540 005704 BEQ 20$ ;BRANCH IF NO
2869 012542 001405 INC R3 ;
2870 012544 005203 ERRHRD 101,E101,ERR101 ;
2871
2872 TRAP C$ERHRD
2873 012546 104456 .WORD 101
2874 012550 000145 .WORD E101
2875 012552 005012

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 43-1
TEST 1: REGISTER ADDRESSING TEST

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2859 012554 003454                .WORD  ERR101
                                20$:  ENDSEG
                                10000$:
2860 012556                DEC  R2      ;ALL REGISTER ADDRESSES TESTED ?
2861 012556 104405            BNE  10$  ;BRANCH IF YES
2862 012560 005302            TST  R3
2863 012562 001361            BEQ  30$
2864 012564 005703            DODU  LOGDEV
2865 012570 013700 002372            MOV  LOGDEV,R0
2866 012574 104451            TRAP  C$DODU
2867 012576            DOCLN
2868 012576 104444            TRAP  C$DCLN
2869 012600 005737 002234    30$:  TST  QVP      ;IS QUICK VERIFY PASS SELECTED ?
2870 012604 001007            BNE  EXQV1      ;IF YES EXIT TEST
2871 012606 005237 002322    INC  ITRCNT      ;ITERATION COUNTER +1
2872 012612 023737 002320 002322    CMP  ITRDEF,ITRCNT ;DEFAULT ITERATION EXECUTED
2873 012620 001401            BEQ  EXQV1      ;IF YES EXIT TEST
2874 012622 000732            BR   ITRAC1     ;IF NO TEST ITERATION
2875 012624 012700 000004    EXQV1: CLRVEC  #4
2876 012630 104436            MOV  #4,R0
2877 012632            EXIT TST            TRAP  C$CVEC
2878 012632 104432            TRAP  C$EXIT
2879 012634 000046            .WORD  L10025-.
2880 012636            BGNSRV  LOCATE      ;SERVICE ROUTINE LOCATE
2881 012636 005204            INC  R4        LOCATE::
2882 012640            ENDSRV
2883 012640            L10026:
2884 012640 000002            RTI
2885 012642 045 123 062 TSHD1: .NLIST  BEX
2886 012702            .ASCIZ  /%S2%AREGISTER ADDRESSING TEST%N/
2887 012702            .LIST  BEX
2888 012702 104401            .EVEN
2889 012702            ENDTST
2890 012702            L10025:
2891 012702            TRAP  C$ETST
2892
2893
2894
2895

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 44
TEST 2: INITIALIZATION TEST

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2902 .SBTTL          TEST 2: INITIALIZATION TEST
2903 .....
2904          IEX - TEST 2
2905          RESET THE IEX AND ENSURE THAT REGISTERS CSR,IIR,ISR,ICR,IDR,MCR :
2906          IN BOTH CHANNELS ARE IN THEIR PROPER INITIALIZATION STATE .
2907 .....
2908          REGISTERS BAR & BCR ARE NOT IN A DEFINATE STATE AFTER RESET
2909          SO THEY ARE NOT TESTED HERE
2910 .....
2911          THE MUX BIT IN CSR IS ALSO TESTED
2912 .....
2913          BGNTEST
2914          012704          005737          002324          TST          PNTF          T2::
2915          012710          001410          BEQ          7$          :IS THE PNT FLAG SET
2916          012712          012746          013367          PRINTF      #TSHD2      :IF YES, PRINT THE TEST HEADER
2917          012712          012746          000001          .....
2918          012722          010600          MOV          #TSHD2,-(SP)
2919          012724          104417          MOV          #1,-(SP)
2920          012726          062706          000004          MOV          SP,R0
2921          012732          005037          002322          TRAP          C$PNTF
2922          012736          104433          7$:          CLR ITRCNT          ADD          #4,SP
2923          012740          012737          000001          002374          ITRAC2: BRESET          :CLEAR ITERATION COUNTER
2924          012746          104404          MOV          #1,CHAN          :CLEAR HARDWARE
2925          012750          017737          167324          002502          BGNSEG          TRAP          C$RESET
2926          012756          042737          017060          002502          :LOAD CANNEL NUM.
2927          012764          005737          002502          MOV          @CSRX,BAD          :TEST THE INITIALIATION STATE OF CSR REGISTER
2928          012770          001406          BEQ          10$          :BIT 9-12 AND BIT 4+5 ARE NOT TESTED
2929          012772          005037          002500          BIC          #17060,BAD          :CSR SHOULD BE ZERO
2930          012776          104457          013000          000311          TST          BAD          :BRANCH IF DATA CORRECT
2931          013002          005057          013002          005057          BEQ          10$          :SET UP DATA FOR ERROR MESSAGE
2932          013004          003500          013004          003500          CLR          GOOD          :ERROR HANDLER
2933          013006          104405          013006          104405          ERRSOF T 201,E200,ERR201          TRAP          C$ERSOF T
2934          013010          104404          013010          104404          .WORD          201
2935          013012          017737          167232          002502          .WORD          E200
2936          013020          005737          002502          013024          001410          .WORD          ERR201
2937          013026          005037          002500          013032          012702          013336          10$:          ENDSEG
2938          013036          104457          013036          104457          10000$:          TRAP          C$ESEG
2939          013040          000312          013040          000312          13$:          BGNSEG          TRAP          C$BSEG
2940          013042          005057          013042          005057          MOV          @IIRX,BAD          :GET IIR CONTENTS
2941          013044          003556          013044          003556          TST          BAD          :CONTENTS SHOULD BE ZERO
2942          013046          104405          013046          104405          BEQ          20$          :BRANCH IS YES
2943          013050          104404          013050          104404          CLR          GOOD          :SET UP DATA FOR ERROR MESSAGE
2944          013052          104404          013052          104404          MOV          #IIRNAM,R2          :...
2945          013054          104404          013054          104404          ERRSOF T 202,E200,ERR202          :ERROR HANDLER
2946          013056          104404          013056          104404          TRAP          C$ERSOF T
2947          013058          104404          013058          104404          .WORD          202
2948          013060          104404          013060          104404          .WORD          E200
2949          013062          104404          013062          104404          .WORD          ERR202
2950          013064          104404          013064          104404          20$:          ENDSEG
2951          013066          104404          013066          104404          10001$:          TRAP          C$ESEG
2952          013068          104404          013068          104404          BGNSEG          TRAP          C$BSEG
2953          013070          104404          013070          104404

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 44-1
TEST 2: INITIALIZATION TEST

2937	013052	017737	167200	002502	MOV	@ISRX,BAD	;GET ISR CONTENTS	
2938	013060	042737	000001	002502	BIC	#1,BAD	;CLEAR ULPA BIT	
2939	013066	005737	002502		TST	BAD	;CONTENTS SHOULD BE ZERO	
2940	013072	001410			BEQ	30\$	;BRANCH IF YES	
2941	013074	005037	002500		CLR	GOOD	;SET UP DATA FOR ERROR MESSAGE	
2942	013100	012702	013343		MOV	#ISRNAM,R2		
2943	013104				ERRSOFT	203,E200,ERR202	;ERROR HANDLER	
	013104	104457					TRAP	C\$ERSOFT
	013106	000313					.WORD	203
	013110	005057					.WORD	E200
	013112	003556					.WORD	ERR202
2944	013114				30\$:	ENDSEG		
	013114						10002\$:	
	013114	104405					TRAP	C\$FSEG
2945	013116				BGNSEG		TRAP	C\$BSEG
	013116	104404						
2946	013120	117737	167140	002502	MOVB	@ICRX,BAD	;GET ICR CONTENTS	
2947	013126	005737	002502		TST	BAD	;CONTENTS SHOULD BE ZERO	
2948	013132	001410			BEQ	40\$	;BRANCH IF YES	
2949	013134	005037	002500		CLR	GOOD	;SET UP DATA FOR ERROR MESSAGE	
2950	013140	012702	013350		MOV	#ICRNAM,R2		
2951	013144				ERRSOFT	204,E200,ERR202	;ERROR HANDLER	
	013144	104457					TRAP	C\$ERSOFT
	013146	000314					.WORD	204
	013150	005057					.WORD	E200
	013152	003556					.WORD	ERR202
2952	013154				40\$:	ENDSEG		
	013154						10003\$:	
	013154	104405					TRAP	C\$ESEG
2953	013156				BGNSEG		TRAP	C\$BSEG
	013156	104404						
2954	013160	017737	167122	002502	MOV	@MCRX,BAD	;GET MCR CONTENTS	
2955	013166	005737	002502		TST	BAD	;CONTENTS SHOULD BE ZERO	
2956	013172	001410			BEQ	50\$	;BRANCH IF YES	
2957	013174	005037	002500		CLR	GOOD	;SET UP DATA FOR ERROR MESSAGE	
2958	013200	012702	013362		MOV	#MCRNAM,R2		
2959	013204				ERRSOFT	205,E200,ERR202	;ERROR HANDLER	
	013204	104457					TRAP	C\$ERSOFT
	013206	000315					.WORD	205
	013210	005057					.WORD	E200
	013212	003556					.WORD	ERR202
2960	013214				50\$:	ENDSEG		
	013214						10004\$:	
	013214	104405					TRAP	C\$ESEG
2961	013216	022737	000002	002374	CMP	#2,CHAN	;LOOK AT CHANNEL FLAG	
2962	013224	001427			BEQ	61\$	;EXIT IF CHANNEL 2 WAS SELECTED	
2963	013226	052777	000010	167044	BIS	#10,@CSRX	;SET MUX BIT	
2964	013234	012737	000002	002374	MOV	#2,CHAN	;LOAD CHANNEL FLAG	
2965	013242	017737	167032	002502	MOV	@CSRX,BAD	;GET CSRX CONTENTS	
2966	013250	042737	017060	002502	BIC	#17060,BAD	;IGNORE BIT 9-12 AND BIT 4+5	
2967	013256	022737	000010	002502	CMP	#10,BAD	;MUX BIT SHOULD BE SET	
2968	013264	001651			BEQ	13\$	;BRANCH IF YES	
2969	013266	012737	000010	002500	MOV	#10,GOOD	;GET GOOD DATA	
2970	013274				ERRSOFT	206,E200,ERR201	;ERROR HANDLER	
	013274	104457					TRAP	C\$ERSOFT
	013276	000316					.WORD	206
	013300	005057					.WORD	E200

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 44-2
TEST 2: INITIALIZATION TEST

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2971 013302 003500
2972 013304 005737 002234      61$:  TST      QVP      ;IS QUICK VERIFY PASS SELECTED
2973 013310 001010      BNE      EXQV2  ;IF YES EXIT TEST
2974 013312 005237 002322      INC      ITRCNT ;ITERATION COUNTER +1
2975 013316 023737 002320 002322      CMP      ITRDEF,ITRCNT ;DEFAULT ITERATION EXECUTED
2976 013324 001402      BEQ      EXQV2  ;IF YES EXIT TEST
2977 013326 000137 012736      JMP      ITRAC2 ;IF NO TEST ITERATION
2978 013332      EXQV2:  EXIT TST
2979 013334 104432      TRAP      C$EXIT
2980 013336 000066      .WORD      L10027-.
2981 013336      040      111      111  IIRNAM: .ASCIIZ / IIR/
2982 013343      040      111      123  ISRNAM: .ASCII7 / ISR/
2983 013350      040      111      103  ICRNAM: .ASCIIZ / ICR/
2984 013355      040      111      104  IDRNAM: .ASCIIZ / IDR/
2985 013362      040      115      103  MCRNAM: .ASCIIZ / MCR/
2986 013367      045      123      062  TSHD2: .ASCIIZ /%S2%AINITIALIZATION TEST%N/
2987 013422      .EVEN
2988 013422      .LIST BEX
2989 013422      ENDTST
2990 013422 104401
2991 013422
2992 013422
2993 013422
2994 013422
2995 013422
2996 013422
2997 013422
2998 013422
2999 013422
3000 013422

```

L10027: TRAP C\$EXIT

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TEST 3: R/W BIT TEST

```

2989 .SBTTL TEST 3: R/W BIT TEST
2990 .....
2991 IEX - TEST 3
2992 THIS TEST CHECKS ALL R/W BITS OF CSR,BAR,BCR AND MCR REGISTER
2993 IN BOTH CHANNELS.IT ALSO TESTS THE MASTER CLEAR FUNCTION IN
2994 CSR1 + CSR2.
2995
2996 THE TMS 9914 REGISTERS IIR,ISR,ICR,IDR ARE NOT CHECKED
2997 IN THIS TEST.
2998 .....
2999 BGNSTST
3000 013424 005737 002324 TST PNTF ;IS THE PNT FLAG SET
3001 013430 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3002 013432 PRINTF #TSHD3 ;....
3003 013432 012746 014047 MOV #TSHD3,-(SP)
3004 013436 012746 000001 MOV #1,-(SP)
3005 013442 010600 MOV SP,R0
3006 013444 104417 TRAP ($PNTF
3007 013446 062706 000004 ADD #4,SP
3008 013452 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
3009 013456 SETPRI #PRI07 ;INTERRUPT NOT ALLOWED
3010 013462 104441 MOV #PRI07,R0
3011 013464 104433 TRAP ($SPRI
3012 013466 005037 002502 ITRAC3: BRESET ;RESET ALL HARDWARE
3013 013472 012737 000001 002374 CLR BAD ;CLEAR ERROR LABEL BAD
3014 013500 104407 MOV #1,CHAN ;LOAD CHANNEL NO.
3015 013502 103004 T3SEC: READBUS ;DETERMINE BUS TYPE
3016 013504 012737 017167 002350 BNCOMPLETE UNIMSK ;BRANCH IF UNI-BUS
3017 013512 000403 UNIMSK: MOV #17167,MASK ;LOAD BIT MASK FOR Q-BUS DEVICE
3018 013514 012737 000167 002350 BR .+10 ;
3019 013522 013737 002300 002354 MOV #167,MASK ;LOAD BIT MASK FOR UNI-BUS DEVICE
3020 013530 012737 000455 002506 MOV CSRX,REGADD ;LOAD REGISTER ADDRESS
3021 013536 004737 006320 JSR #301,ERRNBR ;FIRST ERROR NUMBER
3022 013542 104404 BGNSEG ;CALL REGISTER TEST
3023 013544 012777 000107 166526 MOV #107,@CSRX ;SET ALL R/W BITS THAT CAN BE CLEARED BY MC
3024 013552 052777 000400 166520 BIS #400,@CSRX ;MASTER CLEAR
3025 013560 117737 166514 002502 MOVB @CSRX,BAD ;GET CSR CONTENTS
3026 013566 105777 166506 TSTB @CSRX ;ALL BITS CLEARED
3027 013572 001410 BEQ 10$ ;BRANCH IF YES
3028 013574 005037 002500 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
3029 013600 012702 014042 MOV #CSRNAM,R2 ;....
3030 013604 104457 ERRSOF 304,E302,ERR202 TRAP ($BSEG
3031 013606 000460 .WORD 304
3032 013610 005167 .WORD E302
3033 013612 003556 .WORD ERR202
3034 013614 104405 10000$: TRAP ($ESEG
3035 013616 012737 177767 002350 MOV #177767,MASK ;BIT MASK OF R/W BITS
3036 013624 013737 002302 002354 MOV BARX,REGADD ;GET REGISTER ADDRESS OF BAR

```


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TEST 3: R/W BIT TEST

```

3028 013632 012737 000461 002506      MOV      #305.,ERRNBR      ;FIRST ERROR NUMBER
3029 013640 004737 006320              JSR      PC,REGTS1      ;CALL REGISTER TEST
3030 013644 013737 002304 002354      MOV      BCRX,REGADD    ;GET REGISTER ADDRESS OF BCR
3031 013652 012737 000464 002506      MOV      #308.,ERRNBR    ;FIRST ERROR NUMBER
3032 013660 004737 006320              JSR      PC,REGTS1      ;CALL REGISTER TEST
3033 013664 012737 137767 002350      MOV      #137767,MASK    ;BIT MASK OF R/W BITS
3034 013672 013737 002306 002354      MOV      MCRX,REGADD    ;GET REGISTER ADDRESS OF MCR
3035 013700 012737 000467 002506      MOV      #311.,ERRNBR    ;FIRST ERROR NUMBER
3036 013706 004737 006320              JSR      PC,REGTS1      ;CALL REGISTER TEST
3037 013712 032737 000001 002374      BIT      #1,CHAN        ;WAS CHANNEL 2 SELECTED
3038 013720 001433 000000              BEQ      QVT3           ;IF YES JUMP TO QUICK VERIFY PASS
3039 013722 012737 000002 002374      MOV      #2,CHAN        ;SET CHANNEL FLAG
3040 013730 005037 002502              CLR      BAD           ;CLEAR ERROR LABEL BAD
3041 013734 104404                      BGNSEG
3042 013736 012777 000003 166334      MOV      #3,@CSRX        ;SELECT CHANNEL 2
3043 013744 117737 166330 002502      MOV      @CSRX,BAD       ;GET CSR CONTENTS
3044 013752 032737 000010 002502      BIT      #10,BAD        ;IS MUX BIT SET
3045 013760 001411 000000              BEQ      20$            ;BRANCH IF YES
3046 013762 012702 014042              MOV      #CSRNAM,R2     ;SET UP DATA FOR ERROR MESSAGE
3047 013766 012737 000010 002500      MOV      #10,GOOD        ;...
3048 013774 104457                      ERRSOF 314,E303
3049 013774 104457                      TRAP      C$BSEF
3050 013776 000472                      .WORD    314
3051 014000 005230                      .WORD    E303
3052 014002 000000                      .WORD    0
3053 014004 20$:      ENDSEG
3054 014004 104405                      10001$:
3055 014006 000634                      TRAP      C$ESEG
3056 014010 005737 002234      QVT3:  BR      T3SEC      ;REPEAT TEST WITH CHANNEL 2
3057 014014 001010              TST      QVP          ;IS QUICK VERIFY PASS SELECTED
3058 014016 005237 002322      BNE      EXQV3         ;IF YES EXIT TEST
3059 014022 023737 002322 002320      INC      ITRCNT        ;ITERATION COUNTER + 1
3060 014030 001402              CMP      ITRCNT,ITRDEF ;DEFAULT ITERATION EXECUTED
3061 014032 000137 013464      BEQ      EXQV3         ;IF YES EXIT TEST
3062 014036 104432              JMP      ITRAC3        ;IF NO TEST ITERATION
3063 014040 000034      EXQV3: EXIT      TST
3064 014042 040      103      123      .NLIST BEX
3065 014047 045      123      062      .ASCIZ  / CSR/
3066 014074 104401      TSHD3: .ASCIZ  /%S2%AR-W BIT TEST%N/
3067 014074 104401      .LIST BEX
3068 014074 104401      .EVEN
3069 014074 104401      ENDTST
3070 014074 104401      L10030:
3071 014074 104401      TRAP      C$E1ST

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 46
TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

```

3065 .SBTTL TEST 4 : SYSTEM CONTROLLER COMMANDS TEST
3066 .....
3067 IEX - TEST 4
3068 PART 1 CHANEL 1 WHICH IS SELECTED AS SYSTEM CONTROLLER SENDS
3069 THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND
3070 SRE. ALSO BOTH IIR AS WELL AS ISR REGISTER ARE CHECKED.
3071 PART 2 CHANEL 2 WHICH IS SELECTED AS SYSTEM CONTROLLER SENDS
3072 THE IFC AND REN MESSAGE BY MEANS OF THE AUXILIARY COMMANDS SIC AND
3073 SRE. ALSO BOTH IIR AS WELL AS ISR REGISTER ARE CHECKED.
3074 .....
3075 BGNSTST
3076 014076 005737 002324 TST PNTF T4:: ;IS THE PNT FLAG SET
3077 014102 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3078 014104 PRINTF #TSHD4 ;....
3079 014104 012746 015522 MOV #TSHD4,-(SP)
3080 014110 012746 000001 MOV #1,-(SP)
3081 014114 010600 MOV SP,R0
3082 014116 104417 TRAP ($PNTF)
3083 014120 062706 000004 ADD #4,SP
3084 014124 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
3085 014130 004737 010220 ITRAC4: JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
3086 014134 113777 002312 166112 MOVB DPA1,@IIRHX ;LOAD DEVICE PRIM. ADDR. 1 IN ADDR 1
3087 014142 112777 000010 166130 MOVB #10,@CSRX ;SELECT CHANNEL 2
3088 014150 113777 002314 166076 MOVB DPA2,@IIRHX ;LOAD DEVICE PRIM. ADDR 2 IN ADDR REG.
3089 014156 104404 BGNSEG TRAP ($BSEG)
3090 014160 105077 166114 CLRB @CSRX ;SELECT CHANNEL 1
3091 014164 052777 000002 166106 BIS #2,@CSRX ;SELECT CHANNEL 1 AS SYSTEM CONTROLLER
3092 014172 112777 000217 166070 MOVB #217,@ICRHX ;--SEND INTERFACE CLEAR TO CHANNEL 1--
3093 014200 004737 011072 JSR PC,WAIT ;WAIT 100 US.
3094 014204 052777 000010 166066 BIS #10,@CSRX ;SELECT CHANNEL 2
3095 014212 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NO.
3096 014220 017737 166024 002502 MOV @IIPX,BAD ;GET IIR2 CONTENTS
3097 014226 022737 000400 002502 CMP #400,BAD ;IFC BIT IN IIR 2 SHOULD BE SET
3098 014234 001410 BEQ 10$ ;BRANCH IF YES
3099 014236 012737 000400 002500 MOV #400,GOOD ;SET UP DATA FOR ERROR MESSAGE
3100 014244 104457 ERRSOF 401,E501,ERR501 ;ERROR HANDLER
3101 014246 000621 TRAP ($ERRSOF 401)
3102 014250 005406 .WORD E501
3103 014252 003702 .WORD ERR501
3104 014254 104406 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
3105 014256 017737 165774 002502 10$: MOV @ISRX,BAD ;GET ISR2 CONTENTS
3106 014264 022737 121040 002502 CMP #121040,BAD ;ATN,NDAC,IFC,ATN SHOULD BE SET
3107 014272 001410 BEQ 20$ ;BRANCH IF YES
3108 014274 012737 121040 002500 MOV #121040,GOOD ;SET UP DATA FOR ERROR MESSAGE
3109 014302 104457 ERRSOF 402,E502,ERR501 ;ERROR HANDLER
3110 014304 000622 TRAP ($ERRSOF 402)
3111 014306 005447 .WORD E502
3112 014310 003702 .WORD ERR501
3113 014312 104406 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
3114 014314 042777 000010 165756 20$: BIC #10,@CSRX ;SELECT CHANNEL 1
3115 014322 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 46-1
TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

```

3105 014330 017737 165714 002502      MOV    @IIRX,BAD
3106 014336 022737 000020 002502      CMP    #20,BAD
3107 014344 001410                BEQ    30$
3108 014346 012737 000020 002500      MOV    #20,GOOD
3109 014354                ERRSOFT 403,E501,ERR501
      014354 104457
      014356 000623
      014360 005406
      014362 003702
3110 014364                CKLOOP
      014364 104406
3111 014366 017737 165664 002502 30$:  MOV    @ISRX,BAD
3112 014374 022737 120040 002502      CMP    #120040,BAD
3113 014402 001410                BEQ    40$
3114 014404 012737 120040 002500      MOV    #120040,GOOD
3115 014412                ERRSOFT 404,E502,ERR501
      014412 104457
      014414 000624
      014416 005447
      014420 003702
3116 014422                CKLOOP
      014422 104406
3117 014424 112777 000017 165636 40$:  MOVB   #17,@ICRMX
3118 014432 017737 165612 002502      MOV    @IIRX,BAD
3119 014440 005737 002502                TST    BAD
3120 014444 001406                BEQ    50$
3121 014446 005037 002500                CLR    GOOD
3122 014452                ERRSOFT 405,E501,ERR501
      014452 104457
      014454 000625
      014456 005406
      014460 003702
3123 014462                50$:  ENDSEG
      014462
      014462 104405
3124 014464                BGNSEG
      014464 104404
3125 014466 042777 000010 165604      BIC     #10,@CSRX
3126 014474 112777 000220 165566      MOVB   #220,@ICRMX
3127 014502 004737 011072                JSR    PC,WAIT
3128 014506 052777 000010 165564      BIS     #10,@CSRX
3129 014514 012737 000002 002374      MOV    #2,CHAN
3130 014522 017737 165522 002502      MOV    @IIRX,BAD
3131 014530 005737 002502                TST    BAD
3132 014534 001407                BEQ    11$
3133 014536 005037 002500                CLR    GOOD
3134 014542                ERRSOFT 406,E501,ERR501
      014542 104457
      014544 000626
      014546 005406
      014550 003702
3135 014552                CKLOOP
      014552 104406
3136 014554 017737 165476 002502 11$:  MOV    @ISRX,BAD
3137 014562 022737 120440 002502      CMP    #120440,BAD
3138 014570 001410                BEQ    12$
3139 014572 012737 120440 002500      MOV    #120440,GOOD

```

```

;GET IIR1 CONTENTS
;BO BIT IN IIR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   403
      .WORD   E501
      .WORD   ERR501
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;GET ISR1 CONTENTS
;ATN,NDAC,ATN IN ISR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   404
      .WORD   E502
      .WORD   ERR501
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;----LOAD NOT SIC IN ACR-----
;GET IIR1 CONTENTS
;IIR1 CONTENTS SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   405
      .WORD   E501
      .WORD   ERR501
10000$:  TRAP    C$ESEG
      TRAP    C$BSEG
;SELECT CHANNEL 1
;----LOAD SRE IN ICR1-----
;WAIT 100 US.
;SELECT CHANNEL 2
;SET CHANNEL FLAG
;GET IIR2 CONTENTS
;IIR2 SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   406
      .WORD   E501
      .WORD   ERR501
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;GET ISR2 CONTENTS
;ATN,NDAC,REN,ATN IN ISR2 SHOULD SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES

```

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TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

```

3140 014600          ERRSOFT 407,E502,ERR501          ;ERROR HANDLER
      014600 104457          TRAP C$ERRSOFT
      014602 000627          .WORD 407
      014604 005447          .WORD E502
      014606 003702          .WORD ERR501
3141 014610          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      014610 104406          TRAP C$CLP1
3142 014612 042777 000010 165460 12$: BIC #10,@CSRX          ;SELECT CHANNEL 1
3143 014620 012737 000001 002374      MOV #1,CHAN          ;LOAD CHANNEL FLAG
3144 014626 017737 165416 002502      MOV @IIRX,BAD          ;GET IIR1 CONTENTS
3145 014634 005737 002502      TST BAD          ;IIR1 SHOULD BE ZERO
3146 014640 001407      BEQ 13$          ;BRANCH IF YES
3147 014642 005037 002500      CLR GOOD          ;SET UP DATA FOR ERROR MESSAGES
3148 014646          ERRSOFT 408,E501,ERR501          ;ERROR HANDLER
      014646 104457          TRAP C$ERRSOFT
      014650 000630          .WORD 408
      014652 005406          .WORD E501
      014654 003702          .WORD ERR501
3149 014656          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      014656 104406          TRAP C$CLP1
3150 014660 017737 165372 002502 13$: MOV @ISRX,BAD          ;GET ISR1 CONTENTS
3151 014666 022737 120440 002502      CMP #120440,BAD          ;ATN,NDAC,REN,ATN SHOULD BE SET
3152 014674 001407      BEQ 14$          ;BRANCH IF YES
3153 014676 012737 120440 002500      MOV #120440,GOOD          ;SET UP DATA FOR ERROR MESSAGES
3154 014704          ERRSOFT 409,E502,ERR501          ;ERROR HANDLER
      014704 104457          TRAP C$ERRSOFT
      014706 000631          .WORD 409
      014710 005447          .WORD E502
      014712 003702          .WORD ERR501
3155 014714          14$: ENDSEG          10001$:
      014714 104405          TRAP C$ESEG
3156 014716 112777 000020 165344      MOVB #20,@ICRHX          ;-----LOAD NOT SRE IN ICR1 (ACR)-----
3157 014724 112777 000200 165336      MOVB #200,@ICRHX          ;-----LOAD SWRST IN ICR1 HIGH BYTE-----
3158 014732 112777 000000 165330      MOVB #0,@ICRHX          ;-----LOAD NOT SWRST IN ICR1 (ACR)-----
3159                                     ;-----
3160                                     ;PART 2 CHECKS (SIC & SRE) OF CHANNEL 2
3161                                     ;-----
3162          BGNSEG
      014740 104404          TRAP C$BSEG
3163 014742 012777 000010 165330      MOV #10,@CSRX          ;SELECT CHANNEL 2
3164 014750 052777 000002 165322      BIS #2,@CSRX          ;SELECT CHANNEL 2 AS SYSTEM CONTROLLER
3165 014756 112777 000217 165304      MOVB #217,@ICRHX          ;-----LOAD SIC IN ICR2-----
3166 014764 004737 011072      JSR PC,WAIT          ;WAIT 100 US.
3167 014770 042777 000010 165302      BIC #10,@CSRX          ;SELECT CHANNEL 1
3168 014776 012737 000001 002374      MOV #1,CHAN          ;LOAD CHANNEL NUMBER
3169 015004 017737 165240 002502      MOV @IIRX,BAD          ;GET IIR1 CONTENTS
3170 015012 022737 000400 002502      CMP #400,BAD          ;IFC BIT IN IIR1 SHOULD BE SET
3171 015020 001410      BEQ 15$          ;BRANCH IF YES
3172 015022 012737 000400 002500      MOV #400,GOOD          ;SET UP DATA FOR ERROR MESSAGES
3173 015030          ERRSOFT 410,E501,ERR501          ;ERROR HANDLER
      015030 104457          TRAP C$ERRSOFT
      015032 000632          .WORD 410
      015034 005406          .WORD E501
      015036 003702          .WORD ERR501
3174 015040          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      015040 104406          TRAP C$CLP1

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 46-3
TEST 4 : SYSTEM CONTROLLER COMMANDS TEST

```

3175 015042 017737 165210 002502 15$: MOV @ISRX,BAD
3176 015050 022737 121040 002502 CMP #121040,BAD
3177 015056 001410 BEQ 16$
3178 015060 012737 121040 002500 MOV #121040,GOOD
3179 015066 ERRSOFT 411,E502,ERR501
      015066 104457
      015070 000633
      015072 005447
      015074 003702
3180 015076 CKLOOP
      015076 104406
3181 015100 052777 000010 165172 16$: BIS #10,@CSRX
3182 015106 012737 000002 002374 MOV #2,CHAN
3183 015114 017737 165130 002502 MOV @IIRX,BAD
3184 015122 022737 000020 002502 CMP #20,BAD
3185 015130 001410 BEQ 17$
3186 015132 012737 000020 002500 MOV #20,GOOD
3187 015140 ERRSOFT 412,E501,ERR501
      015140 104457
      015142 000634
      015144 005406
      015146 003702
3188 015150 CKLOOP
      015150 104406
3189 015152 112777 000017 165110 17$: MOVB #17,@ICRHX
3190 015160 017737 165064 002502 MOV @IIRX,BAD
3191 015166 005737 002502 TST BAD
3192 015172 001406 BEQ 21$
3193 015174 005037 002500 CLR GOOD
3194 015200 ERRSOFT 413,E501,ERR501
      015200 104457
      015202 000635
      015204 005406
      015206 003702
3195 015210 21$: ENDSEG
      015210
      015210 104405
3196 015212 BGNSEG
      015212 104404
3197 015214 052777 000010 165056 BIS #10,@CSRX
3198 015222 112777 000220 165040 MOVB #220,@ICRHX
3199 015230 004737 011072 JSR PC,WAIT
3200 015234 042777 000010 165036 BIC #10,@CSRX
3201 015242 012737 000001 002374 MOV #1,CHAN
3202 015250 017737 164774 002502 MOV @IIRX,BAD
3203 015256 005737 002502 TST BAD
3204 015262 001407 BEQ 22$
3205 015264 005037 002500 CLR GOOD
3206 015270 ERRSOFT 414,E501,ERR501
      015270 104457
      015272 000636
      015274 005406
      015276 003702
3207 015300 CKLOOP
      015300 104406
3208 015302 017737 164750 002502 22$: MOV @ISRX,BAD
3209 015310 022737 120440 002502 CMP #120440,BAD

```

```

;GET ISR1 CONTENTS
;ATN,NDAC,IFC,ATN SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 411
.WORD E502
.WORD ERR501
TRAP C$CLP1

```

```

;BRANCH TO BGNSEG IF ERRLOOP IS SET
;SELECT CHANNEL 2
;LOAD CHANNEL FLAG
;GET IIR2 CONTENTS
;BO BIT IN IIR2 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 412
.WORD E501
.WORD ERR501
TRAP C$CLP1

```

```

;BRANCH TO BGNSEG IF ERRLOPP IS SET
;----LOAD NOT SIC IN ICR2 (ACR)-----
;GET IIR2 CONTENTS
;IIR2 SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 413
.WORD E501
.WORD ERR501

```

```

10002$: TRAP C$ESEG
TRAP C$BSEG

```

```

;SELECT CHANNEL 2
;----LOAD SRE IN ACR 2-----
;WAIT 100 US.
;SELECT CHANNEL 1
;LOAD CHANNEL FLAG
;GET IIR1 CONTENTS
;IIR 1 SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 414
.WORD E501
.WORD ERR501

```

```

;BRANCH TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

```

```

;GET ISR1 CONTENTS
;ATN,NDAC,REN,ATN BITS SHOULD BE SET

```

```

3210 015316 001410
3211 015320 012737 120440 002500 BEQ 23$
3212 015326 104457 MOV #120440,GOOD
015330 000637 ERRSOFT 415,E502,ERR501
015332 005447
015334 003702
3213 015336 CKLOOP
015336 104406
3214 015340 052777 000010 164732 23$: BIS #10,@CSRX
3215 015346 012737 000002 002374 MOV #2,CHAN
3216 015354 017737 164670 002502 MOV @IIRX,BAD
3217 015362 005737 002502 TST BAD
3218 015366 001407 BEQ 24$
3219 015370 005037 002500 CLR GOOD
3220 015374 ERRSOFT 416,E501,ERR501
015374 104457
015376 000640
015400 005406
015402 003702
3221 015404 CKLOOP
015404 104406
3222 015406 017737 164644 002502 24$: MOV @ISRX,BAD
3223 015414 022737 120440 002502 CMP #120440,BAD
3224 015422 001410 BEQ 25$
3225 015424 012737 120440 002500 MOV #120440,GOOD
3226 015432 ERRSOFT 417,E502,ERR501
015432 104457
015434 000641
015436 005447
015440 003702
3227 015442 CKLOOP
015442 104406
3228 015444 112777 000020 164616 25$: MOVB #20,@ICRHX
3229 015452 112777 000200 164610 MOVB #200,@ICRHX
3230 015460 112777 000000 164602 MOVB #0,@ICRHX
3231 015466 ENDSEG
015466 104405
3232 015470 005737 002234 TST QVP
3233 015474 001010 BNE EXQV4
3234 015476 005237 002322 INC ITRCNT
3235 015502 023737 002320 002322 CMP ITRDEF,ITRCNT
3236 015510 001402 BEQ EXQV4
3237 015512 000137 014130 JMP ITRAC4
3238 015516 EXQV4: EXIT TST
015516 104432
015520 000052
3239
3240
3241 015522 045 123 062 TSHD4: .NLIST BEX
3242 .ASCII /%S2%ASystem CONTROLLER COMMANDS TEST%N/
3243 .LIST BEX
3244 015572
015572
015572 104401

```

L10031:

TRAP C\$E1ST

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 47
TEST 5: INTERRUPT TEST

```

3246 .SBTTL TEST 5: INTERRUPT TEST
3247 *****
3248 IEX - TEST 5
3249 :PART 1 CHECKS THE DEVICE PRIORITY LEVEL AND
3250 :THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 1. INITIATING THIS
3251 :SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB BITS IN CSR1
3252 :AND BO BIT IN IIR1 REGISTER.
3253 :
3254 :PART 2 CHECKS THE DEVICE PRIORITY LEVEL AND
3255 :THE FUNCTION OF INTERRUPT SEQUENCE IN CHANNEL 2. INITIATING THIS
3256 :SEQUENCE WILL BE DONE BY SETTING THE INT ENB, DMA ENB BITS IN CSR2
3257 :AND BO BIT IN IIR2 REGISTER.
3258 *****
3259 BGNTST
3260 015574 005737 002324 TST PNTF ;IS THE PNT FLAG SET
3261 015600 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3262 015602 PRINTF #TSHD5 ;...
3263 015602 012746 016732 MOV #TSHD5,-(SP)
3264 015606 012746 000001 MOV #1,-(SP)
3265 015612 010600 MOV SP,R0
3266 015614 104417 TRAP C$PNTF
3267 015616 062706 000004 ADD #4,SP
3268 015622 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
3269 015626 004737 010220 ITRAC5: JSR PC,CULPA ;RESET HARDWARE
3270 015632 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
3271 015636 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NO.
3272 015644 BGNSEG
3273 015644 104404 TRAP C$BSEG
3274 015646 005037 002376 CLR INTFC1 ;CLEAR INTERRUPT FLAG FOR CHANNEL 1
3275 015652 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG FOR CHANNEL 2
3276 015656 012746 000340 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHA.1
3277 015662 012746 010142 MOV #PRI07,-(SP)
3278 015666 013746 002244 MOV #INTSC1,-(SP)
3279 015672 012746 000003 MOV VECC1,-(SP)
3280 015676 104437 MOV #3,-(SP)
3281 015700 062706 000010 TRAP C$SVEC
3282 015704 SETVEC VECC2,#INTERR,#PRI07 ;
3283 015704 012746 000340 MOV #PRI07,-(SP)
3284 015710 012746 010162 MOV #INTERR,-(SP)
3285 015714 013746 002246 MOV VECC2,-(SP)
3286 015720 012746 000003 MOV #3,-(SP)
3287 015724 104437 TRAP C$SVEC
3288 015726 062706 000010 ADD #10,SP
3289 015732 SETPRI #PRI07 ;NO INTERRUPT
3290 015732 012700 000340 MOV #PRI07,R0
3291 015736 104441 TRAP C$SPRI
3292 015740 112777 000020 164312 MOVB #20,@ISRLX ;:::SET BO BIT IN ISR1
3293 015746 052777 000101 164324 BIS #101,@CSRX ;:::SET INT ENB AND DMA ENB BIT IN CSR
3294 015754 012701 000010 MOV #10,R1 ;:::SET PRIORITY COUNTER
3295 .LIST MEB
3296 PRIT INTFC1,501,ERR402 ;:::TRY WITH INTERRUPT
3297 015760 005737 002376 TST INTFC1 ;INTERRUPT OCCURED?
3298 015764 001040 BNE 64$ ;BRANCH IF YES
3299 015766 005301 DEC R1 ;CHECKSUM = 7
3300 015770 012700 000300 MOV #PRI06,R0

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 47-1
TEST 5: INTERRUPT TEST

Address	Hex	Dec	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op41
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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 47-2
TEST 5: INTERRUPT TEST

```

3300 016206 017737 164036 002502      MOV    @IIRX,BAD      ;GET IIR1 CONTENTS
3301 016214 022737 000220 002502      CMP    #220,BAD      ;INT0,B0 SHOULD BE SET
3302 016222 001407          BEQ    33$      ;BRANCH IF YES
3303 016224 012737 000220 002500      MOV    #220,GOOD      ;SET UP DATA FOR ERROR MESSAGE
3304 016232          ERRSOF1 504,E501,ERR501 ;ERROR HANDLER
      016232 104457          TRAP    C$ERSOF1
      016234 000770          .WORD  504
      016236 005406          .WORD  E501
      016240 003702          .WORD  ERR501
3305 016242          33$:  ENDSEG
      016242          10000$:
      016242 104405          TRAP    C$ESEG
3306 016244          CLRVEC  VECC2      ;RESTORE INTERRUPT VECTOR
      016244 013700 002246          MOV    VECC2,R0
      016250 104436          TRAP    C$CVEC
3307          CLRVEC  VECC1      ;(DISABLE INTERRUPT)
3308 016252          ....
      016252 013700 002244          MOV    VECC1,R0
      016256 104436          TRAP    C$CVEC
3309          ;-----
3310          ;PART 2 CHECK THE INTERRUPT FUNCTION AND THE PRIORITY LEVEL OF CHANNEL 2
3311          ;-----
3312 016260 004737 010710      JSR    PC,BGIN2      ;SET UP PARAMETER FOR CHAN 2
3313 016264          SETVEC  VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
      016264 012746 000340      MOV    #PRI07,-(SP)
      016270 012746 010152      MOV    #INTSC2,-(SP)
      016274 013746 002246      MOV    VECC2,-(SP)
      016300 012746 000003      MOV    #3,-(SP)
      016304 104437          TRAP    C$SVEC
      016306 062706 000010      ADD    #10,SP
3314 016312          SETVEC  VECC1,#INTERR,#PRI07 ;SET VECTOR FOR CHANNEL 1
      016312 012746 000340      MOV    #PRI07,-(SP)
      016316 012746 010162      MOV    #INTERR,-(SP)
      016322 013746 002244      MOV    VECC1,-(SP)
      016326 012746 000003      MOV    #3,-(SP)
      016332 104437          TRAP    C$SVEC
      016334 062706 000010      ADD    #10,SP
3315 016340          BGNSEG
      016340 104404          TRAP    C$BSEG
3316 016342 005037 002376      CLR    INTFC1      ;CLEAR OLD FLAG
3317 016346 005037 002400      CLR    INTFC2
3318 016352          SETPRI  #PRI07      ;NO INTERRUPT
      016352 012700 000340      MOV    #PRI07,R0
      016356 104441          TRAP    C$SPRI
3319 016360 112777 000020 163672      MOVB   #20,@ISRLX      ;:::SET B0 BIT IN ISR2 REGISTER
3320 016366 052777 000101 163704      BIS    #101,@CSRX      ;:::SET INT ENB,DMA ENB IN CSR2
3321 016374 012701 000010      MOV    #10,R1      ;:::SET PRIORITY COUNTER
3322          .LIST  MEB
3323 016400          PRIT    INTFC2,505,ERR402      ;:::TRY INTERRUPT
      016400 005737 002400      TST    INTFC2      ;INTERRUPT OCCURED?
      016404 001040          BNE    65$      ;BRANCH IF YES
      016406 005301          DEC    R1      ;CHECKSUM = 7
      016410 012700 000300      MOV    #PRI06,R0
      016414 104441          TRAP    C$SPRI
      016416 005737 002400      TST    INTFC2      ;INTERRUPT OCCURED?
      016422 001031          BNE    65$      ;BRANCH IF YES
      016424 005301          DEC    R1      ;CHECKSUM = 6

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 47-3
TEST 5: INTERRUPT TEST

```

016426 012700 000240                                MOV    #PRI05,R0
016432 104441                                TRAP   C$SPRI
016434 005737 002400                                TST    INTFC2      ;INTERRUPT OCCURED?
016440 001022                                BNE    65$         ;BRANCH IF YES
016442 005301                                DEC     R1         ;CHECKSUM = 5
016444 012700 000200                                MOV    #PRI04,R0
016450 104441                                TRAP   C$SPRI
016452 005737 002400                                TST    INTFC2      ;INTERRUPT OCCURED?
016456 001013                                BNE    65$         ;BRANCH IF YES
016460 005301                                DEC     R1         ;CHECKSUM = 4
016462 012700 000140                                MOV    #PRI03,R0
016466 104441                                TRAP   C$SPRI
016470 005737 002400                                TST    INTFC2      ;INTERRUPT OCCURED?
016474 001004                                BNE    65$         ;BRANCH IF YES
016476 104457                                TRAP   C$ERSOFT
016500 000771                                .WORD  505
016502 005316                                .WORD  E402
016504 003654                                .WORD  ERR402
016506 000240
3324 3325 016510                                65$: NOP
016510 012700 000340                                .NLIST MEB
016514 104441                                SETPRI #PRI07      ;SET PRIORITY
3326 016516 106301                                ASLB   R1           ;CREATE CORRECT PRI. FOR COMPARISON
3327 016520 106301                                ASLB   R1           ....
3328 016522 106301                                ASLB   R1           ....
3329 016524 106301                                ASLB   R1           ....
3330 016526 106301                                ASLB   R1           ....
3331 016530 020137 002316                                CMP     R1,PLEV     ;CHECK INTERRUPT PRIORITY
3332 016534 001412                                BEQ     40$         ;BRANCH IF INTERRUPT PRI.WAS OK
3333 016536 010137 002502                                MOV     R1,BAD      ;SET UP DATA FOR ERROR MESSAGE
3334 016542 013737 002316 002500                                MOV     PLEV,GOOD
3335 016550                                ERRSOFT 506,E403,ERR401 ;ERROR HANDLER
016550 104457                                TRAP   C$ERSOFT
016552 000772                                .WORD  506
016554 005353                                .WORD  E403
016556 003616                                .WORD  ERR401
3336 016560                                CKLOOP             ;BRANCH TO BGNSEG IF ERRLOOP IS SET
016560 104406                                TRAP   C$CLP1
3337 016562                                40$:
3338 016562 017737 163512 002502                                MOV     @CSRX,BAD
3339 016570 042737 017000 002502                                BIC     #17000,BAD
3340 016576 022737 000212 002502                                CMP     #212,BAD
3341 016604 001410                                BEQ     43$
3342 016606 012737 000212 002500                                MOV     #212,GOOD
3343 016614                                ERRSOFT 507,E401,ERR501 ;ERROR HANDLER
016614 104457                                TRAP   C$ERSOFT
016616 000773                                .WORD  507
016620 005265                                .WORD  E401
016622 003702                                .WORD  ERR501
3344 016624                                CKLOOP             ;BRANCH BACK TO BGNSEG IF ERRLOOP SET
016624 104406                                TRAP   C$CLP1
3345 016626                                43$:
3346 016626 017737 163416 002502                                MOV     @IIRX,BAD
3347 016634 022737 000220 002502                                CMP     #220,BAD
3348 016642 001407                                BEQ     50$
3349 016644 012737 000220 002500                                MOV     #220,GOOD

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 47-4
TEST 5: INTERRUPT TEST

```

3350 016652          ERRSOF 508,E501,ERR501          ;ERROR HANDLER
      016652 104457
      016654 000774
      016656 005406
      016660 003702
3351 016662          50$: ENDSEG
      016662
      016662 104405
3352 016664          CLRVEC VECC1
      016664 013700 002244
      016670 104436
3353 016672          CLRVEC VECC2
      016672 013700 002246
      016676 104436
3354 016700          TST      QVP
3355 016704          BNE      EXQV5
3356 016706          INC      ITRCNT
3357 016712          CMP      ITRDEF,ITRCNT
3358 016720          BEQ      EXQV5
3359 016722          JMP      ITRAC5
3360 016726          EXQV5: EXIT TST
      016726 104432
      016730 000030
3361
3362
3363 016732          045      123      062 TSHD5: .NLIST BEX
3364          .ASCII /%S2%AINTERRUPT TEST%N/
3365          .LIST  BEX
3366 016760          .EVEN
      016760
      016760 104401

```

10001\$: TRAP C\$ESEG
;RESTORE VECTOR (DICABLE INTERRUPT)
MOV VECC1,RO
TRAP C\$CVEC
;...
MOV VECC2,RO
TRAP C\$CVEC
;IS QUICK VERIFY PASS SELECTED
;IF YES EXIT TEST
;ITERATION COUNTER + 1
;DEFAULT ITERATION EXECUTED
;IF YES EXIT TEST
;IF NO TEST ITERATION
TRAP C\$EXIT
.WORD L10032-.

L10032: TRAP C\$E1ST

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

3368 .SBTTL TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1
3369 .....
3370 IEX - TEST 6
3371
3372 PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 1 (ADR) BY LOADING ITS
3373 DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING THE ASSIGNED
3374 LISTEN OR TALK ADDRESS VIA THE IEC/IEEE BUS.
3375 NOTE: THE ULPA BIT IN THE ISR1 REGISTER IS DEPENDENT
3376 ON THE STATUS OF DPA1 (ODD DPA1 => ULPA IS SET)
3377
3378 PART 2 CHECKS THE FUNCTION OF THE DAT BIT (DISABLES THE TALK FUNCTION),
3379 THE DAL BIT (DISABLES THE LISTEN FUNCTION) AND THE EDPA BIT (ENABLES
3380 THE DUAL PRIMARY ADDRESSING MODE, WHICH ARE ALSO PRESENT IN THE
3381 ADR1 REGISTER.
3382
3383 IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION WILL DO
3384 IT WITH DIFFERENT DPA'S.
3385 .....
3386 BGNTEST
3387
3387 016762 005737 002324 TST PNTF ;IS THE PNT FLAG SET
3388 016766 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3389 016770 PRINTF #TSHD6 ;...
3389 016770 012746 023000 MOV #TSHD6,-(SP)
3389 016774 012746 000001 MOV #1,-(SP)
3389 017000 010600 MOV SP,R0
3389 017002 104417 TRAP ($PNTF
3389 017004 062706 000004 ADD #4,SP
3390 017010 005037 002322 7$: CLR ITRCNT ;CLEAR COUNTER
3391 017014 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
3392 017020 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
3393 017024 013701 002312 A1: MOV DPA1,R1 ;GET DPA1 ADDRESS
3394 017030 062701 000040 ADD #40,R1 ;CREATE MY LISTENER ADDRESS (MLA)
3395 017034 010137 002410 MOV R1,MLA1 ;STORE MLA
3396 017040 032737 000001 002312 BIT #1,DPA1 ;IS DPA EVEN
3397 017046 001420 BEQ 3$ ;BRANCH IF YES
3398 017050 052737 000001 002434 BIS #1,CDAT1 ;SET ULPA BIT IN COMPARE DATA FOR ISR
3399 017056 052737 000001 002436 BIS #1,CDAT2 ;...
3400 017064 052737 000001 002440 BIS #1,CDAT3 ;...
3401 017072 052737 000001 002442 BIS #1,CDAT4 ;...
3402 017100 052737 000001 002444 BIS #1,CDAT5 ;...
3403 017106 000417 BR .+40 ;BRANCH TO BGNSEG
3404 017110 042737 000001 002434 3$: BIC #1,CDAT1 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3405 017116 042737 000001 002436 BIC #1,CDAT2 ;...
3406 017124 042737 000001 002440 BIC #1,CDAT3 ;...
3407 017132 042737 000001 002442 BIC #1,CDAT4 ;...
3408 017140 042737 000001 002444 BIC #1,CDAT5 ;...
3409 017146 BGNSEG
3409 017146 104404 TRAP ($BSEG
3410 017150 052777 000010 163122 BIS #10,ACSRX ;SELECT CHANNEL 2
3411 017156 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
3412 017164 113777 002410 163104 MOVB MLA1,@IDRHX ;-----LOAD MLA1 INTO DOR 2-----
3413 017172 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3414 017176 017737 163046 002502 MOV @IIRX,BAD ;GET IIR2 CONTENTS
3415 017204 022737 000020 002502 CMP #20,BAD ;BO BIT SHOULD BE SET
3416 017212 001410 BEQ 10$ ;BRANCH IF YES
3417 017214 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGES

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 48-1
TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

3418 017222 ERRSOFT 601,E501,ERR501
      017222 104457
      017224 001131
      017226 005406
      017230 003702
3419 017232 CKLOOP
      017232 104406
3420 017234 017737 163016 002502 10$: MOV @ISRX,BAD
3421 017242 022737 120040 002502 CMP #120040,BAD
3422 017250 001410 BEQ 20$
3423 017252 012737 120040 002500 MOV #120040,GOOD
3424 017260 ERRSOFT 602,E502,ERR501
      017260 104457
      017262 001132
      017264 005447
      017266 003702
3425 017270 CKLOOP
      017270 104406
3426 017272 042777 000010 163000 20$: BIC #10,@CSRX
3427 017300 012737 000001 002374 MOV #1,CHAN
3428 017306 017737 162736 002502 MOV @IIRX,BAD
3429 017314 022737 002401 002502 CMP #2401,BAD
3430 017322 001410 BEQ 30$
3431 017324 012737 002401 002500 MOV #2401,GOOD
3432 017332 ERRSOFT 603,E501,ERR501
      017332 104457
      017334 001133
      017336 005406
      017340 003702
3433 017342 CKLOOP
      017342 104406
3434 017344 017737 162706 002502 30$: MOV @ISRX,BAD
3435 017352 023737 002444 002502 CMP @DAT5,BAD
3436 017360 001410 BEQ 40$
3437 017362 013737 002444 002500 MOV @DAT5,GOOD
3438 017370 ERRSOFT 604,E502,ERR501
      017370 104457
      017372 001134
      017374 005447
      017376 003702
3439 017400 CKLOOP
      017400 104406
3440 017402 052777 000010 162670 40$: BIS #10,@CSRX
3441 017410 012737 000002 002374 MOV #2,CHAN
3442 017416 112777 000077 162652 MOVB #77,@IDRHX
3443 017424 004737 011060 JSR PC,LOOP
3444 017430 017737 162614 002502 MOV @IIRX,BAD
3445 017436 022737 000020 002502 CMP #20,BAD
3446 017444 001410 BEQ 50$
3447 017446 012737 000020 002500 MOV #20,GOOD
3448 017454 ERRSOFT 605,E501,ERR501
      017454 104457
      017456 001135
      017460 005406
      017462 003702
3449 017464 CKLOOP
      017464 104406

```

```

;ERROR HANDLER
      TRAP C$ERSOFT
      .WORD 601
      .WORD E501
      .WORD ERR501
;BRANCH TO BGNSEG WHEN ERROR LOOP IS SET
      TRAP C$CLP1
;GET ISR2 CONTENTS
;ATN,ATN,NDAC BIT OF ISR2 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP C$ERSOFT
      .WORD 602
      .WORD E502
      .WORD ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP C$CLP1
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;MA,MAC,IFC,BIT IN IIR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP C$ERSOFT
      .WORD 603
      .WORD E501
      .WORD ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP C$CLP1
;GET ISR1 CONTENTS
;ATN,ATN,LADS,NDAC LPAS,(ULPA) BIT SET
;BRANCH IF YES
;SET UP DATA FOR EPROR MESSAGES
;ERROR HANDLER
      TRAP C$ERSOFT
      .WORD 604
      .WORD E502
      .WORD ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP C$CLP1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;-----LOAD UNL INTO DOR-----
;WAIT A LITTLE
;GET IIR2 CONTENTS
;CHECK BO BIT IN IIR2
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP C$ERSOFT
      .WORD 605
      .WORD E501
      .WORD ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP C$CLP1

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 48-2
TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

Address	Hex	Hex	Hex	Hex	Label	Assembly	Comment
3450	017466	017737	162564	002502	50\$:	MOV	@ISRX,BAD
3451	017474	022737	120040	002502		CMP	#120040,BAD
3452	017502	001410				BEO	60\$
3453	017504	012737	120040	002500		MOV	#120040,GOOD
3454	017512					ERRSOFT	606,E502,ERR501
	017512	104457					
	017514	001136					
	017516	005447					
	017520	003702					
3455	017522					CKLOOP	
	017522	104406					
3456	017524	042777	000010	162546	60\$:	BIC	#10,@CSRX
3457	017532	012737	000001	002374		MOV	#1,CHAN
3458	017540	017737	162504	002502		MOV	@IIRX,BAD
3459	017546	122737	000001	002502		CMPB	#1,BAD
3460	017554	001410				BEO	11\$
3461	017556	012737	000001	002500		MOV	#1,GOOD
3462	017564					ERRSOFT	607,E501,ERR501
	017564	104457					
	017566	001137					
	017570	005406					
	017572	003702					
3463	017574					CKLOOP	
	017574	104406					
3464	017576	017737	162454	002502	11\$:	MOV	@ISRX,BAD
3465	017604	023737	002434	002502		CMP	CDAT1,BAD
3466	017612	001407				BEO	12\$
3467	017614	013737	002434	002500		MOV	CDAT1,GOOD
3468	017622					ERRSOFT	608,E502,ERR501
	017622	104457					
	017624	001140					
	017626	005447					
	017630	003702					
3469	017632				12\$:	ENDSEG	
	017632						
	017632	104405					
3470	017634					BGNSEG	
	017634	104404					
3471	017636	052777	000010	162434		BIS	#10,@CSRX
3472	017644	012737	000002	002374		MOV	#2,CHAN
3473	017652	013701	002312			MOV	DPA1,R1
3474	017656	062701	000100			ADD	#100,R1
3475	017662	010137	002414			MOV	R1,MTA1
3476	017666					ENDSEG	
	017666						
	017666	104405					
3477	017670					BGNSEG	
	017670	104404					
3478	017672	113777	002414	162376		MOVB	MTA1,@IDRHX
3479	017700	004737	011060			JSR	PC,LOOP
3480	017704	017737	162340	002502		MOV	@IIRX,BAD
3481	017712	022737	000020	002502		CMP	#20,BAD
3482	017720	001410				BEO	13\$
3483	017722	012737	000020	002500		MOV	#20,GOOD
3484	017730					ERRSOFT	609,E501,ERR501
	01773						

```

;GET ISR2 CONTENTS
;ATN,ATN,NDAC BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     606
                                .WORD     E502
                                .WORD     ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;MAC BIT IN IIR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     607
                                .WORD     E501
                                .WORD     ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1

;GET ISR1 CONTENTS
;ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     608
                                .WORD     E502
                                .WORD     ERR501

                                10000$:
                                TRAP      C$ESEG

                                TRAP      C$BSEG

;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;LOAD DPA1 IN R1
;CREATE MY TALKER ADDRESS (MTA)
;SAVE MTA

                                10001$:
                                TRAP      C$ESEG

                                TRAP      C$BSEG
;---LOAD TALKER ADDR. INTO DOR 2-----
;WAIT A LITTLE
;GET IIR2 CONTENTS
;PO BIT IN IIR2 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     609

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 48-3
 TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

017734 005406
017736 003702
3485 017740 CKLOOP
017740 104406
3486 017742 017737 162310 002502 13$: MOV @ISRX,BAD
3487 017750 022737 120040 002502 CMP #120040,BAD
3488 017756 001410 BEQ 14$
3489 017760 012737 120040 002500 MOV #120040,GOOD
3490 017766 ERRSOFT 610,E502,ERR501
017766 104457
017770 001142
017772 005447
017774 003702
3491 017776 CKLOOP
017776 104406
3492 020000 042777 000010 162272 14$: BIC #10,@CSRX
3493 020006 012737 000001 002374 MOV #1,CHAN
3494 020014 017737 162230 002502 MOV @IIRX,BAD
3495 020022 022737 002001 002502 CMP #2001,BAD
3496 020030 001410 BEQ 15$
3497 020032 012737 002001 002500 MOV #2001,GOOD
3498 020040 ERRSOFT 611,E501,ERR501
020040 104457
020042 001143
020044 005406
020046 003702
3499 020050 CKLOOP
020050 104406
3500 020052 017737 162200 002502 15$: MOV @ISRX,BAD
3501 020060 023737 002440 002502 CMP @DAT3,BAD
3502 020066 001410 BEQ 16$
3503 020070 013737 002440 002500 MOV @DAT3,GOOD
3504 020076 ERRSOFT 612,E502,ERR501
020076 104457
020100 001144
020102 005447
020104 003702
3505 020106 CKLOOP
020106 104406
3506 020110 052777 000010 162162 16$: BIS #10,@CSRX
3507 020116 012737 000002 002374 MOV #2,CHAN
3508 020124 112777 000137 162144 MOVB #137,@IDRMX
3509 020132 004737 011060 JSR PC,LOOP
3510 020136 017737 162106 002502 MOV @IIRX,BAD
3511 020144 022737 000020 002502 CMP #20,BAD
3512 020152 001410 BEQ 21$
3513 020154 012737 000020 002500 MOV #20,GOOD
3514 020162 ERRSOFT 613,E501,ERR501
020162 104457
020164 001145
020166 005406
020170 003702
3515 020172 CKLOOP
020172 104406
3516 020174 017737 162056 002502 21$: MOV @ISRX,BAD
3517 020202 022737 120040 002502 CMP #120040,BAD
3518 020210 001410 BEQ 22$

```

```

.WORD E501
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:GET ISR2 CONTENTS
:ATN,ATN,NDAC BIT IN ISR2 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 610
.WORD E502
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:GET IIR1 CONTENTS
:MA,MAC,BIT IN IIR1 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 611
.WORD E501
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:GET ISR1 CONTENTS
:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 612
.WORD E502
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:-----LOAD UNIT INTO DOR 2-----
:WAIT A LITTLE
:GET IIR2 CONTENTS
:BO BIT IN IIR2 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 613
.WORD E501
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:GET ISR2 CONTENTS
:ATN,ATN,NDAC IN ISR2 SHOULD BE SET
:BRANCH IF YES

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 48-4
TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

```

3519 020212 012737 120040 002500      MOV      #120040,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3520 020220      ERRSOFT 614,E502,ERR501      ;ERROR HANDLER
      020220      104457      TRAP      C$ERSOFT
      020222      001146      .WORD      614
      020224      005447      .WORD      E502
      020226      003702      .WORD      ERR501
3521 020230      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      020230      104406      TRAP      C$CLP1
3522 020232 042777 000010 162040 22$: BIC      #10,@CSRX      ;SELECT CHANNEL 1
3523 020240 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
3524 020246 017737 161776 002502      MOV      @IIRX,BAD      ;GET IIR1 CONTENTS
3525 020254 022737 000001 002502      CMP      #1,BAD      ;MAC BIT IN IIR1 SHOULD BE SET
3526 020262 001410      BEQ      23$      ;BRANCH IF YES
3527 020264 012737 000001 002500      MOV      #1,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3528 020272      ERRSOFT 615,E501,ERR501      ;ERROR HANDLER
      020272      104457      TRAP      C$ERSOFT
      020274      001147      .WORD      615
      020276      005406      .WORD      E501
      020300      003702      .WORD      ERR501
3529 020302      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      020302      104406      TRAP      C$CLP1
3530 020304 017737 161746 002502 23$: MOV      @ISRX,BAD      ;GET ISR1 CONTENTS
3531 020312 023737 002434 002502      CMP      CDAT1,BAD      ;ATN,ATN,NDAC,(ULPA)BITS SHOULD BE SET
3532 020320 001407      BEQ      24$      ;BRANCH IF YES
3533 020322 013737 002434 002500      MOV      CDAT1,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3534 020330      ERRSOFT 616,E502,ERR501      ;ERROR HANDLER
      020330      104457      TRAP      C$ERSOFT
      020332      001150      .WORD      616
      020334      005447      .WORD      E502
      020336      003702      .WORD      ERR501
3535 020340      24$: ENDSEC
      020340      10002$: TRAP      C$ESEG
      020340      104405
3536      ;-----
3537      ;PART 2 OF THE ADDRESS REGISTER TEST.
3538      ;THIS PART CHECKS THE 'DAL','DAT','EDPA' BITS IN THE IEEE
3539      ; ADDRESS REGISTER.
3540      ;-----
3541 020342 013701 002312      MOV      DPA1,R1      ;GET DEVICE PRIM. ADDR. 1
3542 020346 052701 000040      BIS      #40,R1      ;ADD DAT BIT TO DAP1
3543 020352 110177 161676      MOV      R1,@IIR4X      ;LOAD DEVICE PRIM. ADDR.1 + DAT BIT
3544 020356      BGNSEG      TRAP      C$BSEG
      020356      104404
3545 020360 052777 000010 161712      BIS      #10,@CSRX      ;SELECT CHANNEL 2
3546 020366 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
3547 020374 113777 002410 161674      MOV      MLA1,@IDRHX      ;----LOAD MLA IN DOR REGISTER-----
3548 020402 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
3549 020406 042777 000010 161664      BIS      #10,@CSRX      ;SELECT CHANNEL 1
3550 020414 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
3551 020422 017737 161630 002502      MOV      @ISRX,BAD      ;GET ISR1 CONTENTS
3552 020430 023737 002444 002502      CMP      CDAT5,BAD      ;ATN,ATN,LADS,NDAC,LPAS,(ULPA)BIT SET
3553 020436 001410      BEQ      40$      ;BRANCH IF YES
3554 020440 013737 002444 002500      MOV      CDAT5,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3555 020446      ERRSOFT 617,E502,ERR501      ;ERROR HANDLER
      020446      104457      TRAP      C$ERSOFT
      020450      001151      .WORD      617
      020452      005447      .WORD      E502

```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 48-5
TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

Address	Hex	Hex	Hex	Hex	Label	Comment
020454	003702					
3556 020456					CKLOOP	
020456	104406					
3557 020460	052777	000010	161612	40\$:	BIS	#10,@CSRX
3558 020466	012737	000002	002374		MOV	#2,CHAN
3559 020474	112777	000077	161574		MOVB	#77,@IDRHX
3560 020502	004737	011060			JSR	PC,LOOP
3561 020506	042777	000010	161564		BIC	#10,@CSRX
3562 020514	012737	000001	002374		MOV	#1,CHAN
3563 020522	017737	161530	002502		MOV	@ISRX,BAD
3564 020530	023737	002434	002502		CMP	CDAT1,BAD
3565 020536	001407				BEQ	12\$
3566 020540	013737	002434	002500		MOV	CDAT1,GOOD
3567 020546					ERRSOFT	618,E502,ERR501
020546	104457					
020550	001152					
020552	005447					
020554	003702					
3568 020556				12\$:	ENDSEG	
020556						
020556	104405					
3569 020560					BGNSEG	
020560	104404					
3570 020562	052777	000010	161510		BIS	#10,@CSRX
3571 020570	012737	000002	002374		MOV	#2,CHAN
3572 020576	113777	002414	161472		MOVB	MTA1,@IDRHX
3573 020604	004737	011060			JSR	PC,LOOP
3574 020610	042777	000010	161462		BIC	#10,@CSRX
3575 020616	012737	000001	002374		MOV	#1,CHAN
3576 020624	017737	161426	002502		MOV	@ISRX,BAD
3577 020632	023737	002436	002502		CMP	CDAT2,BAD
3578 020640	001407				BEQ	33\$
3579 020642	013737	002436	002500		MOV	CDAT2,GOOD
3580 020650					ERRSOFT	619,E502,ERR501
020650	104457					
020652	001153					
020654	005447					
020656	003702					
3581 020660				33\$:	ENDSEG	
020660						
020660	104405					
3582 020662	013701	002312			MOV	DPA1,R1
3583 020666	052701	000100			BIS	#100,R1
3584 020672	110177	161356			MOVB	R1,@IRHX
3585 020676	052777	000010	161374		BIS	#10,@CSRX
3586 020704	012737	000002	002374		MOV	#2,CHAN
3587 020712					BGNSEG	
020712	104404					
3588 020714	113777	002410	161354		MOVB	MLA1,@IDRHX
3589 020722	004737	011060			JSR	PC,LOOP
3590 020726	042777	000010	161344		BIC	#10,@CSRX
3591 020734	012737	000001	002374		MOV	#1,CHAN
3592 020742	017737	161310	002502		MOV	@ISRX,BAD
3593 020750	023737	002442	002502		CMP	CDAT4,BAD
3594 020756	001407				BEQ	36\$
3595 020760	013737	002442	002500		MOV	CDAT4,GOOD
3596 020766					ERRSOFT	620,E502,ERR50

```

;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
;TRAP C$CLP1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;-----LOAD UNL INTO DOR-----
;WAIT A LITTLE
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET ISR1 CONTENTS
;ATN,ATN,NDAC,(ULPA)BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
;TRAP C$ERSOFT
;WORD 618
;WORD E502
;WORD ERR501

10003$:
;TRAP C$ESEG
;TRAP C$BSEG
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;-----LOAD MTA1 IN DOR REGISTER (IDR2)
;WAIT A LITTLE
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET ISR1 CONTENTS
;ATN,ATN,NDAC,TPAS,(ULPA)SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
;TRAP C$ERSOFT
;WORD 619
;WORD E502
;WORD ERR501

10004$:
;TRAP C$ESEG
;GET DEVICE PRIM. ADDR. 1
;SET DAL BIT
;----LOAD DPA1 + DAL BIT INTO ADR 1--
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;TRAP C$BSEG
;----LOAD MLA1 INTO DOR 2-----
;WAIT A LITTLE
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET ISR1 CONTENTS
;ATN,ATN,NDAC,LPAS,(ULPA)BITS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 48-6
TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

	020766	104457							TRAP	C\$ERSOFT
	020770	001154							.WORD	620
	020772	005447							.WORD	E502
	020774	003702							.WORD	ERR501
3597	020776				36\$:	ENDSEG				
	020776							10005\$:		
	020776	104405							TRAP	C\$ESEG
3598	021000					BGNSEG			TRAP	C\$BSEG
	021000	104404								
3599	021002	052777	000010	161270		BIS	#10,@CSRX		:SELECT CHANNEL 2	
3600	021010	012737	000002	002374		MOV	#2,CHAN		:GET CHANNEL NUMBER	
3601	021016	113777	002414	161252		MOVB	MTA1,@IDRHX		:----LOAD MTA1 INTO DOR 2-----	
3602	021024	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE	
3603	021030	042777	000010	161242		BIC	#10,@CSRX		:SELECT CHANNEL 1	
3604	021036	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER	
3605	021044	017737	161206	002502		MOV	@ISRX,BAD		:GET ISR1 CONTENTS	
3606	021052	023737	002440	002502		CMP	CDAT3,BAD		:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BITS SET	
3607	021060	001410				BEQ	16\$		:BRANCH IF YES	
3608	021062	013737	002440	002500		MOV	CDAT3,GOOD		:SET UP DATA FOR ERROR MESSAGE	
3609	021070					ERRSOFT	621,E502,ERR501		:ERROR HANDLER	
	021070	104457							TRAP	C\$ERSOFT
	021072	001155							.WORD	621
	021074	005447							.WORD	E502
	021076	003702							.WORD	ERR501
3610	021100					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET	
	021100	104406							TRAP	C\$CLP1
3611	021102	052777	000010	161170	16\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2	
3612	021110	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER	
3613	021116	112777	000137	161152		MOVB	#137,@IDRHX		:----LOAD UNT INTO DOR 2-----	
3614	021124	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE	
3615	021130	042777	000010	161142		BIC	#10,@CSRX		:SELECT CHANNEL 1	
3616	021136	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER	
3617	021144	017737	161106	002502		MOV	@ISRX,BAD		:GET ISR1 CONTENTS	
3618	021152	023737	002434	002502		CMP	CDAT1,BAD		:ATN,ATN,NDAC,(ULPA)BITS SHOULD BE SET	
3619	021160	001407				BEQ	24\$		:BRANCH IF YES	
3620	021162	013737	002434	002500		MOV	CDAT1,GOOD		:SET UP DATA FOR ERROR MESSAGES	
3621	021170					ERRSOFT	622,E502,ERR501		:ERROR HANDLER	
	021170	104457							TRAP	C\$ERSOFT
	021172	001156							.WORD	622
	021174	005447							.WORD	E502
	021176	003702							.WORD	ERR501
3622	021200				24\$:	ENDSEG				
	021200							10006\$:		
	021200	104405							TRAP	C\$ESEG
3623	021202	022737	000036	002312		CMP	#36,DPA1		:IS LAST DPA1 ADDRESS EXECUTED	
3624	021210	001002				BNE	25\$		:BRANCH IF NO	
3625	021212	000137	022636			JMP	TQVP6		:BRANCH IF YES	
3626	021216	042777	000010	161054	25\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1	
3627	021224	013701	002312			MOV	DPA1,R1		:GET DPA1	
3628	021230	052701	000200			BIS	#200,R1		:SET EDPA BIT	
3629	021234	110177	161014			MOVB	R1,@IDRHX		:----LOAD DPA1 & EDPA BIT INTO ADR 1----	
3630	021240					BGNSEG				
	021240	104404							TRAP	C\$BSEG
3631	021242	052777	000010	161030		BIS	#10,@CSRX		:SELECT CHANNEL 2	
3632	021250	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER	
3633	021256	113777	002410	161012		MOVB	MLA1,@IDRHX		:----LOAD MLA1 INTO DOR 2-----	
3634	021264	004737	011060		COPB1:	JSR	PC,LOOP		:WAIT A LITTLE	

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

3635	021270	042777	000010	161002	BIC	#10,@CSRX	;SELECT CHANNEL 1
3636	021276	012737	000001	002374	MOV	#1,CHAN	;LOAD CHANNEL NUMBER
3637	021304	017737	160746	002502	MOV	@ISRX,BAD	;GET ISR1 CONTENTS
3638	021312	023737	002444	002502	CMP	CDAT5,BAD	;ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
3639	021320	001410			BEQ	40\$	;BRANCH IF YES
3640	021322	013737	002444	002500	MOV	CDAT5,GOOD	;SET UP DATA FOR ERROR MESSAGES
3641	021330				ERRSOFT	623,E502,ERR501	;ERROR HANDLER
	021330	104457					TRAP C\$ERSOFT
	021332	001157					.WORD 623
	021334	005447					.WORD E502
	021336	003702					.WORD ERR501
3642	021340				CKLOOP		;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	021340	104406					TRAP C\$CLP1
3643	021342	052777	000010	160730	40\$: BIS	#10,@CSRX	;SELECT CHANNEL 2
3644	021350	012737	000002	002374	MOV	#2,CHAN	;LOAD CHANNEL NUMBER
3645	021356	112777	000077	160712	MOVB	#77,@IDRHX	;----LOAD UNL INTO DOR 2-----
3646	021364	004737	011060		JSR	PC,LOOP	;WAIT A LITTLE
3647	021370	042777	000010	160702	BIC	#10,@CSRX	;SELECT CHANNEL 1
3648	021376	012737	000001	002374	MOV	#1,CHAN	;LOAD CHANNEL NUMBER
3649	021404	017737	160646	002502	MOV	@ISRX,BAD	;GET ISR1 CONTENTS
3650	021412	023737	002434	002502	CMP	CDAT1,BAD	;ATN,ATN,NDAC,(ULPA)BITS SHOULD BE SET
3651	021420	001407			BEQ	12\$	;BRANCH IF YES
3652	021422	013737	002434	002500	MOV	CDAT1,GOOD	;SET UP DATA FOR ERROR MESSAGES
3653	021430				ERRSOFT	624,E502,ERR501	;ERROR HANDLER
	021430	104457					TRAP C\$ERSOFT
	021432	001160					.WORD 624
	021434	005447					.WORD E502
	021436	003702					.WORD ERR501
3654	021440				12\$: ENDSEG		
	021440						10007\$: TRAP C\$ESEG
	021440	104405					
3655	021442	052777	000010	160630	BIS	#10,@CSRX	;SELECT CHANNEL 2
3656	021450	012737	000002	002374	MOV	#2,CHAN	;LOAD CHANNEL NUMBER
3657	021456	113701	002410		MOVB	MLA1,R1	;GET MY LISTENER ADDRESS
3658	021462	032737	000001	002312	BIT	#1,DPA1	;IS DPA ODD
3659	021470	001021			BNE	13\$	;BRANCH IF YES
3660	021472	105201			INCB	R1	;CHANCH MLA1 TO ODD
3661	021474	052737	000001	002434	BIS	#1,CDAT1	;SET ULPA BIT IN COMPARE DATA FOR ISR
3662	021502	052737	000001	002436	BIS	#1,CDAT2	....
3663	021510	052737	000001	002440	BIS	#1,CDAT3	....
3664	021516	052737	000001	002442	BIS	#1,CDAT4	....
3665	021524	052737	000001	002444	BIS	#1,CDAT5	....
3666	021532	070420			BR	+42	;BRANCH TO BGNSEG
3667	021534	105301			DECB	R1	;CHANGE MLA1 TO EVEN
3668	021536	042737	000001	002434	BIC	#1,CDAT1	;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3669	021544	042737	000001	002436	BIC	#1,CDAT2	....
3670	021552	042737	000001	002440	BIC	#1,CDAT3	....
3671	021560	042737	000001	002442	BIC	#1,CDAT4	....
3672	021566	042737	000001	002444	BIC	#1,CDAT5	....
3673	021574				BGNSEG		
	021574	104404					TRAP C\$BSEG
3674	021576	052777	000010	160474	BIS	#10,@CSRX	;SELECT CHANNEL 2
3675	021604	012737	000002	002374	MOV	#2,CHAN	;LOAD CHANNEL NUMBER
3676	021612	110177	160460		MOVB	R1,@IDRHX	;----LOAD NEW MLA1 INTO DOR 2-----
3677	021616	004737	011060		JSR	PC,LOOP	;WAIT A LITTLE
3678	021622	042777	000010	160450	BIC	#10,@CSRX	;SELECT CHANNEL 1
3679	021630	012737	000001	002374	MOV	#1,CHAN	;LOAD CHANNEL NUMBER

COPC1:

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

3680	021636	017737	160414	002502	MOV	@ISRX,BAD	:GET ISR1 CONTENTS
3681	021644	023737	002444	002502	CMP	CDAT5,BAD	:ATN,ATN,LADS,NDAC,(ULPA),LPAS BITS SET
3682	021652	001410			BEQ	40\$	:BRANCH IF YES
3683	021654	013737	002444	002500	MOV	CDAT5,GOOD	:SET UP DATA FOR ERROR MESSAGES
3684	021662				ERRSOFT	625,E502,ERR501	:ERROR HANDLER
	021662	104457					TRAP C\$ERSOFT
	021664	001161					.WORD 625
	021666	005447					.WORD E502
	021670	003702					.WORD ERR501
3685	021672				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	021672	104406					TRAP C\$CLP1
3686	021674	052777	000010	160376	40\$: BIS	#10,@CSRX	:SELECT CHANNEL 2
3687	021702	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
3688	021710	112777	000077	160360	MOVB	#77,@IDRHX	:-----LOAD UNL INTO DOR 2-----
3689	021716	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
3690	021722	042777	000010	160350	BIC	#10,@CSRX	:SELECT CHANNEL 1
3691	021730	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
3692	021736	017737	160314	002502	MOV	@ISRX,BAD	:GET ISR1 CONTENTS
3693	021744	023737	002434	002502	CMP	CDAT1,BAD	:ATN,ATN,NDAC,(ULPA)BIT SHOULD BE SET
3694	021752	001407			BEQ	12\$	:BRANCH IF YES
3695	021754	013737	002434	002500	MOV	CDAT1,GOOD	:SET UP DATA FOR ERROR MESSAGES
3696	021762				ERRSOFT	626,E502,ERR501	:ERROR HANDLER
	021762	104457					TRAP C\$ERSOFT
	021764	001162					.WORD 626
	021766	005447					.WORD E502
	021770	003702					.WORD ERR501
3697	021772				12\$: ENDSEG		
	021772						10010\$: TRAP C\$ESEG
	021772	104405					
3698	021774	032737	000001	002312	BIT	#1,DPA1	:IS DPA EVEN
3699	022002	001420			BEQ	17\$	:BRANCH IF YES
3700	022004	052737	000001	002434	BIS	#1,CDAT1	:SET ULPA BIT IN COMPARE DATA FOR ISR
3701	022012	052737	000001	002436	BIS	#1,CDAT2	:...
3702	022020	052737	000001	002440	BIS	#1,CDAT3	:...
3703	022026	052737	000001	002442	BIS	#1,CDAT4	:...
3704	022034	052737	000001	002444	BIS	#1,CDAT5	:...
3705	022042	000417			BR	+40	:BRANCH TO BGNSEG
3706	022044	042737	000001	002434	17\$: BIC	#1,CDAT1	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3707	022052	042737	000001	002436	BIC	#1,CDAT2	:...
3708	022060	042737	000001	002440	BIC	#1,CDAT3	:...
3709	022066	042737	000001	002442	BIC	#1,CDAT4	:...
3710	022074	042737	000001	002444	BIC	#1,CDAT5	:...
3711	022102				BGNSEG		
	022102	104404					TRAP C\$BSEG
3712	022104	052777	000010	160166	BIS	#10,@CSRX	:SELECT CHANNEL 2
3713	022112	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
3714	022120	113777	002414	160150	MOVB	MTA1,@IDRHX	:-----LOAD MTA INTO DOR 2-----
3715	022126	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
3716	022132	042777	000010	160140	BIC	#10,@CSRX	:SELECT CHANNEL 1
3717	022140	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
3718	022146	017737	160104	002502	MOV	@ISRX,BAD	:GET ISR1 CONTENTS
3719	022154	023737	002440	002502	CMP	CDAT3,BAD	:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
3720	022162	001410			BEQ	16\$	:BRANCH IF YES
3721	022164	013737	002440	002500	MOV	CDAT3,GOOD	:SET UP DATA FOR ERROR MESSAGE
3722	022172				ERRSOFT	627,E502,ERR501	:ERROR HANDLER
	022172	104457					TRAP C\$ERSOFT
	022174	001163					.WORD 627

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

Address	Offset	Hex Data	Label	Comment	Machine Code	Assembly	Disassembly
022176	005447						
022200	003702						
3723	022202		CKLOOP				
022202	104406						
3724	022204	052777	000010	160066	16\$:	BIS	#10,@CSRX
3725	022212	012737	000002	002374		MOV	#2,CHAN
3726	022220	112777	000137	160050		MOVB	#137,@IDRMX
3727	022226	004737	011060			JSR	PC,LOOP
3728	022232	042777	000010	160040		BIC	#10,@CSRX
3729	022240	012737	000001	002374		MOV	#1,CHAN
3730	022246	017737	160004	002502		MOV	@ISRX,BAD
3731	022254	023737	002434	002502		CMP	CDAT1,BAD
3732	022262	001407				BEQ	24\$
3733	022264	013737	002434	002500		MOV	CDAT1,GOOD
3734	022272					ERRSOFT	628,E502,ERR501
022272	104457						
022274	001164						
022276	005447						
022300	003702						
3735	022302		24\$:	ENDSEG			
022302	104405						
3736	022304	052777	000010	157766		BIS	#10,@CSRX
3737	022312	012737	000002	002374		MOV	#2,CHAN
3738	022320	013701	002414			MOV	MTA1,R1
3739	022324	032737	000001	002312		BIT	#1,DPA1
3740	022332	001021				BNE	25\$
3741	022334	105201				INCB	R1
3742	022336	052737	000001	002434		BIS	#1,CDAT1
3743	022344	052737	000001	002436		BIS	#1,CDAT2
3744	022352	052737	000001	002440		BIS	#1,CDAT3
3745	022360	052737	000001	002442		BIS	#1,CDAT4
3746	022366	052737	000001	002444		BIS	#1,CDAT5
3747	022374	000420				BR	+42
3748	022376	105301				DECB	R1
3749	022400	042737	000001	002434	25\$:	BIC	#1,CDAT1
3750	022406	042737	000001	002436		BIC	#1,CDAT2
3751	022414	042737	000001	002440		BIC	#1,CDAT3
3752	022422	042737	000001	002442		BIC	#1,CDAT4
3753	022430	042737	000001	002444		BIC	#1,CDAT5
3754	022436					BGNSEG	
022436	104404						
3755	022440	052777	000010	157632		BIS	#10,@CSRX
3756	022446	012737	000002	002374		MOV	#2,CHAN
3757	022454	110177	157616			MOVB	R1,@IDRMX
3758	022460	004737	011060			JSR	PC,LOOP
3759	022464	042777	000010	157606	COPD1:	BIC	#10,@CSRX
3760	022472	012737	000001	002374		MOV	#1,CHAN
3761	022500	017737	157552	002502		MOV	@ISRX,BAD
3762	022506	023737	002440	002502		CMP	CDAT3,BAD
3763	022514	001410				BEQ	16\$
3764	022516	013737	002440	002500			

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TEST 6: ADDRESS REGISTER TEST OF CHANNEL 1

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3766 022534          CKLOOP          ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      022534 104406          TRAP      C$CLP1
3767 022536 052777 000010 157534 16$: BIS      #10,@CSRX
3768 022544 012737 000002 002374      MOV      #2,CHAN
3769 022552 112777 000137 157516      MOVB     #137,@IDRH
3770 022560 004737 011060          JSR      PC,LOOP
3771 022564 042777 000010 157506      BIC      #10,@CSRX
3772 022572 012737 000001 002374      MOV      #1,CHAN
3773 022600 017737 157452 002502      MOV      @ISRX,BAD
3774 022606 023737 002434 002502      CMP      CDAT1,BAD
3775 022614 001407          BEQ      24$
3776 022616 C13737 002434 002500      MOV      CDAT1,GOOD
3777 022624          ERRSOFT 630,E502,ERR501
      022624 104457
      022626 001166
      022630 C05447
      022632 003702
      022634          24$:      ENDSEG
3778 022634          10012$:
      022634 104405          TRAP      C$ESEG
3779 022636 005737 002234          TQVP6: TST      QVP
3780 022642 001054          BNE      EXQV6
3781 022644 005737 002322          TST      ITRCNT
3782 022650 001007          BNE      1$
3783 022652 013737 002312 002406      MOV      DPA1,SDPA
3784 022660 005037 002312          CLR      DPA1
3785 022664 005237 002322          INR      ITRCNT
3786 022670 005237 002312 1$:      INR      DPA1
3787 022674 023737 002312 002314      CMP      DPA1,DPA2
3788 022702 001002          BNE      2$
3789 022704 005237 002312          INC      DPA1
3790 022710 022737 000037 002312 2$:      CMP      #37,DPA1
3791 022716 001423          BEQ      3$
3792 022720 052777 000010 157352      BIS      #10,@CSRX
3793 022726 112777 000217 157334      MOVB     #217,@ICRH
3794 022734 004737 011072          JSR      PC,WAIT
3795 022740 112777 000017 157322      MOVB     #17,@ICRH
3796 022746 042777 000010 157324      BIC      #10,@CSRX
3797 022754 113777 002312 157272      MOVB     DPA1,@IIRH
3798 022762 000137 017024          JMP      A1
3799 022766 013737 002406 002312 3$:      MOV      SDPA,DPA1
3800 022774          EXQV6: EXIT      TST
      022774 104432
      022776 000062          TRAP      C$EXIT
      .WORD      L10033-
3801
3802
3803 023000          045      123      062      TSHD6: .NLIST      BEX
3804          .ASCIZ      /%S2%ADDRESS REGISTER TEST (ICR) OF CHANNEL 1%N/
3805          .LIST      BEX
3806          .EVEN
          .ENDTST
      023060
      023060
      023060 104401          L10033:
      .WORD      TRAP      C$EIST

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

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3808 .SBTTL TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2
3809 *****
3810 :THIS TEST IS THE SAME TEST AS TEST 6 EXCEPT THE CHANNEL IS CHANGED
3811 :
3812 :PART 1 CHECKS THE CORRECT FUNCTION OF ADDRESS REGISTER 2 (ADR) BY
3813 :LOADING ITS DEVICE PRIMARY ADDRESS INTO BIT A1-A5 AND RECEIVING
3814 :THE ASSIGNED LISTEN OR TALK ADDRESS VIA THE IEC/IEEE BUS.
3815 :NOTE: THE ULPA BIT IN THE ISR2 REGISTER IS DEPENDENT ON THE STATUS OF
3816 :DPA2 (ODD DPA2 => ULPA IS SET)
3817 :
3818 :PART 2 CHECKS THE FUNCTION OF THE DAT BIT (DISABLES THE TALK FUNCTION),
3819 :THE DAL BIT (DISABLES THE LISTEN FUNCTION) AND THE EDPA BIT
3820 : (ENABLES THE DUAL PRIMARY ADDRESSING MODE), WHICH ARE ALSO
3821 :PRESENT IN THE ADR2 REGISTER.
3822 :IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION
3823 :WILL DO IT WITH DIFFERENT DPA'S.
3824 :*****
3825 BGN1ST
3826 023062 005737 002324 TST PNTF ;IS THE PNT FLAG SET
3827 023066 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
3828 023070 PRINTF #TSHD7 ;...
3829 023070 012746 027334 MOV #TSHD7,-(SP)
3830 023074 012746 000001 MOV #1,-(SP)
3831 023100 010600 MOV SP,R0
3832 023102 104417 TRAP C$PNTF
3833 023104 062706 000004 ADD #4,SP
3834 023110 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
3835 023114 004737 010220 JSR PC,CULF A ;CLEAR ULPA BIT IN ISR 1 AND 2
3836 023120 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
3837 023124 013701 002314 A2: MOV DPA2,R1 ;GET DPA2 ADDRESS
3838 023130 062701 000040 ADD #40,R1 ;CREATE MY LISTENER ADDRESS (MLA)
3839 023134 010137 002412 MOV R1,MLA2 ;STORE MLA
3840 023140 032737 000001 002314 BIT #1,DPA2 ;IS DPA EVEN
3841 023146 001420 BEQ 3$ ;BRANCH IF YES
3842 023150 052737 000001 002434 BIS #1,CDAT1 ;SET ULPA BIT IN COMPARE DATA FOR ISR
3843 023156 052737 000001 002436 BIS #1,CDAT2
3844 023164 052737 000001 002440 BIS #1,CDAT3
3845 023172 052737 000001 002442 BIS #1,CDAT4
3846 023200 052737 000001 002444 BIS #1,CDAT5
3847 023206 000417 BR .+40 ;BRANCH TO BGNSEG
3848 023210 042737 000001 002434 3$: BIC #1,CDAT1 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
3849 023216 042737 000001 002436 BIC #1,CDAT2
3850 023224 042737 000001 002440 BIC #1,CDAT3
3851 023232 042737 000001 002442 BIC #1,CDAT4
3852 023240 042737 000001 002444 BIC #1,CDAT5
3853 023246 BGNSEG
3854 023246 104404 TRAP C$BSEG
3855 023250 042777 000010 157022 BIC #10,@CSRX ;SELECT CHANNEL 1
3856 023256 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
3857 023264 113777 002412 157004 MOV ML2,@IDRHX ;LOAD LISTENER ADDRESS OF CHANNEL 1
3858 023272 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
3859 023276 017737 156746 002402 MOV @IIRX,RSV ;GET IIR1 CONTENTS
3860 023304 022737 000020 002402 CMP #20,RSV ;IS BO BIT OF IIR1 SET
3861 023312 001413 BEQ 10$ ;BRANCH IF YES
3862 023314 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGES
3863 023322 013737 002402 002502 MOV RSV,BAD ;...

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

3858	023330				ERRSOFT 701,E501,ERR501		:ERROR HANDLER
	023330	104457					TRAP C\$ERSOFT
	023332	001275					.WORD 701
	023334	005406					.WORD E501
	023336	003702					.WORD ERR501
3859	023340				CKLOOP		:BRANCH TO BGNSEG WHEN ERROR LOOP IS SET
	023340	104406					TRAP C\$CLP1
3860	023342						
3861	023342	017737	156710	002402	10\$: MOV @ISRX,RSAVE		:GET ISR1 CONTENTS
3862	023350	022737	120040	002402	CMP #120040,RSAVE		:ATN,ATN,NDAC BIT OF ISR1 SHOULD BE SET
3863	023356	001413			BEQ 20\$		:BRANCH IF YES
3864	023360	012737	120040	002500	MOV #120040,GOOD		:SET UP DATA FOR ERROR MESSAGES
3865	023366	013737	002402	002502	MOV RSAVE,BAD		
3866	023374				ERRSOFT 702,E502,ERR501		:ERROR HANDLER
	023374	104457					TRAP C\$ERSOFT
	023376	001276					.WORD 702
	023400	005447					.WORD E502
	023402	003702					.WORD ERR501
3867	023404				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	023404	104406					TRAP C\$CLP1
3868	023406	052777	000010	156664	20\$: BIS #10,@CSRX		:SELECT CHANNEL 2
3869	023414	012737	000002	002374	MOV #2,CHAN		:LOAD CHANNEL NUMBER
3870	023422	017737	156622	002402	MOV @IIRX,RSAVE		:GET IIR2 CONTENTS
3871	023430	022737	002401	002402	CMP #2401,RSAVE		:MA,MAC,IFC BIT IN IIR2 SHOULD BE SET
3872	023436	001413			BEQ 30\$		:BRANCH IF YES
3873	023440	012737	002401	002500	MOV #2401,GOOD		:SET UP DATA FOR ERROR MESSAGES
3874	023446	013737	002402	002502	MOV RSAVE,BAD		
3875	023454				ERRSOFT 703,E501,ERR501		:ERROR HANDLER
	023454	104457					TRAP C\$ERSOFT
	023456	001277					.WORD 703
	023460	005406					.WORD E501
	023462	003702					.WORD ERR501
3876	023464				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	023464	104406					TRAP C\$CLP1
3877	023466	017737	156564	002402	30\$: MOV @ISRX,RSAVE		:GET ISR2 CONTENTS
3878	023474	023737	002444	002402	CMP CDAT5,RSAVE		:ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
3879	023502	001413			BEQ 40\$		:BRANCH IF YES
3880	023504	013737	002444	002500	MOV CDAT5,GOOD		:SET UP DATA FOR ERROR MESSAGES
3881	023512	013737	002402	002502	MOV RSAVE,BAD		
3882	023520				ERRSOFT 704,E502,ERR501		:ERROR HANDLER
	023520	104457					TRAP C\$ERSOFT
	023522	001300					.WORD 704
	023524	005447					.WORD E502
	023526	003702					.WORD ERR501
3883	023530				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	023530	104406					TRAP C\$CLP1
3884	023532	042777	000010	156540	40\$: BIC #10,@CSRX		:SELECT CHANNEL 1
3885	023540	012737	000001	002374	MOV #1,CHAN		:LOAD CHANNEL NUMBER
3886	023546	112777	000077	156522	MOVB #77,@IDRHX		:LOAD UNL INTO DOR
3887	023554	004737	011060		JSR PC,LOOP		:WAIT A LITTLE
3888	023560	017737	156464	002402	MOV @IIRX,RSAVE		:GET IIR1 CONTENTS
3889	023566	022737	000020	002402	CMP #20,RSAVE		:CHECK BO BIT IN IIR1
3890	023574	001413			BEQ 50\$		:BRANCH IF YES
3891	023576	012737	000020	002500	MOV #20,GOOD		:SET UP DATA FOR ERROR MESSAGES
3892	023604	013737	002402	002502	MOV RSAVE,BAD		
3893	023612				ERRSOFT 705,E501,ERR501		:ERROR HANDLER
	023612	104457					TRAP C\$ERSOFT

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

```

023614 001301
023616 005406
023620 003702
3894 023622 CKLOOP
023622 104406
3895 023624 017737 156426 002402 50$: MOV @ISRX,RSAVE
3896 023632 022737 120040 002402 CMP #120040,RSAVE
3897 023640 001413 BEQ 60$
3898 023642 012737 120040 002500 MOV #120040,GOOD
3899 023650 013737 002402 002500 MOV RSAVE,BAD
3900 023656 ERRSOFT 706,E502,ERR501
023656 104457
023660 001302
023662 005447
023664 003702
3901 023666 CKLOOP
023666 104406
3902 023670 052777 000010 156402 60$: BIS #10,@CSRX
3903 023676 012737 000002 002374 MOV #2,CHAN
3904 023704 017737 156340 002402 MOV @IIRX,RSAVE
3905 023712 022737 000001 002402 CMP #1,RSAVE
3906 023720 001413 BEQ 11$
3907 023722 012737 000001 002500 MOV #1,GOOD
3908 023730 013737 002402 002500 MOV RSAVE,BAD
3909 023736 ERRSOFT 707,E501,ERR501
023736 104457
023740 001303
023742 005406
023744 003702
3910 023746 CKLOOP
023746 104406
3911 023750 017737 156302 002402 11$: MOV @ISRX,RSAVE
3912 023756 023737 002434 002402 CMP CDAT1,RSAVE
3913 023764 001412 BEQ 12$
3914 023766 013737 002434 002500 MOV CDAT1,GOOD
3915 023774 017737 002402 002500 MOV RSAVE,BAD
3916 024002 ERRSOFT 708,E502,ERR501
024002 104457
024004 001304
024006 005447
024010 003702
3917 024012 12$: ENDSEG
024012
024012 104405
3918 024014 BGNSEG
024014 104404
3919 024016 042777 000010 156254 BIC #10,@CSRX
3920 024024 012737 000001 002374 MOV #1,CHAN
3921 024032 013701 002314 MOV DPA2,R1
3922 024036 062701 000100 ADD #100,R1
3923 024042 010137 002416 MOV R1,MTA2
3924 024046 ENDSEG
024046
024046 104405
3925 024050 BGNSEG
024050 104404
3926 024052 113777 002416 156216 MOVB MTA2,@IDRHX

```

```

.WORD 705
.WORD E501
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:GET ISR1 CONTENTS
:ATN,ATN,NDAC BIT IN ISR1 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 706
.WORD E502
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET IIR2 CONTENTS
:MAC BIT IN IIR2 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 707
.WORD E501
.WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP C$CLP1
:GET ISR2 CONTENTS
:ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
TRAP C$ERSOFT
.WORD 708
.WORD E502
.WORD ERR501
10000$: TRAP C$ESEG
TRAP C$BSEG
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:LOAD DPA2 IN R1
:CREATE MY TALKER ADDRESS (MTA)
:SAVE MTA
10001$: TRAP C$ESEG
TRAP C$BSEG
:LOAD TALKER ADDR. INTO DOR

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 49-3
TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

```

3927 024060 004737 011060      JSR      PC,LOOP
3928 024064 017737 156160 002402  MOV      @IIRX,RSAVE
3929 024072 022737 000020 002402  CMP      #20,RSAVE
3930 024100 001413          BEQ      13$
3931 024102 012737 000020 002500  MOV      #20,GOOD
3932 024110 013737 002402 002502  MOV      RSAVE,BAD
3933 024116          ERRSOFT 709,E501,ERR501
      024116 104457
      024120 001305
      024122 005406
      024124 003702
3934 024126          CKLOOP
      024126 104406
3935 024130 017737 156122 002402 13$: MOV      @ISRX,RSAVE
3936 024136 022737 120040 002402  CMP      #120040,RSAVE
3937 024144 001413          BEQ      14$
3938 024146 012737 120040 002500  MOV      #120040,GOOD
3939 024154 013737 002402 002502  MOV      RSAVE,BAD
3940 024162          ERRSOFT 710,E502,ERR501
      024162 104457
      024164 001306
      024166 005447
      024170 003702
3941 024172          CKLOOP
      024172 104406
3942 024174 052777 000010 156076 14$: BIS      #10,@CSRX
3943 024202 012737 000002 002374  MOV      #2,CHAN
3944 024210 017737 156034 002402  MOV      @IIRX,RSAVE
3945 024216 022737 002001 002402  CMP      #2001,RSAVE
3946 024224 001413          BEQ      15$
3947 024226 012737 002001 002500  MOV      #2001,GOOD
3948 024234 013737 002402 002502  MOV      RSAVE,BAD
3949 024242          ERRSOFT 711,E501,ERR501
      024242 104457
      024244 001307
      024246 005406
      024250 003702
3950 024252          CKLOOP
      024252 104406
3951 024254 017737 155776 002402 15$: MOV      @ISRX,RSAVE
3952 024262 023737 002440 002402  CMP      (DAT3,RSAVE
3953 024270 001413          BEQ      16$
3954 024272 013737 002402 002502  MOV      RSAVE,BAD
3955 024300 013737 002440 002500  MOV      (DAT3,GOOD
3956 024306          ERRSOFT 712,E502,ERR501
      024306 104457
      024310 001310
      024312 005447
      024314 003702
3957 024316          CKLOOP
      024316 104406
3958 024320 042777 000010 155752 16$: BIC      #10,@CSRX
3959 024326 012737 000001 002374  MOV      #1,CHAN
3960 024334 112777 000137 155734  MOVB     #137,@IDRHX
3961 024342 004737 011060      JSR      PC,LOOP
3962 024346 017737 155676 002402  MOV      @IIRX,RSAVE
3963 024354 022737 000020 002402  CMP      #20,RSAVE

```

```

:WAIT A LITTLE
:GET IIR1 CONTENTS
:BO BIT IN IIR1 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     709
      .WORD     E501
      .WORD     ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP      C$CLP1
:GET ISR1 CONTENTS
:ATN,ATN,NDAC BIT IN ISR1 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     710
      .WORD     E502
      .WORD     ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP      C$CLP1
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET IIR2 CONTENTS
:MA,MAC BIT IN IIR2 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     711
      .WORD     E501
      .WORD     ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP      C$CLP1
:GET ISR2 CONTENTS
:ATN,ATN,IADS,NDAC,IPAS,(ULPA) BIT SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     712
      .WORD     E502
      .WORD     ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP      C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:LOAD UNT INTO DOR
:WAIT A LITTLE
:GET IIR1 CONTENTS
:BO BIT IN IIR1 SHOULD BE SET

```

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

```

3964 024362 001413      BEQ      21$      ;BRANCH IF YES
3965 024364 012737 000020 002500      MOV      #20,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3966 024372 013737 002402 002502      MOV      RSAVE,BAD      ;
3967 024400      ERRSOF 713,E501,ERR501 ;ERROR HANDLER
      024400 104457      TRAP      C$ERSOF 713
      024402 001311      .WORD      E501
      024404 005406      .WORD      ERR501
      024406 003702      .WORD      ERR501
3968 024410      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      024410 104406      TRAP      C$CLP1
3969 024412 017737 155640 002402 21$: MOV      @ISRX,RSAVE      ;GET ISR1 CONTENTS
3970 024420 022737 120040 002402      CMP      #120040,RSAVE      ;ATN,ATN,NDAC IN ISR1 SHOULD BE SET
3971 024426 001413      BEQ      22$      ;BRANCH IF YES
3972 024430 012737 120040 002500      MOV      #120040,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3973 024436 013737 002402 002502      MOV      RSAVE,BAD      ;
3974 024444      ERRSOF 714,E502,ERR501 ;ERROR HANDLER
      024444 104457      TRAP      C$ERSOF 714
      024446 001312      .WORD      E502
      024450 005447      .WORD      ERR501
      024452 003702      .WORD      ERR501
3975 024454      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      024454 104406      TRAP      C$CLP1
3976 024456 052777 000010 155614 22$: BIS      #10,@CSRX      ;SELECT CHANNEL 2
3977 024464 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
3978 024472 017737 155552 002402      MOV      @IIRX,RSAVE      ;GET IIR2 CONTENTS
3979 024500 022737 000001 002402      CMP      #1,RSAVE      ;MAC BIT IN IIR2 SHOULD BE SET
3980 024506 001413      BEQ      23$      ;BRANCH IF YES
3981 024510 012737 000001 002500      MOV      #1,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3982 024516 013737 002402 002502      MOV      RSAVE,BAD      ;
3983 024524      ERRSOF 715,E501,ERR501 ;ERROR HANDLER
      024524 104457      TRAP      C$ERSOF 715
      024526 001313      .WORD      E501
      024530 005406      .WORD      ERR501
      024532 003702      .WORD      ERR501
3984 024534      CKLOOP      ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      024534 104406      TRAP      C$CLP1
3985 024536 017737 155514 002402 23$: MOV      @ISRX,RSAVE      ;GET ISR2 CONTENTS
3986 024544 023737 002434 002402      CMP      C$AT1,RSAVE      ;ATN,ATN,NDAC,(ULPA)BIT SHOULD BE SET
3987 024552 001412      BEQ      24$      ;BRANCH IF YES
3988 024554 013737 002434 002500      MOV      C$AT1,GOOD      ;SET UP DATA FOR ERROR MESSAGES
3989 024562 013737 002402 002502      MOV      RSAVE,BAD      ;
3990 024570      ERRSOF 716,E502,ERR501 ;ERROR HANDLER
      024570 104457      TRAP      C$ERSOF 716
      024572 001314      .WORD      E502
      024574 005447      .WORD      ERR501
      024576 003702      .WORD      ERR501
3991 024600      24$:      ENDSEG      10002$:
      024600      TRAP      C$ESEG
      024600 104405
3992      ;-----
3993      ;PART 2 OF THE ADDRESS REGISTER TEST.
3994      ;THIS PART CHECKS THE 'DAL','DAT','EDPA' BITS IN THE ADDRESS REGISTER.
3995      ;-----
3996 024602 013701 002314      MOV      DPA2,R1      ;GET DEVICE PRIM. ADDR. 2
3997 024606 052701 000040      BIS      #40,R1      ;ADD DAT BIT TO DAP2-
3998 024612 110177 155436      MOVB     R1,@IIRHX      ;LOAD DEVICE PRIM. ADDR.2 + DAT BIT
3999 024616      BGNSEG

```

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

```

024616 104404
4000 024620 042777 000010 155452 COPA2: BIC #10,@CSRX
4001 024626 113777 002412 155442 MOVB MTA2,@IDRMX
4002 024634 004737 011060 JSR PC,LOOP
4003 024640 052777 000010 155432 BIS #10,@CSRX
4004 024646 012737 000002 002374 MOV #2,CHAN
4005 024654 017737 155376 002402 MOV @ISRX,RSAVE
4006 024662 023737 002444 002402 CMP CDAT5,RSAVE
4007 024670 001413 BEQ 40$
4008 024672 013737 002444 002500 MOV CDAT5,GOOD
4009 024700 013737 002402 002502 MOV RSAVE,BAD
4010 024706 ERRSOF 717,E502,ERR501
      024706 104457
      024710 001315
      024712 005447
      024714 003702
4011 024716 CKLOOP
      024716 104406
4012 024720 042777 000010 155352 40$: BIC #10,@CSRX
4013 024726 012737 000001 002374 MOV #1,CHAN
4014 024734 112777 000077 155334 MOVB #77,@IDRMX
4015 024742 004737 011060 JSR PC,LOOP
4016 024746 052777 000010 155324 BIS #10,@CSRX
4017 024754 012737 000002 002374 MOV #2,CHAN
4018 024762 017737 155270 002402 MOV @ISRX,RSAVE
4019 024770 023737 002434 002402 CMP CDAT1,RSAVE
4020 024776 001412 BEQ 12$
4021 025000 013737 002434 002500 MOV CDAT1,GOOD
4022 025006 013737 002402 002502 MOV RSAVE,BAD
4023 025014 ERRSOF 718,E502,ERR501
      025014 104457
      025016 001316
      025020 005447
      025022 003702
4024 025024 12$: ENDSEG
      025024
      025024 104405
4025 025026 BGNSEG
      025026 104404
4026 025030 042777 000010 155242 BIC #10,@CSRX
4027 025036 012737 000001 002374 MOV #1,CHAN
4028 025044 113777 002416 155224 MOVB MTA2,@IDRMX
4029 025052 004737 011060 JSR PC,LOOP
4030 025056 052777 000010 155214 BIS #10,@CSRX
4031 025064 012737 000002 002374 MOV #2,CHAN
4032 025072 017737 155160 002402 MOV @ISRX,RSAVE
4033 025100 023737 002436 002402 CMP CDAT2,RSAVE
4034 025106 001412 BEQ 33$
4035 025110 013737 002402 002502 MOV RSAVE,BAD
4036 025116 013737 002436 002500 MOV CDAT2,GOOD
4037 025124 ERRSOF 719,E502,ERR501
      025124 104457
      025126 001317
      025130 005447
      025132 003702
4038 025134 33$: ENDSEG
      025134

```

```

      TRAP C$BSEG
:SELECT CHANNEL 1
:----LOAD MTA IN DOR1 REGISTER-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER

```

```

      TRAP C$ERSOF 717
      .WORD 717
      .WORD E502
      .WORD ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP C$CLP1

```

```

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:----LOAD UNL INTO DOR-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER

```

```

      TRAP C$ERSOF 718
      .WORD 718
      .WORD E502
      .WORD ERR501

```

```

10003$: TRAP C$ESEG
      TRAP C$BSEG

```

```

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:---LOAD MTA2 IN DOR1 REGISTER (IDR1)-
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:ATN,ATN,NDAC,TPAS,(ULPA) SHOULD SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:
:ERROR HANDLER

```

```

      TRAP C$ERSOF 719
      .WORD 719
      .WORD E502
      .WORD ERR501

```

10004\$:

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4039	025134	104405			MOV	DPA2,R1		TRAP	CSESEG
4040	025136	013701	002314		BIS	#100,R1			:GET DEVICE PRIM. ADDR. 2
4041	025142	052701	000100		MOVB	R1,@IDRMX			:SET DAL BIT
4042	025146	110177	155102		BGNSEG				:---LOAD DPA2 PLUS DAL BIT IN ADDR. 2-
4043	025152	104404						TRAP	C8BSEG
4044	025152	042777	000010	155116	BIC	#10,@CSRX			:SELECT CHANNEL 1
4045	025162	012737	000001	002374	MOV	#1,CHAN			:LOAD CHANNEL NUMBER
4046	025170	113777	002412	155100	MOVB	MLA2,@IDRMX			:---LOAD MLA IN DOR1-----
4047	025176	004737	011060		JSR	PC,LOOP			:WAIT A LITTLE
4048	025202	052777	000010	155070	BIS	#10,@CSRX			:SELECT CHANNEL 2
4049	025210	012737	000002	002374	MOV	#2,CHAN			:LOAD CHANNEL NUMBER
4050	025216	017737	155034	002402	MOV	@ISRX,RSAVE			:GET ISR2 CONTENTS
4051	025224	023737	002442	002402	CMP	CDAT4,RSAVE			:ATN,ATN,NDAC,LPAS,(ULPA) BITS SET
4052	025232	001412			BEQ	36\$			:BRANCH IF YES
4053	025234	013737	002402	002502	MOV	RSAVE,BAD			:SET UP DATA FOR ERROR MESSAGES
4054	025242	013737	002442	002500	MOV	CDAT4,GOOD			:
4055	025250				ERRSOFT	720,E502,ERR501			:ERROR HANDLER
	025250	104457						TRAP	C8ERSOFT
	025252	001320						.WORD	720
	025254	005447						.WORD	E502
	025256	003702						.WORD	ERR501
4056	025260				36\$:	ENDSEG			
4057	025260	104405						10005\$:	
4058	025262				BGNSEG			TRAP	CSESEG
4059	025262	104404						TRAP	C8BSEG
4060	025264	042777	000010	155006	BIC	#10,@CSRX			:SELECT CHANNEL 1
4061	025272	012737	000001	002374	MOV	#1,CHAN			:GET CHANNEL NUMBER
4062	025300	113777	002416	154770	MOVB	MTA2,@IDRMX			:---LOAD MTA2 IN DOR1 REGISTER---
4063	025306	004737	011060		JSR	PC,LOOP			:WAIT A LITTLE
4064	025312	052777	000010	154760	BIS	#10,@CSRX			:SELECT CHANNEL 2
4065	025320	012737	000002	002374	MOV	#2,CHAN			:LOAD CHANNEL NUMBER
4066	025326	017737	154724	002402	MOV	@ISRX,RSAVE			:GET ISR2 CONTENTS
4067	025334	023737	002440	002402	CMP	CDAT3,RSAVE			:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
4068	025342	001413			BEQ	16\$			:BRANCH IF YES
4069	025344	013737	002402	002502	MOV	RSAVE,BAD			:SET UP DATA FOR ERROR MESSAGES
4070	025352	013737	002440	002500	MOV	CDAT3,GOOD			:
4071	025360				ERRSOFT	721,E502,ERR501			:ERROR HANDLER
4072	025360	104457						TRAP	C8ERSOFT
4073	025362	001321						.WORD	721
4074	025364	005447						.WORD	E502
4075	025366	003702						.WORD	ERR501
4076	025370				CKLOOP				:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
4077	025370	104406						TRAP	C8LLP1
4078	025372	042777	000010	154700	BIC	#10,@CSRX			:SELECT CHANNEL 1
4079	025400	012737	000001	002374	MOV	#1,CHAN			:LOAD CHANNEL NUMBER
4080	025406	112777	000137	154662	MOVB	#137,@IDRMX			:---LOAD UNIT INTO DOR-----
4081	025414	004737	011060		JSR	PC,LOOP			:WAIT A LITTLE
4082	025420	052777	000010	154652	BIS	#10,@CSRX			:SELECT CHANNEL 2
4083	025426	012737	000002	002374	MOV	#2,CHAN			:LOAD CHANNEL NUMBER
4084	025434	017737	154616	002402	MOV	@ISRX,RSAVE			:GET ISR2 CONTENTS
4085	025442	023737	002434	002402	CMP	CDAT1,RSAVE			:ATN,ATN,NDAC,(ULPA) SHOULD BE SET
4086	025450	001412			BEQ	24\$			:BRANCH IF YES
4087	025452	013737	002434	002500	MOV	CDAT1,GOOD			:SET UP DATA FOR ERROR MESSAGES
4088	025460	013737	002402	002502	MOV	RSAVE,BAD			:
4089	025466				ERRSOFT	722,E502,ERR501			:ERROR HANDLER

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

	025466	104457					TRAP	C\$ERSOFT
	025470	001322					.WORD	722
	025472	005447					.WORD	E502
	025474	003702					.WORD	ERR501
4082	025476		24\$:	ENDSEG				
	025476						10006\$:	
	025476	104405					TRAP	C\$ESEG
4083	025500	022737	000036	002314	CMP	#36,DPA2	;IS LAST DPA ADDRESS SELECTED	
4084	025506	001002			BNE	25\$	;BRANCH IF NO	
4085	025510	000137	027172		JMP	TQVP?		
4086	025514	052777	000010	154556	25\$:	BIS	#10,@CSRX	;SELECT CHANNEL 2
4087	025522	013701	002314		MOV	DPA2,R1	;GET DPA2	
4088	025526	052701	000200		BIS	#200,R1	;-----SET EDPA BIT-----	
4089	025532	110177	154516		MOVB	R1,@1IRHX	;LOAD DPA2 & EDPA BIT INTO ADDR.	
4090	025536				BGNSEG			
	025536	104404					TRAP	C\$BSEG
4091	025540	042777	000010	154532	BIC	#10,@CSRX	;SELECT CHANNEL 1	
4092	025546	012737	000001	002374	MOV	#1,CHAN	;LOAD CHANNEL NUMBER	
4093	025554	113777	002412	154514	MOVB	MLA2,@IDRHX	;---LOAD MLA2 INTO DOR1 REGISTER---	
4094	025562	004737	011060		JSR	PC,LOOP	;WAIT A LITTLE	
4095	025566	052777	000010	154504	BIS	#10,@CSRX	;SELECT CHANNEL 2	
4096	025574	012737	000002	002374	MOV	#2,CHAN	;LOAD CHANNEL NUMBER	
4097	025602	017737	154450	002402	MOV	@ISRX,RSAVE	;GET ISR2 CONTENTS	
4098	025610	023737	002444	002402	CMP	CDAT5,RSAVE	;ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET	
4099	025616	001413			BEQ	40\$	;BRANCH IF YES	
4100	025620	013737	002444	002500	MOV	CDAT5,GOOD	;SET UP DATA FOR ERROR MESSAGES	
4101	025626	013737	002402	002502	MOV	RSAVE,BAD		
4102	025634				ERRSOFT	723,E502,ERR501	;ERROR HANDLER	
	025634	104457					TRAP	C\$ERSOFT
	025636	001323					.WORD	723
	025640	005447					.WORD	E502
	025642	003702					.WORD	ERR501
4103	025644				CKLOOP		;BRANCH TO BGNSEG WHEN ERRLOOP IS SET	
	025644	104406					TRAP	C\$CLP1
4104	025646	042777	000010	154424	40\$:	BIC	#10,@CSRX	;SELECT CHANNEL 1
4105	025654	012737	000001	002374	MOV	#1,CHAN	;LOAD CHANNEL NUMBER	
4106	025662	112777	000077	154406	MOVB	#77,@IDRHX	;---LOAD UNL INTO DOR-----	
4107	025670	004737	011060		JSR	PC,LOOP	;WAIT A LITTLE	
4108	025674	052777	000010	154376	BIS	#10,@CSRX	;SELECT CHANNEL 2	
4109	025702	012737	000002	002374	MOV	#2,CHAN	;LOAD CHANNEL NUMBER	
4110	025710	017737	154342	002402	MOV	@ISRX,RSAVE	;GET ISR2 CONTENTS	
4111	025716	023737	002434	002402	CMP	CDAT1,RSAVE	;ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET	
4112	025724	001412			BEQ	12\$	;BRANCH IF YES	
4113	025726	013737	002434	002500	MOV	CDAT1,GOOD	;SET UP DATA FOR ERROR MESSAGES	
4114	025734	013737	002402	002502	MOV	RSAVE,BAD		
4115	025742				ERRSOFT	724,E502,ERR501	;ERROR HANDLER	
	025742	104457					TRAP	C\$ERSOFT
	025744	001324					.WORD	724
	025746	005447					.WORD	E502
	025750	003702					.WORD	ERR501
4116	025752		12\$:	ENDSEG				
	025752						10007\$:	
	025752	104405					TRAP	C\$ESEG
4117	025754	042777	000010	154316	BIC	#10,@CSRX	;SELECT CHANNEL 1	
4118	025762	012737	000001	002374	MOV	#1,CHAN	;LOAD CHANNEL NUMBER	
4119	025770	113701	002412		MOVB	MLA2,R1	;GET MY LISTENER ADDRESS	
4120	025774	032737	000001	002314	BIT	#1,DPA2	;IS DPA EVEN	

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4121	026002	001021			BNE	3\$:BRANCH IF YES
4122	026004	105201			INCB	R1		:CHANGE MLA2 TO ODD
4123	026006	052737	000001	002434	BIS	#1,CDAT1		:SET ULPA BIT IN COMPARE DATA FOR ISR
4124	026014	052737	000001	002436	BIS	#1,CDAT2		:...
4125	026022	052737	000001	002440	BIS	#1,CDAT3		:...
4126	026030	052737	000001	002442	BIS	#1,CDAT4		:...
4127	026036	052737	000001	002444	BIS	#1,CDAT5		:...
4128	026044	000420			BR	+42		:BRANCH TO BGNSEG
4129	026046	105301			3\$: DECB	R1		:CHANGE MLA2 TO EVEN
4130	026050	042737	000001	002434	BIC	#1,CDAT1		:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4131	026056	042737	000001	002436	BIC	#1,CDAT2		:...
4132	026064	042737	000001	002440	BIC	#1,CDAT3		:...
4133	026072	042737	000001	002442	BIC	#1,CDAT4		:...
4134	026100	042737	000001	002444	BIC	#1,CDAT5		:...
4135	026106				BGNSEG			
	026106	104404						TRAP C\$BSEG
4136	026110	042777	000010	154162	BIC	#10,@CSRX		:SELECT CHANNEL 1
4137	026116	110177	154154		MOVB	R1,@IDRHX		:-----LOAD NEW MLA1 INTO DOR-----
4138	026122	004737	011060		JSR	PC,LOOP		:WAIT A LITTLE
4139	026126	052777	000010	154144	BIS	#10,@CSRX		:SELECT CHANNEL 2
4140	026134	012737	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4141	026142	017737	154110	002402	MOV	@ISRX,RSAVE		:GET ISR2 CONTENTS
4142	026150	023737	002444	002402	CMP	CDAT5,RSAVE		:ATN,ATN,LADS,NDAC,(ULPA),LPAS BIT SET
4143	026156	001413			BEQ	40\$		:BRANCH IF YES
4144	026160	013737	002444	002500	MOV	CDAT5,GOOD		:SET UP DATA FOR ERROR MESSAGES
4145	026166	013737	002402	002502	MOV	RSAVE,BAD		:...
4146	026174				ERRSOFT	725,E502,ERR501		:ERROR HANDLER
	026174	104457						TRAP C\$ERRSOFT
	026176	001325						.WORD 725
	026200	005447						.WORD E502
	026202	003702						.WORD ERR501
4147	026204				CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	026204	104406						TRAP C\$CLP1
4148	026206	042777	000010	154064	40\$: BIC	#10,@CSRX		:SELECT CHANNEL 1
4149	026214	012737	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4150	026222	112777	000077	154046	MOVB	#77,@IDRHX		:-----LOAD UNL INTO DOR-----
4151	026230	004737	011060		JSR	PC,LOOP		:WAIT A LITTLE
4152	026234	052777	000010	154036	BIS	#10,@CSRX		:SELECT CHANNEL 2
4153	026242	012737	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4154	026250	017737	154002	002402	MOV	@ISRX,RSAVE		:GET ISR2 CONTENTS
4155	026256	023737	002434	002402	CMP	CDAT1,RSAVE		:ATN,ATN,NDAC,(ULPA) BIT SHOULD BE SET
4156	026264	001412			BEQ	12\$		:BRANCH IF YES
4157	026266	013737	002434	002500	MOV	CDAT1,GOOD		:SET UP DATA FOR ERROR MESSAGES
4158	026274	013737	002402	002502	MOV	RSAVE,BAD		:...
4159	026302				ERRSOFT	726,E502,ERR501		:ERROR HANDLER
	026302	104457						TRAP C\$ERRSOFT
	026304	001326						.WORD 726
	026306	005447						.WORD E502
	026310	003702						.WORD ERR501
4160	026312				12\$: ENDSEG			
	026312	104405						10010\$: TRAP C\$ESEG
4161	026314	032737	000001	002314	BIT	#1,DPA2		:IS DPA EVEN
4162	026322	001420			BEQ	3\$		:BRANCH IF YES
4163	026324	052737	000001	002434	BIS	#1,CDAT1		:SET ULPA BIT IN COMPARE DATA FOR ISR
4164	026332	052737	000001	002436	BIS	#1,CDAT2		:...
4165	026340	052737	000001	002440	BIS	#1,CDAT3		:...

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4166	026346	052737	000001	002442	BIS	#1,CDAT4
4167	026354	052737	000001	002444	BIS	#1,CDAT5	....
4168	026362	000417			BR	+40	:BRANCH TO BGNSEG
4169	026364	042737	000001	002434	BIC	#1,CDAT1	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4170	026372	042737	000001	002436	BIC	#1,CDAT2	....
4171	026400	042737	000001	002440	BIC	#1,CDAT3	....
4172	026406	042737	000001	002442	BIC	#1,CDAT4	....
4173	026414	042737	000001	002444	BIC	#1,CDAT5	....
4174	026422				BGNSEG		
	026422	104404					TRAP C\$BSEG
4175	026424	042777	000010	153646	BIC	#10,@CSRX	:SELECT CHANNEL 1
4176	026432	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
4177	026440	113777	002416	153630	MOVB	MTA2,@IDRHX	:---LOAD MTA INTO DOR1 REGISTER---
4178	026446	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
4179	026452	052777	000010	153620	BIS	#10,@CSRX	:SELECT CHANNEL 2
4180	026460	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
4181	026466	017737	153564	002402	MOV	@ISRX,RSAVE	:GET ISR2 CONTENTS
4182	026474	023737	002440	002402	CMP	CDAT3,RSAVE	:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
4183	026502	001413			BEQ	16\$	:BRANCH IF YES
4184	026504	013737	002402	002502	MOV	RSAVE,BAD	:SET UP DATA FOR ERROR MESSAGES
4185	026512	013737	002440	002500	MOV	CDAT3,GOOD	
4186	026520				ERRSOFT	727,E502,ERR501	:ERROR HANDLER
	026520	104457					TRAP C\$ERSOFT
	026522	001327					.WORD 727
	026524	005447					.WORD E502
	026526	003702					.WORD ERR501
4187	026530				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	026530	104406					TRAP C\$CLP1
4188	026532	042777	000010	153540	BIC	#10,@CSRX	:SELECT CHANNEL 1
4189	026540	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
4190	026546	112777	000137	153522	MOVB	#137,@IDRHX	:---LOAD UNIT INTO DOR-----
4191	026554	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
4192	026560	052777	000010	153512	BIS	#10,@CSRX	:SELECT CHANNEL 2
4193	026566	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
4194	026574	017737	153456	002402	MOV	@ISRX,RSAVE	:GET ISR2 CONTENTS
4195	026602	023737	002434	002402	CMP	CDAT1,RSAVE	:ATN,ATN,NDAC,(ULPA) SHOULD BE SET
4196	026610	001412			BEQ	24\$	:BRANCH IF YES
4197	026612	013737	002434	002500	MOV	CDAT1,GOOD	:SET UP DATA FOR ERROR MESSAGES
4198	026620	013737	002402	002502	MOV	RSAVE,BAD	
4199	026626				ERRSOFT	728,E502,ERR501	:ERROR HANDLER
	026626	104457					TRAP C\$ERSOFT
	026630	001330					.WORD 728
	026632	005447					.WORD E502
	026634	003702					.WORD ERR501
4200	026636				24\$: ENDSEG		
	026636						10011\$:
	026636	104405					TRAP C\$ESEG
4201	026640				BGNSEG		TRAP C\$BSEG
	026640	104404					
4202	026642	042777	000010	153430	BIC	#10,@CSRX	:SELECT CHANNEL 1
4203	026650	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
4204	026656	013701	002416		MOV	MTA2,R1	:GET TALKER ADDRESS
4205	026662	032737	000001	002314	BIT	#1,DPA2	:IS DPA ODD
4206	026670	001021			BNE	25\$	:BRANCH IF YES
4207	026672	105201			INCB	R1	:CHANGE MTA2 TO ODD
4208	026674	052737	000001	002434	BIS	#1,CDAT1	:SET ULPA BIT IN COMPARE DATA FOR ISR
4209	026702	052737	000001	002436	BIS	#1,CDAT2

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TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4210	026710	052737	000001	002440	BIS	#1,CDAT3
4211	026716	052737	000001	002442	BIS	#1,CDAT4	....
4212	026724	052737	000001	002444	BIS	#1,CDAT5	....
4213	026732	000420			BR	+42	:BRANCH TO LOAD NEW MTA
4214	026734	105301			25\$: DECB	R1	:CHANGE MTA2 TO EVEN
4215	026736	042737	000001	002434	BIC	#1,CDAT1	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4216	026744	042737	000001	002436	BIC	#1,CDAT2	....
4217	026752	042737	000001	002440	BIC	#1,CDAT3	....
4218	026760	042737	000001	002442	BIC	#1,CDAT4	....
4219	026766	042737	000001	002444	BIC	#1,CDAT5	....
4220	026774	110177	153276		MOVB	R1,@IDRHX	:---LOAD NEW MTA INTO DOR REGISTER---
4221	027000	004737	011060		COPD2: JSR	PC,LOOP	:WAIT A LITTLE
4222	027004	052777	000010	153266	BIS	#10,@CSRX	:SELECT CHANNEL 2
4223	027012	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
4224	027020	017737	153232	002402	MOV	@ISRX,RSABE	:GET ISR2 CONTENTS
4225	027026	023737	002440	002402	CMP	CDAT3,RSABE	:ATN,ATN,TADS,NDAC,TPAS,(ULPA) BIT SET
4226	027034	001413			BEQ	16\$	:BRANCH IF YES
4227	027036	013737	002402	002502	MOV	RSABE,BAD	:SET UP DATA FOR ERROR MESSAGES
4228	027044	013737	002440	002500	MOV	CDAT3,GOOD	....
4229	027052				ERRSOFT	729,E502,ERR501	:ERROR HANDLER
	027052	104457					TRAP C\$ERSOFT
	027054	001331					.WORD 729
	027056	005447					.WORD E502
	027060	003702					.WORD ERR501
4230	027062				CKLOOP		:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	027062	104406					TRAP C\$CLP1
4231	027064	042777	000010	153206	16\$: BIC	#10,@CSRX	:SELECT CHANNEL 1
4232	027072	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
4233	027100	112777	000137	153170	MOVB	#137,@IDRHX	:---LOAD UNT INTO DOR-----
4234	027106	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
4235	027112	052777	000010	153160	BIS	#10,@CSRX	:SELECT CHANNEL 2
4236	027120	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
4237	027126	017737	153124	002402	MOV	@ISRX,RSABE	:GET ISR2 CONTENTS
4238	027134	023737	002434	002402	CMP	CDAT1,RSABE	:ATN,ATN,NDAC,(ULPA) SHOULD BE SET
4239	027142	001412			BEQ	24\$	:BRANCH IF YES
4240	027144	013737	002434	002500	MOV	CDAT1,GOOD	:SET UP DATA FOR ERROR MESSAGES
4241	027152	013737	002402	002502	MOV	RSABE,BAD	....
4242	027160				ERRSOFT	730,E502,ERR501	:ERROR HANDLER
	027160	104457					TRAP C\$ERSOFT
	027162	001332					.WORD 730
	027164	005447					.WORD E502
	027166	003702					.WORD ERR501
4243	027170				24\$: ENDSEG		
	027170						10012\$: TRAP C\$ESEG
	027170	104405					
4244	027172	005737	002234		QVP7: TST	QVP	:IS QUICK VERIFY PASS SELECTED
4245	027176	001054			BNE	EXQV7	:IF YES EXIT TEST
4246	027200	005737	002322		TST	ITRCNT	:IS THIS THE FIRST TIME THRU THE TEST
4247	027204	001007			BNE	1\$	:BRANCH IF NO
4248	027206	013737	002314	002406	MOV	DPA2,SDPA	:SAVE ENTERED DPA2
4249	027214	005037	002314		CLR	DPA2	:CLR DPA2
4250	027220	005237	002322		INC	ITRCNT	:SET FLAG TO SEE FIRST TIME PASS
4251	027224	005237	002314		1\$: INC	DPA2	:GET NEW DPA2
4252	027230	023737	002314	002312	CMP	DPA2,DPA1	:IS DPA2 = DPA1
4253	027236	001002			BNE	2\$	:BRANCH IF NO
4254	027240	005237	002314		INC	DPA2	:INCREMENT DPA2
4255	027244	022737	000037	002314	2\$: CMP	#37,DPA2	:ALL DONE

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 TEST 7: ADDRESS REGISTER TEST OF CHANNEL 2

4256	027252	001423				BEO	3\$:BRANCH IF YES
4257	027254	042777	000010	153016		BIC	#10,@CSRX		:SELECT CHANNEL 1
4258	027262	112777	000217	153000		MOVB	#217,@ICRHX		:----LOAD SIC INTO ACR 1
4259	027270	004737	011072			JSR	PC, WAIT		:WAIT A LITTLE
4260	027274	112777	000017	152766		MOVB	#17,@ICRHX		:----LOAD NOT SIC INTO ACR 1
4261	027302	052777	000010	152770		BIS	#10,@CSRX		:SELECT CHANNEL 2
4262	027310	113777	002314	152736		MOVB	DPA2,@IIRHX		:LOAD NEW DPA2 INTO ADR2
4263	027316	000137	023124			JMP	A2		:REPEAT THE TEST WITH THE NEW DPA1
4264	027322	013737	002406	002314	3\$:	MOV	SDPA,DPA2		:RESTOR ENTERD DPA2
4265	027330				EXQV7:	EXIT	TST		
	027330	104432							TRAP C\$EXIT
	027332	000062							.WORD L10034-
4266									
4267									
4268	027334	045	123	062	TSHD7:	.NLIST	BEX		
4269						.ASCIZ	/S2%AADDRESS REGISTER TEST (ICR) OF CHANNEL 2%N/		
4270						.LIST	BEX		
4271	027414					.EVEN			
	027414					ENDTST			
	027414	104401							L10034: TRAP C\$ETST

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TEST 8: DATA TRANSFER TEST

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4273 .SBTTL TEST 8: DATA TRANSFER TEST
4274 .....
4275 IEX - TEST 8
4276 THIS TEST IS DIVIDED INTO TWO PARTS
4277 IT CHECKS THE DATA OUT (DOR) AND DATA IN (DIR) REGISTERS
4278
4279 PART 1 CHECKS THE DOR AND DIR REGISTER BY LOADING THE DOR1 WITH A
4280 DATA BYTE AND READING IT FROM THE DIR2
4281 (PROGRAMMED DATA TRANSFER FROM CHAN.1 TO CHAN.2).
4282
4283 PART 2 CHECKS THE DOR AND DIR REGISTER BY LOADING THE DOR2 WITH A
4284 DATA BYTE AND READING IT FROM THE DIR1
4285 (PROGRAMMED DATA TRANSFER FROM CHAN.2 TO CHAN.1).
4286
4287 IF THE QUICK VERIFY PASS IS NOT SELECTED, THE TEST ITERATION IS
4288 CARRIED OUT WITH A DIFFERENT DATA PATTERN
4289 .....
4290 BGN1ST
4291
4292 T8::
4293 TST PNTF ;IS THE PNT FLAG SET
4294 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
4295 PRINTF #TSHD8 ;...
4296
4297 MOV #TSHD8,-(SP)
4298 MOV #1,-(SP)
4299 MOV SP,R0
4300 TRAP C$PNTF
4301 ADD #4,SP
4302
4303 7$: CLR ITRCNT ;CLEAR COUNTER
4304 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
4305 JSR PC,BGIN1 ;SET UP PARAMETER
4306 BGNSEG
4307
4308 TRAP C$BSEG
4309 ;----LOAD TON IN ACR 1 (ICR1)-----
4310 MOV #212,@ICRHX ;GET ISR1 CONTENTS
4311 MOV @ISRX,BAD ;ATN,NDAC,ATN,TADS SHOULD BE SET
4312 CMP #120042,BAD ;BRANCH IF YES
4313 BEQ 4$ ;SET UP DATA FOR ERROR MESSAGE
4314 MOV #120042,GOOD ;ERROR HANDLER
4315 ERRSOFT 801,E502,ERR501
4316
4317 TRAP C$ERRSOFT
4318 .WORD 801
4319 .WORD E502
4320 .WORD ERR501
4321
4322 4$: ENDSEG
4323
4324 10000$: TRAP C$ESEG
4325
4326 MOV DPA2,R1 ;GET DPA2 ADDRESS
4327 ADD #40,R1 ;CREATE MY LISTENER ADDRESS (MLA)
4328 MOV R1,MLA2 ;STORE MLA
4329 BIT #1,DPA2 ;IS DPA EVEN
4330 BEQ 3$ ;BRANCH IF YES
4331 BIS #1,CDAT1 ;SET ULPA BIT IN COMPARE DATA FOR ISR
4332 BIS #1,CDAT7
4333 BIS #1,CDAT5
4334 BR +24
4335
4336 3$: BIC #1,CDAT1 ;BRANCH TO BGNSEG
4337 BIC #1,CDAT7 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4338 BIC #1,CDAT5
4339

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 50-1
TEST 8: DATA TRANSFER TEST

Address	Hex	Hex	Hex	Hex	Label	Assembly	Comment
4317	027620	104404				BGNSEG	
4318	027622	042777	000010	152450		BIC	#10,@CSRX
4319	027630	012737	000001	002374		MOV	#1,CHAN
4320	027636	113777	002412	152432		MOVB	MLA2,@IDRMX
4321	027644	004737	011060			JSR	PC,LOOP
4322	027650	052777	000010	152422		BIS	#10,@CSRX
4323	027656	012737	000002	002374		MOV	#2,CHAN
4324	027664	017737	152350	002502		MOV	@ISRX,BAD
4325	027672	022737	002401	002502		CMP	#2401,BAD
4326	027700	001410				BEQ	20\$
4327	027702	012737	002401	002500		MOV	#2401,GOOD
4328	027710					ERRSOFT	802,E501,ERR501
	027710	104457					
	027712	001442					
	027714	005406					
	027716	003702					
4329	027720					CKLOOP	
	027720	104406					
4330	027722	017737	152330	002502	20\$:	MOV	@ISRX,BAD
4331	027730	023737	002444	002502		CMP	CDAT5,BAD
4332	027736	001410				BEQ	30\$
4333	027740	013737	002444	002500		MOV	CDAT5,GOOD
4334	027746					ERRSOFT	803,E502,ERR501
	027746	104457					
	027750	001443					
	027752	005447					
	027754	003702					
4335	027756					CKLOOP	
	027756	104406					
4336	027760	042777	000010	152312	30\$:	BIC	#10,@CSRX
4337	027766	012737	000001	002374		MOV	#1,CHAN
4338	027774	112777	000013	152266		MOVB	#13,@IDRMX
4339	030002	052777	000010	152270	40\$:	BIS	#10,@CSRX
4340	030010	012737	000002	002374		MOV	#2,CHAN
4341	030016	017737	152234	002502		MOV	@ISRX,BAD
4342	030024	023737	002450	002502		CMP	CDAT7,BAD
4343	030032	001407				BEQ	41\$
4344	030034	013737	002450	002500		MOV	CDAT7,GOOD
4345	030042					ERRSOFT	804,E502,ERR501
	030042	104457					
	030044	001444					
	030046	005447					
	030050	003702					
4346	030052				41\$:	ENDSEG	
	030052						
	030052	104405					
4347	030054	012705	000252			MOV	#252,R5
4348	030060				AB1:	BGNSEG	
	030060	104404					
4349	030062	042777	000010	152210		BIC	#10,@CSRX
4350	030070	012737	000001	002374		MOV	#1,CHAN
4351	030076	110577	152174			MOVB	R5,@IDRMX
4352	030102	004737	011060			JSR	PC,LOOP
4353	030106	017737					

```

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:----LOAD LISTENER ADDRESS OF CHANNEL 1
:WAIT A LITTLE
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET IIR2 CONTENTS
:MA,MAC,IFC BIT IN IIR2 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:ERROR HANDLER
                                TRAP      C$BSEG

                                .WORD      802
                                .WORD      E501
                                .WORD      ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1

:GET ISR2 CONTENTS
:ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      803
                                .WORD      E502
                                .WORD      ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:----LOAD GTS INTO ACR1 (ICR1)-----
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET ISR2 CONTENTS
:NDAC,LADS,LPAS,(ULPA) SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      804
                                .WORD      E502
                                .WORD      ERR501

                                10001$:
                                TRAP      C$ESEG
:-----GET DATA PATTERN-----
                                TRAP      C$BSEG

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:LOAD DATA PATTERN INTO DOR1
:WAIT A LITTLE
:GET IIR1 CONTENTS
:BO BIT IN IIR1 SHOULD BE SET
:BRANCH IF YES

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 50-2
TEST 8: DATA TRANSFER TEST

4356	030124	012737	000020	002500		MOV	#20,GOOD		:SET UP DATA FOR ERROR MESSAGE
4357	030132	013737	002402	002502		MOV	RSAVE,BAD		:ERROR HANDLER
4358	030140					ERRSOFT	805,E501,ERR501		
	030140	104457							TRAP C\$ERSOFT
	030142	001445							.WORD 805
	030144	005406							.WORD E501
	030146	003702							.WORD ERR501
4359	030150					CKLOOP			:BRANCH TO BGNSEG IF ERRLOOP WAS SET
	030150	104406							TRAP C\$CLP1
4360	030152	052777	000010	152120	42\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2
4361	030160	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4362	030166	017737	152056	002402		MOV	@IIRX,RSAVE		:GET IIR2 CONTENTS
4363	030174	022737	000040	002402		CMF	#40,RSAVE		:BI BIT IN IIR2 SHOULD BE SET
4364	030202	001413				BEQ	43\$		:BRANCH IF YES
4365	030204	012737	000040	002500		MOV	#40,GOOD		:SET UP DATA FOR ERROR MESSAGE
4366	030212	013737	002402	002502		MOV	RSAVE,BAD		:ERROR HANDLER
4367	030220					ERRSOFT	806,E501,ERR501		
	030220	104457							TRAP C\$ERSOFT
	030222	001446							.WORD 806
	030224	005406							.WORD E501
	030226	003702							.WORD ERR501
4368	030230					CKLOOP			:
	030230	104406							TRAP C\$CLP1
4369	030232	017737	152034	002402	43\$:	MOV	@IDRX,RSAVE		:READ DATA FROM DIR REGISTER
4370	030240	105037	002402			CLRB	RSAVE		:CLEAR LOW BYTE OF IDR
4371	030244	000337	002402			SWAB	RSAVE		:SWAB DATA FOR COMPARE
4372	030250	120537	002402			CMFB	R5,RSAVE		:CORRECT DATA RECEIVED
4373	030254	001414				BEQ	44\$		:BRANCH IF YES
4374	030256	000305				SWAB	R5		:SWAB HIGH AND LOW BYTE
4375	030260	105005				CLRB	R5		:CLEAR HIGH BYTE OF R5
4376	030262	000305				SWAB	R5		:SWAB HIGH AND LOW BYTE
4377	030264	010537	002500			MOV	R5,GOOD		:SET UP DATA FOR ERROR MESSAGE
4378	030270	013737	002402	002502		MOV	RSAVE,BAD		:ERROR HANDLER
4379	030276					ERRSOFT	807,E801,ERR501		
	030276	104457							TRAP C\$ERSOFT
	030300	001447							.WORD 807
	030302	005510							.WORD E801
	030304	003702							.WORD ERR501
4380	030306				44\$:	ENDSEG			
	030306								10002\$:
	030306	104405							TRAP C\$ESEG
4381	030310	005737	002234			TST	QVP		:IS QUICK VERIFY PASS SELECTED
4382	030314	001010				BNE	50\$		:BRANCH IF YES
4383	030316	062705	000021			ADD	#21,R5		:CREATE NEW TRANSMIT DATA
4384	030322	005237	002322			INC	IIRCNT		:INCREMENT ITERATION COUNTERB
4385	030326	023737	002320	002322		CMF	IIRDEF,IIRCNT		:ALL DONE
4386	030334	001251				BNE	A81		:BRANCH IF NO
4387	030336				50\$:	BGNSEG			TRAP C\$BSEG
	030336	104404							
4388	030340	042777	000010	151732		BIC	#10,@CSRX		:SELECT CHANNEL 1
4389	030346	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4390	030354	112777	000014	151706		MOVB	#14,@ICRHX		:-----LOAD ICA BIT INTO ACR1-----
4391	030362	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE FOR THE BO BIT
4392	030366	017737	151656	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
4393	030374	022737	000020	002502		CMF	#20,BAD		:BO IN IIR1 SHOULD BE SET
4394	030402	001410				BEQ	51\$		:BRANCH IF YES
4395	030404	012737	000020	002500		MOV	#20,GOOD		:SET UP DATA FOR ERROR MESSAGE

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TEST 8: DATA TRANSFER TEST

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4396 030412          ERRSOF 808,E501,ERR501          ;ERROR HANDLER
      030412 104457          TRAP C$ERSOF 1
      030414 001450          .WORD 808
      030416 005406          .WORD E501
      030420 003702          .WORD ERR501
4397 030422          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      030422 104406          TRAP C$CLP1
4398 030424 112777 000012 151636 518:  MOVB #12,@ICRMX          ;----LOAD NOT TON INTO ACR1 ----
4399 030432 112777 000077 151636      MOVB #77,@IDRMX          ;----LOAD UNL INTO DOR1----
4400 030440 004737 011060      JSR PC,LOOP          ;WAIT A LITTLE
4401 030444 017737 151606 002502      MOV @ISRX,BAD          ;GET ISR1 CONTENTS
4402 030452 022737 120040 002502      CMP #120040,BAD          ;ATN,NDAC,ATN, SHOULD BE SET
4403 030460 001410          BEQ 538          ;BRANCH IF YES
4404 030462 012737 120040 002500      MOV #120040,GOOD          ;SET UP DATA FOR ERROR MESSAGE
4405 030470          ERRSOF 809,E502,ERR501          ;....
      030470 104457          TRAP C$ERSOF 1
      030472 001451          .WORD 809
      030474 005447          .WORD E502
      030476 003702          .WORD ERR501
4406 030500          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      030500 104406          TRAP C$CLP1
4407 030502 052777 000010 151570 538:  BIS #10,@CSRX          ;SELECT CHANNEL 2
4408 030510 012737 000002 002374      MOV #2,CHAN          ;LOAD CHANNEL NUMBER
4409 030516 017737 151534 002502      MOV @ISRX,BAD          ;GET ISR2 CONTENTS
4410 030524 023737 002434 002502      CMP CDAT1,BAD          ;ATN,NDAC,ATN,(ULPA) SHOULD BE SET
4411 030532 001410          BEQ 558          ;BRANCH IF YES
4412 030534 013737 002434 002500      MOV CDAT1,GOOD          ;SET UP DATA FOR ERROR MESSAGE
4413 030542          ERRSOF 810,E502,ERR501          ;ERROR HANDLER
      030542 104457          TRAP C$ERSOF 1
      030544 001452          .WORD 810
      030546 005447          .WORD E502
      030550 003702          .WORD ERR501
4414 030552          CKLOOP          ;BRANCH TO BGNSEG IF ERROR LOOP IS SET
      030552 104406          TRAP C$CLP1
4415 030554          558:  ENDSEG          100038:  TRAP C$ESEG
      030554          ;-----
      030554 104405          ;PART 2 OF DATA TRANSFER TEST
      ;THIS PART CHECKS THE DATA TRANSFER FROM CHANNEL 2 TO CHANNEL 1
      ;-----
4416
4417
4418
4419
4420
4421 030556 004737 010220      JSR PC,CULPA          ;CLEAR ULPA BIT IN ISR 1 AND 2
4422 030562 004737 010710      JSR PC,BGIN2          ;SET UP PARAMETER
4423 030566 005037 002322      CLR ITRCNT          ;CLEAR COUNTER
4424 030572 112777 000010 151500      MOVB #10,@CSRX          ;SELECT CHANNEL 2
4425 030600 012737 000002 002374      MOV #2,CHAN          ;LOAD CHANNEL NUMBER
4426 030606 052777 000002 151464      BIS #2,@CSRX          ;SELECT CHANNEL 2 AS SYSTEM CONTROLLER
4427 030614 112777 000217 151446      MOVB #217,@ICRMX          ;----LOAD SIC IN ACR 2----
4428 030622 004737 011072      JSR PC,WAIT          ;WAIT 100 US
4429 030626 112777 000017 151434      MOVB #17,@ICRMX          ;----LOAD NOT SIC IN ACR 2----
4430 030634          BGNSEG
      030634 104404          TRAP C$BSEG
4431 030636 112777 000212 151424      MOVB #212,@ICRMX          ;----LOAD TON IN ACR 2 (ICR2)----
4432 030644 017737 151406 002402      MOV @ISRX,RSAVE          ;GET ISR2 CONTENTS
4433 030652 022737 120042 002402      CMP #120042,RSAVE          ;ATN,NDAC,ATN,TADS, SHOULD BE SET
4434 030660 001412          BEQ 48          ;BRANCH IF YES

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TEST 8: DATA TRANSFER TEST

4435	030662	012737	120042	002500		MOV	#120042,GOOD		:SET UP DATA FOR ERROR MESSAGE
4436	030670	013737	002402	002502		MOV	RSAVE,BAD		:...
4437	030676					ERRSOFT	811,E502,ERR501		:ERROR HANDLER
	030676	104457							TRAP
	030700	001453							.WORD
	030702	005447							.WORD
	030704	003702							.WORD
4438	030706				48:	ENDSEG			
	030706								100048:
	030706	104405							TRAP
4439	030710	013701	002312			MOV	DPA1,R1		:GET DPA1 ADDRESS
4440	030714	062701	000040			ADD	#40,R1		:CREATE MY LISTENER ADDRESS (MLA)
4441	030720	010137	002410			MOV	R1,MLA1		:STORE MLA
4442	030724	032737	000001	002312		BIT	#1,DPA1		:IS DPA EVEN
4443	030732	001412				BEQ	38		:BRANCH IF YES
4444	030734	052737	000001	002434		BIS	#1,CDAT1		:SET ULPA BIT IN COMPARE DATA FOR ISR
4445	030742	052737	000001	002450		BIS	#1,CDAT7		:...
4446	030750	052737	000001	002444		BIS	#1,CDAT5		:...
4447	030756	000411				BR	.+24		:BRANCH TO BGNSEG
4448	030760	042737	000001	002434	38:	BIC	#1,CDAT1		:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4449	030766	042737	000001	002450		BIC	#1,CDAT7		:...
4450	030774	042737	000001	002444		BIC	#1,CDAT5		:...
4451	031002					BGNSEG			
	031002	104404							TRAP
4452	031004	052777	000010	151266		BIS	#10,@CSRX		:SELECT CHANNEL 2
4453	031012	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4454	031020	113777	002410	151250		MOV	MLA1,@IDRMX		:-----LOAD LISTENER ADDRESS OF CHANNEL 2
4455	031026	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
4456	031032	042777	000010	151240		BIC	#10,@CSRX		:SELECT CHANNEL 1
4457	031040	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
4458	031046	017737	151176	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
4459	031054	022737	002401	002502		CMP	#2401,BAD		:MA,MAC,IFC BIT IN IIR1 SHOULD BE SET
4460	031062	001410				BEQ	208		:BRANCH IF YES
4461	031064	012737	002401	002500		MOV	#2401,GOOD		:SET UP DATA FOR ERROR MESSAGES
4462	031072					ERRSOFT	812,E501,ERR501		:ERROR HANDLER
	031072	104457							TRAP
	031074	001454							.WORD
	031076	005406							.WORD
	031100	003702							.WORD
4463	031102					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	031102	104406							TRAP
4464	031104	017737	151146	002502	208:	MOV	@ISRX,BAD		:GET ISR1 CONTENTS
4465	031112	023737	002444	002502		CMP	CDAT5,BAD		:ATN,ATN,LADS,NDAC,LPAS,(ULPA) BIT SET
4466	031120	001410				BEQ	308		:BRANCH IF YES
4467	031122	013737	002444	002500		MOV	CDAT5,GOOD		:SET UP DATA FOR ERROR MESSAGES
4468	031130					ERRSOFT	813,E502,ERR501		:ERROR HANDLER
	031130	104457							TRAP
	031132	001455							.WORD
	031134	005447							.WORD
	031136	003702							.WORD
4469	031140					CKLOOP			:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
	031140	104406							TRAP
4470	031142	052777	000010	151130	308:	BIS	#10,@CSRX		:SELECT CHANNEL 2
4471	031150	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
4472	031156	112777	000013	151104		MOV	#13,@ICRMX		:-----LOAD GTS INTO ACR2 (ICR2)-----
4473	031164	042777	000010	151106	408:	BIC	#10,@CSRX		:SELECT CHANNEL 1
4474	031172	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER

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TEST 8: DATA TRANSFER TEST

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4475 031200 017737 151052 002502      MOV    @ISRX,BAD
4476 031206 023737 002450 002502      CMP    CDAT7,BAD
4477 031214 001407                BEQ    41$
4478 031216 013737 002450 002500      MOV    CDAT7,GOOD
4479 031224                ERRSOFT 814,E502,ERR501
      031224 104457
      031226 001456
      031230 005447
      031232 003702
4480 031234                41$:      ENDSEG
      031234
      031234 104405
4481 031236 112705 000252                MOVB   #252,R5
4482 031242                AB2:      BGNSEG
      031242 104404
4483 031244 052777 000010 151026      BIS    #10,@CSRX
4484 031252 012737 000002 002374      MOV    #2,CHAN
4485 031260 110577 151012                MOVB   R5,@IDRMX
4486 031264 004737 011060                JSR    PC,LOOP
4487 031270 017737 150754 002502      MOV    @IIRX,BAD
4488 031276 022737 000020 002502      CMP    #20,BAD
4489 031304 001410                BEQ    42$
4490 031306 012737 000020 002500      MOV    #20,GOOD
4491 031314                ERRSOFT 815,E501,ERR501
      031314 104457
      031316 001457
      031320 005406
      031322 003702
4492 031324                CKLOOP
      031324 104406
4493 031326 042777 000010 150744 42$:  BIC    #10,@CSRX
4494 031334 012737 000001 002374      MOV    #1,CHAN
4495 031342 017737 150702 002502      MOV    @IIRX,BAD
4496 031350 022737 000040 002502      CMP    #40,BAD
4497 031356 001410                BEQ    43$
4498 031360 012737 000040 002500      MOV    #40,GOOD
4499 031366                ERRSOFT 816,E501,ERR501
      031366 104457
      031370 001460
      031372 005406
      031374 003702
4500 031376                CKLOOP
      031376 104406
4501 031400 017737 150666 002402 43$:  MOV    @IDRX,RSAVE
4502 031406 105037 002402                CLRB   RSAVE
4503 031412 000337 002402                SWAB   RSAVE
4504 031416 120537 002402                CMPB   R5,RSAVE
4505 031422 001414                BEQ    44$
4506 031424 000305                SWAB   R5
4507 031426 105005                CLRB   R5
4508 031430 000305                SWAB   R5
4509 031432 010537 002500                MOV    R5,GOOD
4510 031436 013737 002402 002502      MOV    RSAVE,BAD
4511 031444                ERRSOFT 817,E502,ERR501
      031444 104457
      031446 001461
      031450 005566

```

```

:GET ISR1 CONTENTS
:NDAC,LADS,LPAS,(ULPA) SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:
      TRAP    C$ERSOFT
      .WORD   814
      .WORD   E502
      .WORD   ERR501
      100058:
      TRAP    C$ESEG
:GET DATA PATTERN
      TRAP    C$BSEG
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:----LOAD DATA PATTERN INTO DOR2-----
:WAIT A LITTLE
:GET IIR2 CONTENTS
:BO BIT IN IIR2 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   815
      .WORD   E501
      .WORD   ERR501
:BRANCH TO BGNSEG IF ERRLOOP WAS SET
      TRAP    C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:GET IIR1 CONTENTS
:BI BIT IN IIR1 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   816
      .WORD   E501
      .WORD   ERR501
:
      TRAP    C$CLP1
:READ DATA FROM DIR1 REGISTER
:CLEAR LOW BYTE OF IDR
:SWAB DATA FOR COMPARE
:CORRECT DATA RECEIVED
:BRANCH IF YES
:SWAB HIGH AND LOW BYTE
:CLEAR HIGH BYTE OF R5
:SWAB HIGH AND LOW BYTE
:SET UP DATA FOR ERROR MESSAGE
:
:ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   817
      .WORD   E502

```


Address	Hex	Hex	Hex	Hex	Label	Instruction	Comment
4512	031452	003702			448:	ENDSEG	
	031454						
	031454	104405					
4513	031456	005737	002234			TST	OVP
4514	031462	001010				BNE	508
4515	031464	062705	000021			ADD	#21,R5
4516	031470	005237	002322			INC	ITRCNT
4517	031474	023737	002320	002322		CMP	ITRDEF,ITRCNT
4518	031502	001257				BNE	AB2
4519	031504				508:	BGNSEG	
	031504	104404					
4520	031506	052777	000010	150564		BIS	#10,@CSRX
4521	031514	012737	000002	002374		MOV	#2,CAN
4522	031522	112777	000014	150540		MOVB	#14,@ICRHX
4523	031530	004737	011060			JSR	PC,LOOP
4524	031534	017737	150510	002502		MOV	@ISRX,BAD
4525	031542	022737	000020	002502		CMP	#20,BAD
4526	031550	001410				BEQ	518
4527	031552	012737	000020	002500		MOV	#20,GOOD
4528	031560					ERRSOFT	818,E501,ERR501
	031560	104457					
	031562	001462					
	031564	005406					
	031566	003702					
4529	031570					CKLOOP	
	031570	104406					
4530	031572	112777	000012	150470	518:	MOVB	#12,@ICRHX
4531	031600	112777	000077	150470		MOVB	#77,@IDRHX
4532	031606	004737	011060			JSR	PC,LOOP
4533	031612	017737	150440	002502		MOV	@ISRX,BAD
4534	031620	022737	120040	002502		CMP	#120040,BAD
4535	031626	001410				BEQ	538
4536	031630	012737	120040	002500		MOV	#120040,GOOD
4537	031636					ERRSOFT	819,E502,ERR501
	031636	104457					
	031640	001463					
	031642	005447					
	031644	003702					
4538	031646					CKLOOP	
	031646	104406					
4539	031650	042777	000010	150422	538:	BIC	#10,@CSRX
4540	031656	012737	000001	002374		MOV	#1,CAN
4541	031664	017737	150366	002502		MOV	@ISRX,BAD
4542	031672	023737	002434	002502		CMP	CDAT1,BAD
4543	031700	001410				BEQ	558
4544	031702	013737	002434	002500		MOV	CDAT1,GOOD
4545	031710					ERRSOFT	820,E502,ERR501
	031710	104457					
	031712	001464					
	031714	005447					
	031716	003702					
4546	031720					CKLOOP	
	031720	104406					
4547	031722				558:	ENDSEG	
	031722						

```

                                .WORD      ERR501
                                10006$:
                                TRAP        C$ESEG
:IS QUICK VERIFY PASS SELECTED
:BRANCH IF YES
:CREATE NEW TRANSMIT DATA
:INCREMENT ITERATION COUNTER
:ALL DONE
:BRANCH IF NO

                                TRAP        C$BSEG
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:-----LOAD TCA BIT INTO ACR2-----
:WAIT A LITTLE FOR THE BO BIT
:GET IIR2 CONTENTS
:BO BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

                                TRAP        C$ERSOFT
                                .WORD      818
                                .WORD      E501
                                .WORD      ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP        C$CLP1
:-----LOAD NOT TON INTO ACR2 -----
:-----LOAD UNL INTO DOR2-----
:WAIT A LITTLE
:GET ISR2 CONTENTS
:ATN,NDAC,ATN SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:....

                                TRAP        C$ERSOFT
                                .WORD      819
                                .WORD      E502
                                .WORD      ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP        C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:GET ISR1 CONTENTS
:ATN,NDAC,ATN,(ULPA) SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

                                TRAP        C$ERSOFT
                                .WORD      820
                                .WORD      E502
                                .WORD      ERR501
:BRANCH TO BGNSEG IF ERRORLOOP IS SET
                                TRAP        C$CLP1

                                10007$:
                                TRAP        C$ESEG

```

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TEST 8: DATA TRANSFER TEST

4548	031724						EXIT TST			
	031724	104432						TRAP	(SEEXIT	
	031726	000034						.WORD	L10035-	
4549										
4550										
4551	031730	045	123	062	TSMDB:	.NL:ST	BEX			
4552						.ASCIZ	/ZS2ZADATA TRANSFER TESTZN/			
4553						.LIST	BEX			
4554	031762					.EVEN				
	031762					ENDTST				
	031762	104401						L10035:	TRAP	(SETST

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 51
TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

```

4556 .SBTTL TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)
4557 :*****
4558 :               IEX - TEST 9
4559 : THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
4560 :
4561 : PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
4562 : FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AS AN INVALID
4563 : MY SECONDARY ADDRESS (MSA1).
4564 :*****
4565 BGNIST
4566 031764 005737 002324 TST PNTF ;IS THE PNT FLAG SET
4567 031770 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
4568 031772 PRINTF #TSHD9 ;...
4569 031772 012746 033454 MOV #TSHD9,-(SP)
4570 031776 012746 000001 MOV #1,-(SP)
4571 032002 010600 MOV SP,R0
4572 032004 104417 TRAP C$PNTF
4573 032006 062706 000004 ADD #4,SP
4574 032012 005037 002322 7$: CLR ITRCNT ;CLEAR COUNTER
4575 032016 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
4576 032022 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
4577 032026 042777 000010 A9: BIC #10,@CSRX ;SELECT CHANNEL 1
4578 032034 112777 000223 MCVB #223,@ICRHX ;-----LOAD DAI INTO ACR1-----
4579 032042 112777 000020 MOVB #20,@ISRHX ;-----LOAD APT BIT INTO ISR1-----
4580 032050 013701 002312 MOV DPA1,R1 ;GET DPA1 ADDRESS
4581 032054 062701 000040 ADD #40,R1 ;CREATE MY LISTENER ADDRESS (MLA)
4582 032060 010137 002410 MOV R1,MLA1 ;STORE MLA
4583 032064 032737 000001 BIT #1,DPA1 ;IS DPA EVEN
4584 032072 001412 BEQ 3$ ;BRANCH IF YES
4585 032074 052737 000001 BIS #1,CDAT6 ;SET ULPA BIT IN COMPARE DATA FOR ISR
4586 032102 052737 000001 BIS #1,CDAT4 ;...
4587 032110 052737 000001 BIS #1,CDAT5 ;...
4588 032116 000411 BR .+24 ;BRANCH TO BGNSEG
4589 032120 042737 000001 3$: BIC #1,CDAT6 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4590 032126 042737 000001 BIC #1,CDAT4 ;...
4591 032134 042737 000001 BIC #1,CDAT5 ;...
4592 032142 104404 BGNSEG
4593 032144 052777 000010 BIS #10,@CSRX ;SELECT CHANNEL 2
4594 032152 012737 000002 MOV #2,CHAN ;LOAD CHANNEL NUMBER
4595 032160 113777 002410 MOVB MLA1,@IDRHX ;----LOAD LISTENER ADDRESS OF CHAN. 1
4596 032166 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
4597 032172 042777 000010 BIC #10,@CSRX ;SELECT CHANNEL 1
4598 032200 012737 000001 MOV #1,CHAN ;LOAD CHANNEL NUMBER
4599 032206 017737 150036 MOV @IIRX,BAD ;GET IIR1 CONTENTS
4600 032214 022737 000400 CMP #400,BAD ;IFC,BIT IN IIR1 SHOULD BE SET
4601 032222 001410 BEQ 30$ ;BRANCH IF YES
4602 032224 012737 000400 MOV #400,GOOD ;SET UP DATA FOR ERROR MESSAGES
4603 032232 104457 ERRSOFT 901,ERR501,ERR501 ;ERROR HANDLER
4604 032234 001605 TRAP C$ERRSOFT
4605 032236 005406 .WORD 901
4606 032240 003702 .WORD ERR501
4607 032242 104406 .WORD ERR501
4608 032244 017737 150006 002502 30$: CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
4609 032244 017737 150006 002502 30$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
4610 032244 017737 150006 002502 30$: TRAP C$CLP1

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 51-1
TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

```

4601 032252 023737 002442 002502      CMP      CDAT4,BAD
4602 032260 001410                      BEQ      40$
4603 032262 013737 002442 002500      MOV      CDAT4,GOOD
4604 032270                      ERRSOFT 902,E502,ERR501
      032270 104457
      032272 001606
      032274 005447
      032276 003702
4605 032300                      CKLOOP
      032300 104406
4606 032302 052777 000010 147770 40$:  BIS      #10,@CSRX
4607 032310 012737 000002 002374      MOV      #2,CHAN
4608 032316 013701 002410      MOV      MLA1,R1
4609 032322 062701 000100      ADD      #100,R1
4610 032326 010137 002420      MOV      R1,MSA1
4611 032332 113777 002420 147736      MOV      MSA1,@IDRH
4612 032340 004737 011060      JSR      PC,LOOP
4613 032344 017737 147700 002502      MOV      @IIRX,BAD
4614 032352 022737 000000 002502      CMP      #0,BAD
4615 032360 001407                      BEQ      41$
4616 032362 005037 002500      CLR      GOOD
4617 032366                      ERRSOFT 903,E501,ERR501
      032366 104457
      032370 001607
      032372 005406
      032374 003702
4618 032376                      CKLOOP
      032376 104406
4619 032400 042777 000010 147672 41$:  BIC      #10,@CSRX
4620 032406 012737 000001 002374      MOV      #1,CHAN
4621 032414 017737 147630 002502      MOV      @IIRX,BAD
4622 032422 022737 010100 002502      CMP      #10100,BAD
4623 032430 001410                      BEQ      42$
4624 032432 012737 010100 002500      MOV      #10100,GOOD
4625 032440                      ERRSOFT 904,E501,ERR501
      032440 104457
      032442 001610
      032444 005406
      032446 003702
4626 032450                      CKLOOP
      032450 104406
4627 032452 017737 147600 002502 42$:  MOV      @ISRX,BAD
4628 032460 023737 002446 002502      CMP      CDAT6,BAD
4629 032466 001410                      BEQ      43$
4630 032470 013737 002446 002500      MOV      CDAT6,GOOD
4631 032476                      ERRSOFT 905,E502,ERR501
      032476 104457
      032500 001611
      032502 005447
      032504 003702
4632 032506                      CKLOOP
      032506 104406
4633 032510 017737 147550 002502 43$:  MOV      @ICRX,BAD
4634 032516 123737 002420 002502      CMP      MSA1,BAD
4635 032524 001410                      BEQ      44$
4636 032526 013737 002420 002500      MOV      MSA1,GOOD
4637 032534                      ERRSOFT 906,E901,ERR501

```

```

;ATN,ATN,NDAC LPAS,(ULPA) BIT SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      902
                                .WORD      E502
                                .WORD      ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET MLA1
;CREATE MSA1
;STORE MSA1 TO LOCATION MSA1
;-----LOAD MSA1 INTO DOR2-----
;WAIT A LITTLE
;GET IIR2 CONTENTS
;IIR2 SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      903
                                .WORD      E501
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;APT,INT1 BIT IN IIR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      904
                                .WORD      E501
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;GET ISR1 CONTENTS
;ATN,DAV,NDAC,NRFD,ATN,LPAS(ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      905
                                .WORD      E502
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;GET ICR1 CONTENTS
;MSA1 ADDRESS SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

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TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

Address	Instruction	Op-Code	Register	Value	Label	Comment
032534	104457					
032536	001612					
032540	005644					
032542	003702					
4638 032544	104406				CKLOOP	
032544	052777	000010	147524	44\$:	BIS	#10,@CSRX
4639 032546	012737	000002	002374		MOV	#2,CHAN
4640 032554	017737	147470	002502		MOV	@ISRX,BAD
4641 032562	022737	170040	002502		CMP	#170040,BAD
4642 032570	001410				BEQ	45\$
4643 032576	012737	170040	002500		MOV	#170040,GOOD
4644 032600					ERRSOFT	907,E502,ERR501
4645 032606	104457					
032610	001613					
032612	005447					
032614	003702					
4646 032616	104406				CKLOOP	
032616	042777	000010	147452	45\$:	BIC	#10,@CSRX
4647 032620	012737	000001	002374		MOV	#1,CHAN
4648 032626	112777	000201	147426		MOVB	#201,@ICRHX
4649 032634	017737	147410	002402		MOV	@ISRX,RSAVE
4650 032642	023737	002444	002402		CMP	CDAT5,RSAVE
4651 032650	001413				BEQ	46\$
4652 032656	013737	002444	002500		MOV	CDAT5,GOOD
4653 032660	013737	002402	002502		MOV	RSAVE,BAD
4654 032666					ERRSOFT	908,E502,ERR501
4655 032674	104457					
032676	001614					
032700	005447					
032702	003702					
4656 032704	104406				CKLOOP	
032704	052777	000010	147364	46\$:	BIS	#10,@CSRX
4657 032706	012737	000002	002374		MOV	#2,CHAN
4658 032714	017737	147322	002402		MOV	@ISRX,RSAVE
4659 032722	022737	000020	002402		CMP	#20,RSAVE
4660 032730	001413				BEQ	50\$
4661 032736	012737	000020	002500		MOV	#20,GOOD
4662 032740	013737	002402	002502		MOV	RSAVE,BAD
4663 032746					ERRSOFT	909,E501,ERR501
4664 032754	104457					
032756	001615					
032760	005406					
032762	003702					
4665 032764	104406				CKLOOP	
032764	112777	000077	147302	50\$:	MOVB	#77,@IDRHX
4666 032766					ENDSEG	
4667 032774	104405					
032774						
4668 032776				COPA9:	BGNSEG	
032776	052777	000010	147272		BIS	#10,@CSRX
4669 033000	012737	000002	002374		MOV	#2,CHAN
4670 033006	113777	002410	147254		MOVB	MLA1,@IDRHX
4671 033014						

```

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$ERSOFT
.WORD 906
.WORD E901
.WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET ISR2 CONTENTS
;ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
TRAP C$ERSOFT
.WORD 907
.WORD E502
.WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;-----LOAD DACR INTO ACR1-----
;GET ISR1 CONTENTS
;ATN,NDAC,ATN,LADS,LPAS (ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;
;ERROR HANDLER
TRAP C$ERSOFT
.WORD 908
.WORD E502
.WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;
;ERROR HANDLER
TRAP C$ERSOFT
.WORD 909
.WORD E501
.WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

;---LOAD UNL INTO DOR2-----

10000$:
TRAP C$ESEG
TRAP C$BSEG

;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;-----LOAD LISTENER ADDRESS OF CHANNEL 2-----

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 51-3
TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

Address	Hex	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	
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```

:WAIT A LITTLE
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:GET IIR1 CONTENTS
:MAC BIT IN IIR1 SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGES
:ERROR HANDLER

                                TRAP      C$ERSOFT
                                .WORD      910
                                .WORD      E501
                                .WORD      ERR501
:BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET MLA1
:CREATE MSA1
:STORE MSA1 TO LOCATION MSA1
:-----LOAD MSA1 INTO DOR2-----
:WAIT A LITTLE
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:-----LOAD NOT DACR INTO ACR1-----
:READ IIR1 FOR CLEAR THE BITS
:GET ISR1 CONTENTS
:ATN,NDAC,ATN,LPAS (ULPA) IS SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

                                TRAP      C$ERSOFT
                                .WORD      911
                                .WORD      E502
                                .WORD      ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET IIR2 CONTENTS
:BO BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

                                TRAP      C$ERSOFT
                                .WORD      912
                                .WORD      E501
                                .WORD      ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1

:---LOAD UNL INTO DOR2-----

                                10001$:
                                TRAP      C$ESEG
:IS QUICK VERIFY PASS SELECTED
:IF YES EXIT TEST
:IS THIS THE FIRST TIME THROUGH THE TEST
:BRANCH IF NO

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 51-4
TEST 9: SECONDARY ADDRESSING TEST OF CHANNEL 1 (LISTENER)

PC	OP	OP2	OP3	OP4	OP5	OP6	OP7	OP8	OP9	OP10	OP11	OP12	OP13	OP14	OP15	OP16	OP17	OP18	OP19	OP20	OP21	OP22	OP23	OP24	OP25	OP26	OP27	OP28	OP29	OP30	OP31	OP32	OP33	OP34	OP35	OP36	OP37	OP38	OP39	OP40	OP41	OP42	OP43	OP44	OP45	OP46	OP47	OP48	OP49	OP50	OP51	OP52	OP53	OP54	OP55	OP56	OP57	OP58	OP59	OP60	OP61	OP62	OP63	OP64	OP65	OP66	OP67	OP68	OP69	OP70	OP71	OP72	OP73	OP74	OP75	OP76	OP77	OP78	OP79	OP80	OP81	OP82	OP83	OP84	OP85	OP86	OP87	OP88	OP89	OP90	OP91	OP92	OP93	OP94	OP95	OP96	OP97	OP98	OP99	OP100	OP101	OP102	OP103	OP104	OP105	OP106	OP107	OP108	OP109	OP110	OP111	OP112	OP113	OP114	OP115	OP116	OP117	OP118	OP119	OP120	OP121	OP122	OP123	OP124	OP125	OP126	OP127	OP128	OP129	OP130	OP131	OP132	OP133	OP134	OP135	OP136	OP137	OP138	OP139	OP140	OP141	OP142	OP143	OP144	OP145	OP146	OP147	OP148	OP149	OP150	OP151	OP152	OP153	OP154	OP155	OP156	OP157	OP158	OP159	OP160	OP161	OP162	OP163	OP164	OP165	OP166	OP167	OP168	OP169	OP170	OP171	OP172	OP173	OP174	OP175	OP176	OP177	OP178	OP179	OP180	OP181	OP182	OP183	OP184	OP185	OP186	OP187	OP188	OP189	OP190	OP191	OP192	OP193	OP194	OP195	OP196	OP197	OP198	OP199	OP200	OP201	OP202	OP203	OP204	OP205	OP206	OP207	OP208	OP209	OP210	OP211	OP212	OP213	OP214	OP215	OP216	OP217	OP218	OP219	OP220	OP221	OP222	OP223	OP224	OP225	OP226	OP227	OP228	OP229	OP230	OP231	OP232	OP233	OP234	OP235	OP236	OP237	OP238	OP239	OP240	OP241	OP242	OP243	OP244	OP245	OP246	OP247	OP248	OP249	OP250	OP251	OP252	OP253	OP254	OP255	OP256	OP257	OP258	OP259	OP260	OP261	OP262	OP263	OP264	OP265	OP266	OP267	OP268	OP269	OP270	OP271	OP272	OP273	OP274	OP275	OP276	OP277	OP278	OP279	OP280	OP281	OP282	OP283	OP284	OP285	OP286	OP287	OP288	OP289	OP290	OP291	OP292	OP293	OP294	OP295	OP296	OP297	OP298	OP299	OP300	OP301	OP302	OP303	OP304	OP305	OP306	OP307	OP308	OP309	OP310	OP311	OP312	OP313	OP314	OP315	OP316	OP317	OP318	OP319	OP320	OP321	OP322	OP323	OP324	OP325	OP326	OP327	OP328	OP329	OP330	OP331	OP332	OP333	OP334	OP335	OP336	OP337	OP338	OP339	OP340	OP341	OP342	OP343	OP344	OP345	OP346	OP347	OP348	OP349	OP350	OP351	OP352	OP353	OP354	OP355	OP356	OP357	OP358	OP359	OP360	OP361	OP362	OP363	OP364	OP365	OP366	OP367	OP368	OP369	OP370	OP371	OP372	OP373	OP374	OP375	OP376	OP377	OP378	OP379	OP380	OP381	OP382	OP383	OP384	OP385	OP386	OP387	OP388	OP389	OP390	OP391	OP392	OP393	OP394	OP395	OP396	OP397	OP398	OP399	OP400	OP401	OP402	OP403	OP404	OP405	OP406	OP407	OP408	OP409	OP410	OP411	OP412	OP413	OP414	OP415	OP416	OP417	OP418	OP419
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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 52
TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

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4737          .SBTTL TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)
4738          :*****
4739          :               IEX - TEST 10
4740          :THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION .
4741          :
4742          :PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
4743          :FEATURE OF CHANNEL 1 BY MEANS OF RECEIVING A VALID AS WELL AS AN INVALID
4744          :MY SECONDARY ADDRESS (MSA1).
4745          :*****
4746          BGNTST
4747          033550          005737          002324          TST          PNTF          ;IS THE PNT FLAG SET
4748          033554          001410          BEQ          7$          ;IF YES, PRINT THE TEST HEADER
4749          033556          012746          035224          PRINTF          #TSHD10          ;...
4750          033556          012746          000001          MOV          #TSHD10,-(SP)
4751          033566          010600          MOV          #1,-(SP)
4752          033570          104417          MOV          SP,R0
4753          033572          062706          000004          TRAP          C$PNTF
4754          033576          005037          002322          7$:          CLR          ITRCNT          ;CLEAR ITERATION COUNTER
4755          033602          004737          010220          JSR          PC,CULPA          ;CLEAR ULPA BIT IN ISR 1 AND 2
4756          033606          004737          010710          JSR          PC,BGIN2          ;SET UP PARAMETER
4757          033612          042777          000010          146460          A10:          BIC          #10,@CSRX          ;SELECT CHANNEL 1
4758          033620          112777          000223          146442          MOV          #223,@ICRHX          ;----LOAD DAI INTO ACR1-----
4759          033626          112777          000020          146426          MOV          #20,@ISRHX          ;----LOAD APT BIT INTO ISR1-----
4760          033634          013701          002312          MOV          DPA1,R1          ;GET DPA1 ADDRESS
4761          033640          062701          000100          ADD          #100,R1          ;CREATE MY TALKER ADDRESS (MTA)
4762          033644          010137          002414          MOV          R1,MTA1          ;STORE MTA
4763          033650          032737          000001          002312          BIT          #1,DPA1          ;IS DPA EVEN
4764          033656          001412          BEQ          3$          ;BRANCH IF YES
4765          033660          052737          000001          002452          BIS          #1,CDAT8          ;SET ULPA BIT IN COMPARE DATA FOR ISR
4766          033666          052737          000001          002436          BIS          #1,CDAT2
4767          033674          052737          000001          002440          BIS          #1,CDAT3
4768          033702          000411          BR          .+24          ;...
4769          033704          042737          000001          002452          3$:          BIC          #1,CDAT8          ;BRANCH TO BGNSEG
4770          033712          042737          000001          002436          BIC          #1,CDAT2          ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4771          033720          042737          000001          002440          BIC          #1,CDAT3
4772          033726          104404          BGNSEG          ;...
4773          033730          052777          000010          146342          BIS          #10,@CSRX          ;SELECT CHANNEL 2
4774          033736          012737          000002          002374          MOV          #2,CHAN          ;LOAD CHANNEL NUMBER
4775          033744          113777          002414          146324          MOV          MTA1,@IDRHX          ;----LOAD TALKER ADDRESS OF CHANNEL 2---
4776          033752          004737          011060          JSR          PC,LOOP          ;WAIT A LITTLE
4777          033756          042777          000010          146314          BIC          #10,@CSRX          ;SELECT CHANNEL 1
4778          033764          012737          000001          002374          MOV          #1,CHAN          ;LOAD CHANNEL NUMBER
4779          033772          017737          146252          002502          MOV          @IIRX,BAD          ;GET IIR1 CONTENTS
4780          034000          022737          000400          002502          CMP          #400,BAD          ;IFC,BIT IN IIR1 SHOULD BE SET
4781          034006          001410          BEQ          30$          ;BRANCH IF YES
4782          034010          012737          000400          002500          MOV          #400,GOOD          ;SET UP DATA FOR ERROR MESSAGES
4783          034016          104457          ERRSOFT 1001,E501,ERR501          ;ERROR HANDLER
4784          034020          001751          TRAP          C$ERRSOFT
4785          034022          005406          .WORD          1001
4786          034024          003702          .WORD          E501
4787          034026          104406          .WORD          ERR501
4788          034030          017737          146222          002502          30$:          CKLOOP          ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
4789          034030          017737          146222          002502          30$:          MOV          @ISRX,BAD          ;GET ISR1 CONTENTS
4790          034030          017737          146222          002502          30$:          TRAP          C$CLP1

```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 52-1
TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

```

4782 034036 023737 002436 002502      CMP      CDAT2,BAD
4783 034044 001410                      BEQ      40$
4784 034046 013737 002436 002500      MOV      CDAT2,GOOD
4785 034054                      ERRSOFT 1002,E502,ERR501
      034054 104457
      034056 001752
      034060 005447
      034062 003702
4786 034064                      CKLOOP
      034064 104406
4787 034066 052777 000010 146204 40$:  BIS      #10,@CSRX
4788 034074 012737 000002 002374      MOV      #2,CHAN
4789 034102 013701 002414      MOV      MTA1,R1
4790 034106 062701 000040      ADD      #40,R1
4791 034112 010137 002420      MOV      R1,MSA1
4792 034116 113777 002420 146152      MOVB    MSA1,@IDRHX
4793 034124 004737 011060      JSR      PC,LOOP
4794 034130 017737 146114 002502      MOV      @IIRX,BAD
4795 034136 022737 000000 002502      CMP      #0,BAD
4796 034144 001407                      BEQ      41$
4797 034146 005037 002500      CLR      GOOD
4798 034152                      ERRSOFT 1003,E501,ERR501
      034152 104457
      034154 001753
      034156 005406
      034160 003702
4799 034162                      CKLOOP
      034162 104406
4800 034164 042777 000010 146106 41$:  BIC      #10,@CSRX
4801 034172 012737 000001 002374      MOV      #1,CHAN
4802 034200 017737 146044 002502      MOV      @IIRX,BAD
4803 034206 022737 010100 002502      CMP      #10100,BAD
4804 034214 001410                      BEQ      42$
4805 034216 012737 010100 002500      MOV      #10100,GOOD
4806 034224                      ERRSOFT 1004,E501,ERR501
      034224 104457
      034226 001754
      034230 005406
      034232 003702
4807 034234                      CKLOOP
      034234 104406
4808 034236 017737 146014 002502 42$:  MOV      @ISRX,BAD
4809 034244 023737 002452 002502      CMP      CDAT8,BAD
4810 034252 001410                      BEQ      43$
4811 034254 013737 002452 002500      MOV      CDAT8,GOOD
4812 034262                      ERRSOFT 1005,E502,ERR501
      034262 104457
      034264 001755
      034266 005447
      034270 003702
4813 034272                      CKLOOP
      034272 104406
4814 034274 017737 145764 002502 43$:  MOV      @ICRX,BAD
4815 034302 123737 002420 002502      CMPB    MSA1,BAD
4816 034310 001410                      BEQ      44$
4817 034312 013737 002420 002500      MOV      MSA1,GOOD
4818 034320                      ERRSOFT 1006,E901,ERR501

```

```

;ATN,ATN,NDAC,TPAS,(ULPA) BIT SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER

```

```

      TRAP      C$ERSOFT
      .WORD    1002
      .WORD    E502
      .WORD    ERR501
      TRAP      C$CLP1

```

```

;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET MTA1
;CREATE MSA1
;STORE MSA1 TO LOCATION MSA1
;-----LOAD MSA1 INTO DOR2-----
;WAIT A LITTLE
;GET IIR2 CONTENTS
;IIR2 SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

```

      TRAP      C$ERSOFT
      .WORD    1003
      .WORD    E501
      .WORD    ERR501
      TRAP      C$CLP1

```

```

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;APT,INT1 BIT IN IIR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

```

      TRAP      C$ERSOFT
      .WORD    1004
      .WORD    E501
      .WORD    ERR501
      TRAP      C$CLP1

```

```

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
;GET ISR1 CONTENTS
;ATN,DAV,NDAC,NRFD,ATN,TPAS(ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

```

      TRAP      C$ERSOFT
      .WORD    1005
      .WORD    E502
      .WORD    ERR501
      TRAP      C$CLP1

```

```

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
;GET ICR1 CONTENTS
;MSA1 ADDRESS SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

```

                                TRAP      C$ERSOFT
                                .WORD      1006
                                .WORD      E901
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET ISR2 CONTENTS
;ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      1007
                                .WORD      E502
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;-----LOAD DACR INTO ACR1-----
;GET ISR1 CONTENTS
;ATN,NDAC,ATN,TADS,TPAS (ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      1008
                                .WORD      E502
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD      1009
                                .WORD      E501
                                .WORD      ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;---LOAD UNIT INTO DOR2-----
                                10000$:
                                TRAP      C$ESEG
                                TRAP      C$BSEG
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;----LOAD TALKER ADDRESS OF CHANNEL 2---
;WAIT A LITTLE
;SELECT CHANNEL 1

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 52-3
TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

```

4853 034604 012737 000001 002374      MOV      #1,CHAN
4854 034612 017737 145432 002502      MOV      @IIRX,BAD
4855 034620 022737 000001 002502      CMP      #1,BAD
4856 034626 001410                BEQ      30$
4857 034630 012737 000001 002500      MOV      #1,GOOD
4858 034636                ERRSOF 1 1010,E501,ERR501

      034636 104457
      034640 001762
      034642 005406
      034644 003702
4859 034646                (KLOOP
      034646 104406
4860 034650 052777 000010 145422 30$:  BIS      #10,@CSRX
4861 034656 012737 000002 002374      MOV      #2,CHAN
4862 034664 013701 002414      MOV      MTA1,R1
4863 034670 062701 000040      ADD      #40,R1
4864 034674 010137 002420      MOV      R1,MSA1
4865 034700 113777 002420 145370      MOV      MSA1,@IDRMX
4866 034706 004737 011060      JSR      PC,LOOP
4867 034712 042777 000010 145360      BIC      #10,@CSRX
4868 034720 012737 000001 002374      MOV      #1,CHAN
4869 034726 112777 000001 145334      MOV      #1,@ICRHX
4870 034734 017737 145310 002502      MOV      @IIRX,BAD
4871 034742 017737 145310 002502      MOV      @ISRX,BAD
4872 034750 023737 002436 002502      CMP      CDAT2,BAD
4873 034756 001410                BEQ      46$
4874 034760 013737 002436 002500      MOV      CDAT2,GOOD
4875 034766                ERRSOF 1 1011,E502,ERR501
      034766 104457
      034770 001763
      034772 005447
      034774 003702
4876 034776                (KLOOP
      034776 104406
4877 035000 052777 000010 145272 46$:  BIS      #10,@CSRX
4878 035006 012737 000002 002374      MOV      #2,CHAN
4879 035014 017737 145230 002502      MOV      @IIRX,BAD
4880 035022 022737 000020 002502      CMP      #20,BAD
4881 035030 001410                BEQ      50$
4882 035032 012737 000020 002500      MOV      #20,GOOD
4883 035040                ERRSOF 1 1012,E501,ERR501
      035040 104457
      035042 001764
      035044 005406
      035046 003702
4884 035050                (KLOOP
      035050 104406
4885 035052 112777 000137 145216 50$:  MOV      #137,@IDRMX
4886 035060                ENDSEG
      035060
      035060 104405
4887 035062 005737 002234      TST      QVP
4888 035066 001054      BNE      EXQV10
4889 035070 005737 002322      TST      ITRCNT
4890 035074 001007      BNE      1$
4891 035076 013737 002312 002406      MOV      DPA1,SDPA
4892 035104 005037 002312      CLR      DPA1

```

```

;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;MAC BIT IN IIR1 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP      C$ERSOF 1
      .WORD     1010
      .WORD     E501
      .WORD     ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP      C$CLP1

;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET MLA1
;CREATE MSA1
;STORE MSA1 TO LOCATION MSA1
;-----LOAD MSA1 INTO DOR2-----
;WAIT A LITTLE
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;-----LOAD NOT DACR INTO ACR1-----
;READ IIR1 FOR CLEAR THE BITS
;GET ISR1 CONTENTS
;ATN,NDAC,ATN,TPAS (ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      C$ERSOF 1
      .WORD     1011
      .WORD     E502
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      C$CLP1

;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      C$ERSOF 1
      .WORD     1012
      .WORD     E501
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      C$CLP1

;---LOAD UNIT INTO DOR2-----
10001$:
      TRAP      C$ESEG
;IS QUICK VERIFY PASS SELECTED
;IF YES EXIT TEST
;IS THIS THE FIRST TIME THROUGH THE TEST
;BRANCH IF NO
;SAVE ENTERED DPA1
;CLR DPA1

```

HARDWARE TESTS MACRG M1113 06-SEP-82 16:46 PAGE 52-4
 TEST 10: SECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)

4893	035110	005237	002322			INC	ITRCNT		:SET FLAG TO SEE FIRST TIME PASS
4894	035114	005237	002312			INC	DPA1		:GET NEW DPA1
4895	035120	023737	002312	002314		CMP	DPA1,DPA2		:IS DPA1 = DPA2
4896	035126	001002				BNE	2\$		:BRANCH IF NO
4897	035130	005237	002312			INC	DPA1		:INCREMENT DPA1
4898	035134	022737	000037	002312	2\$:	CMP	#37,DPA1		:ALL DONE
4899	035142	001423				BEQ	3\$		:BRANCH IF YES
4900	035144	052777	000010	145126		BIS	#10,ACSRX		:SELECT CHANNEL 2
4901	035152	112777	000217	145110		MOVB	#217,ACRHX		:----LOAD SIC INTO ACR 2-----
4902	035160	004737	011072			JSR	PC, WAIT		:WAIT A LITTLE
4903	035164	112777	000017	145076		MOVB	#17,ACR4X		:----LOAD NOT SIC INTO ACR 2---
4904	035172	042777	000010	145100		BIC	#10,ACSRX		:SELECT CHANNEL 1
4905	035200	113777	002312	145046		MOVB	DPA1,ACRHX		:LOAD NEW DPA1 INTO ADR1
4906	035206	000137	033612			JMP	A10		:REPEAT THE TEST WITH THE NEW DPA1
4907	035212	013737	002406	002312	3\$:	MOV	SDPA,DPA1		:RESTORE ENTERED DPA1
4908	035220					EXQV10:	EXIT TST		
	035220	104432							TRAP C\$EXIT
	035222	000072							.WORD L10037-
4909									
4910						.NLIST	BEX		
4911	035224	045	123	062	TSMC10:	.ASCIZ	/S2%ASECONDARY ADDRESSING TEST OF CHANNEL 1 (TALKER)%N/		
4912						.LIST	BEX		
4913						.EVEN			
4914	035314					ENDTST			
	035314								L10037:
	035314	104401							TRAP C\$TST

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 53
TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

```

4916 .SBTTL TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)
4917 .....
4918 .EX - TEST 11
4919 :THIS TEST CHECKS THE EXTENDED LISTENER INTERFACE FUNCTION .
4920 :
4921 :PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
4922 :FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AS
4923 :AN INVALID MY SECONDARY ADDRESS (MSA2).
4924 .....
4925 BGNTST
4926 035316 005737 002324 TST PNTF T11::
4927 035322 001410 BEQ 7$ :IS THE PNT FLAG SET
4928 035324 PRINTF #TSHD11 :IF YES, PRINT THE TEST HEADER
:....
:MOV #TSHD11,-(SP)
:MOV #1,-(SP)
:MOV SP,R0
:TRAP C$PNTF
:ADD #4,SP
4929 035344 005037 002322 7$: CLR ITRCNT :CLEAR COUNTER
4930 035350 004737 010220 JSR PC,CULPA :CLEAR ULPA IN ISR 1 AND 2
4931 035354 004737 010534 JSR PC,BGIN1 :SET UP PARAMETER
4932 035360 052777 000010 144712 A11: BIS #10,@CSRX :SELECT CHANNEL 2
4933 035366 112777 000223 144674 MOVB #22,@ICRHX :----LOAD DAI INTO ACR2-----
4934 035374 112777 000020 144660 MOVB #20,@ISRHX :----LOAD APT BIT INTO ISR2-----
4935 035402 013701 002314 MOV DPA2,R1 :GET DPA2 ADDRESS
4936 035406 062701 000040 ADD #40,R1 :CREATE MY LISTENER ADDRESS (MLA)
4937 035412 010137 002412 MOV R1,MLA2 :STORE MLA
4938 035416 032737 000001 002314 BIT #1,DPA2 :IS DPA EVEN
4939 035424 001412 BEQ 3$ :BRANCH IF YES
4940 035426 052737 000001 002446 BIS #1,CDA16 :SET ULPA BIT IN COMPARE DATA FOR ISR
4941 035434 052737 000001 002442 BIS #1,CDA14 :
4942 035442 052737 000001 002444 BIS #1,CDA15 :
4943 035450 000411 BR .+24 :BRANCH TO BGNSEG
4944 035452 042737 000001 002446 3$: BIC #1,CDA16 :CLEAR ULPA BIT IN COMPARE DATA FOR ISR
4945 035460 042737 000001 002442 BIC #1,CDA14 :
4946 035466 042737 000001 002444 BIC #1,CDA15 :
4947 035474 BGNSEG :
:TRAP C$BSEG
4948 035474 104404 BIC #10,@CSRX :SELECT CHANNEL 1
4949 035504 012737 000001 002374 MOV #1,CHAN :LOAD CHANNEL NUMBER
4950 035512 113777 002412 144556 MOVB MLA2,@IDRHX :----LOAD LISTENER ADDRESS OF CHANNEL 1--
4951 035520 004737 011060 JSR PC,LOOP :WAIT A LITTLE
4952 035524 052777 000010 144546 BIS #10,@CSRX :SELECT CHANNEL 2
4953 035532 012737 000002 002374 MOV #2,CHAN :LOAD CHANNEL NUMBER
4954 035540 017737 144504 002502 MOV @IIRX,BAD :GET IIR2 CONTENTS
4955 035546 022737 000400 002502 CMP #400,BAD :IFC,BIT IN IIR2 SHOULD BE SET
4956 035554 001410 BEQ 30$ :BRANCH IF YES
4957 035556 012737 000400 002500 MOV #400,GOOD :SET UP DATA FOR ERROR MESSAGES
4958 035564 ERRSOF1 1101,E501,ERR501 :ERROR HANDLER
:TRAP C$ERRSOF1
:WORD 1101
:WORD E501
:WORD ERR501
4959 035574 CKLOOP :BRANCH TO BGNSEG WHEN ERRLOOP IS SET
4960 035576 017737 144454 002502 30$: MOV @ISRHX,BAD :GET ISR2 CONTENTS
:TRAP C$CLP1

```

HARDWARE TESTS MACRO M113 06-SEP-82 16:46 PAGE 53-1
TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

```

4961 035604 023737 002442 002502      (CMP      CDAT4,BAD
4962 035612 001410                      BEQ      40$
4963 035614 013737 002442 002500      (MOV      CDAT4,GOOD
4964 035622                      ERRSOFT 1102,E502,ERR501
      035622 104457
      035624 002116
      035626 005447
      035630 003702
4965 035632                      (KLOOP
      035632 104406
4966 035634 042777 000010 144436 40$:  (BIC      #10,@CSRX
4967 035642 012737 000001 002374      (MOV      #1,CHAN
4968 035650 013701 002412              (MOV      MLA2,R1
4969 035654 062701 000100              (ADD      #100,R1
4970 035660 010137 002420              (MOV      R1,MSA1
4971 035664 113777 002420 144404      (MOVB     MSA1,@IDRHX
4972 035672 004737 011060              (JSR      PC,LOOP
4973 035676 017737 144346 002502      (MOV      @IIRX,BAD
4974 035704 022737 000000 002502      (CMP      #0,BAD
4975 035712 001407                      BEQ      41$
4976 035714 005037 002500              (CLR      GOOD
4977 035720                      ERRSOFT 1103,E501,ERR501
      035720 104457
      035722 002117
      035724 005406
      035726 003702
4978 035730                      (KLOOP
      035730 104406
4979 035732 052777 000010 144340 41$:  (BIS      #10,@CSRX
4980 035740 012737 000002 002374      (MOV      #2,CHAN
4981 035746 017737 144276 002502      (MOV      @IIRX,BAD
4982 035754 022737 010100 002502      (CMP      #10100,BAD
4983 035762 001410                      BEQ      42$
4984 035764 012737 010100 002500      (MOV      #10100,GOOD
4985 035772                      ERRSOFT 1104,E501,ERR501
      035772 104457
      035774 002120
      035776 005406
      036000 003702
4986 036002                      (KLOOP
      036002 104406
4987 036004 017737 144246 002502 42$:  (MOV      @ISRX,BAD
4988 036012 023737 002446 002502      (CMP      CDAT6,BAD
4989 036020 001410                      BEQ      43$
4990 036022 013737 002446 002500      (MOV      CDAT6,GOOD
4991 036030                      ERRSOFT 1105,E502,ERR501
      036030 104457
      036032 002121
      036034 005447
      036036 003702
4992 036040                      (KLOOP
      036040 104406
4993 036042 017737 144216 002502 43$:  (MOV      @ICRX,BAD
4994 036050 123737 002420 002502      (CMPB     MSA1,BAD
4995 036056 001410                      BEQ      44$
4996 036060 013737 002420 002500      (MOV      MSA1,GOOD
4997 036066                      ERRSOFT 1106,E901,ERR501

```

```

;ATN,ATN,NDAC,LPAS,(ULPA) BIT SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     1102
      .WORD     E502
      .WORD     ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
      TRAP      ($CLP1
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET MLA2
;CREATE MSA2
;STORE MSA1 TO LOCATION MSA1
;-----LOAD MSA1 INTO DOR1-----
;WAIT A LITTLE
;GET IIR1 CONTENTS
;IIR1 SHOULD BE ZERO
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     1103
      .WORD     E501
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      ($CLP1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;APT,INT1 BIT IN IIR2 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     1104
      .WORD     E501
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      ($CLP1
;GET ISR2 CONTENTS
;ATN,DAV,NDAC,NRFD,ATN,LPAS(ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     1105
      .WORD     E502
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      ($CLP1
;GET ICR2 CONTENTS
;MSA1 ADDRESS SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 53-2
TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

036066	104457								TRAP	C\$ERSOFT
036070	002122								.WORD	1106
036072	005644								.WORD	E901
036074	003702								.WORD	ERR501
4998	036076				CKLOOP				;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
036076	104406								;SELECT CHANNEL 1	
4999	036100	042777	000010	144172	44\$:	BIC	#10,@CSRX		;LOAD CHANNEL NUMBER	
5000	036106	012737	000001	002374		MOV	#1,CHAN		;GET ISR1 CONTENTS	
5001	036114	017737	144136	002502		MOV	@ISR1,BAD		;ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET	
5002	036122	022737	170040	002502		CMP	#170040,BAD		;BRANCH IF YES	
5003	036130	001410				BEQ	45\$		;SET UP DATA FOR ERROR MESSAGE	
5004	036132	012737	170040	002500		MOV	#170040,GOOD		;ERROR HANDLER	
5005	036140					ERRSOFT	1107,E502,ERR501			
036140	104457								TRAP	C\$ERSOFT
036142	002123								.WORD	1107
036144	005447								.WORD	E502
036146	003702								.WORD	ERR501
5006	036150				CKLOOP				;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
036150	104406								;SELECT CHANNEL 2	
5007	036152	052777	000010	144120	45\$:	BIS	#10,@CSRX		;LOAD CHANNEL NUMBER	
5008	036160	012737	000002	002374		MOV	#2,CHAN		;----LOAD DACR INTO ACR2-----	
5009	036166	112777	000201	144074		MOVB	#201,@ICRHX		;GET ISR2 CONTENTS	
5010	036174	017737	144056	002502		MOV	@ISR2,BAD		;ATN,NDAC,ATN,LADS,LPAS (ULPA) IS SET	
5011	036202	023737	002444	002502		CMP	CDAT5,BAD		;BRANCH IF YES	
5012	036210	001410				BEQ	46\$		;SET UP DATA FOR ERROR MESSAGE	
5013	036212	013737	002444	002500		MOV	CDAT5,GOOD		;ERROR HANDLER	
5014	036220					ERRSOFT	1108,E502,ERR501			
036220	104457								TRAP	C\$ERSOFT
036222	002124								.WORD	1108
036224	005447								.WORD	E502
036226	003702								.WORD	ERR501
5015	036230				CKLOOP				;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
036230	104406								;SELECT CHANNEL 1	
5016	036232	042777	000010	144040	46\$:	BIC	#10,@CSRX		;LOAD CHANNEL NUMBER	
5017	036240	012737	000001	002374		MOV	#1,CHAN		;GET IIR1 CONTENTS	
5018	036246	017737	143776	002502		MOV	@IIR1,BAD		;BO BIT SHOULD BE SET	
5019	036254	022737	000020	002502		CMP	#20,BAD		;BRANCH IF YES	
5020	036262	001410				BEQ	50\$		;SET UP DATA FOR ERROR MESSAGE	
5021	036264	012737	000020	002500		MOV	#20,GOOD		;ERROR HANDLER	
5022	036272					ERRSOFT	1109,E501,ERR501			
036272	104457								TRAP	C\$ERSOFT
036274	002125								.WORD	1109
036276	005406								.WORD	E501
036300	003702								.WORD	ERR501
5023	036302				CKLOOP				;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET	TRAP C\$CLP1
036302	104406								;---LOAD UNL INTO DOR1-----	
5024	036304	112777	000077	143764	50\$:	MOVE	#77,@IDRHX			
5025	036312				ENDSEG					
036312									10000\$:	
036312	104405								TRAP	C\$ESEG
5026	036314				COPA11: BGNSEG				TRAP	C\$BSEG
036314	104404									
5027	036316	042777	000010	143754		BIC	#10,@CSRX		;SELECT CHANNEL 1	
5028	036324	012737	000001	002374		MOV	#1,CHAN		;LOAD CHANNEL NUMBER	
5029	036332	113777	002412	143736		MOVB	MLA2,@IDRHX		;---LOAD LISTENER ADDRESS OF CHANNEL 1---	
5030	036340	004737	011060			JSR	PC,LOOP		;WAIT A LITTLE	
5031	036344	052777	000010	143726		BIS	#10,@CSRX		;SELECT CHANNEL 2	

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 53-3
TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

Address	Hex	Dec	Hex	Dec	Label	Instruction	Comment
5032	036352	012737	000002	002374		MOV	#2,CHAN
5033	036360	017737	143664	002502		MOV	@1IRX,BAD
5034	036366	022737	000001	002502		CMP	#1,BAD
5035	036374	001410				BEQ	30\$
5036	036376	012737	000001	002500		MOV	#1,GOOD
5037	036404					ERRSOFT	1110,E501,ERR501
	036404	104457					
	036406	002126					
	036410	005406					
	036412	003702					
5038	036414					CKLOOP	
	036414	104406					
5039	036416	042777	000010	143654	30\$:	BIC	#10,@CSRX
5040	036424	012737	000001	002374		MOV	#1,CHAN
5041	036432	013701	002412			MOV	MLA2,R1
5042	036436	062701	000100			ADD	#100,R1
5043	036442	010137	002420			MOV	R1,MSA1
5044	036446	113777	002420	143622		MOVB	MSA1,@IDRHx
5045	036454	004737	011060			JSR	PC,LOOP
5046	036460	052777	000010	143612		BIS	#10,@CSRX
5047	036466	012737	000002	002374		MOV	#2,CHAN
5048	036474	112777	000001	143566		MOVB	#1,@ICRHx
5049	036502	017737	143542	002502		MOV	@1IRX,BAD
5050	036510	017737	143542	002502		MOV	@ISRX,BAD
5051	036516	023737	002442	002502		CMP	CDAT4,BAD
5052	036524	001410				BEQ	46\$
5053	036526	013737	002442	002500		MOV	CDAT4,GOOD
5054	036534					ERRSOFT	1111,E502,ERR501
	036534	104457					
	036536	002127					
	036540	005447					
	036542	003702					
5055	036544					CKLOOP	
	036544	104406					
5056	036546	042777	000010	143524	46\$:	BIC	#10,@CSRX
5057	036554	012737	000001	002374		MOV	#1,CHAN
5058	036562	017737	143462	002502		MOV	@1IRX,BAD
5059	036570	022737	000020	002502		CMP	#20,BAD
5060	036576	001410				BEQ	50\$
5061	036600	012737	000020	002500		MOV	#20,GOOD
5062	036606					ERRSOFT	1112,E501,ERR501
	036606	104457					
	036610	002130					
	036612	005406					
	036614	003702					
5063	036616					CKLOOP	
	036616	104406					
5064	036620	112777	000077	143450	50\$:	MOVB	#77,@IDRHx
5065	036626					ENDSEG	
	036626						
	036626	104405					
5066	036630	005737	002234			TST	QVP
5067	036634	001054				BNE	EXQV11
5068	036636	005737	002322	</			

```

;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;MAC BIT IN IIR2 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     1110
                                .WORD     E501
                                .WORD     ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
                                TRAP      C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET MLA2
;CREATE MSA1
;STORE MSA1 TO LOCATION MSA1
;-----LOAD MSA1 INTO DOR1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;-----LOAD NOT DACR INTO ACR2-----
;READ IIR2 FOR CLEAR THE BITS
;GET ISR2 CONTENTS
;ATN,NDAC,ATN,LPAS (ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     1111
                                .WORD     E502
                                .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
                                TRAP      C$ERSOFT
                                .WORD     1112
                                .WORD     E501
                                .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
;---LOAD UNL INTO DOR1-----

                                10001$:
                                TRAP      C$ESEG
;IS QUICK VERIFY PASS SELECTED
;IF YES EXIT TEST
;IS THIS THE FIRST TIME THROUGH THE TEST
;BRANCH IF NO
;SAVE ENTERED DPA2
;CLEAR DPA2

```


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 TEST 11: SECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)

5072	036656	005237	002322			INC	I TRCNT		:SET FLAG TO SEE FIRST TIME PASS
5073	036662	005237	002314		1\$:	INC	DPA2		:GET NEW DPA2
5074	036666	023737	002314	002312		CMP	DPA2,DPA1		:IS DPA1 = DPA2
5075	036674	001002				BNE	2\$		:BRANCH IF NO
5076	036676	005237	002314			INC	DPA2		:INCREMENT DPA1
5077	036702	022737	000037	002314	2\$:	CMP	#37,DPA2		:ALL DONE
5078	036710	001423				BEQ	3\$		:BRANCH IF YES
5079	036712	042777	000010	143360		BIC	#10,@CSRX		:SELECT CHANNEL 1
5080	036720	112777	000217	143342		MOVB	#217,@ICRHX		:----LOAD SIC INTO ACR 1
5081	036726	004737	011072			JSR	PC, WAIT		:WAIT A LITTLE
5082	036732	112777	000017	143330		MOVB	#17,@ICRHX		:----LOAD NOT SIC INTO ACR 1
5083	036740	052777	000010	143332		BIS	#10,@CSRX		:SELECT CHANNEL 2
5084	036746	113777	002314	143300		MOVB	DPA2,@IIRHX		:LOAD NEW DPA2 INTO ADR2
5085	036754	000137	035360			JMP	A11		:REPEAT THE TEST WITH THE NEW DPA1
5086	036760	013737	002406	002314	3\$:	MOV	SDPA,DPA2		:RESTORE ENTERED DPA2
5087	036766				EXQV11:	EXIT	TST		
	036766	104432							TRAP C\$EXIT
	036770	000074							.WORD L10040-
5088									
5089						.NLIST	BEX		
5090	036772	045	123	062	TSHD11:	.ASCIZ	/S2%ASECONDARY ADDRESSING TEST OF CHANNEL 2 (LISTENER)%N/		
5091						.LIST	BEX		
5092						.EVEN			
5093	037064					ENDTS1			
	037064								L10040:
	037064	104401							TRAP C\$ETST

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TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

```

5095 .SBTTL TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)
5096 :*****
5097 :IEX - TEST 12
5098 :THIS TEST CHECKS THE EXTENDED TALKER INTERFACE FUNCTION .
5099 :
5100 :PURPOSE OF THIS TEST IS TO CHECK THE SECONDARY ADDRESSING
5101 :FEATURE OF CHANNEL 2 BY MEANS OF RECEIVING A VALID AS WELL AS
5102 :AN INVALID MY SECONDARY ADDRESS (MSA2).
5103 :*****
5104 037066 BGNTST
5105 037066 005737 002324 TST PNTF ;IS THE PNT FLAG SET
5106 037072 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5107 037074 PRINTF #TSHD12 ;...
5108 037074 012746 040652 MOV #TSHD12,-(SP)
5109 037100 012746 000001 MOV #1,-(SP)
5110 037104 010600 MOV SP,R0
5111 037106 104417 TRAP C$PNTF
5112 037110 062706 000004 ADD #4,SP
5113 037114 005037 002322 7$: CLR ITRCNT ;CLEAR COUNTER
5114 037120 004737 010220 JSR PC,CULPA ;CLEAR ULPA IN ISR 1 AND 2
5115 037124 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
5116 037130 052777 000010 143142 A12: BIS #10,@CSRX ;SELECT CHANNEL 2
5117 037136 112777 000223 143124 MOVB #223,@ICRHX ;-----LOAD DAI INTO ACR2-----
5118 037144 112777 000020 143110 MOVB #20,@ISRHX ;-----LOAD APT BIT INTO ISR2-----
5119 037152 013701 002314 MOV DPA2,R1 ;GET DPA2 ADDRESS
5120 037156 062701 000100 ADD #100,R1 ;CREATE MY TALKER ADDRESS (MTA)
5121 037162 010137 002416 MOV R1,MTA2 ;STORE MTA
5122 037166 032737 000001 002314 BIT #1,DPA2 ;IS DPA EVEN
5123 037174 001412 BEQ 3$ ;BRANCH IF YES
5124 037176 052737 000001 002452 BIS #1,CDAT8 ;SET ULPA BIT IN COMPARE DATA FOR ISR
5125 037204 052737 000001 002436 BIS #1,CDAT2 ;...
5126 037212 052737 000001 002440 BIS #1,CDAT3 ;...
5127 037220 000411 BR .+24 ;BRANCH TO BGNSEG
5128 037222 042737 000001 002452 3$: BIC #1,CDAT8 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5129 037230 042737 000001 002436 BIC #1,CDAT2 ;...
5130 037236 042737 000001 002440 BIC #1,CDAT3 ;...
5131 037244 104404 BGNSEG
5132 037246 042777 000010 143024 BIC #10,@CSRX ;SELECT CHANNEL 1
5133 037254 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5134 037262 113777 002416 143006 MOVB MTA2,@IDRHX ;---LOAD TALKER ADDRESS OF CHANNEL 1---
5135 037270 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5136 037274 052777 000010 142776 BIS #10,@CSRX ;SELECT CHANNEL 2
5137 037302 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5138 037310 017737 142734 002402 MOV @IIRX,RSAVE ;GET IIR2 CONTENTS
5139 037316 022737 000400 002402 CMP #400,RSAVE ;IFC,BIT IN IIR2 SHOULD BE SET
5140 037324 001413 BEQ 30$ ;BRANCH IF YES
5141 037326 012737 000400 002500 MOV #400,GOOD ;SET UP DATA FOR ERROR MESSAGES
5142 037334 013737 002402 002502 MOV RSAVE,BAD ;...
5143 037342 ERRSOF 1201,E501,ERR501 ;ERROR HANDLER
5144 037342 104457 TRAP C$ERSOF 1
5145 037344 002261 .WORD 1201
5146 037346 005406 .WORD E501
5147 037350 003702 .WORD ERR501
5148 037352 CKLOOP ;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
5149 037352 104406 TRAP C$CLP1

```


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TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

```

5177 037650 017737 142410 002402 43$: MOV @ICRX,RSAVE
5178 037656 123737 002420 002402 CMPB MSA1,RSAVE
5179 037664 001413 BEQ 44$
5180 037666 013737 002420 002500 MOV MSA1,GOOD
5181 037674 013737 002402 002502 MOV RSAVE,BAD
5182 037702 ERRSOF 1206,E901,ERR501
      037702 104457
      037704 002266
      037706 005644
      037710 003702
5183 037712 CKLOOP
      037712 104406
5184 037714 042777 000010 142356 44$: BIC #10,@CSRX
5185 037722 012737 000001 002374 MOV #1,CHAN
5186 037730 017737 142322 002402 MOV @ISRX,RSAVE
5187 037736 022737 170040 002402 CMP #170040,RSAVE
5188 037744 001413 BEQ 45$
5189 037746 012737 170040 002500 MOV #170040,GOOD
5190 037754 013737 002402 002502 MOV RSAVE,BAD
5191 037762 ERRSOF 1207,E502,ERR501
      037762 104457
      037764 002267
      037766 005447
      037770 003702
5192 037772 CKLOOP
      037772 104406
5193 037774 052777 000010 142276 45$: BIS #10,@CSRX
5194 040002 012737 000002 002374 MOV #2,CHAN
5195 040010 112777 000201 142252 MOV #201,@ICRHX
5196 040016 017737 142234 002402 MOV @ISRX,RSAVE
5197 040024 023737 002440 002402 CMP CDAT3,RSAVE
5198 040032 001413 BEQ 46$
5199 040034 013737 002440 002500 MOV CDAT3,GOOD
5200 040042 013737 002402 002502 MOV RSAVE,BAD
5201 040050 ERRSOF 1208,E502,ERR501
      040050 104457
      040052 002270
      040054 005447
      040056 003702
5202 040060 CKLOOP
      040060 104406
5203 040062 042777 000010 142210 46$: BIC #10,@CSRX
5204 040070 012737 000001 002374 MOV #1,CHAN
5205 040076 017737 142146 002402 MOV @IIRX,RSAVE
5206 040104 022737 000020 002402 CMP #20,RSAVE
5207 040112 001413 BEQ 50$
5208 040114 012737 000020 002500 MOV #20,GOOD
5209 040122 013737 002402 002502 MOV RSAVE,BAD
5210 040130 ERRSOF 1209,E501,ERR501
      040130 104457
      040132 002271
      040134 005406
      040136 003702
5211 040140 CKLOOP
      040140 104406
5212 040142 112777 000137 142126 50$: MOV #137,@IDRHX
5213 040150 ENDSEG

```

```

:GET ICR2 CONTENTS
:MSA1 ADDRESS SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 1206
      .WORD E901
      .WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:GET ISR1 CONTENTS
:ATN,DAV,NDAC,ATN,NRFD SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 120
      .WORD E502
      .WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:-----LOAD DACR INTO ACR2-----
:GET ISR2 CONTENTS
:ATN,NDAC,ATN,TADS,TPAS (ULPA) IS SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 1208
      .WORD E502
      .WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:GET IIR1 CONTENTS
:BO BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 1209
      .WORD E501
      .WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
:---LOAD UNIT INTO DOR1-----

```

11

```

100008:
TRAP      C$ESEG
TRAP      C$BSEG

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;----LOAD TALKER ADDRESS OF CHANNEL 1---
;WAIT A LITTLE
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;MAC BIT IN IIR2 SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;...
;ERROR HANDLER
TRAP      C$ERSOFT
        .WORD 1210
        .WORD E501
        .WORD ERR501
;BRANCH TO BGNSEG WHEN ERRLOOP IS SET
TRAP      C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET MTA2
;CREATE MSA1
;STORE MSA1 TO LOCATION MSA1
;-----LOAD MSA1 INTO DOR1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;-----LOAD NOT DACR INTO ACR2-----
;READ IIR2 FOR CLEAR THE BITS
;GET ISR2 CONTENTS
;ATN,NDAC,ATN,TPAS (ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;...
;ERROR HANDLER
TRAP      C$ERSOFT
        .WORD 1211
        .WORD E502
        .WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP      C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;...
;ERROR HANDLER
TRAP      C$ERSOFT
        .WORD 1212
        .WORD E501
        .WORD ERR501

```

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TEST 12: SECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)

```

5254 040476          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      040476 104406          TRAP      C$CLP1
5255 040500 112777 000137 141570 50$: MOVB      #137,@IDRMX      ;---LOAD UNT INTO DOR1-----
5256 040506          ENDSEG
      040506          10001$:      TRAP      C$ESEG
      040506 104405          ;IS QUICK VERIFY PASS SELECTED
5257 040510 005737 002234          TST      QVP          ;IF YES EXIT TEST
5258 040514 001054          BNE      EXQV12          ;IS THIS THE FIRST TIME THROUGH THE TEST
5259 040516 005737 002322          TST      ITRCNT          ;BRANCH IF NO
5260 040522 001007          BNE      1$          ;SAVE ENTERED DPA2
5261 040524 013737 002314 002406      MOV      DPA2,SDPA
5262 040532 005037 002314          CLR      DPA2
5263 040536 005237 002322          INC      ITRCNT
5264 040542 005237 002314 1$:      INC      DPA2
5265 040546 023737 002314 002312      CMP      DPA2,DPA1
5266 040554 001002          BNE      2$
5267 040556 005237 002314          INC      DPA2
5268 040562 022737 000037 002314 2$:      CMP      #37,DPA2
5269 040570 001423          BEQ      3$
5270 040572 042777 000010 141500      BIC      #10,@CSRX
5271 040600 112777 000217 141462      MOVB      #217,@ICRHX
5272 040606 004737 011072          JSR      PC,WAIT
5273 040612 112777 000017 141450      MOVB      #17,@ICRHX
5274 040620 052777 000010 141452      BIS      #10,@CSRX
5275 040626 113777 002314 141420      MOVB      DPA2,@IIRHX
5276 040634 000137 037130          JMP      A12
5277 040640 013737 002406 002314 3$:      MOV      SDPA,DPA2
5278 040646          EXQV12: EXIT TST
      040646          TRAP      C$EXIT
      040650 104432          .WORD      L10041-.
      040650 000072

5279
5280
5281 040652      045      123      062 TSHD12: .NLIST      BEX
5282          .ASCIIZ /%S2%ASECONDARY ADDRESSING TEST OF CHANNEL 2 (TALKER)%N/
5283          .LIST      BEX
5284          .EVEN
5284 040742          .ENDTST
      040742
      040742 104401          L10041:      TRAP      C$E1ST

```

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TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5286 .SBTTL TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST
5287 .....
5288 IEX - TEST 13
5289 :PART 1 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 2 BY MEANS
5290 :OF RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS
5291 :COMMAND (SDC).
5292 :
5293 :PART 2 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 1 BY MEANS
5294 :OF RECEIVING A UNIVERSAL COMMAND (DCL) AS WELL AS AN ADDRESS
5295 :COMMAND (SDC).
5296 .....
5297 040744 BGNSTST
5298 040744 TST PNTF ;IS THE PNT FLAG SET
5299 040750 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5300 040752 PRINTF #TSHD13 ;....
5301 040752 012746 043040 MOV #TSHD13,-(SP)
5302 040756 012746 000001 MOV #1,-(SP)
5303 040762 010600 MOV SP,R0
5304 040764 104417 TRAP C$PNTF
5305 040766 062706 000004 ADD #4,SP
5306 040772 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
5307 040776 004737 010220 JSR PC,CULPA ;CLEAR ULPA IN ISR 1 AND 2
5308 041002 004737 010534 ITAC13: JSR PC,BGIN1
5309 041006 032737 000001 002314 BIT #1,DPA2
5310 041014 001404 BEQ 3$ ;IS DPA EVEN
5311 041016 052737 000001 002454 BIS #1,CDA19 ;BRANCH IF YES
5312 041024 000403 BR .+10 ;SET ULPA BIT IN COMPARE DATA FOR ISR
5313 041026 042737 000001 002454 3$: BIC #1,CDA19 ;BRANCH TO BGNSEG
5314 041034 104404 BGNSEG ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5315 041036 052777 000010 141234 TRAP C$BSEG
5316 041044 112777 000223 141216 BIS #10,@CSRX ;SELECT CHANNEL 2
5317 041052 112777 000010 141202 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
5318 041060 042777 000010 141212 MOVB #10,@ISRHX ;---LOAD DCAS BIT INTO ISR2 REGISTER
5319 041066 112777 000024 141202 BIC #10,@CSRX ;SELECT CHANNEL 1
5320 041074 004737 011060 JSR PC,LOOP ;----LOAD DCL INTO DOR 1-----
5321 041100 052777 000010 141172 BIS #10,@CSRX ;WAIT A LITTLE
5322 041106 012737 000002 002374 MOV #2,CHAN ;SELECT CHANNEL 2
5323 041114 017737 141130 002402 MOV @IIRX,RSAVE ;LOAD CHANNEL NUMBER
5324 041122 022737 004500 002402 CMP #4500,RSAVE ;GET IIR2 CONTENTS
5325 041130 001413 BEQ 10$ ;DCAS,INT1,IFC BIT SHOULD BE SET
5326 041132 012737 004500 002500 MOV #4500,GOOD ;BRANCH IF YES
5327 041140 013737 002402 002502 MOV RSAVE,BAD ;SET UP DATA FOR ERROR MESSAGE
5328 041146 104457 ERRSOFT 1301,E501,ERR501 ;....
5329 041150 002425 TRAP C$ERRSOFT
5330 041152 005406 .WORD 1301
5331 041154 003702 .WORD E501
5332 041156 104406 .WORD ERR501
5333 041160 017737 141100 002402 10$: MOV @ICRX,RSAVE ;BRANCH TO BGNSEG IF ERRLOOP IS SET
5334 041166 122737 000024 002402 CMPR #24,RSAVE ;GET ICR2 CONTENTS
5335 041174 001413 BEQ 20$ ;ICR2 CONTENTS SHOULD BE 24
5336 041176 012737 000024 002500 MOV #24,GOOD ;BRANCH IF YES
5337 041204 013737 002402 002502 MOV RSAVE,BAD ;SET UP DATA FOR ERROR MESSAGE
5338 041212 1302,E901,ERR501 ERRSOFT 1302,E901,ERR501 ;....
5339 041212 1302,E901,ERR501 ;ERROR HANDLER
5340 041212 1302,E901,ERR501 ;ERROR HANDLER

```

Address	Hex	Hex	Hex	Hex	Label	Instruction	Comment
	041212	104457					
	041214	002426					
	041216	005644					
	041220	003702					
5331	041222				CKLOOP		
	041222	104406					
5332	041224	112777	000001	141036	20\$:	MOVB	#1,@ICRHX
5333	041232	017737	141012	002402		MOV	@IIRX,RSAVE
5334	041240	005737	002402			TST	RSAVE
5335	041244	001412				BEQ	21\$
5336	041246	005037	002500			CLR	GOOD
5337	041252	013737	002402	002502		MOV	RSAVE,BAD
5338	041260					ERRSOFT	1303,E501,ERR501
	041260	104457					
	041262	002427					
	041264	005406					
	041266	003702					
5339	041270				CKLOOP		
	041270	104406					
5340	041272	013701	002314		21\$:	MOV	DPA2,R1
5341	041276	062701	000040			ADD	#40,R1
5342	041302	010137	002412			MOV	R1,MLA2
5343	041306	042777	000010	140764		BIC	#10,@CSRX
5344	041314	012737	000001	002374		MOV	#1,CHAN
5345	041322	113777	002412	140746		MOVB	MLA2,@IDRHX
5346	041330	004737	011060			JSR	PC,LOOP
5347	041334	017737	140710	002402		MOV	@IIRX,RSAVE
5348	041342	022737	000020	002402		CMP	#20,RSAVE
5349	041350	001413				BEQ	22\$
5350	041352	012737	000020	002500		MOV	#20,GOOD
5351	041360	013737	002402	002502		MOV	RSAVE,BAD
5352	041366					ERRSOFT	1304,E501,ERR501
	041366	104457					
	041370	002430					
	041372	005406					
	041374	003702					
5353	041376				CKLOOP		
	041376	104406					
5354	041400	112777	000004	140670	22\$:	MOVB	#4,@IDRHX
5355	041406	004737	011060			JSR	PC,LOOP
5356	041412	052777	000010	140660		BIS	#10,@CSRX
5357	041420	012737	000002	002374		MOV	#2,CHAN
5358	041426	017737	140616	002402		MOV	@IIRX,RSAVE
5359	041434	022737	006101	002402		CMP	#6101,RSAVE
5360	041442	001413				BEQ	23\$
5361	041444	012737	006101	002500		MOV	#6101,GOOD
5362	041452	013737	002402	002502		MOV	RSAVE,BAD
5363	041460					ERRSOFT	1305,E501,ERR501
	041460	104457					
	041462	002431					
	041464	005406					
	041466	003702					
5364	041470				CKLOOP		
	041470	104406					
5365	041472	01773					

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 TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5368 041510 013737 002454 002500      MOV      CDAT9,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5369 041516 013737 002402 002502      MOV      RSAVE,BAD      ;
5370 041524      ERRSOF T 1306,E502,ERR50' ;ERROR HANDLER
      041524 104457
      041526 002432
      041530 005447
      041532 003702
5371 041534      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      041534 104406
5372 041536 017737 140522 002402 24$: MOV      @ICRX,RSAVE      ;GET ICR2 CONTENTS
5373 041544 122737 000004 002402      CMPB     #4,RSAVE      ;CONTENTS SHOULD BE 4
5374 041552 001413      BEQ      25$      ;BRANCH IF YES
5375 041554 012737 000004 002500      MOV      #4,GOOD      ;SET UP DATA FOR ERROR MESSAGES
5376 041562 013737 002402 002502      MOV      RSAVE,BAD      ;
5377 041570      ERRSOF T 1307,E901,ERR501 ;ERROR HANDLER
      041570 104457
      041572 002433
      041574 005644
      041576 003702
5378 041600      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      041600 104406
5379 041602 112777 000001 140460 25$: MOVB     #1,@ICRHX      ;----LOAD NOT DACR INTO ACR2-----
5380 041610 042777 000010 140462      BIC      #10,@CSRX      ;SELECT CHANNEL 1
5381 041616 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
5382 041624 112777 000077 140444      MOVB     #77,@IDRHX      ;----LOAD UNL INTO DOR 1-----
5383 041632 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
5384 041636 017737 140406 002402      MOV      @IIRX,RSAVE      ;GET IIR1 CONTENTS
5385 041644 022737 000020 002402      CMP      #20,RSAVE      ;BO BIT SHOULD BE SET
5386 041652 001413      BEQ      26$      ;BRANCH IF YES
5387 041654 012737 000020 002500      MOV      #20,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5388 041662 013737 002402 002502      MOV      RSAVE,BAD      ;
5389 041670      ERRSOF T 1308,E501,ERR501 ;ERROR HANDLER
      041670 104457
      041672 002434
      041674 005406
      041676 003702
5390 041700      CKLOOP      ;BRANCH BACK TO BGNSEG IS ERRLOOP IS SET
      041700 104406
5391 041702 052777 000010 140370 26$: BIS      #10,@CSRX      ;SELECT CHANNEL 2
5392 041710 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
5393 041716 017737 140326 002402      MOV      @IIRX,RSAVE      ;GET IIR2 CONTENTS
5394 041724 022737 000001 002402      CMP      #1,RSAVE      ;MAC BIT SHOULD BE SET
5395 041732 001413      BEQ      27$      ;BRANCH IF YES
5396 041734 012737 000001 002500      MOV      #1,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5397 041742 013737 002402 002502      MOV      RSAVE,BAD      ;
5398 041750      ERRSOF T 1309,E501,ERR501 ;ERROR HANDLER
      041750 104457
      041752 002435
      041754 005406
      041756 003702
5399 041760      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      041760 104406
5400 041762      27$:      ENDSEG
      041762
      041762 104405
5401
5402
      ;*****
      ;PART 2 CHECKS THE DEVICE CLEAR INTERFACE FUNCTION OF CHANNEL 2
      10000$: TRAP      C$ESEG
  
```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 55-3
TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5403      ;-----
5404 041764 004737 010220      JSR      PC,CULPA      ;CLEAR ULPA BIT IN ISR 1 AND 2
5405 041770 004737 010710      JSR      PC,BGIN2      ;SET UP PARAMETER
5406 041774 032737 000001 002312  BIT      #1,DPA1      ;IS DPA EVEN
5407 042002 001404      BEQ      4$      ;BRANCH IF YES
5408 042004 052737 000001 002454  BIS      #1,CDA19      ;SET ULPA BIT IN COMPARE DATA FOR ISR
5409 042012 000403      BR      +10      ;
5410 042014 042737 000001 002454  4$: BIC      #1,CDA19      ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5411 042022      PSEU1: BGNSEG      ;
5412 042022 104404      TRAP      C$BSEG
5412 042024 052777 000010 140246  BIS      #10,ACSRX      ;SELECT CHANNEL 2
5413 042032 112777 000217 140230  MOVB     #217,@ICRHX      ;LOAD SIC INTO ACR 2
5414 042040 004737 011072      JSR      PC,WAIT      ;WAIT A LITTLE
5415 042044 112777 000017 140216  MOVB     #17,@ICRHX      ;LOAD NOT SIC IN ACR 2
5416 042052 042777 000010 140220  BIC      #10,ACSRX      ;SELECT CHANNEL 1
5417 042060 112777 000223 140202  MOVB     #223,@ICRHX      ;---LOAD DAI INTO ACR 1-----
5418 042066 112777 000010 140166  MOVB     #10,@ISRHX      ;---LOAD DCAS BIT INTO ISR1 REGISTER
5419 042074 052777 000010 140176  BIS      #10,ACSRX      ;SELECT CHANNEL 2
5420 042102 112777 000024 140166  MOVB     #24,@IDRHX      ;---LOAD DCL INTO DOR 2-----
5421 042110 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
5422 042114 042777 000010 140156  BIC      #10,ACSRX      ;SELECT CHANNEL 1
5423 042122 012737 000001 002374  MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
5424 042130 017737 140114 002402  MOV      @IIRX,RSAVE      ;GET IIR1 CONTENTS
5425 042136 022737 004500 002402  CMP      #4500,RSAVE      ;DCAS,IFC,INTI BIT SHOULD BE SET
5426 042144 001413      BEQ      10$      ;BRANCH IF YES
5427 042146 012737 004500 002500  MOV      #4500,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5428 042154 013737 002402 002502  MOV      RSAVE,BAD      ;
5429 042162      ERRSOFT 1310,E501,ERR501 ;ERROR HANDLER
5429 042162 104457      TRAP      C$ERRSOFT
5429 042164 002436      .WORD      1310
5429 042166 005406      .WORD      E501
5429 042170 003702      .WORD      ERR501
5430 042172      LKLOOP      ;BRANCH TO BGNSEG IF ERLOOP IS SET
5430 042172 104406      TRAP      C$CLP1
5431 042174 017737 140064 002402 10$: MOV      @ICRX,RSAVE      ;GET ICR1 CONTENTS
5432 042202 122737 000024 002402  CMPB     #24,RSAVE      ;ICR1 CONTENTS SHOULD BE 24
5433 042210 001413      BEQ      20$      ;BRANCH IF YES
5434 042212 012737 000024 002500  MOV      #24,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5435 042220 013737 002402 002502  MOV      RSAVE,BAD      ;
5436 042226      ERRSOFT 1312,E901,ERR501 ;ERROR HANDLER
5436 042226 104457      TRAP      C$ERRSOFT
5436 042230 002440      .WORD      1312
5436 042232 005644      .WORD      E901
5436 042234 003702      .WORD      ERR501
5437 042236      CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
5437 042236 104406      TRAP      C$CLP1
5438 042240 112777 000001 140022 20$: MOVB     #1,@ICRHX      ;---LOAD NOT DACR INTO ACR1-----
5439 042246 017737 137776 002402  MOV      @IIRX,RSAVE      ;GET IIR1 CONTENTS
5440 042254 005737 002402      TST      RSAVE      ;IIR1 CONTENTS SHOULD BE ZERO
5441 042260 001412      BEQ      21$      ;BRANCH IF YES
5442 042262 005037 002500      CLR      GOOD      ;SET UP DATA FOR ERROR MESSAGE
5443 042266 013737 002402 002502  MOV      RSAVE,BAD      ;
5444 042274      ERRSOFT 1313,E501,ERR501 ;ERROR HANDLER
5444 042274 104457      TRAP      C$ERRSOFT
5444 042276 002441      .WORD      1313
5444 042300 005406      .WORD      E501
5444 042302 003702      .WORD      ERR501

```

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TEST 13: DEVICE CLEAR INTERFACE FUNCTION TEST

```

5445 042304          CKLOOP
      042304 104406
5446 042306 013701 002312      21$: MOV DPA1,R1
5447 042312 062701 000040      ADD #40,R1
5448 042316 010137 002410      MOV R1,MLA1
5449 042322 052777 000010 137750 BIS #10,@CSRX
5450 042330 012737 000002 002374 MOV #2,CHAN
5451 042336 113777 002410 137732 MOVBL MLA1,@IDRHX
5452 042344 004737 011060      JSR PC,LOOP
5453 042350 017737 137674 002402 MOV @IIRX,RSAVE
5454 042356 022737 000020 002402 CMP #20,RSAVE
5455 042364 001413      BEQ 22$
5456 042366 012737 000020 002500 MOV #20,GOOD
5457 042374 013737 002402 002502 MOV RSAVE,BAD
5458 042402          ERRSOF T 1314,E501,ERR501
      042402 104457
      042404 002442
      042406 005406
      042410 003702
5459 042412          CKLOOP
      042412 104406
5460 042414 112777 000004 137654 22$: MOVBL #4,@IDRHX
5461 042422 004737 011060      JSR PC,LOOP
5462 042426 042777 000010 137644 BIC #10,@CSRX
5463 042434 012737 000001 002374 MOV #1,CHAN
5464 042442 017737 137602 002402 MOV @IIRX,RSAVE
5465 042450 022737 006101 002402 CMP #6101,RSAVE
5466 042456 001413      BEQ 23$
5467 042460 012737 006101 002500 MOV #6101,GOOD
5468 042466 013737 002402 002502 MOV RSAVE,BAD
5469 042474          ERRSOF T 1315,E501,ERR501
      042474 104457
      042476 002443
      042500 005406
      042502 003702
5470 042504          CKLOOP
      042504 104406
5471 042506 017737 137544 002402 23$: MOV @ISRX,RSAVE
5472 042514 023737 002454 002402 CMP CDAT9,RSAVE
5473 042522 001413      BEQ 24$
5474 042524 013737 002454 002500 MOV CDAT9,GOOD
5475 042532 013737 002402 002502 MOV RSAVE,BAD
5476 042540          ERRSOF T 1316,E502,ERR501
      042540 104457
      042542 002444
      042544 005447
      042546 003702
5477 042550          CKLOOP
      042550 104406
5478 042552 017737 137506 002402 24$: MOV @ICRX,RSAVE
5479 042560 122737 000004 002402 CMPB #4,RSAVE
5480 042566 001413      BEQ 25$
5481 042570 012737 000004 002500 MOV #4,GOOD
5482 042576 013737 002402 002502 MOV RSAVE,BAD
5483 042604          ERRSOF T 1317,E901,ERR501
      042604 104457
      042606 002445

```

```

;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
;CREATE MLA1
;...
;STORE MLA1
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;----LOAD MLA1 INTO DOR 2-----
;WAIT A LITTLE
;GET IIR2 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;...
;ERROR HANDLER
      TRAP C$ERSOF T
      .WORD 1314
      .WORD E501
      .WORD ERR501
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
;----LOAD SDC INTO DOR 2-----
;WAIT A LITTLE
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;DCAS,INT1,MA,MAC BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;...
;ERROR HANDLER
      TRAP C$ERSOF T
      .WORD 1315
      .WORD E501
      .WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
;GET ICR1 CONTENTS
;ATN,DAV,NDAC,NRFD,ATN,LADS IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;...
;ERROR HANDLER
      TRAP C$ERSOF T
      .WORD 1316
      .WORD E502
      .WORD ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1
;GET ICR1 CONTENTS
;CONTENTS SHOULD BE 4
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGES
;...
;ERROR HANDLER
      TRAP C$ERSOF T
      .WORD 1317

```


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TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST

```

5522 .SBTTL TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST
5523 .....
5524 IEX - TEST 14
5525 :PART 1 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 2 BY MEANS OF
5526 :RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY COMMAND
5527 :NOT FGET.
5528 :PART 2 CHECKS THE TRIGGER INTERFACE FUNCTION OF CHANNEL 1 BY MEANS OF
5529 :RECEIVING THE ADDRESS COMMAND GET AS WELL AS THE AUXILIARY COMMAND
5530 :NOT FGET.
5531 .....
5532 BGNIST
5533 043116 005737 002324 TST PNTF ;IS THE PNT FLAG SET
5534 043122 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
5535 043124 PRINTF #TSHD14 ;....
5536 043124 012746 043742 MOV #TSHD14,-(SP)
5537 043130 012746 000001 MOV #1,-(SP)
5538 043134 010600 MOV SP,R0
5539 043136 104417 TRAP C$PNTF
5540 043140 062706 000004 ADD #4,SP
5541 043144 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
5542 043150 004737 010534 ITAC14: JSR PC,BGIN1 ;SET UP PARAMETER
5543 043154 BGNSEG
5544 043154 104404 TRAP C$BSEG
5545 043156 052777 000010 137114 BIS #10,@CSRX ;SELECT CHANNEL 2
5546 043164 112777 000223 137076 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
5547 043172 112777 000200 137062 MOVB #200,@ISRHX ;----LOAD GET BIT INTO ISR2-----
5548 043200 042777 000010 137072 BIC #10,@CSRX ;SELECT CHANNEL 1
5549 043206 013701 002314 MOV DPA2,R1 ;CREATE MLA2
5550 043212 062701 000040 ADD #40,R1
5551 043216 010137 002412 MOV R1,MLA2 ;STORE MLA2
5552 043222 113777 002412 137046 MOVB MLA2,@IDRHX ;----LOAD MLA2 INTO DOR 1-----
5553 043230 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5554 043234 112777 000010 137034 MOVB #10,@IDRHX ;----LOAD GET INTO DOR 1-----
5555 043242 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5556 043246 052777 000010 137024 BIS #10,@CSRX ;SELECT CHANNEL 2
5557 043254 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
5558 043262 017737 136762 002402 MOV @IIRX,RSAVE ;GET IIR 2 CONTENTS
5559 043270 022737 102501 002402 CMP #102501,RSAVE ;GET,MA,INT!,IFC,MAC BIT SHOULD BE SET
5560 043276 001413 BEQ 10$ ;BRANCH IF YES
5561 043300 012737 102501 002500 MOV #102501,GOOD ;SET UP DATA FOR ERROR MESSAGE
5562 043306 013737 002402 002502 MOV RSAVE,BAD
5563 043314 ERRSOFT 1401,E501,ERR501 ;ERROR HANDLER
5564 043314 104457 TRAP C$ERRSOFT
5565 043316 002571 .WORD 1401
5566 043320 005406 .WORD E501
5567 043322 003702 .WORD ERR501
5568 043324 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
5569 043324 104406 TRAP C$CLP1
5570 043326 017737 136732 002402 10$: MOV @ICRX,RSAVE ;GET ICR2 CONTENTS
5571 043334 122737 000010 002402 CMPB #10,RSAVE ;ICR2 CONTENTS SHOULD BE 10
5572 043342 001413 BEQ 20$ ;BRANCH IF YES
5573 043344 012737 000010 002500 MOV #10,GOOD ;SET UP DATA FOR ERROR MESSAGE
5574 043352 013737 002402 002502 MOV RSAVE,BAD
5575 043360 ERRSOFT 1402,E901,ERR501 ;ERROR HANDLER
5576 043360 104457 TRAP C$ERRSOFT
5577 043362 002572 .WORD 1402

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 56-1
TEST 14: DEVICE TRIGGER INTERFACE FUNCTION TEST

```

043364 005644
043366 003702
5565 043370 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043370 104406 ;TRAP C$CLP1
5566 043372 112777 000006 136670 20$: MOV B #6,@ICRHX ;-----LOAD NOT FGET INTO ACR 2-----
5567 043400 112777 000001 136662 MOV B #1,@ICRHX ;-----LOAD NOT DACR INTO ACR2-----
5568 043406 042777 000010 136664 BIC #10,@CSRX ;SELECT CHANNEL 1
5569 043414 112777 000077 136654 MOV B #77,@IDRHX ;-----LOAD UNL INTO DOR 1-----
5570 043422 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5571 043426
043426 104405 10000$: TRAP C$ESEG
5572
5573 ;PART 2 OF THE TEST
5574 ;THIS PART CHECKS THE DEVICE TRIGGER INTERFACE FUNTION OF CHANNEL 2
5575
5576 043430 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
5577 043434 BGNSEG
043434 104404 TRAP C$BSEG
5578 043436 042777 000010 136634 BIC #10,@CSRX ;SELECT CHANNEL 1
5579 043444 112777 000223 136616 MOV B #223,@ICRHX ;-----LOAD DAI INTO ACR 1-----
5580 043452 112777 000200 136602 MOV B #200,@ISRHX ;-----LOAD GET BIT INTO ISR1-----
5581 043460 052777 000010 136612 BIS #10,@CSRX ;SELECT CHANNEL 2
5582 043466 013701 002312 MOV DPA1,R1 ;CREATE MLA1
5583 043472 062701 000040 ADD #40,R1
5584 043476 010137 002410 MOV R1,MLA1 ;STORE MLA1
5585 043502 113777 002410 136566 MOV B MLA1,@IDRHX ;-----LOAD MLA1 INTO DOR 2-----
5586 043510 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5587 043514 112777 000010 136554 MOV B #10,@IDP4X ;-----LOAD GET INTO DOR 2-----
5588 043522 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
5589 043526 042777 000010 136544 BIC #10,@CSRX ;SELECT CHANNEL 1
5590 043534 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
5591 043542 017737 136502 002402 MOV @IIRX,RSAVE ;GET IIR 1 CONTENTS
5592 043550 022737 102501 002402 CMP #102501,RSAVE ;GET,MA,INT1,IFC,MAC BIT SHUOLD BE SET
5593 043556 001413 BEQ 30$ ;BRANCH IF YES
5594 043560 012737 102501 002500 MOV #102501,GOOD ;SET UP DATA FOR ERROR MESSAGE
5595 043566 013737 002402 002502 MOV RSAVE,BAD
5596 043574 ERRSOFT 1403,E501,ERR501 ;ERROR HANDLER
043574 104457 TRAP C$ERSOFT
043576 002573 .WORD 1403
043600 005406 .WORD E501
043602 003702 .WORD ERR501
5597 043604 104406 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043604 104406 ;TRAP C$CLP1
5598 043606 017737 136452 002402 30$: MOV @ICRX,RSAVE ;GET ICR1 CONTENTS
5599 043614 122737 000010 002402 CMPB #10,RSAVE ;ICR1 CONTENTS SHOULD BE 10
5600 043622 001413 BEQ 40$ ;BRANCH IF YES
5601 043624 012737 000010 002500 MOV #10,GOOD ;SET UP DATA FOR ERROR MESSAGE
5602 043632 013737 002402 002502 MOV RSAVE,BAD
5603 043640 ERRSOFT 1404,E901,ERR501 ;ERROR HANDLER
043640 104457 TRAP C$ERSOFT
043642 002574 .WORD 1404
043644 005644 .WORD E901
043646 003702 .WORD ERR501
5604 043650 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
043650 104406 ;TRAP C$CLP1
5605 043652 112777 000006 136410 40$: MOV B #6,@ICRHX ;-----LOAD NOT FGET INTO ACR 1-----

```

5606	043660	112777	000001	136402
5607	043666	052777	000010	136404
5608	043674	112777	000077	136374
5609	043702	004737	011060	
5610	043706			

```

MOV8    #1, @ICRHX
BIS     #10, @CSRX
MOV8    #77, @IDRHX
JSR     PC, LOOP
ENDSEG

```

```

:-----LOAD NOT DACR INTO ACR 1-----
:SELECT CHANNEL 2
:-----LOAD UNL INTO DOR 2-----
:WAIT A LITTLE

```

5610	043706			
	043706	104405		
5611	043710	005737	002234	
5612	043714	001010		
5613	043716	005237	002322	
5614	043722	023737	002322	002320
5615	043730	001402		
5616	043732	000137	043150	
5617	043736			

```

TST      QVP
BNE      EXQV14
INC      ITRCNT
CMP      ITRCNT, ITRDEF
BEQ      EXQV14
JMP      ITAC14
EXQV14:  EXIT
TST

```

```

                                10001$:
                                TRAP      C$ESEG
;IS QUICK VERIFY PASS SELECTED
;IF YES EXIT TEST
;ITERATION COUNTER +1
;DEFAULT ITERATION EXECUTED
;IF YES EXIT TEST
;IF NO TEST ITERATION
;

```

043736	104432
043740	000060

```
TRAP      C$EXIT
.WORD     L10043-.
```

5618
5619
5620
5621
5622
5623

```

TSHD14: .NLIST    BEX
        .ASCIZ    /%S2%ADEVICE TRIGGER INTERFACE FUNCTION TEST%N/
        .LIST     BEX
        .EVEN
        ENDTST

```

L10043: TRAP CSEIST

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TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST

```

5625      .SBTTL TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST
5626      :*****
5627      :               IEX - TEST 15
5628      :PART 1 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 1. SOURCE HANDSHAKE
5629      :DOES NOT OCCUR DURING THE DATA TRANSFER, BECAUSE CHANNEL 2 IS NOT
5630      :SELECTED AS LISTENER.
5631      :PART 2 CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 2. SOURCE HANDSHAKE
5632      :DOES NOT OCCUR DURING THE DATA TRANSFER, BECAUSE CHANNEL 1 IS NOT
5633      :SELECTED AS LISTENER.
5634      :*****
5635      BGNTST
5636      044022      005737      002324      TST      PNTF      T15::
5637      044026      001410      BEQ      7$      :IS THE PNT FLAG SET
5638      044030      012746      044724      PRINTF   #TSHD15      :IF YES, PRINT THE TEST HEADER
5639      044030      012746      000001      :....
5640      044040      010600      MOV      #TSHD15,-(SP)
5641      044042      104417      MOV      #1,-(SP)
5642      044044      062706      000004      MOV      SP,R0
5643      044050      005037      002322      TRAP     C$PNTF
5644      044054      004737      010220      ADD      #4,SP
5645      044060      004737      010534      7$: CLR      ITRCNT      :CLEAR ITERATION COUNTER
5646      044064      104404      ITAC15: JSR      PC,CULPA    :CLEAR ULPA BIT IN ISR 1 AND 2
5647      044066      042777      000010      JSR      PC,BGIN1    :SET UP PARAMETER
5648      044074      012737      000001      BGNSEG
5649      044102      112777      000212      TRAP     C$BSEG
5650      044110      012703      000002      BIC      #10,@CSRX    :SELECT CHANNEL 1
5651      044114      020337      002314      MOV      #1,CHAN    :LOAD CHANNEL NUMBER
5652      044120      001410      136204      MOV      #212,@ICRHX  :----LOAD TON INTO ACR 1-----
5653      044122      020337      002312      MOV      #2,R3      :GET A NONE EXISTENTS MLA
5654      044126      001405      136160      11$: CMP      R3,DPA2
5655      044130      062703      000040      BEQ      10$
5656      044134      010337      002412      CMP      R3,DPA1
5657      044140      000402      136122      BEQ      10$
5658      044142      005203      002412      ADD      #40,R3
5659      044144      000763      136102      MOV      R3,MLA2
5660      044146      113777      002412      BR       20$
5661      044154      004737      011060      10$: INC      R3
5662      044160      112777      000013      BR       11$
5663      044166      112777      000125      20$: MOV      MLA2,@IDRHX
5664      044174      004737      011060      JSR      PC,LOOP
5665      044200      017737      136044      MOV      #13,@ICRHX
5666      044206      022737      040000      MOV      #125,@IDRHX
5667      044214      001413      002402      JSR      PC,LOOP
5668      044216      012737      040000      MOV      @IIRX,RSAVE
5669      044224      013737      002402      CMP      #40000,RSAVE
5670      044232      104457      002402      BEQ      30$
5671      044234      002735      002500      MOV      #40000,GOOD
5672      044236      005406      002502      MOV      RSAVE,BAD
5673      044240      003702      ERRSOFT 1501,E501,ERR501
5674      044242      104406      CKLOOP
5675      044244      017737      136006      30$: MOV      @ISRX,RSAVE
5676      044252      022737      000002      CMP      #2,RSAVE
5677      044254      000002      002402      :ERROR HANDLER
5678      044256      000002      002402      TRAP     C$ERSOFT
5679      044258      000002      002402      .WORD    1501
5680      044260      000002      002402      .WORD    E501
5681      044262      000002      002402      .WORD    ERR501
5682      044264      000002      002402      :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
5683      044266      000002      002402      TRAP     C$CLP1
5684      044268      000002      002402      :GET ISR1 CONTENTS
5685      044270      000002      002402      :TADS BIT SHOULD BE SET

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 57-1
TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST

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5670 044260 001413      BEQ      40$      ;BRANCH IF YES
5671 044262 012737 000002 002500      MOV      #2,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5672 044270 013737 002402 002502      MOV      RSAVE,BAD      ;
5673 044276      ERRSOFT 1502,E502,ERR501 ;ERROR HANDLER
      044276 104457      TRAP      C$ERSOFT
      044300 002736      .WORD    1502
      044302 005447      .WORD    E502
      044304 003702      .WORD    ERR501
5674 044306      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044306 104406      TRAP      C$CLP1
5675 044310 052777 000010 135762 40$:  BIS      #10,@CSRX      ;SELECT CHANNEL 2
5676 044316 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
5677 044324 017737 135726 002402      MOV      @ISRX,RSAVE      ;GET ISR2 CONTENTS
5678 044332 005737 002402      TST      RSAVE      ;ISR REGISTER SHOULD BE ZERO
5679 044336 001412      BEQ      50$      ;BRANCH IF YES
5680 044340 005037 002500      CLR      GOOD      ;SET UP DATA FOR ERROR MESSAGE
5681 044344 013737 002402 002502      MOV      RSAVE,BAD      ;
5682 044352      ERRSOFT 1503,E502,ERR501 ;ERROR HANDLER
      044352 104457      TRAP      C$ERSOFT
      044354 002737      .WORD    1503
      044356 005447      .WORD    E502
      044360 003702      .WORD    ERR501
5683 044362      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044362 104406      TRAP      C$CLP1
5684 044364      50$:  ENDSEG      10000$:
      044364      TRAP      C$ESEG
5685      ;-----
5686      ;PART 2 OF THE TEST
5687      ;THIS PART CHECKS THE INCOMPLETE SOURCE HANDSHAKE OF CHANNEL 2
5688      ;-----
5689 044366 004737 010220      JSR      PC,CULPA      ;CLEAR ULPA BIT IN ISR 1 AND 2
5690 044372 004737 010710      JSR      PC,BGIN2      ;SET UP PARAMETER
5691 044376      PSEU5:  BGNSEG      TRAP      C$BSEG
      044376 104404
5692 044400 052777 000010 135672      BIS      #10,@CSRX      ;SELECT CHANNEL 2
5693 044406 112777 000212 135654      MOV      #212,@ICRHX      ;----LOAD TON INTO ACR 2-----
5694 044414 012703 000002      MOV      #2,R3      ;GET A NONE EXISTENTS MLA
5695 044420 020337 002314      CMP      R3,DPA2      ;
5696 044424 001410      BEQ      10$      ;
5697 044426 020337 002312      CMP      R3,DPA1      ;
5698 044432 001405      BEQ      10$      ;
5699 044434 062703 000040      ADD      #40,R3      ;CREATE MLA
5700 044440 010337 002410      MOV      R3,MLA1      ;
5701 044444 000402      BR      20$      ;
5702 044446 005203      10$:  INC      R3      ;
5703 044450 000763      BR      11$      ;
5704 044452 113777 002410 135616 20$:  MOV      MLA1,@IDRHX      ;----LOAD MLA1 INTO DOR2-----
5705 044460 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
5706 044464 112777 000013 135576      MOV      #13,@ICRHX      ;----LOAD GIS INTO ACR 2-----
5707 044472 112777 000125 135576      MOV      #125,@IDRHX      ;----LOAD DATA PATTERN INTO DOR 2-----
5708 044500 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
5709 044504 017737 135540 002402      MOV      @IIRX,RSAVE      ;GET IIR2 CONTENTS
5710 044512 022737 040000 002402      CMP      #40000,RSAVE      ;ERR BIT IN IIR REGISTER SHOULD BE SET
5711 044520 001413      BEQ      30$      ;BRANCH IF YES
5712 044522 012737 040000 002500      MOV      #40000,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5713 044530 013737 002402 002502      MOV      RSAVE,BAD      ;
      ;

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 57-2
TEST 15: INCOMPLETE SOURCE HANDSHAKE TEST

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5714 044536          ERRSOFT 1504,E501,ERR501      ;ERROR HANDLER
      044536 104457          TRAP C$ERSOFT
      044540 002740          .WORD 1504
      044542 005406          .WORD E501
      044544 003702          .WORD ERR501
5715 044546          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044546 104406          TRAP C$CLP1
5716 044550 017737 135502 002402 30$: MOV @ISRX,RSAVE      ;GET ISR2 CONTENTS
5717 044556 022737 000002 002402      CMP #2,RSAVE      ;TADS BIT SHOULD BE SET
5718 044564 001413      BEQ 40$      ;BRANCH IF YES
5719 044566 012737 000002 002500      MOV #2,GOOD      ;SET UP DATA FOR ERROR MESSAGE
5720 044574 013737 002402 002502      MOV RSAVE,BAD
5721 044602          ERRSOFT 1505,E502,ERR501      ;ERROR HANDLER
      044602 104457          TRAP C$ERSOFT
      044604 002741          .WORD 1505
      044606 005447          .WORD E502
      044610 003702          .WORD ERR501
5722 044612          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044612 104406          TRAP C$CLP1
5723 044614 042777 000010 135456 40$: BIC #10,@CSRX      ;SELECT CHANNEL 1
5724 044622 012737 000001 002374      MOV #1,CHAN      ;LOAD CHANNEL NUMBER
5725 044630 017737 135422 002402      MOV @ISRX,RSAVE      ;GET ISR1 CONTENTS
5726 044636 005737 002402      TST RSAVE      ;ISR REGISTER SHOULD BE ZERO
5727 044642 001412      BEQ 50$      ;BRANCH IF YES
5728 044644 005037 002500      CLR GOOD      ;SET UP DATA FOR ERROR MESSAGE
5729 044650 013737 002402 002502      MOV RSAVE,BAD
5730 044656          ERRSOFT 1506,E502,ERR501      ;ERROR HANDLER
      044656 104457          TRAP C$ERSOFT
      044660 002742          .WORD 1506
      044662 005447          .WORD E502
      044664 003702          .WORD ERR501
5731 044666          CKLOOP          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      044666 104406          TRAP C$CLP1
5732 044670          50$: ENDSEG
      044670          10001$:
      044670 104405          TRAP C$ESEG
5733 044672 005737 002234      TST QVP      ;IS QUICK VERIFY PASS SELECTED
5734 044676 001010      BNE EXQV15      ;IF YES EXIT TEST
5735 044700 005237 002322      INC ITRCNT      ;ITERATION COUNTER +1
5736 044704 023737 002322 002320      CMP ITRCNT,ITRDEF      ;DEFAULT ITERATION EXECUTED
5737 044712 001402      BEQ EXQV15      ;IF YES EXIT TEST
5738 044714 000137 044054      JMP ITAC15      ;IF NO TEST ITERATION
5739 044720          EXQV15: EXIT      TST
      044720 104432          TRAP C$EXIT
      044722 000052          .WORD L10044-.
5740
5741
5742 044724 045 123 062 TSHD15: .NLIST BEX
5743 .ASCIZ /%S2%AINCOMPLETE SOURCE HANDSHAKE TEST%/
5744 .LIST BEX
5745 044774 .EVEN
      044774 .ENDTST
      044774 104401          L10044: TRAP C$E1ST

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TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

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5747          .SBTTL TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION
5748          .....
5749          IEX - TEST 16
5750          PART 1 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 1 TO 2
5751          BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.
5752          PART 2 CHECKS THE CHANGING OF THE CONTROLLER CONFIGURATION FROM 2 TO 1
5753          BY MEANS OF THE AUXILIARY COMMANDS RQC AND RLC.
5754          .....
5755          BGNTEST
5756          044776          005737          002324          TST          PNTF          ;IS THE PNT FLAG SET
5757          045002          001410          BEQ          7$          ;IF YES, PRINT THE TEST HEADER
5758          045004          012746          046262          PRINTF          #TSHD16          ;...
5759          045024          005037          002322          7$:          CLR          ITRCNT          ;CLEAR ITERATION COUNTER
5760          045030          045030          104404          ITAC16: BGNSEG          TRAP          C$BSEG
5761          045032          004737          010220          JSR          PC,CULPA          ;CLEAR ULPA BIT IN ISR 1 AND 2
5762          045036          004737          010534          JSR          PC,BGIN1          ;SET UP PARAMETER
5763          045042          032737          000001          002314          BIT          #1,DPA2          ;IS DPA EVEN
5764          045050          001404          BEQ          3$          ;BRANCH IF YES
5765          045052          052737          000001          002456          BIS          #1,CDAT10          ;SET ULPA BIT IN COMPARE DATA FOR ISR
5766          045060          000403          BR          .+10          ;BRANCH OVER NEXT INSTRUCTION
5767          045062          042737          000001          002456          3$:          BIC          #1,CDAT10          ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5768          045070          052777          000010          135202          BIS          #10,@CSRX          ;SELECT CHANNEL 2
5769          045076          112777          000223          135164          MOVB          #223,@ICRHX          ;-----LOAD DAI INTO ACR 2-----
5770          045104          112777          000040          135150          MOVB          #40,@ISRHX          ;-----SET UCG BIT IN ISR 2-----
5771          045112          042777          000010          135160          BIC          #10,@CSRX          ;SELECT CHANNEL 1
5772          045120          013701          002314          MOV          DPA2,R1          ;CREATE MTA2
5773          045124          062701          000100          ADD          #100,R1
5774          045130          010137          002416          MOV          R1,MTA2          ;STORE MTA2
5775          045134          113777          002416          135134          MOVB          MTA2,@IDRHX          ;-----LOAD MTA2 INTO DOR 1-----
5776          045142          004737          011060          JSR          PC,LOOP          ;WAIT A LITTLE
5777          045146          112777          000011          135122          MOVB          #11,@IDRHX          ;-----LOAD ICT INTO DOR 1-----
5778          045154          004737          011060          JSR          PC,LOOP          ;WAIT A LITTLE
5779          045160          052777          000010          135112          BIS          #10,@CSRX          ;SELECT CHANNEL 2
5780          045166          012737          000002          002374          MOV          #2,CHAN          ;LOAD CHANNEL NUMBER
5781          045174          017737          135050          002402          MOV          @IIRX,RSAVE          ;GET IIR2 CONTENTS
5782          045202          022737          022501          002402          CMP          #22501,RSAVE          ;UCG,MA,IFC,INT1,MAC BIT SHOULD BE SET
5783          045210          001413          BEQ          10$          ;BRANCH IF YES
5784          045212          013737          002402          002502          MOV          RSAVE,BAD          ;SET UP DATA FOR ERROR MESSAGE
5785          045220          012737          022501          002500          MOV          #22501,GOOD          ;...
5786          045226          104457          ERRSOF1 1601,E501,ERR501          ;ERROR HANDLER
5787          045236          045236          003101          045232          005406          TRAP          C$ERSOF1
5788          045236          045236          003702          045234          003702          .WORD          1601
5789          045236          045236          003702          045234          003702          .WORD          E501
5790          045236          045236          003702          045234          003702          .WORD          ERR501
5791          045236          045236          003702          045234          003702          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
5792          045236          045236          003702          045234          003702          TRAP          C$CLP1
5793          045236          045236          003702          045234          003702          ;GET ISR2 CONTENTS
5794          045236          045236          003702          045234          003702          ;ATN,NDAC,DAV,NRFD,ATN,TADS,(ULPA) IS SET
5795          045236          045236          003702          045234          003702          ;BRANCH IF YES
5796          045236          045236          003702          045234          003702          ;SET UP DATA FOR ERROR MESSAGE
5797          045236          045236          003702          045234          003702          CKLOOP
5798          045236          045236          003702          045234          003702          10$:          MOV          @ISRX,BAD
5799          045236          045236          003702          045234          003702          CMP          CDAT10,BAD
5800          045236          045236          003702          045234          003702          BEQ          20$
5801          045236          045236          003702          045234          003702          MOV          CDAT10,GOOD

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 58-1
TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

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5792 045264          ERRSOF 602,E502,ERR501          :ERROR HANDLER
      045264 104457
      045266 003102
      045270 005447
      045272 003702
5793 045274          CKLOOP
      045274 104406
5794 045276 017737 134762 002502 20$: MOV @ICRX,BAD
5795 045304 122737 000011 002502      CMPB #11,BAD
5796 045312 001407      BEQ 30$
5797 045314 012737 000011 002500      MOV #11,GOOD
5798 045322          ERRSOF 1603,E901,ERR501
      045322 104457
      045324 003103
      045326 005644
      045330 003702
5799 045332 112777 000021 134730 30$: MOVB #21,@ICRMX
5800 045340 112777 000001 134722      MOVB #1,@ICRMX
5801 045346 042777 000010 134724      BIC #10,@CSRX
5802 045354 112777 000022 134706      MOVB #22,@ICRMX
5803 045362 052777 000010 134710      BIS #10,@CSRX
5804 045370 012737 000002 002374      MOV #2,CHAN
5805 045376 017737 134646 002502      MOV @IIRX,BAD
5806 045404 022737 000020 002502      CMP #20,BAD
5807 045412 001410      BEQ 33$
5808 045414 012737 000020 002500      MOV #20,GOOD
5809 045422          ERRSOF 1604,E501,ERR501
      045422 104457
      045424 003104
      045426 005406
      045430 003702
5810 045432          CKLOOP
      045432 104406
5811 045434 042777 000010 134636 33$: BIC #10,@CSRX
5812 045442 012737 000001 002374      MOV #1,CHAN
5813 045450 017737 134574 002502      MOV @IIRX,BAD
5814 045456 022737 000020 002502      CMP #20,BAD
5815 045464 001410      BEQ 40$
5816 045466 012737 000020 002500      MOV #20,GOOD
5817 045474          ERRSOF 1605,E501,ERR501
      045474 104457
      045476 003105
      045500 005406
      045502 003702
5818 045504          CKLOOP
      045504 104406
5819 045506 052777 000010 134564 40$: BIS #10,@CSRX
5820 045514 112777 000137 134554      MOVB #137,@IDRMX
5821 045522 004737 011060      JSR PC,LOOP
5822 045526          ENDSEG
      045526
      045526 104405
5823
5824
5825
5826 045530          PSEU16: BGNSEG
      045530 104404

;-----LOAD RGC INTO ACR 2-----
;-----LOAD NOT DACR INTO ACR 2-----
;SELECT CHANNEL 1
;-----LOAD RLC INTO ACR 1-----
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 1602
      .WORD E502
      .WORD ERR501
      TRAP C$CLP1

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1

;GET ICR2 CONTENTS
;ICR CONTENTS SHOULD BE 11
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 1603
      .WORD E901
      .WORD ERR501
      TRAP C$CLP1

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP C$ERSOF 1
      .WORD 1604
      .WORD E501
      .WORD ERR501
      TRAP C$CLP1

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP C$CLP1

;SELECT CHANNEL 2
;-----LOAD UNT INTO DOR 2-----
;WAIT A LITTLE
      TRAP C$SESEG

10000$:
      TRAP C$BSEG

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 58-2
TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

5827	045532	004737	010220		JSR	PC,CULPA	:CLEAR ULPA BIT IN ISR 1 AND 2
5828	045536	004737	010710		JSR	PC,BGIN2	:SET UP PARAMETER
5829	045542	032737	000001	002312	BIT	#1,DPA1	:IS DPA EVEN
5830	045550	001404			BEQ	3\$	:BRANCH IF YES
5831	045552	052737	000001	002456	BIS	#1,CDAT10	:SET ULPA BIT IN COMPARE DATA FOR ISR
5832	045560	000403			BR	.+10	:BRANCH OVER NEXT INSTRUCTION
5833	045562	042737	000001	002456	BIC	#1,CDAT10	:CLEAR ULPA BIT IN COMPARE DATA FOR ISR
5834	045570	042777	000010	134502	BIC	#10,@CSRX	:SELECT CHANNEL 1
5835	045576	112777	000223	134464	MOVB	#223,@ICRHX	:-----LOAD DAI INTO ACR 1-----
5836	045604	112777	000040	134450	MOVB	#40,@ISRHX	:-----SET UCG BIT IN ISR 1-----
5837	045612	013701	002312		MOV	DPA1,R1	:CREATE MTA1
5838	045616	062701	000100		ADD	#100,R1	:STORE MTA1
5839	045622	010137	002414		MOV	R1,MTA1	:SELECT CHANNEL 2
5840	045626	052777	000010	134444	BIS	#10,@CSRX	:-----LOAD MTA1 INTO DOR 2-----
5841	045634	113777	002414	134434	MOVB	MTA1,@IDRHX	:WAIT A LITTLE
5842	045642	004737	011060		JSR	PC,LOOP	:-----LOAD TCT INTO DOR 2-----
5843	045646	112777	000011	134422	MOVB	#11,@IDRHX	:WAIT A LITTLE
5844	045654	004737	011060		JSR	PC,LOOP	:SELECT CHANNEL 1
5845	045660	042777	000010	134412	BIC	#10,@CSRX	:LOAD CHANNEL NUMBER
5846	045666	012737	000001	002374	MOV	#1,CHAN	:GET IIR1 CONTENTS
5847	045674	017737	134350	002402	MOV	@IIRX,RSARE	:UCG,MA,IFC,INT1,MAC BIT SHOULD BE SET
5848	045702	022737	022501	002402	CMP	#22501,RSARE	:BRANCH IF YES
5849	045710	001413			BEQ	10\$	:SET UP DATA FOR ERROR MESSAGE
5850	045712	013737	002402	002502	MOV	RSARE,BAD	:ERROR HANDLER
5851	045720	012737	022501	002500	MOV	#22501,GOOD	TRAP C\$ERRSOFT
5852	045726				ERRSOFT	1606,E501,ERR501	.WORD 1606
	045726	104457					.WORD E501
	045730	003106					.WORD ERR501
	045732	005406					
	045734	003702					
5853	045736				CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	045736	104406					TRAP C\$CLP1
5854	045740	017737	134312	002502	MOV	@ISRX,BAD	:GET ISR1 CONTENTS
5855	045746	023737	002456	002502	CMP	CDAT10,BAD	:ATN,NDAC,DAV,NRFD,ATN,TADS,(ULPA) IS SET
5856	045754	001410			BEQ	20\$	:BRANCH IF YES
5857	045756	013737	002456	002500	MOV	CDAT10,GOOD	:SET UP DATA FOR ERROR MESSAGE
5858	045764				ERRSOFT	1607,E502,ERR501	:ERROR HANDLER
	045764	104457					TRAP C\$ERRSOFT
	045766	003107					.WORD 1607
	045770	005447					.WORD E502
	045772	003702					.WORD ERR501
5859	045774				CKLOOP		:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	045774	104406					TRAP C\$CLP1
5860	045776	017737	134262	002502	MOV	@ICRX,BAD	:GET ICR1 CONTENTS
5861	046004	122737	000011	002502	MPB	#11,BAD	:ICR CONTENTS SHOULD BE 11
5862	046012	001407			BEQ	30\$	:BRANCH IF YES
5863	046014	012737	000011	002500	MOV	#11,GOOD	:SET UP DATA FOR ERROR MESSAGE
5864	046022				ERRSOFT	1608,E901,ERR501	:ERROR HANDLER
	046022	104457					TRAP C\$ERRSOFT
	046024	003110					.WORD 1608
	046026	005644					.WORD E901
	046030	003702					.WORD ERR501
5865	046032	112777	000021	134230	MOVB	#21,@ICRHX	:-----LOAD RGC INTO ACR 1-----
5866	046040	112777	000001	134222	MOVB	#1,@ICRHX	:-----LOAD NOT DACR INTO ACR 1-----
5867	046046	052777	000010	134224	BIS	#10,@CSRX	:SELECT CHANNEL 2
5868	046054	112777	000022	134206	MOVB	#22,@ICRHX	:-----LOAD RLC INTO ACR 2-----
5869	046062	042777	000010	134210	BIC	#10,@CSRX	:SELECT CHANNEL 1

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TEST 16: CHANGING OF THE CONTROLLER CONFIGURATION

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5870 046070 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
5871 046076 017737 134146 002502      MOV      @1IRX,BAD    ;GET IIR1 CONTENTS
5872 046104 022737 000020 002502      CMP      #20,BAD      ;BO BIT SHOULD BE SET
5873 046112 001410                BEQ      33$             ;BRANCH IF YES
5874 046114 012737 000020 002500      MOV      #20,GOOD    ;SET UP DATA FOR ERROR MESSAGE
5875 046122                ERRSOFT 1609,E501,ERR501 ;ERROR HANDLER
      046122 104457                TRAP      C$ERRSOFT
      046124 003111                .WORD    1609
      046126 005406                .WORD    E501
      046130 003702                .WORD    ERR501
5876 046132                CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      046132 10440.                TRAP      C$CLP1
5877 046134 052777 000010 134136 33$:  BIS      #10,@CSRX    ;SELECT CHANNEL 2
5878 046142 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
5879 046150 017737 134074 002502      MOV      @1IRX,BAD    ;GET IIR2 CONTENTS
5880 046156 022737 000020 002502      CMP      #20,BAD      ;BO BIT SHOULD BE SET
5881 046164 001410                BEQ      40$             ;BRANCH IF YES
5882 046166 012737 000020 002500      MOV      #20,GOOD    ;SET UP DATA FOR ERROR MESSAGE
5883 046174                ERRSOFT 16010,E501,ERR501 ;ERROR HANDLER
      046174 104457                TRAP      C$ERRSOFT
      046176 037212                .WORD    16010
      046200 005406                .WORD    E501
      046202 003702                .WORD    ERR501
5884 046204                CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      046204 104406                TRAP      C$CLP1
5885 046206 042777 000010 134064 40$:  BIC      #10,@CSRX    ;SELECT CHANNEL 1
5886 046214 112777 000137 134054      MOV      #137,@IDRMX   ;-----LOAD UNIT INTO DOR 1-----
5887 046222 004737 011060      JSR      PC,LOOP    ;WAIT A LITTLE
5888 046226                ENDSEG
      046226                10001$:
      046226 104405                TRAP      C$ESEG
5889 046230 005737 002234                ;IS QUICK VERIFY PASS SELECTED
5890 046234 001010                ;IF YES EXIT TEST
5891 046236 005237 002322                ;ITERATION COUNTER +1
5892 046242 023737 002322 002320      CMP      ITRCNT,ITRDEF ;DEFAULT ITERATION EXECUTED
5893 046250 001402                ;IF YES EXIT TEST
5894 046252 000137 045030                ;IF NO TEST ITERATION
5895 046256                EXQV16: EXIT  TST
      046256 104432                TRAP      C$EXIT
      046260 000062                .WORD    L10045-
5896
5897
5898 046262      045      123      062  TSHD16: .NLIST  BEX
5899                .ASCIZ  /XS2%CHANGING OF THE CONTROLLER CONFIGURATION%/
5900                .LIST   BEX
5901 046342                .EVEN
      046342                ENI
      046342 104401                L10045:
                                TRAP      C$EXIT

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 59
TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

```

5903      .SBTTL TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST
5904      .....
5905      IEX - TEST 17
5906      PART 1 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 2 USING THE FOLLOWING
5907      COMMANDS GTL, LLO, NOT RTL.
5908      PART 2 CHECKS THE REMOTE/LOCAL FUNCTION OF CHANNEL 1 USING THE FOLLOWING
5909      COMMANDS GTL, LLO, NOT RTL.
5910      .....
5911      BGNIST
5912      046344 005737 002324      TST      PNTF      ;IS THE PNT FLAG SET
5913      046350 001410      BEQ      7$      ;IF YES, PRINT THE TEST HEADER
5914      046352      PRINTF      #TSHD17      ....
5915      046352 012746 050644      MOV      #TSHD17,-(SP)
5916      046356 012746 000001      MOV      #1,-(SP)
5917      046362 010600      MOV      SP,R0
5918      046364 104417      TRAP     C$PNTF
5919      046366 062706 000004      ADD      #4,SP
5920      046372 005037 002322      7$:      CLR      ITRCNT      ;CLEAR ITERATION COUNTER
5921      046376      ITAC17: BGNSEG      TRAP     C$BSEG
5922      046376 104404      JSR      PC,CULPA      ;CLEAR ULPA BIT IN ISR 1 AND 2
5923      046400 004737 010220      JSR      PC,BGIN1      ;SET UP PARAMETER
5924      046404 004737 010534      MOV      #220,@ICRMX      ;-----LOAD SRE INTO ACR 1-----
5925      046410 112777 000220 133652      JSR      PC,WAIT      ;WAIT 100 US
5926      046416 004737 011072      MOV      DPA2,R1      ;CREATE MLA2
5927      046422 013701 002314      ADD      #40,R1
5928      046426 062701 000040      MOV      R1,MLA2
5929      046432 010137 002412      BIT      #1,DPA2
5930      046436 032737 000001 002314      BEQ      3$
5931      046444 001415      BIS      #1,CDAT11
5932      046446 052737 000001 002460      BIS      #1,CDAT12
5933      046454 052737 000001 002462      BIS      #1,CDAT13
5934      046462 052737 000001 002464      BIS      #1,CDAT14
5935      046470 052737 000001 002466      BR      +32
5936      046476 000414      BIC      #1,CDAT11
5937      046500 042737 000001 002460 3$:      BIC      #1,CDAT12
5938      046506 042737 000001 002462      BIC      #1,CDAT13
5939      046514 042737 000001 002464      BIC      #1,CDAT14
5940      046522 042737 000001 002466      MOV      MLA2,@IDRMX
5941      046530 113777 002412 133540      JSR      PC,LOOP
5942      046536 004737 011060      BIS      #10,ACSRX
5943      046542 052777 000010 133530      MOV      #2,CHAN
5944      046550 012737 000002 002374      MOV      @IIRX,BAD
5945      046556 017737 133466 002502      CMP      #2403,BAD
5946      046564 022737 002403 002502      BEQ      10$
5947      046572 001410      MOV      #2403,GOOD
5948      046574 012737 002403 002500      ERRSOFT 1701,E501,ERR501
5949      046602      TRAP     C$ERRSOFT
5950      046602 104457      .WORD   1701
5951      046604 003245      .WORD   E501
5952      046606 005406      .WORD   ERR501
5953      046610 003702      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
5954      046612      TRAP     C$CLP1
5955      046612 104406      ;GET ISR2 CONTENTS
5956      046614 017737 133436 002502 10$:      MOV      @ISR2,BAD
5957      046622 023737 002460 002502      CMP      CDAT11,BAD
5958      046630 001410      BEQ      20$
5959      046630      ;ATN,NDAC,REM,ATN,LAPS,LADS,(ULPA)IS SET
5960      046630      ;BRANCH IF YES

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 59-1
TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

```

5948 046632 013737 002460 002500      MOV    CDAT11,GOOD
5949 046640      ERRSOFT 1702,E502,ERR501
      046640 104457
      046642 003246
      046644 005447
      046646 003702
5950 046650      CKLOOP
      046650 104406
5951 046652 042777 000010 133420 20$: BIC     #10,@CSRX
5952 046660 112777 000001 133410      MOVB   #1,@IDRHX
5953 046666 004737 011060      JSR     PC,LOOP
5954 046672 112777 000077 133376      MOVB   #77,@IDRHX
5955 046700 004737 011060      JSR     PC,LOOP
5956 046704 052777 000010 133366      BIS     #10,@CSRX
5957 046712 012737 000002 002374      MOV     #2,CHAN
5958 046720 017737 133324 002502      MOV     @IIRX,BAD
5959 046726 022737 000003 002502      CMP     #3,BAD
5960 046734 001410      BEQ     30$
5961 046736 012737 000003 002500      MOV     #3,GOOD
5962 046744      ERRSOFT 1703,E501,ERR501
      046744 104457
      046746 003247
      046750 005406
      046752 003702
5963 046754      CKLOOP
      046754 104406
5964 046756 042777 000010 133314 30$: BIC     #10,@CSRX
5965 046764 013701 002314      MOV     DPA2,R1
5966 046770 062701 000040      ADD     #40,R1
5967 046774 010137 002412      MOV     R1,MLA2
5968 047000 113777 002412 133270      MOVB   MLA2,@IDRHX
5969 047006 004737 011060      JSR     PC,LOOP
5970 047012 052777 000010 133260      BIS     #10,@CSRX
5971 047020 012737 000002 002374      MOV     #2,CHAN
5972 047026 112777 000007 133234      MOVB   #7,@ICRHX
5973 047034 017737 133210 002502      MOV     @IIRX,BAD
5974 047042 022737 002003 002502      CMP     #2003,BAD
5975 047050 001410      BEQ     33$
5976 047052 012737 002003 002500      MOV     #2003,GOOD
5977 047060      ERRSOFT 1704,E501,ERR501
      047060 104457
      047062 003250
      047064 005406
      047066 003702
5978 047070      CKLOOP
      047070 104406
5979 047072 017737 133160 002502 33$: MOV     @ISRX,BAD
5980 047100 023737 002462 002502      CMP     CDAT12,BAD
5981 047106 001410      BEQ     40$
5982 047110 013737 002462 002500      MOV     CDAT12,GOOD
5983 047116      ERRSOFT 1705,E502,ERR501
      047116 104457
      047120 003251
      047122 005447
      047124 003702
5984 047126      CKLOOP
      047126 104406

```

```

;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   1702
      .WORD   E502
      .WORD   ERR501
      TRAP    C$CLP1
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

;SELECT CHANNEL 1
;-----LOAD GTL INTO DOR 1-----
;WAIT A LITTLE
;-----LOAD UNL INTO DOR 1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;R1C,MAC BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   1703
      .WORD   E501
      .WORD   ERR501
      TRAP    C$CLP1
;BRANCH TO BGNSEG IF ERRLOOP IS SET

;SELECT CHANNEL 1
;CREATE MLA2
;STORE MLA2
;----LOAD MLA2 INTO DOR 1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;----LOAD NOT RTL INTO DOR 2-----
;GET IIR2 CONTENTS
;MA,RLC,MAC BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   1704
      .WORD   E501
      .WORD   ERR501
      TRAP    C$CLP1
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

;GET ISR2 CONTENTS
;ATN,NDAC,REN,ATN,LPAS,LADS(ULPA) IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   1705
      .WORD   E502
      .WORD   ERR501
      TRAP    C$CLP1
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

```


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TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

```

5985 047130 042777 000010 133142 40$: BIC #10,@CSRX
5986 047136 113777 002412 133132 MOVBL MLA2,@IDRHX
5987 047144 004737 011060 JSR PC,LOOP
5988 047150 052777 000010 133122 BIS #10,@CSRX
5989 047156 017737 133066 002502 MOV @IIRX,BAD
5990 047164 022737 002002 002502 CMP #2002,BAD
5991 047172 001410 BEQ 43$
5992 047174 012737 002002 002500 MOV #2002,GOOD
5993 047202 ERRSOFT 1706,E501,ERR501

047202 104457
047204 003252
047206 005406
047210 003702
5994 047212 CKLOOP
047212 104406
5995 047214 017737 133036 002502 43$: MOV @ISRX,BAD
5996 047222 023737 002460 002502 CMP CDAT11,BAD
5997 047230 001410 BEQ 50$
5998 047232 013737 002460 002500 MOV CDAT11,GOOD
5999 047240 ERRSOFT 1707,E502,ERR501

047240 104457
047242 003253
047244 005447
047246 003702
6000 047250 CKLOOP
047250 104406
6001 047252 042777 000010 133020 50$: BIC #10,@CSRX
6002 047260 112777 000021 133010 MOVBL #21,@IDRHX
6003 047266 004737 011060 JSR PC,LOOP
6004 047272 052777 000010 133000 BIS #10,@CSRX
6005 047300 017737 132744 002502 MOV @IIRX,BAD
6006 047306 005737 002502 TST BAD
6007 047312 001407 BEQ 53$
6008 047314 005037 002500 CLR GOOD
6009 047320 ERRSOFT 1708,E501,ERR501

047320 104457
047322 003254
047324 005406
047326 003702
6010 047330 CKLOOP
047330 104406
6011 047332 017737 132720 002502 53$: MOV @ISRX,BAD
6012 047340 023737 002464 002502 CMP CDAT13,BAD
6013 047346 001410 BEQ 60$
6014 047350 013737 002464 002500 MOV CDAT13,GOOD
6015 047356 ERRSOFT 1709,E502,ERR501

047356 104457
047360 003255
047362 005447
047364 003702
6016 047366 CKLOOP
047366 104406
6017 047370 042777 000010 132702 60$: BIC #10,@CSRX
6018 047376 112777 000001 132672 MOVBL #1,@IDRHX
6019 047404 004737 011060 JSR PC,LOOP
6020 047410 112777 000077 132660 MOVBL #77,@IDRHX
6021 047416 004737 011060 JSR PC,LOOP

```

```

:SELECT CHANNEL 1
:-----LOAD MLA2 INTO DOR 1-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:GET IIR2 CONTENTS
:MA,RLC BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 1706
.WORD E501
.WORD ERR501

```

```

:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

```

```

:GET ISR2 CONTENTS
:ATN,NDAC,REN,REM,ATN,LPAS,LADS(ULPA)SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 1707
.WORD E502
.WORD ERR501

```

```

:BRANCH TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

```

```

:SELECT CHANNEL 1
:-----LOAD LLO INTO DOR 1-----
:WAIT A LITTLE
:SELECT CHANNEL 2
:GET IIR2 CONTENTS
:CONTENTS SHOULD BE ZERO
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 1708
.WORD E501
.WORD ERR501

```

```

:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

```

```

:GET ISR2 CONTENTS
:ATN,NDAC,REN,REM,LLO,ATN,LADS(ULPA) SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER

```

```

TRAP CSERSOFT
.WORD 1709
.WORD E502
.WORD ERR501

```

```

:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

```

```

:SELECT CHANNEL 1
:----LOAD GTL INTO DOR 1-----
:WAIT A LITTLE
:----LOAD UNL INTO DOR 1-----
:WAIT A LITTLE

```

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TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

```

6022 047422 052777 000010 132650      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6023 047430 017737 132622 002502      MOV      @ISRX,BAD      ;GET ISR2 CONTENTS
6024 047436 023737 002466 002502      CMP      CDAT14,BAD      ;ATN,NDAC,REN,LLO,ATN,(ULPA) IS SET
6025 047444 001410      BEQ      63$      ;BRANCH IF YES
6026 047446 013737 002466 002500      MOV      CDAT14,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6027 047454      ERRSOFT 1710,E502,ERR501 ;ERROR HANDLER
      047454 104457      TRAP      C$ERSOFT
      047456 003256      .WORD    1710
      047460 005447      .WORD    E502
      047462 003702      .WORD    ERR501
6028 047464      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      047464 104406      TRAP      C$CLP1
6029 047466 042777 000010 132604 63$:  BIC      #10,@CSRX      ;SELECT CHANNEL 1
6030 047474 112777 000020 132550      MOVB     #20,@IIRLX      ;----LOAD NOT SRE INTO ACR 1-----
6031 047502      ENDSEG
      10000$:
      047502 104405      TRAP      C$ESEG
6032      ;+-----+
6033      ;PART 2 CHECKS REMOTE/LOCAL INTERFACE FUNCTION OF CHANNEL 1
6034      ;+-----+
6035      PSEU17: BGNSEG
      047504 104404      TRAP      C$BSEG
6036 047506 004737 010220      JSR      PC,CULPA      ;CLEAR ULPA BIT IN ISR 1 AND 2
6037 047512 004737 010710      JSR      PC,BGIN2      ;SET UP PARAMETER
6038 047516 112777 000220 132544      MOVB     #220,@ICRHX      ;----LOAD SRE INTO ACR 2-----
6039 047524 004737 011072      JSR      PC,WAIT      ;WAIT 100 US
6040 047530 032737 000001 002312      BIT      #1,DPA1      ;IS DPA EVEN
6041 047536 001415      BEQ      3$      ;BRANCH IF YES
6042 047540 052737 000001 002460      BIS      #1,CDAT11      ;SET ULPA BIT IN COMPARE DATA FOR ISR
6043 047546 052737 000001 002462      BIS      #1,CDAT12      ;...
6044 047554 052737 000001 002464      BIS      #1,CDAT13      ;...
6045 047562 052737 000001 002466      BIS      #1,CDAT14      ;...
6046 047570 000414      BR      .+32
6047 047572 042737 000001 002460 3$:  BIC      #1,CDAT11      ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
6048 047600 042737 000001 002462      BIC      #1,CDAT12      ;...
6049 047606 042737 000001 002464      BIC      #1,CDAT13      ;...
6050 047614 042737 000001 002466      BIC      #1,CDAT14      ;...
6051 047622 013701 002312      MOV      DPA1,R1      ;CREATE MLA1
6052 047626 062701 000040      ADD      #40,R1
6053 047632 010137 002410      MOV      R1,MLA1      ;STORE MLA1
6054 047636 113777 002410 132432      MOVB     MLA1,@IDRHX      ;----LOAD MLA1 INTO DOR 2-----
6055 047644 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
6056 047650 042777 000010 132422      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6057 047656 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
6058 047664 017737 132360 002502      MOV      @IIRX,BAD      ;GET IIR1 CONTENTS
6059 047672 022737 002403 002502      CMP      #2403,BAD      ;MA,IFC,RLC,MAC BIT SHOULD BE SET
6060 047700 001410      BEQ      10$      ;BRANCH IF YES
6061 047702 012737 002403 002500      MOV      #2403,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6062 047710      ERRSOFT 1711,E501,ERR501 ;ERROR HANDLER
      047710 104457      TRAP      C$ERSOFT
      047712 003257      .WORD    1711
      047714 005406      .WORD    E501
      047716 003702      .WORD    ERR501
6063 047720      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      047720 104406      TRAP      C$CLP1
6064 047722 017737 132330 002502 10$:  MOV      @ISRX,BAD      ;GET ISR1 CONTENTS
6065 047730 023737 002460 002502      CMP      CDAT11,BAD      ;ATN,NDAC,REN,ATN,LAPS,LADS,(ULPA) IS SET

```

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TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

6066	047736	001410				BEQ	20\$:BRANCH IF YES
6067	047740	013737	002460	002500		MOV	CDAT11,GOOD				:SET UP DATA FOR ERROR MESSAGE
6068	047746					ERRSOFT	1712,E502,ERR501				:ERROR HANDLER
	047746	104457									TRAP C\$ERSOFT
	047750	003260									.WORD 1712
	047752	005447									.WORD E502
	047754	003702									.WORD ERR501
6069	047756					CKLOOP					:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	047756	104406									TRAP C\$CLP1
6070	047760	052777	000010	132312	20\$:	BIS	#10,@CSRX				:SELECT CHANNEL 2
6071	047766	112777	000001	132302		MOVB	#1,@IDRHX				:-----LOAD GTL INTO DOR 2-----
6072	047774	004737	011060			JSR	PC,LOOP				:WAIT A LITTLE
6073	050000	112777	000077	132270		MOVB	#77,@IDRHX				:-----LOAD UNL INTO DOR 2-----
6074	050006	004737	011060			JSR	PC,LOOP				:WAIT A LITTLE
6075	050012	042777	000010	132260		BIC	#10,@CSRX				:SELECT CHANNEL 1
6076	050020	012737	000001	002374		MOV	#1,CHAN				:LOAD CHANNEL NUMBER
6077	050026	017737	132216	002502		MOV	@IIRX,BAD				:GET IIR1 CONTENTS
6078	050034	022737	000003	002502		CMP	#3,BAD				:RLC,MAC BIT SHOULD BE SET
6079	050042	001410				BEQ	30\$				:BRANCH IF YES
6080	050044	012737	000003	002500		MOV	#3,GOOD				:SET UP DATA FOR ERROR MESSAGE
6081	050052					ERRSOFT	1713,E501,ERR501				:ERROR HANDLER
	050052	104457									TRAP C\$ERSOFT
	050054	003261									.WORD 1713
	050056	005406									.WORD E501
	050060	003702									.WORD ERR501
6082	050062					CKLOOP					:BRANCH TO BGNSEG IF ERRLOOP IS SET
	050062	104406									TRAP C\$CLP1
6083	050064	052777	000010	132206	30\$:	BIS	#10,@CSRX				:SELECT CHANNEL 2
6084	050072	013701	002312			MOV	DPA1,R1				:CREATE MLA1
6085	050076	062701	000040			ADD	#40,R1				:....
6086	050102	010137	002410			MOV	R1,MLA1				:STORE MLA1
6087	050106	113777	002410	132162		MOVB	MLA1,@IDRHX				:-----LOAD MLA1 INTO DOR 2-----
6088	050114	004737	011060			JSR	PC,LOOP				:WAIT A LITTLE
6089	050120	042777	000010	132152		BIC	#10,@CSRX				:SELECT CHANNEL 1
6090	050126	012737	000001	002374		MOV	#1,CHAN				:LOAD CHANNEL NUMBER
6091	050134	112777	000007	132126		MOVB	#7,@ICRHX				:-----LOAD NOT RTL INTO DOR 1-----
6092	050142	017737	132102	002502		MOV	@IIRX,BAD				:GET IIR1 CONTENTS
6093	050150	022737	002003	002502		CMP	#2003,BAD				:MA,RLC,MAC BIT SHOULD BE SET
6094	050156	001410				BEQ	33\$				:BRANCH IF YES
6095	050160	012737	002003	002500		MOV	#2003,GOOD				:SET UP DATA FOR ERROR MESSAGE
6096	050166					ERRSOFT	1744,E501,ERR501				:ERROR HANDLER
	050166	104457									TRAP C\$ERSOFT
	050170	003320									.WORD 1744
	050172	005406									.WORD E501
	050174	003702									.WORD ERR501
6097	050176					CKLOOP					:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	050176	104406									TRAP C\$CLP1
6098	050200	017737	132052	002502	33\$:	MOV	@ISRX,BAD				:GET ISR1 CONTENTS
6099	050206	023737	002462	002502		CMP	CDAT12,BAD				:ATN,NDAC,REN,ATN,LPAS,LADS(ULPA) IS SET
6100	050214	001410				BEQ	40\$				:BRANCH IF YES
6101	050216	013737	002462	002500		MOV	CDAT12,GOOD				:SET UP DATA FOR ERROR MESSAGE
6102	050224					ERRSOFT	1715,E502,ERR501				:ERROR HANDLER
	050224	104457									TRAP C\$ERSOFT
	050226	003263									.WORD 1715
	050230	005447									.WORD E502
	050232	003702									.WORD ERR501
6103	050234					CKLOOP					:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

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TEST 17: REMOTE/LOCAL INTERFACE FUNCTION TEST

```

6140 050524 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
6141 050530 042777 000010 131542 BIC      #10,@CSRX ;SELECT CHANNEL 1
6142 050536 017737 131514 002502 MOV      @ISRX,BAD ;GET ISR1 CONTENTS
6143 050544 023737 002466 002502 CMP      CDAT14,BAD ;ATN,NDAC,REN,LLO,ATN,(ULPA) IS SET
6144 050552 001410      BEQ      63$ ;BRANCH IF YES
6145 050554 013737 002466 002500 MOV      CDAT14,GOOD ;SET UP DATA FOR ERPR MESSAGE
6146 050562      ERRSOFT 1720,E502,ERR501 ;ERROR HANDLER
      050562 104457      TRAP      C$ERSOFT
      050564 003270      .WORD    1720
      050566 005447      .WORD    E502
      050570 003702      .WORD    ERR501
6147 050572      CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      050572 104406      TRAP      C$CLP1
6148 050574 052777 000010 131470 63$: BIS      #10,@CSRX ;SELECT CHANNEL 2
6149 050602 112777 000020 131442 MOV      #20,@IIRLX ;----LOAD NOT SRE INTO ACR 2-----
6150 050610      ENDSEG
      050610      10001$:
      050610 104405      TRAP      C$ESEG
6151 050612 005737 002234      TST      QVP ;IS QUICK VERIFY PASS SELECTED
6152 050618 001010      BNE      EXQV17 ;IF YES EXIT TEST
6153 050620 005237 002322      INC      ITRCNT ;ITERATION COUNTER +1
6154 050624 023737 002322 002320 CMP      ITRCNT,ITRDEF ;DEFAULT ITERATION EXECUTED
6155 050632 001402      BEQ      EXQV17 ;IF YES EXIT TEST
6156 050634 000137 046376      JMP      ITAC17 ;IF NO TEST ITERATION
6157 050640      EXQV17: EXIT TST
      050640 104432      TRAP      C$EXIT
      050642 000056      .WORD    L10046-.
6158
6159
6160 050644      045      123      062 TSHD17: .NLIST BEX
      .ASCII /%S2%AREMOTE-LOCAL INTERFACE FUNCTION TEST%/
6161      .LIST BEX
6162      .EVEN
6163 050720      ENDTST
      050720
      050720 104401      L10046:
      TRAP      C$ETST

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 60
TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

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6165          .SBTTL TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1
6166          .....
6167          IEX - TEST 18
6168          THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 1.
6169          PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 1
6170          AND CHECKS THE SRQ BIT IN ISR2.
6171          PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 1.
6172          IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
6173          OUT WITH DIFFERENT DATA.
6174          .....
6175          BGNTEST
6176
6177          T18::
6178          TST      PNTF          ;IS THE PNT FLAG SET
6179          BEQ      7$           ;IF YES, PRINT THE TEST HEADER
6180          PRINTF   #TSHD18      ;...
6181          MOV      #TSHD18,-(SP)
6182          MOV      #1,-(SP)
6183          MOV      SP,R0
6184          TRAP     C$PNTF
6185          ADD      #4,SP
6186          ;DATA STORE FOR SERIAL POLL SEQUENCE
6187          TRAP     C$BSEG
6188          JSR      PC,CULPA
6189          JSR      PC,BGIN2
6190          BIT      #1,DPA1
6191          BEQ      3$
6192          BIS      #1,CDAT15
6193          BR       +10
6194          BIC      #1,CDAT15
6195          BIC      #10,@CSRX
6196          MOVB     #100,@ICRLX
6197          BIS      #10,@CSRX
6198          MOV      #2,CHAN
6199          MOV      @IIRX,BAD
6200          CMP      #1020,BAD
6201          BEQ      10$
6202          MOV      #1020,GOOD
6203          ERRSOF T 1801,E501,ERR501
6204          ;ERROR HANDLER
6205          TRAP     C$ERSOF T
6206          .WORD    1801
6207          .WORD    E501
6208          .WORD    ERR501
6209          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6210          TRAP     C$CLP1
6211          ;GET ISR2 CONTENTS
6212          ;IS SRQ BIT SET ALSO ATN,NDAC,ATN(ULPA)
6213          ;BRANCH IF YES
6214          ;SET UP DATA FOR ERROR MESSAGE
6215          ;ERROR HANDLER
6216          TRAP     C$ERSOF T
6217          .WORD    1802
6218          .WORD    E502
6219          .WORD    ERR501
6220          ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

```

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TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

```

6206 051140 104406                                TRAP    C$CLP1
6207 051142 042777 000010 131130 13$:  BIC      #10,@CSRX      ;SELECT CHANNEL 1
6208 051150 112777 000000 131110      MOV      #0,@ICRLX      ;-----CLEAR SPR 1 REGISTER-----
6209 051156 052777 000010 131114      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6210 051164 017737 131066 002502      MOV      @ISRX,BAD      ;GET ISR2 CONTENTS
6211 051172 032737 002000 002502      BIT      #2000,BAD      ;SRQ BIT SHOULD BE CLEARED
6212 051200 001410      BEQ      20$      ;BRANCH IF YES
6213 051202 012737 120040 002500      MOV      #120040,GOOD    ;SET UP DATA FOR COMPARE
6213 051210      ERRSOFT 1803,E502,ERR501 ;ERROR HANDLER

        051210 104457                                TRAP    C$ERSOFT
        051212 003413                                .WORD    1803
        051214 005447                                .WORD    E502
        051216 003702                                .WORD    ERR501
6214 051220      CKLOOP                                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6215 051222 20$:  ENDSEG                                TRAP    C$CLP1
        051222 104406                                10000$:
        051222 104405                                TRAP    C$ESEG

6216      ;+++-----
6217      ;PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 1
6218      ;+++-----
6219 051224      BGNSEG                                TRAP    C$BSEG
        051224 104404                                ;SELECT CHANNEL 1
6220 051226 042777 000010 131044      BIC      #10,@CSRX      ;-----LOAD DATA INTO SPR 1-----
6221 051234 113777 002402 131024      MOV      RSAVE,@ICRLX    ;SELECT CHANNEL 2
6222 051242 052777 000010 131030      BIS      #10,@CSRX      ;-----LOAD UNL INTO DOR 2-----
6223 051250 112777 000077 131020      MOV      #77,@IDRHX      ;WAIT A LITTLE
6224 051256 004737 011060      JSR      PC,LOOP      ;-----LOAD LON INTO ACR 2-----
6225 051262 112777 000211 131000      MOV      #211,@ICRHX      ;-----LOAD SPE INTO DOR 2-----
6226 051270 112777 000030 131000      MOV      #30,@IDRHX      ;WAIT A LITTLE
6227 051276 004737 011060      JSR      PC,LOOP      ;CREATE MTA1
6228 051302 013701 002312      MOV      DPA1,R1      ;
6229 051306 062701 000100      ADD      #100,R1      ;
6230 051312 010137 002414      MOV      R1,MTA1      ;STORE MTA1
6231 051316 113777 002414 130752      MOV      MTA1,@IDRHX      ;-----LOAD MTA1 INTO DOR 2-----
6232 051324 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
6233 051330 112777 000013 130732      MOV      #13,@ICRHX      ;-----LOAD GTS INTO ACR 2-----
6234 051336 042777 000010 130734      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6235 051344 012737 000001 002374      MOV      #1,CHAN      ;LOAD CHANNEL NUMBER
6236 051352 017737 130672 002502      MOV      @IIRX,BAD      ;GET IIR1 CONTENTS
6237 051360 022737 000405 002502      CMP      #405,BAD      ;IFC,SPAS,MAC SHOULD BE SET
6238 051366 001410      BEQ      30$      ;BRANCH IF YES
6239 051370 012737 000405 002500      MOV      #405,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6240 051376      ERRSOFT 1804,E501,ERR501 ;ERROR HANDLER

        051376 104457                                TRAP    C$ERSOFT
        051400 003414                                .WORD    1804
        051402 005406                                .WORD    E501
        051404 003702                                .WORD    ERR501
6241 051406      CKLOOP                                ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6242 051410 017737 130642 002502 30$:  MOV      @ISRX,BAD      ;GET ISR1 CONTENTS
6243 051416 023737 002470 002502      CMP      CDAT15,BAD      ;NDAC,NRFD,TADS,(ULPA) SHOULD BE SET
6244 051424 001410      BEQ      33$      ;BRANCH IF YES
6245 051426 013737 002470 002500      MOV      CDAT15,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6246 051434      ERRSOFT 1805,E502,ERR501 ;ERROR HANDLER

        051434 104457                                TRAP    C$ERSOFT
        051436 003415                                .WORD    1805

```

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TEST 18: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1

```

051440 005447
051442 003702
6247 051444 CKLOOP
051444 104406
6248 051446 052777 000010 130624 33$: BIS #10,@CSRX
6249 051454 012737 000002 002374 MOV #2,CHAN
6250 051462 017737 130562 002502 MOV @IIRX,BAD
6251 051470 022737 001060 002502 CMP #1060,BAD
6252 051476 001410 BEQ 40$
6253 051500 012737 001060 002500 MOV #1060,GOOD
6254 051506 ERRSOFT 1806,E501,ERR501
051506 104457
051510 003416
051512 005406
051514 003702
6255 051516 CKLOOP
051516 104406
6256 051520 112777 000015 130542 40$: MOVB #15,@ICRHX
6257 051526 017737 130540 002502 MOV @IDRX,BAD
6258 051534 105037 002502 CLRB BAD
6259 051540 000337 002502 SWAB BAD
6260 051544 023737 002402 002502 CMP RSAVE,BAD
6261 051552 001410 BEQ 43$
6262 051554 013737 002402 002500 MOV RSAVE,GOOD
6263 051562 ERRSOFT 1807,E801,ERR501
051562 104457
051564 003417
051566 005510
051570 003702
6264 051572 CKLOOP
051572 104406
6265 051574 017737 130450 002502 43$: MOV @IIRX,BAD
6266 051602 022737 000020 002502 CMP #20,BAD
6267 051610 001410 BEQ 50$
6268 051612 012737 000020 002500 MOV #20,GOOD
6269 051620 ERRSOFT 1808,E501,ERR501
051620 104457
051622 003420
051624 005406
051626 003702
6270 051630 CKLOOP
051630 104406
6271 051632 112777 000011 130430 50$: MOVB #11,@ICRHX
6272 051640 112777 000031 130430 MOVB #31,@IDRX
6273 051646 004737 011060 JSR PC,LOOP
6274 051652 112777 000137 130416 MOVB #137,@IDRX
6275 051660 004737 011060 JSR PC,LOOP
6276 051664 042777 000010 130406 BIC #10,@CSRX
6277 051672 112777 000000 130366 MOVB #0,@ICRLX
6278 051700 ENDSEG
051700
051700 104405
6279 051702 005737 002234 TST QVP
6280 051706 001010 BNE EXQV18
6281 051710 005237 002402 INC RSAVE
6282 051714 022737 000176 002402 CMP #176,RSAVE
6283 051722 001402 BEQ EXQV18

```

```

WORD E502
WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:GET IIR2 CONTENTS
:SRQ,BI,BO BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
TRAP C$ERSOFT
WORD 1806
WORD E501
WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

:----LOAD TCS INTO ACR 2-----
:READ DATA FROM DIR2 REGISTER
:CLEAR LOW BYTE OF BAD CONTENTS
:SWAB BAD
:COMPARE TRANSMITTED WITH RECEIVED DATA
:BRANCH IF EQUAL
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
TRAP C$ERSOFT
WORD 1807
WORD E801
WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

:GET IIR2 CONTENTS
:BO BIT SHOULD BE SET
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
TRAP C$ERSOFT
WORD 1808
WORD E501
WORD ERR501
:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
TRAP C$CLP1

:----LOAD NOT LON INTO ACR 2-----
:----LOAD SPD INTO DOR 2-----
:WAIT A LITTLE
:----LOAD UNT INTO DOR 2-----
:WAIT A LITTLE
:SELECT CHANNEL 1
:----CLEAR SPR 1 REGISTER-----

10001$:
TRAP C$ESEG
:IS QUICK VERIFY PASS SELECTED
:IF YES EXIT TEST
:CREATE NEW DATA PATTERN
:ALL DATA PATTERN DONE
:IF YES EXIT TEST

```


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Address	Instruction	Comments
6284	051724 000137 C50756	JMP ITAC18 ;IF NO TEST ITERATION
6285	051730 EXQV18: EXIT TST	;EXIT TEST
	051730 104432	
	051732 000076	TRAP C\$EXIT
6286		.WORD L10047-
6287		
6288	051734 045 123 062 TSHD18: .NLIST BEX	/X\$2%ASERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 1XN/
6289		.ASCIZ BEX
6290		.LIST
6291	052030	.EVEN
	052030	ENDTST
	052030 104401	L10047: TRAP C\$ETST

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TEST 19: SERVICE REQUEST INTERFACE FUNTION TEST OF CHANNEL 2

```

6293 .SBTTL TEST 19: SERVICE REQUEST INTERFACE FUNTION TEST OF CHANNEL 2
6294 .....
6295 IEX - TEST 19
6296 THIS TEST CHECKS THE SERIAL POLL REGISTER OF CHANNEL 2.
6297 PART 1 SETS AND CLEARS THE RSV BIT IN SPR REGISTER OF CHANNEL 2 AND
6298 CHECKS THE SRQ BIT IN ISR1.
6299
6300 PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 2.
6301
6302 IF QUICK VERIFY PASS IS NOT SELECTED, THE SERIAL POLL SEQUENCE IS CARRIED
6303 OUT WITH DIFFERENT DATA.
6304 .....
6305 BGNSTST
6306 052032 005737 002324 TST PNTF T19::
6307 052036 001410 BEQ 7$ ;IS THE PNT FLAG SET
6308 052040 PRINTF #TSHD19 ;IF YES, PRINT THE TEST HEADER
6309 052040 012746 053044 ;...
6310 052044 012746 000001 MOV #TSHD19,-(SP)
6311 052050 010600 MOV #1,-(SP)
6312 052052 104417 MOV SP,RO
6313 052054 062706 000004 TRAP C$PNTF
6314 052060 012737 000101 002402 7$: MOV #101,RSAVE ;DATA STORE FOR SERIAL POLL SEQUENCE
6315 052066 104404 ITAC19: BGNSEG TRAP C$BSEG
6316 052070 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6317 052074 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
6318 052100 032737 000001 002314 BIT #1,DPA2 ;IS DPA EVEN
6319 052106 001404 BEQ 3$ ;BRANCH IF YES
6320 052110 052737 000001 002470 BIS #1,CDAT15 ;SET ULPA BIT IN COMPARE DATA FOR ISR
6321 052116 000403 BR .+10
6322 052120 042737 000001 002470 3$: BIC #1,CDAT15 ;CLEAR ULPA BIT IN COMPARE DATA FOR ISR
6323 052126 052777 000010 130144 BIS #10,@CSRX ;SELECT CHANNEL 2
6324 052134 112777 000100 130124 MOVB #100,@ICRLX ;-----SET RSV BIT IN SPR 2-----
6325 052142 042777 000010 130130 BIC #10,@CSRX ;SELECT CHANNEL 1
6326 052150 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
6327 052156 017737 130066 002502 MOV @IIRX,BAD ;GET IIR1 CONTENTS
6328 052164 022737 001020 002502 CMP #1020,BAD ;SRQ,BQ BIT SHOULD BE SET
6329 052172 001410 BEQ 10$ ;BRANCH IF YES
6330 052174 012737 001020 002500 MOV #1020,GOOD ;SET UP DATA FOR ERROR MESSAGE
6331 052202 ERRSOFT 1901,E501,ERR501 ;ERROR HANDLER
6332 052202 104457 TRAP C$ERRSOFT
6333 052204 003555 .WORD 1901
6334 052206 005406 .WORD E501
6335 052210 003702 .WORD ERR501
6336 052212 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6337 052212 104406 TRAP C$CLP1
6338 052214 017737 130036 002502 10$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
6339 052222 032737 002000 002502 BIT #2000,BAD ;IS SRQ BIT SET ALSO ATN,NDAC,ATN(ULPA)
6340 052230 001010 BNE 13$ ;BRANCH IF YES
6341 052232 012737 122040 002500 MOV #122040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6342 052240 ERRSOFT 1902,E502,ERR501 ;ERROR HANDLER
6343 052240 104457 TRAP C$ERRSOFT
6344 052242 003556 .WORD 1902
6345 052244 005447 .WORD E502
6346 052246 003702 .WORD ERR501
6347 052250 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 61-1
TEST 19: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2

```

6334 052250 104406
6335 052252 052777 000010 130020 13$: BIS #10,@CSRX ;SELECT CHANNEL 2 TRAP C$CLP1
6336 052260 112777 000000 130000 MOVB #0,@ICRLX ;-----CLEAR SPR 2 REGISTER-----
6337 052266 042777 000010 130004 BIC #10,@CSRX ;SELECT CHANNEL 1
6338 052274 017737 127756 002502 MOV @ISRX,BAD ;GET ISR1 CONTENTS
6339 052302 032737 002000 002502 BIT #2000,BAD ;SRQ BIT SHOULD BE CLEARED
6340 052310 001410 BEQ 20$ ;BRANCH IF YES
6341 052312 012737 120040 002500 MOV #120040,GOOD ;SET UP DATA FOR COMPARE
6341 052320 ERRSOFT 1903,E502,ERR501 ;ERROR HANDLER
        052320 104457 TRAP C$ERSOFT
        052322 003557 .WORD 1903
        052324 005447 .WORD E502
        052326 003702 .WORD ERR501
6342 052330 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
6343 052332 20$: ENDSEG TRAP C$CLP1
        052332 104405 10000$: TRAP C$ESEG
6344 :+++-----
6345 :PART 2 CHECKS THE SERIAL POLL SEQUENCE OF CHANNEL 2
6346 :+++-----
6347 052334 BGNSEG
        052334 104404 TRAP C$BSEG
6348 052336 052777 000010 127734 BIS #10,@CSRX ;SELECT CHANNEL 2
6349 052344 113777 002402 127714 MOVB RSAVE,@ICRLX ;-----LOAD DATA INTO SPR 2-----
6350 052352 042777 000010 127720 BIC #10,@CSRX ;SELECT CHANNEL 1
6351 052360 112777 000077 127710 MOVB #77,@IDRHX ;-----LOAD UNL INTO DOR 1-----
6352 052366 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6353 052372 112777 000211 127670 MOVB #211,@ICRHX ;-----LOAD LON IN' ACR 1-----
6354 052400 112777 000030 127670 MOVB #30,@IDRHX ;-----LOAD SPE INTO DOR 1-----
6355 052406 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6356 052412 013701 002314 MOV DPA2,R1 ;CREATE MTA2
6357 052416 062701 000100 ADD #100,R1
6358 052422 010137 002416 MOV R1,MTA2 ;STORE MTA2
6359 052426 113777 002416 127642 MOVB MTA2,@IDRHX ;-----LOAD MTA1 INTO DOR 1-----
6360 052434 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6361 052440 112777 000013 127622 MOVB #13,@ICRHX ;-----LOAD GTS INTO ACR 1-----
6362 052446 052777 000010 127624 BIS #10,@CSRX ;SELECT CHANNEL 2
6363 052454 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
6364 052462 017737 127562 002502 MOV @IIRX,BAD ;GET IIR2 CONTENTS
6365 052470 022737 000405 002502 CMP #405,BAD ;IFC,SPAS,MAC SHOULD BE SET
6366 052476 001410 BEQ 30$ ;BRANCH IF YES
6367 052500 012737 000405 002500 MOV #405,GOOD ;SET UP DATA FOR ERROR MESSAGE
6368 052506 ERRSOFT 1904,E501,ERR501 ;ERROR HANDLER
        052506 104457 TRAP C$ERSOFT
        052510 003560 .WORD 1904
        052512 005406 .WORD E501
        052514 003702 .WORD ERR501
6369 052516 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        052516 104406 TRAP C$CLP1
6370 052520 017737 127532 002502 30$: MOV @ISRX,BAD ;GET ISR2 CONTENTS
6371 052526 023737 002470 002502 CMP CDAT15,BAD ;NDAC,NRFD,TADS,(ULPA) SHOULD BE SET
6372 052534 001410 BEQ 33$ ;BRANCH IF YES
6373 052536 013737 002470 002500 MOV CDAT15,GOOD ;SET UP DATA FOR ERROR MESSAGE
6374 052544 ERRSOFT 1905,E502,ERR501 ;ERROR HANDLER
        052544 104457 TRAP C$ERSOFT
        052546 003561 .WORD 1905

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 61-2
TEST 19: SERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2

```

052550 005447
052552 003702
6375 052554          CKLOOP
052554 104406
6376 052556 042777 000010 127514 33$: BIC      #10,@CSRX
6377 052564 012737 000001 002374      MOV      #1,CHAN
6378 052572 017737 127452 002502      MOV      @IIRX,BAD
6379 052600 022737 001060 002502      CMP      #1060,BAD
6380 052606 001410      BEQ      40$
6381 052610 012737 001060 002500      MOV      #1060,GOOD
6382 052616      ERRSOFT 1906,E501,ERR501
052616 104457
052620 003562
052622 005406
052624 003702
6383 052626          CKLOOP
052626 104406
6384 052630 112777 000015 127432 40$: MOV      #15,@ICRHX
6385 052636 017737 127430 002502      MOV      @IDRX,BAD
6386 052644 105037 002502      CLRB     BAD
6387 052650 000337 002502      SWAB     BAD
6388 052654 023737 002402 002502      CMP      RSAVE,BAD
6389 052662 001410      BEQ      43$
6390 052664 013737 002402 002500      MOV      RSAVE,GOOD
6391 052672      ERRSOFT 1907,E802,ERR501
052672 104457
052674 003563
052676 005566
052700 003702
6392 052702          CKLOOP
052702 104406
6393 052704 017737 127340 002502 43$: MOV      @IIRX,BAD
6394 052712 022737 000020 002502      CMP      #20,BAD
6395 052720 001410      BEQ      50$
6396 052722 012737 000020 002500      MOV      #20,GOOD
6397 052730      ERRSOFT 1908,E501,ERR501
052730 104457
052732 003564
052734 005406
052736 003702
6398 052740          CKLOOP
052740 104406
6399 052742 112777 000011 127320 50$: MOV      #11,@ICRHX
6400 052750 112777 000031 127320      MOV      #31,@IDRX
6401 052756 004737 011060      JSR      PC,LOOP
6402 052762 112777 000137 127306      MOV      #137,@IDRX
6403 052770 004737 011060      JSR      PC,LOOP
6404 052774 052777 000010 127276      BIS      #10,@CSRX
6405 053002 112777 000000 127256      MOV      #0,@ICRLX
6406 053010      ENDSEG
053010 104405
053010 005737 002234      TST      QVP
6407 053012 001010      BNE      EXQV19
6408 053016 005237 002402      INC      RSAVE
6409 053020 022737 000176 002402      CMP      #176,RSAVE
6410 053024 001402      BEQ      EXQV19
6411 053032

```

```

        .WORD  E502
        .WORD  ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP   C$CLP1

;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET IIR1 CONTENTS
;SRQ,BI,BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
        TRAP   C$ERSOFT
        .WORD  1906
        .WORD  E501
        .WORD  ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP   C$CLP1

;----LOAD TCS INTO ACR 1-----
;READ DATA FROM DIR1 REGISTER
;CLEAR LOW BYTE OF BAD CONTENTS
;SWAB BAD
;COMPARE TRANSMITTED WITH RECEIVED DATA
;BRANCH IF EQUAL
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
        TRAP   C$ERSOFT
        .WORD  1907
        .WORD  E802
        .WORD  ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP   C$CLP1

;GET IIR1 CONTENTS
;BO BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
        TRAP   C$ERSOFT
        .WORD  1908
        .WORD  E501
        .WORD  ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP   C$CLP1

;----LOAD NOT LON INTO ACR 1-----
;----LOAD SPD INTO DOR 1-----
;WAIT A LITTLE
;----LOAD UNT INTO DOR 1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;----CLEAR SPR 2 REGISTER-----

10001$:
        TRAP   C$ESEG
;IS QUICK VERIFY PASS SELECTED
;IF YES EXIT TEST
;CREATE NEW DATA PATTERN
;ALL DATA PATTERN DONE
;IF YES EXIT TEST

```

```

6414
6415
6416 053044      045      123      062  TSHD19: .NLIST  BEX
6417                                     .ASCII /%S2%ASERVICE REQUEST INTERFACE FUNCTION TEST OF CHANNEL 2%N/
6418                                     .LIST  BEX
6419                                     .EVEN
6419 053140
        053140
        053140 104401

```

HARDWARE TESTS MACRO M1113 06-SFO-82 16:46 PAGE 62
TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

```

6421 .SBTTL TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1
6422 :*****
6423 :IEX - TEST 20
6424 :PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
6425 :
6426 :PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).
6427 :*****
6428 053142 BGNTST
6429 053142 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6430 053146 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6431 053150 PRINTF #TSHD20 ;...
        MOV #TSHD20,-(SP)
        MOV #1,-(SP)
        MOV SP,R0
        TRAP C$PNTF
        ADD #4,SP
6432 053170 012746 054116 000001 002420 7$: MOV #1,MSA1 ;LOAD DATA FOR PPR
6433 053176 012737 000140 002402 MOV #140,RSVAE ;LOAD FIRST PPE
6434 053204 004737 010220 ITAC20: JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6435 053210 004737 010710 JSR PC,BGIN2 ;SET UP PARAMETER
6436 053214 042777 000010 127056 BIC #10,@CSRX ;SELECT CHANNEL 1
6437 053222 112777 000223 127040 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 1-----
6438 053230 112777 000040 127024 MOVB #40,@ISRHX ;----SET UCG BIT IN ISR 1-----
6439 053236 BGNSEG
        TRAP C$BSEG
6440 053240 042777 000010 127032 BIC #10,@CSRX ;SELECT CHANNEL 1
6441 053246 112777 000020 127020 MOVB #20,@IDRLX ;----LOAD PP5 INTO PPR 1-----
6442 053254 052777 000010 127016 BIS #10,@CSRX ;SELECT CHANNEL 2
6443 053262 012737 000002 002374 MOV #2,CHAN ;LOAD CHANNEL NUMBER
6444 053270 112777 000216 126772 MOVB #216,@ICRHX ;----LOAD RPP INTO ACR 2-----
6445 053276 017737 126762 002502 MOV @ICRX,BAD ;GET ICR2 CONTENTS
6446 053304 122737 000020 002502 CMPB #20,BAD ;ICR CONTENTS SHOULD BE 20
6447 053312 001410 BEQ 10$ ;BRANCH IF YES
6448 053314 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
6449 053322 ERRSOFT 2001,E901,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 2001
        .WORD E901
        .WORD ERR501
6450 053332 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6451 053334 017737 126716 002502 10$: MOV @ISRHX,BAD ;GET ISR2 CONTENTS
6452 053342 022737 104040 002502 CMP #104040,BAD ;ATN,E01,ATN SHOULD BE SET
6453 053350 001410 BEQ 20$ ;BRANCH IF YES
6454 053352 012737 104040 002500 MOV #104040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6455 053360 ERRSOFT 2002,E502,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 2002
        .WORD E502
        .WORD ERR501
6456 053370 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6457 053372 112777 000016 126670 20$: MOVB #16,@ICRHX ;----LOAD NOT RPP INTO ACR 2-----
6458 053400
        10000$:
        TRAP C$ESEG
        104405

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 62-1
TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

```

6459
6460
6461
6462 053402
053402 104404
6463 053404 052777 000010 126666
6464 053412 112777 000025 126656
6465 053420 004737 011060
6466 053424 042777 000010 126646
6467 053432 012737 000001 002374
6468 053440 017737 126620 002502
6469 053446 122737 000025 002502
6470 053454 001410
6471 053456 012737 000025 002500
6472 053464
053464 104457
053466 003723
053470 005644
053472 003702
6473 053474
053474 104406
6474 053476 112777 000000 126570 23$:
6475 053504 112777 000001 126556
6476 053512 013701 002312
6477 053516 062701 000040
6478 053522 010137 002410
6479 053526 052777 000010 126544
6480 053534 113777 002410 126534
6481 053542 004737 011060
6482 053546
053546 104405
6483 053550
053550 104404
6484 053552 052777 000010 126520
6485 053560 112777 000005 126510
6486 053566 004737 011060
6487 053572 042777 000010 126500
6488 053600 017737 126460 002502
6489 053606 122737 000005 002502
6490 053614 001410
6491 053616 012737 000005 002500
6492 053624
053624 104457
053626 003724
053630 005644
053632 003702
6493 053634
053634 104406
6494 053636 112777 000024 126424 30$:
6495 053644 112777 000001 126416
6496 053652
053652 104405
6497 053654
053654 104404
6498 053656 052777 000010 126414

```

 :PART 2 CHECKS THE PARALLEL POLL SEQUENCE (REMOTE CONFIGURED)

 BGNSEG
 TRAP C\$BSEG
 :SELECT CHANNEL 2
 :----LOAD PPU INTO DOR 2-----
 :WAIT A LITTLE
 :SELECT CHANNEL 1
 :LOAD CHANNEL NUMBER
 :GET ICR1 CONTENTS
 :ICR CONTENTS SHOULD BE 25
 :BRANCH IF YES
 :SET UP DATA FOR ERROR MESSAGE
 :ERROR HANDLER
 TRAP C\$ERSOFT
 .WORD 2003
 .WORD E901
 .WORD ERR501
 :BRANCH TO BGNSEG IF ERRLOOP IS SET
 TRAP C\$CLP1
 :----CLEAR PPR REGISTER-----
 :----LOAD NOT DACR INTO ACR 1-----
 :CREATE MLA1
 :STORE MLA1
 :SELECT CHANNEL 2
 :----LOAD MLA1 INTO DOR 2-----
 :WAIT A LITTLE
 10001\$:
 TRAP C\$ESEG
 TRAP C\$BSEG
 :SELECT CHANNEL 2
 :----LOAD PPC INTO DOR 2-----
 :WAIT A LITTLE
 :SELECT CHANNEL 1
 :GET ICR1 CONTENTS
 :ICR CONTENTS SHOULD BE 5
 :BRANCH IF YES
 :SET UP DATA FOR ERROR MESSAGE
 :ERROR HANDLER
 TRAP C\$ERSOFT
 .WORD 2004
 .WORD E901
 .WORD ERR501
 :BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
 TRAP C\$CLP1
 :----LOAD PTS INTO ACR 1-----
 :----LOAD NOT DACR INTO ACR 1-----
 10002\$:
 TRAP C\$ESEG
 TRAP C\$BSEG
 :SELECT CHANNEL 2

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TEST 20: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1

```

6499 053664 113777 002402 126404      MOVB    RSAVE,@IDRHX
6500 053672 004737 011060              JSR      PC,LOOP
6501 053676 042777 000010 126374      BIC      #10,@CSRX
6502 053704 012737 000001 002374      MOV      #1,CHAN
6503 053712 017737 126346 002502      MOV      @ICRX,BAD
6504 053720 123737 002402 002502      CMPB     RSAVE,BAD
6505 053726 001410              BEQ      40$
6506 053730 013737 002402 002500      MOV      RSAVE,GOOD
6507 053736              ERRSOFT 2005,E901,ERR501

```

```

;----LOAD PPE INTO DOR 2-----
;WAIT A LITTLE
;SELECT CHANNEL 1
;LOAD CHANNEL NUMBER
;GET ICR1 CONTENTS
;ICR CONTENTS SHOULD BE PPE
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

```

TRAP    C$ERSOFT
.WORD   2005
.WORD   E901
.WORD   ERR501

```

```

6508 053746              CKLOOP
6509 053750 113777 002420 126316 40$:  MOVB     MSA1,@IDRLX
6510 053756 112777 000001 126304      MOVB     #1,@ICRHX
6511 053764 052777 000010 126306      BIS      #10,@CSRX
6512 053772 112777 000077 126276      MOVB     #77,@IDRHX
6513 054000 004737 011060              JSR      PC,LOOP
6514 054004 112777 000216 126256      MOVB     #216,@ICRHX
6515 054012 017737 126246 002502      MOV      @ICRX,BAD
6516 054020 123737 002420 002502      CMPB     MSA1,BAD
6517 054026 001410              BEQ      50$
6518 054030 013737 002420 002500      MOV      MSA1,GOOD
6519 054036              ERRSOFT 2006,E901,ERR501

```

```

;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
;----LOAD DATA INTO PPR 1-----
;----LOAD NOT DACR INTO ACR 1-----
;SELECT CHANNEL 2
;----LOAD UNL INTO DOR 2-----
;WAIT A LITTLE
;----LOAD RPP INTO ACR 2-----
;GET ICR2 CONTENTS
;COMPARE DATA
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER

```

```

TRAP    C$ERSOFT
.WORD   2006
.WORD   E901
.WORD   ERR501

```

```

6520 054046              CKLOOP
6521 054050 112777 000016 126212 50$:  MOVB     #16,@ICRHX
6522 054056              ENDSEG
6523 054060 005737 002234              TST      QVP
6524 054064 001012              BNE      EXQV20
6525 054066 005237 002402              INC      RSAVE
6526 054072 106137 002420              ROLB     MSA1
6527 054076 022737 000157 002402      CMP      #157,RSAVE
6528 054104 001402              BEQ      EXQV20
6529 054106 000137 053204              JMP      ITAC20
6530 054112              EXQV20: EXIT    TST

```

```

;BRANCH TO BGNSEG IF ERRLOOP IS SET
;----LOAD NOT RPP INTO ACR 2-----
10003$:
;IS QUICK VERIFY PASS SELECTED
;IF YES EXIT TEST
;CREATE NEW PPE
;CHANGE DATA
;ALL PPE DONE
;EXIT TEST IF YES
;IF NO TEST ITERATION
;EXIT TEST

```

```

TRAP    C$EXIT
.WORD   L10051-.

```

```

6531
6532
6533 054116      045      123      062  TSHD20: .NLIST  BEX
6534              .ASCIZ  /%S2%APARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 1%/
6535              .LIST    BEX
6536              .EVEN
6536 054210              .ENDTST
6536 054210
6536 054210 104401

```

```

L10051:  TRAP    C$EXIT

```


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TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

```

6538 .SBTTL TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2
6539 :*****
6540 :IEX - TEST 21
6541 :PART 1 CHECKS PARALLEL POLL SEQUENCE (LOCAL CONFIGURED).
6542 :
6543 :PART 2 CHECKS PARALLEL POLL SEQUENCE (REMOTE CONFIGURED).
6544 :*****
6545 054212 BGNST
        T21::
6546 054212 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6547 054216 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6548 054220 PRINTF #TSHD21 ;...
        MOV #TSHD21,-(SP)
        MOV #1,-(SP)
        MOV SP,R0
        TRAP C$PNTF
        ADD #4,SP
6549 054240 012746 055166 000004 002420 7$: MOV #1,MSA1 ;LOAD DATA FOR PPR
6550 054246 012737 000001 002402 MOV #140,RSAVE ;LOAD FIRST PPE
6551 054254 004737 010220 ITAC21: JSR PC,C'ILPA ;CLEAR ULPA BIT ISR 1 AND 2
6552 054260 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
6553 054264 052777 000010 126006 BIS #10,@CSRX ;SELECT CHANNEL 2
6554 054272 112777 000223 125770 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
6555 054300 112777 000040 125754 MOVB #40,@ISRHX ;----SET UCG BIT IN ISR 2-----
6556 054306 BGNSEG
        TRAP C$BSEG
6557 054310 052777 000010 125762 BIS #10,@CSRX ;SELECT CHANNEL 2
6558 054316 112777 000020 125750 MOVB #20,@IDRLX ;----LOAD PPS INTO PPR 2-----
6559 054324 042777 000010 125746 BIC #10,@CSRX ;SELECT CHANNEL 1
6560 054332 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
6561 054340 112777 000216 125722 MOVB #216,@ICRHX ;----LOAD RPP INTO ACR 1-----
6562 054346 017737 125712 002502 MOV @ICRX,BAD ;GET ICR1 CONTENTS
6563 054354 122737 000020 002502 CMPB #20,BAD ;ICR CONTENTS SHOULD BE 20
6564 054362 001410 BEQ 10$ ;BRANCH IF YES
6565 054364 012737 000020 002500 MOV #20,GOOD ;SET UP DATA FOR ERROR MESSAGE
6566 054372 ERRSOFT 2101,E901,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 2101
        .WORD E901
        .WORD ERR501
6567 054402 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6568 054404 017737 125646 002502 10$: MOV @ISRX,BAD ;GET ISR1 CONTENTS
6569 054412 022737 104040 002502 CMP #104040,BAD ;ATN,EOI,ATN SHOULD BE SET
6570 054420 001410 BEQ 20$ ;BRANCH IF YES
6571 054422 012737 104040 002500 MOV #104040,GOOD ;SET UP DATA FOR ERROR MESSAGE
6572 054430 ERRSOFT 2102,E502,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 2102
        .WORD E502
        .WORD ERR501
6573 054440 CKLOOP ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6574 054442 112777 000016 125620 20$: MOVB #16,@ICRHX ;----LOAD NOT RPP INTO ACR 1-----
6575 054450 ENDSEG
        10000$:
        TRAP C$ESEG
054450 104405

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 63-1
TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

```

6576      ;++++-----
6577      ;PART 2 CHECKS THE PARALLEL POLL SEQUENCE (REMOTE CONFIGURED)
6578      ;++++-----
6579      BGNSEG
6580      054452 104404      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6581      054454 042777 000010 125616      MOV      #25,@IDRHX      ;----LOAD PPU INTO DOR 1-----
6582      054462 112777 000025 125606      JSR      PC,LOOP      ;WAIT A LITTLE
6583      054470 004737 011060      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6584      054502 012737 000002 002374      MOV      #2,CHAN      ;LOAD CHANNEL NUMBER
6585      054510 017737 125550 002502      MOV      @ICRX,BAD      ;GET ICR2 CONTENTS
6586      054516 122737 000025 002502      CMPB     #25,BAD      ;ICR CONTENTS SHOULD BE 25
6587      054524 001410      BEQ      23$      ;BRANCH IF YES
6588      054526 012737 000025 002500      MOV      #25,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6589      054534      ERRSOFT 2103,E901,ERR501 ;ERROR HANDLER
6590      054534 104457      TRAP      C$ERSOFT
6591      054536 004067      .WORD     2103
6592      054540 005644      .WORD     E901
6593      054542 003702      .WORD     ERR501
6594      054544      CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
6595      054546 112777 000000 125520 23$: MOV      #0,@IDRLX      ;----CLEAR PPR REGISTER-----
6596      054554 112777 000001 125506      MOV      #1,@ICRHX      ;----LOAD NOT DACR INTO ACR 2-----
6597      054562 013701 002314      MOV      DPA2,R1      ;CREATE MLA2
6598      054566 062701 000040      ADD      #40,R1
6599      054572 010137 002412      MOV      R1,MLA2      ;STORE MLA2
6600      054576 042777 000010 125474      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6601      054604 113777 002412 125464      MOV      MLA2,@IDRHX      ;----LOAD MLA2 INTO DOR 1-----
6602      054612 004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
6603      054616      ENDSEG
6604      054616 104405      10001$: TRAP      C$ESEG
6605      054620      BGNSEG      TRAP      C$BSEG
6606      054622 104404      ;SELECT CHANNEL 1
6607      054624 042777 000010 125450      MOV      #5,@IDRHX      ;----LOAD PPC INTO DOR 1-----
6608      054630 112777 000005 125440      JSR      PC,LOOP      ;WAIT A LITTLE
6609      054636 004737 011060      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6610      054642 052777 000010 125430      MOV      @ICRX,BAD      ;GET ICR2 CONTENTS
6611      054650 017737 125410 002502      CMPB     #5,BAD      ;ICR CONTENTS SHOULD BE 5
6612      054656 122737 000005 002502      BEQ      30$      ;BRANCH IF YES
6613      054664 001410      MOV      #5,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6614      054666 012737 000005 002500      ERRSOFT 2104,E901,ERR501 ;ERROR HANDLER
6615      054674      TRAP      C$ERSOFT
6616      054676 104457      .WORD     2104
6617      054700 004070      .WORD     E901
6618      054702 005644      .WORD     ERR501
6619      054704      CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
6620      054706 104406      TRAP      C$CLP1
6621      054708 112777 000024 125354 30$: MOV      #24,@ICRHX      ;----LOAD PTS INTO ACR 2-----
6622      054714 112777 000001 125346      MOV      #1,@ICRHX      ;----LOAD NOT DACR INTO ACR 2-----
6623      054722      ENDSEG
6624      054722 104405      10002$: TRAP      C$ESEG
6625      054724      BGNSEG      TRAP      C$BSEG
6626      054726 104404      ;SELECT CHANNEL 1
6627      054728 042777 000010 125344      BIC      #10,@CSRX

```

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TEST 21: PARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2

```

6616 054734 113777 002402 125334      MOVB    RSAVE,@IDRHX      ;----LOAD PPE INTO DOR 1-----
6617 054742 004737 011060              JSR      PC_LOOP        ;WAIT A LITTLE
6618 054746 052777 000010 125324      BIS      #10,@CSRX      ;SELECT CHANNEL 2
6619 054754 012737 000002 002374      MOV      #2,CHAN        ;LOAD CHANNEL NUMBER
6620 054762 017737 125276 002502      MOV      @ICRX,BAD      ;GET ICR2 CONTENTS
6621 054770 123737 002402 002502      CMPB     RSAVE,BAD      ;ICR CONTENTS SHOULD BE PPE
6622 054776 001410              BEQ      40$              ;BRANCH IF YES
6623 055000 013737 002402 002500      MOV      RSAVE,GOOD    ;SET UP DATA FOR ERROR MESSAGE
6624 055006              ERRSOFT 2105,E901,ERR501 ;ERROR HANDLER
        055006 104457              TRAP      C$ERSOFT
        055010 004071              .WORD    2105
        055012 005644              .WORD    E901
        055014 003702              .WORD    ERR501
6625 055016              CKLOOP        ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        055016 104406              TRAP      C$CLP1
6626 055020 113777 002420 125246 40$:  MOVB     MSA1,@IDRLX      ;----LOAD DATA INTO PPR 2-----
6627 055026 112777 000001 125234      MOVB     #1,@ICRX       ;----LOAD NOT DACR INTO ACR 2-----
6628 055034 042777 000010 125236      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6629 055042 112777 000077 125226      MOVB     #77,@IDRHX     ;----LOAD UNL INTO DOR 1-----
6630 055050 004737 011060              JSR      PC_LOOP        ;WAIT A LITTLE
6631 055054 112777 000216 125206      MOVB     #216,@ICRX     ;----LOAD RPP INTO ACR 1-----
6632 055062 017737 125176 002502      MOV      @ICRX,BAD      ;GET ICR1 CONTENTS
6633 055070 123737 002420 002502      CMPB     MSA1,BAD      ;COMPARE DATA
6634 055076 001410              BEQ      50$              ;BRANCH IF YES
6635 055100 013737 002420 002500      MOV      MSA1,GOOD     ;SET UP DATA FOR ERROR MESSAGE
6636 055106              ERRSOFT 2106,E901,ERR501 ;ERROR HANDLER
        055106 104457              TRAP      C$ERSOFT
        055110 004072              .WORD    2106
        055112 005644              .WORD    E901
        055114 003702              .WORD    ERR501
6637 055116              CKLOOP        ;BRANCH TO BGNSEG IF ERRLOOP IS SET
        055116 104406              TRAP      C$CLP1
6638 055120 112777 000016 125142 50$:  MOVB     #16,@ICRX       ;----LOAD NOT RPP INTO ACR 1-----
6639 055126              ENDSEG
        055126 104405              10003$: TRAP      C$ESEG
        055130 005737 002234              ;IS QUICK VERIFY PASS SELECTED
6640 055134 001012              ;IF YES EXIT TEST
6641 055136 005237 002402              ;CREATE NEW PPE
6642 055142 106137 002420              ;CHANGE DATA
6643 055146 022737 000157 002402      CMP      #157,RSAVE     ;ALL PPE DONE
6644 055154 001402              BEQ      EXQV21         ;EXIT TEST IF YES
6645 055156 000137 054254              JMP      ITAC21         ;IF NO TEST ITERATION
6646 055162              EXQV21: EXIT  TST
6647 055162 104432              ;EXIT TEST
        055164 000074              TRAP      C$EXIT
        055164              .WORD    L10052-.
6648
6649
6650 055166 045 123 062 TSHD21: .NLIST BEX
6651 .ASCIZ /%S2%APARALLEL POLL INTERFACE FUNCTION TEST OF CHANNEL 2%/
6652 .LIST BEX
6653 055260 .EVEN
        055260 .ENDTST
        055260 104401              L10052: TRAP      C$ETST

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64
TEST 22: END OF A MESSAGE BLOCK TEST

```

6655 .SBTTL TEST 22: END OF A MESSAGE BLOCK TEST
6656 .....
6657 IEX - TEST 22
6658 PART 1 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 1. CHANNEL 2 SENDS THE
6659 EOI MESSAGE VIA THE IEC/IEEE BUS.
6660 PART 2 CHECKS THE END OF A MESSAGE BLOCK FROM CHANNEL 2. CHANNEL 1 SENDS THE
6661 EOI MESSAGE VIA THE IEC/IEEE BUS.
6662 .....
6663 BGNIST
        122::
6664 055262 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6665 055266 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6666 055270 PRINTF #TSHD22 ;....
        MOV #TSHD22,-(SP)
        MOV #1,-(SP)
        MOV SP,R0
        TRAP C$PNTF
        ADD #4,SP
6667 055310 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
6668 055314 004737 010220 JSR PC,CULPA ;CLEAR ULPA BIT IN ISR 1 AND 2
6669 055320 004737 010534 ITAC22: JSR PC,BGIN1 ;SET UP PARAMETER
6670 055324 BGNSEG
        TRAP C$BSEG
6671 055326 112777 000223 124734 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 1-----
6672 055334 052777 000010 124736 BIS #10,@CSRX ;SELECT CHANNEL 2
6673 055342 112777 000223 124720 MOVB #223,@ICRHX ;----LOAD DAI INTO ACR 2-----
6674 055350 042777 000010 124722 BIC #10,@CSRX ;SELECT CHANNEL 1
6675 055356 112777 000203 124704 MOVB #203,@ICRHX ;----LOAD HDFA INTO ACR 1-----
6676 055364 112777 000211 124676 MOVB #211,@ICRHX ;----LOAD LON INTO ACR 1-----
6677 055372 013701 002314 MOV DPA2,R1 ;CREATE MTA2
6678 055376 062701 000100 ADD #100,R1
6679 055402 010137 002416 MOV R1,MTA2 ;STORE MTA2
6680 055406 113777 002416 124662 MOVB MTA2,@IDRHX ;----LOAD MTA2 INTO DOR 1-----
6681 055414 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
6682 055420 112777 000013 124642 MOVB #13,@ICRHX ;----LOAD GTS INTO ACR 1-----
6683 055426 ENDSEG
        10000$:
        TRAP C$ESEG
6684 055430 BGNSEG
        TRAP C$BSEG
6685 055432 052777 000010 124640 BIS #10,@CSRX ;SELECT CHANNEL 2
6686 055440 112777 000125 124630 MOVB #125,@IDRHX ;----LOAD DATA INTO DOR 2-----
6687 055446 042777 000010 124624 BIC #10,@CSRX ;SELECT CHANNEL 1
6688 055454 012737 000001 002374 MOV #1,CHAN ;LOAD CHANNEL NUMBER
6689 055462 017737 124562 002502 MOV @IIRX,BAD ;GET IIR1 CONTENTS
6690 055470 022737 000060 002502 CMP #60,BAD ;BI,BO BIT SHOULD BE SET
6691 055476 001410 BEQ 10$ ;BRANCH IF YES
6692 055500 012737 000060 002500 MOV #60,GOOD ;SET UP DATA FOR ERROR MESSAGE
6693 055506 ERRSOFT 2201,E501,ERR501 ;ERROR HANDLER
        TRAP C$ERRSOFT
        .WORD 2201
        .WORD E501
        .WORD ERR501
6694 055516 CKLOOP ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
        TRAP C$CLP1
6695 055520 017737 124532 002502 10$: MOV @ISR1,BAD ;GET ISR1 CONTENTS
6696 055526 022737 030004 002502 CMP #30004,BAD ;NDAC,NRFD,LADS SHOULD BE SET

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64-1
TEST 22: END OF A MESSAGE BLOCK TEST

```

6697 055534 001410      BEQ      20$
6698 055536 012737 030004 002500      MOV      #30004,GOOD
6699 055544      ERRSOFT 2202,E502,ERR501
      055544 104457
      055546 004232
      055550 005447
      055552 003702
6700 055554      CKLOOP
      055554 104406
6701 055556 017737 124510 002502 20$:  MOV      @IDRX,BAD
6702 055564 105037 002502      CLRB     BAD
6703 055570 000337 002502      SWAB     BAD
6704 055574 122737 000125 002502      CMPB     #125,BAD
6705 055602 001410      BEQ      23$
6706 055604 012737 000125 002500      MOV      #125,GOOD
6707 055612      ERRSOFT 2203,E222,ERR501
      055612 104457
      055614 004233
      055616 005675
      055620 003702
6708 055622      CKLOOP
      055622 104406
6709 055624      23$:  ENDSEG
      055624
      055624 104405
6710 055626 112777 000002 124434      MOVB     #2,@ICRHX
6711 055634 112777 000003 124426      MOVB     #3,@ICRHX
6712 055642 112777 000204 124420      MOVB     #204,@ICRHX
6713 055650      BGNSEG
      055650 104404
6714 055652 052777 000010 124420      BIS      #10,@CSRX
6715 055660 112777 000126 124410      MOVB     #126,@IDRHX
6716 055666 004737 011060      JSR      PC,LOOP
6717 055672 042777 000010 124400      BIC      #10,@CSRX
6718 055700 017737 124366 002502      MOV      @IDRX,BAD
6719 055706 105037 002502      CLRB     BAD
6720 055712 000337 002502      SWAB     BAD
6721 055716 122737 000126 002502      CMPB     #126,BAD
6722 055724 001410      BEQ      30$
6723 055726 012737 000126 002500      MOV      #126,GOOD
6724 055734      ERRSOFT 2204,E222,ERR501
      055734 104457
      055736 004234
      055740 005675
      055742 003702
6725 055744      CKLOOP
      055744 104406
6726 055746      30$:  ENDSEG
      055746
      055746 104405
6727 055750      BGNSEG
      055750 104404
6728 055752 052777 000010 124320      BIS      #10,@CSRX
6729 055760 112777 000010 124302      MOVB     #10,@ICRHX
6730 055766 112777 000127 124302      MOVB     #127,@IDRHX
6731 055774 004737 011060      JSR      PC,LOOP
6732 056000 042777 000010 124272      BIC      #10,@CSRX

```

```

;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     2202
      .WORD     E502
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      ($CLP1
;GET DIR1 CONTENTS
;SWAB HIGH AND LOW BYTE
;COMPARE WITH LOADED DATA
;BRANCH IF OK
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     2203
      .WORD     E222
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      ($CLP1
      10001$:
      TRAP      ($ESEG
;----LOAD RHDF INTO ACR 1-----
;----LOAD NOT HDFA INTO ACR 1-----
;----LOAD HDFA INTO ACR 1-----
      TRAP      ($BSEG
;SELECT CHANNEL 2
;----LOAD DATA INTO DOR 2-----
;WAIT A LITTLE
;SELECT CHANNEL 1
;READ DATA FROM DIR1
;CLEAR LOW BYTE OF IDR REGISTER
;SWAB HIGH WITH LOW BYTE
;COMPARE DIR CONTENTS WITH LOADED DATA
;BRANCH IF EQUAL
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      ($ERSOFT
      .WORD     2204
      .WORD     E222
      .WORD     ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP      ($CLP1
      10002$:
      TRAP      ($ESEG
      TRAP      ($BSEG
;SELECT CHANNEL 2
;----LOAD FE01 INTO ACR 2-----
;----LOAD DATA INTO DOR 2-----
;WAIT A LITTLE
;SELECT CHANNEL 1

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64-2
TEST 22: END OF A MESSAGE BLOCK TEST

6733	056006	017737	124236	002502		MOV	@IIRX,BAD		:GET IIR1 CONTENTS
6734	056014	022737	000050	002502		CMP	#50,BAD		:BI,END BIT SHOULD BE SET
6735	056022	001410				BEQ	33\$		:BRANCH IF YES
6736	056024	012737	000050	002500		MOV	#50,GOOD		:SET UP DATA FOR ERROR MESSAGE
6737	056032					ERRSOFT	2205,E501,ERR501		:ERROR HANDLER
	056032	104457							TRAP C\$ERSOFT
	056034	004235							.WORD 2205
	056036	005406							.WORD E501
	056040	003702							.WORD ERR501
6738	056042					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	056042	104406							TRAP C\$CLP1
6739	056044	017737	124206	002502	33\$:	MOV	@ISRX,BAD		:GET ISR1 CONTENTS
6740	056052	022737	034004	002502		CMP	#34004,BAD		:NDAC,NRFD,EOI,LADS, IS SET
6741	056060	001410				BEQ	40\$		:BRANCH IF YES
6742	056062	013737	034004	002500		MOV	34004,GOOD		:SET UP DATA FOR ERROR MESSAGE
6743	056070					ERRSOFT	2206,E502,ERR501		:ERROR HANDLER
	056070	104457							TRAP C\$ERSOFT
	056072	004236							.WORD 2206
	056074	005447							.WORD E502
	056076	003702							.WORD ERR501
6744	056100					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	056100	104406							TRAP C\$CLP1
6745	056102	017737	124164	002502	40\$:	MOV	@IDRX,BAD		:READ DATA FROM DIR1
6746	056110	105037	002502			CLRB	BAD		:CLEAR LOW BYTE
6747	056114	000337	002502			SWAB	BAD		:SWAB HIGH WITH LOW BYTE
6748	056120	122737	000127	002502		CMPB	#127,BAD		:COMPARE LOADED DATA WITH DIR CONTENTS
6749	056126	001410				BEQ	43\$		:BRANCH IF EQUAL
6750	056130	012737	000127	002500		MOV	#127,GOOD		:SET UP DATA FOR ERROR MESSAGE
6751	056136					ERRSOFT	2207,E222,ERR501		:ERROR HANDLER
	056136	104457							TRAP C\$ERSOFT
	056140	004237							.WORD 2207
	056142	005675							.WORD E222
	056144	003702							.WORD ERR501
6752	056146					CKLOOP			:BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
	056146	104406							TRAP C\$CLP1
6753	056150				43\$:	ENDSEG			
	056150								10003\$:
	056150	104405							TRAP C\$ESEG
6754	056152	112777	000002	124110		MOVB	#2,@ICRHX		:----LOAD RHDF INTO ACR 1-----
6755	056160	112777	000015	124102		MOVB	#15,@ICRHX		:----LOAD TCS INTO ACR 1-----
6756	056166	112777	000011	124074		MOVB	#11,@ICRHX		:----LOAD NOT LON INTO ACR 1-----
6757	056174	112777	000137	124074		MOVB	#137,@IDRHX		:----LOAD UNT INTO DOR 1-----
6758	056202	004737	011060			JSR	PC,LOOP		:WAIT A LITTLE
6759	056206	112777	000200	124054		MOVB	#200,@ICRHX		:----LOAD SWRST INTO ACR 1-----
6760	056214	112777	000000	124046		MOVB	#0,@ICRHX		:----LOAD NOT SWRST INTO ACR 1-----
6761						++++			
6762						:PART 2 CHECKS THE 'END OF A MESSAGE BLOCK' OF CHANNEL 2			
6763						++++			
6764	056222	004737	010220		PSEU18:	JSR	FC,CULPA		:CLEAR ULPA BIT IN ISR 1AND 2
6765	056226	004737	010710			JSR	PC,BGIN2		:SET UP PARAMETER
6766	056232					BGNSEG			
	056232	104404							TRAP C\$BSEG
6767	056234	052777	000010	124036		BIS	#10,@CSRX		:SELECT CHANNEL 2
6768	056242	112777	000223	124020		MOVB	#223,@ICRHX		:----LOAD DAI INTO ACR 2-----
6769	056250	042777	000010	124022		BIC	#10,@CSRX		:SELECT CHANNEL 1
6770	056256	112777	000223	124004		MOVB	#223,@ICRHX		:----LOAD DAI INTO ACR 1-----
6771	056264	052777	000010	124006		BIS	#10,@CSRX		:SELECT CHANNEL 2

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TEST 22: END OF A MESSAGE BLOCK TEST

```

6772 056272 112777 000203 123770      MOVB    #203,@ICRHX
6773 056300 112777 000211 123762      MOVB    #211,@ICRHX
6774 056306 013701 002312              MOV     DPA1,R1
6775 056312 062701 000100              ADD     #100,R1
6776 056316 010137 002414              MOV     R1,MTA1
6777 056322 113777 002414 123746      MOVB    MTA1,@IDRHX
6778 056330 004737 011060              JSR     PC,LOOP
6779 056334 112777 000013 123726      MOVB    #13,@ICRHX
6780 056342              ENDSEG
      056342
      056342 104405
6781 056344              BGNSEG
      056344 104404
6782 056346 042777 000010 123724      BIC     #10,@CSRX
6783 056354 112777 000125 123714      MOVB    #125,@IDRHX
6784 056362 052777 000010 123710      BIS     #10,@CSRX
6785 056370 012737 000002 002374      MOV     #2,CHAN
6786 056376 017737 123646 002502      MOV     @IIRX,BAD
6787 056404 022737 000060 002502      CMP     #60,BAD
6788 056412 001410              BEQ     10$
6789 056414 012737 000060 002500      MOV     #60,GOOD
6790 056422      ERRSOFT 2208,E501,ERR501
      056422 104457
      056424 004240
      056426 005406
      056430 003702
6791 056432              CKLOOP
      056432 104406
6792 056434 017737 123616 002502 10$:  MOV     @ISRX,BAD
6793 056442 022737 030004 002502      CMP     #30004,BAD
6794 056450 001410              BEQ     20$
6795 056452 012737 030004 002500      MOV     #30004,GOOD
6796 056460      ERRSOFT 2209,E502,ERR501
      056460 104457
      056462 004241
      056464 005447
      056466 003702
6797 056470              CKLOOP
      056470 104406
6798 056472 017737 123574 002502 20$:  MOV     @IDRX,BAD
6799 056500 105037 002502              CLRB   BAD
6800 056504 000337 002502              SWAB   BAD
6801 056510 122737 000125 002502      CMPB    #125,BAD
6802 056516 001410              BEQ     23$
6803 056520 012737 000125 002500      MOV     #125,GOOD
6804 056526      ERRSOFT 2210,E222,ERR501
      056526 104457
      056530 004242
      056532 005675
      056534 003702
6805 056536              CKLOOP
      056536 104406
6806 056540              23$:  ENDSEG
      056540
      056540 104405
6807 056542 112777 000002 123520      MOVB    #2,@ICRHX
6808 056550 112777 000003 123512      MOVB    #3,@ICRHX

```

```

;-----LOAD HDFA INTO ACR 2-----
;-----LOAD LON INTO ACR 2-----
;CREATE MTA1
;STORE MTA1
;-----LOAD MTA1 INTO DOR 2-----
;WAIT A LITTLE
;-----LOAD GTS INTO ACR 2-----

10004$:
      TRAP    C$ESEG
      TRAP    C$BSEG
;SELECT CHANNEL 1
;-----LOAD DATA INTO DOR 1-----
;SELECT CHANNEL 2
;LOAD CHANNEL NUMBER
;GET IIR2 CONTENTS
;BO,BI BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   2208
      .WORD   E501
      .WORD   ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;GET ISR2 CONTENTS
;NDAC,NRFD,LADS SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   2209
      .WORD   E502
      .WORD   ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;GET DIR2 CONTENTS
;
;SWAB HIGH AND LOW BYTE
;COMPARE WITH LOADED DATA
;BRANCH IF OK
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   2210
      .WORD   E222
      .WORD   ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1

10005$:
      TRAP    C$ESEG
;-----LOAD RHDF INTO ACR 2-----
;-----LOAD NOT HDFA INTO ACR 2-----

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64-4
TEST 22: END OF A MESSAGE BLOCK TEST

```

6809 056556 112777 000204 123504      MOVB    #204,@ICRMX
6810 056564      BGNSEG
      056564 104404
6811 056566 042777 000010 123504      BIC     #10,@CSRX
6812 056574 112777 000126 123474      MOVB    #126,@IDRMX
6813 056602 004737 011060      JSR     PC,LOOP
6814 056606 052777 000010 123464      BIS     #10,@CSRX
6815 056614 017737 123452 002502      MOV     @IDRX,BAD
6816 056622 105037 002502      CLRB    BAD
6817 056626 000337 002502      SWAB    BAD
6818 056632 122737 000126 002502      CMPB    #126,BAD
6819 056640 001410      BEQ     30$
6820 056642 012737 000126 002500      MOV     #126,GOOD
6821 056650      ERRSOFT 2211,E222,E501
      056650 104457
      056652 004243
      056654 005675
      056656 005406
6822 056660      CKLOOP
      056660 104406
6823 056662      30$:      ENDSEG
      056662
      056662 104405
6824 056664 042777 000010 123406      BIC     #10,@CSRX
6825 056672 112777 000010 123370      MOVB    #10,@ICRMX
6826 056700      BGNSEG
      056700 104404
6827 056702 112777 000127 123366      MOVB    #127,@IDRMX
6828 056710 004737 011060      JSR     PC,LOOP
6829 056714 052777 000010 123356      BIS     #10,@CSRX
6830 056722 017737 123322 002502      MOV     @IIRX,BAD
6831 056730 022737 000050 002502      CMP     #50,BAD
6832 056736 001410      BEQ     33$
6833 056740 012737 000050 002500      MOV     #50,GOOD
6834 056746      ERRSOFT 2212,E501,ERR501
      056746 104457
      056750 004244
      056752 005406
      056754 003702
6835 056756      CKLOOP
      056756 104406
6836 056760 017737 123272 002502 33$:      MOV     @ISRX,BAD
6837 056766 022737 034004 002502      CMP     #34004,BAD
6838 056774 001410      BEQ     40$
6839 056776 012737 034004 002500      MOV     #34004,GOOD
6840 057004      ERRSOFT 2212,E502,ERR501
      057004 104457
      057006 004244
      057010 005447
      057012 003702
6841 057014      CKLOOP
      057014 104406
6842 057016 017737 123250 002502 40$:      MOV     @IDRX,BAD
6843 057024 105037 002502      CLRB    BAD
6844 057030 000337 002502      SWAB    BAD
6845 057034 122737 000127 002502      CMPB    #127,BAD
6846 057042 001410      BEQ     43$

```

```

;-----LOAD HDPE INTO ACR 2-----
      TRAP    C$BSEG
;SELECT CHANNEL 1
;-----LOAD DATA INTO DOR 1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;READ DATA FROM DIR2
;CLEAR LOW BYTE OF IDR REGISTER
;SWAB HIGH WITH LOW BYTE
;COMPARE DIR CONTENTS WITH LOADED DATA
;BRANCH IF EQUAL
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERRSOFT
      .WORD   2211
      .WORD   E222
      .WORD   E501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
      10006$:
      TRAP    C$ESEG
;SELECT CHANNEL 1
;-----LOAD FE01 INTO ACR 1-----
      TRAP    C$BSEG
;-----LOAD DATA INTO DOR 1-----
;WAIT A LITTLE
;SELECT CHANNEL 2
;GET IIR2 CONTENTS
;BI,END BIT SHOULD BE SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERRSOFT
      .WORD   2212
      .WORD   E501
      .WORD   ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;GET ISR2 CONTENTS
;NDAC,NRFD,E01,LADS IS SET
;BRANCH IF YES
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP    C$ERRSOFT
      .WORD   2212
      .WORD   E502
      .WORD   ERR501
;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
;READ DATA FROM DIR2
;CLEAR LOW BYTE
;SWAB HIGH WITH LOW BYTE
;COMPARE LOADED DATA WITH DIR CONTENTS
;BRANCH IF EQUAL

```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 64-5
 TEST 22: END OF A MESSAGE BLOCK TEST

```

6847 057044 012737 000127 002500      MOV      #127,GOOD      ;SET UP DATA FOR ERROR MESSAGE
6848 057052      ERRSOFT 2213,E222,ERR501 ;ERROR HANDLER
      057052      104457      TRAP      C$ERSOFT
      057054      004245      .WORD      2213
      057056      005675      .WORD      E222
      057060      003702      .WORD      ERR501
6849 057062      CKLOOP      ;BRANCH BACK TO BGNSEG IF ERRLOOP IS SET
      057062      104406      TRAP      C$CLP1
6850 057064      43$:      ENDSEG
      057064      10007$:
      057064      104405      TRAP      C$ESEG
6851 057066      112777 000002 123174      MOV      #2,@ICRHX      ;----LOAD RHDF INTO ACR 2-----
6852 057074      112777 000015 123166      MOV      #15,@ICRHX      ;----LOAD TCS INTO ACR 2-----
6853 057102      112777 000011 123160      MOV      #11,@ICRHX      ;----LOAD NOT LON INTO ACR 2-----
6854 057110      112777 000137 123160      MOV      #137,@IDRHX      ;----LOAD UNT INTO DOR 2-----
6855 057116      004737 011060      JSR      PC,LOOP      ;WAIT A LITTLE
6856 057122      005737 002234      TST      QVP      ;IS QUICK VERIFY PASS SELECTED
6857 057126      001023      BNE      EXQV22      ;IF YES EXIT TEST
6858 057130      005237 002322      INC      ITRCNT      ;INCREMENT COUNTER
6859 057134      023737 002322 002320      CMP      ITRCNT,ITRDEF ;ALL DONE
6860 057142      001415      BEQ      EXQV22      ;IF YES, EXIT TEST
6861 057144      042777 000010 123126      BIC      #10,@CSRX      ;SELECT CHANNEL 1
6862 057152      112777 000217 123110      MOV      #217,@ICRHX      ;----LOAD SIC INTO ACR 1-----
6863 057160      004737 011072      JSR      PC,WAIT      ;WAIT A LITTLE
6864 057164      112777 000017 123076      MOV      #17,@ICRHX      ;----LOAD NOT SIC INTO ACR 1-----
6865 057172      000137 055320      JMP      ITAC22      ;IF NO TEST ITERATION
6866 057176      EXQV22: EXIT      TST      ;EXIT TEST
      057176      104432      TRAP      C$EXIT
      057200      000046      .WORD      L10053-.
6867
6868
6869 057202      045      123      062      TSHD22: .NLIST      BEX
      .ASCIZ      /%S2%AEND OF A MESSAGE BLOCK TEST%N/
6870      .LIST      BEX
6871      .EVEN
6872 057246      ENDTST
      057246
      057246      104401      L10053:      TRAP      C$ETST
  
```

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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

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6874 .SBTTL TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2
6875 .....
6876 IEX - TEST 23
6877 PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 1 TO 2 BY MEANS OF A DMA
6878 I.E. CHAN. 1 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE,
6879 WHEREAS CHANNEL 2 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB
6880 CYCLE. THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS
6881 2K BYTES AND THE HIGHEST BUS ADDRESS IS BELOW 32K.
6882 PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1
6883 THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS SELECTED
6884 IN THE BUS ADDRESS REGISTER OF CHAN. 1 (DATI CYCLE).
6885 PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
6886 OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
6887 PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
6888 OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).
6889 .....
6890 BGNIST
6891 057250 005737 002324 TST PNTF ;IS THE PNT FLAG SET
6892 057254 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
6893 057256 012746 063204 PRINTF #TSHD23 ;....
6894 057256 012746 000001 MOV #TSHD23,-(SP)
6895 057256 010600 000001 MOV #1,-(SP)
6896 057270 104417 000004 MOV SP,R0
6897 057272 062706 000004 TRAP C$PNTF
6898 057276 005037 002322 ADD #4,SP
6899 057302 004737 010534 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
6900 057306 104431 JSR PC,BGIN1 ;SET UP PARAMETER
6901 057310 062700 000002 ITAC23: MEMORY R0 ;GET THE FIRST FREE MEMORY LOCATION
6902 057314 010037 002356 TRAP C$MEM
6903 057320 012701 010000 ADD #2,R0 ;USE THE SEC.FREE LOCATION FOR BUFFER
6904 057324 005003 000000 MOV R0,BUFAB ;LOAD START ADDRESS OF BUFFER A
6905 057326 110320 000000 MOV #10000,R1 ;BUILD 2K BUFFER SIZE
6906 057330 005203 000000 CLR R3 ;R3 CONTAINS THE LOADED DATA
6907 057332 005301 000000 1$: MOVB R3,(R0)+ ;LOAD DATA INTO BUFFER A
6908 057334 001374 000000 INC R3 ;CREATE NEW DATA
6909 057336 010037 002360 DEC R1 ;2K LOADED
6910 057342 012746 000340 BNE 1$ ;IF NO, LOAD NEXT DATA BYTE
6911 057346 012746 010152 MOV R0,BUFB ;LOAD START ADDRESS OF BUFFER B
6912 057352 013746 002246 SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
6913 057356 012746 000003 MOV #PRI07,-(SP)
6914 057362 104437 000010 MOV #INTSC2,-(SP)
6915 057364 062706 000010 MOV VECC2,-(SP)
6916 057370 012746 000340 MOV #3,-(SP)
6917 057374 012746 010142 TRAP C$SVEC
6918 057400 013746 002244 ADD #10,SP
6919 057404 012746 000003 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
6920 057410 104437 000010 MOV #PRI07,-(SP)
6921 057412 062706 000010 MOV #INTSC1,-(SP)
6922 057416 112777 000212 MOV VECC1,-(SP)
6923 057424 013701 002314 MOV #3,-(SP)
6924 057430 062701 000040 TRAP C$SVEC
6925 057434 010137 002412 ADD #10,SP
6926 122644 MOVB #212,@ICRMX ;----LOAD TON INTO ACR 1-----
6927 MOV DPA2,R1 ;CREATE MLA2
6928 ADD #40,R1 ;
6929 MOV R1,MLA2 ;STORE MLA2

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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 65-1
TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

6912	057440	113777	002412	122630	MOVB	MLA2,@IDRMX	----	LOAD MLA2 INTO DOR 1-----
6913	057446	004737	011060		JSR	PC,LOOP		WAIT A LITTLE
6914	057452				BGNSEG			
	057452	104404						TRAP C\$BSEG
6915	057454	005037	002400		CLR	INTFC2		CLEAR INTERRUPT FLAG
6916	057460	005037	002376		CLR	INTFC1		CLEAR INTERRUPT FLAG
6917	057464	042777	000010	122606	BIC	#10,@CSRX		SELECT CHANNEL 1
6918	057472	013700	002360		MOV	BUFBB,R0		
6919	057476	012701	010000		MOV	#10000,R1		BUILD 2K BUFFER SIZE
6920	057502	105020			CLRB	(R0)+		FILL BUFFER B WITH ZERO
6921	057504	005301			DEC	R1		2K LOADED
6922	057506	001375			BNE	2\$		IF NO, CLEAR NEXT BUFFER LOCATION
6923	057510	013777	002356	122564	MOV	BUFAB,@BARX		---LOAD START ADDRESS OF TABLE A----
6924	057516	013737	002240	002402	MOV	BCINP,RSAVE		STORE BYTE COUNT INPUT
6925	057524	005437	002402		NEG	RSAVE		BILD 2'COMPL FOR BCR
6926	057530	013777	002402	122546	MOV	RSAVE,@BCRX		---LOAD INPUT INTO BCR 1-----
6927	057536	012777	000107	122534	MOV	#107,@CSRX		---DMA ENB,DMA DIR,INT ENB,SYS CON.
6928	057544	052777	000010	122526	BIS	#10,@CSRX		SELECT CHANNEL 2
6929	057552	013777	002360	122522	MOV	BUFBB,@BARX		---LOAD START ADDRESS OF TABLE B----
6930	057560	013777	002402	122516	MOV	RSAVE,@BCRX		---LOAD INPUT INTO BCR 2---
6931	057566	012777	000101	122504	MOV	#101,@CSRX		---SET DMA ENB,INT ENB IN CSR2-----
6932	057574				SETPRI	#PRI00		SET PRIORITY TO ZERO
	057574	012700	000000					MOV #PRI00,R0
	057600	104441						TRAP C\$SPRI
6933	057602	042777	000010	122470	BIC	#10,@CSRX		SELECT CHANNEL 1
6934	057610	012737	000001	002374	MOV	#1,CHAN		LOAD CHANNEL NUMBER
6935	057616	112777	000013	122444	MOVB	#13,@ICRMX		---LOAD GTS INTO ACR 1-----
6936	057624	012701	077777		MOV	#77777,R1		LOAD LOOP COUNTER
6937	057630	005737	002376		TST	INTFC1		HAS INTERRUPT IN CHANNEL 1 OCCURRED
6938	057634	001015			BNE	10\$		BRANCH IF YES
6939	057636	005301			DEC	R1		DECREMENT COUNTER
6940	057640	001373			BNE	13\$		IF MORE,TEST AGAIN
6941	057642	017737	122432	002502	MOV	@CSRX,BAD		GET CSR1 CONTENTS
6942	057650	012737	100006	002500	MOV	#100006,GOOD		BC OF,DMA DIR,SYS CONT SHOULD BE SET
6943	057656				ERRSOFT	2301,E232,ERR201		ERROR HANDLER
	057656	104457						TRAP C\$ERRSOFT
	057660	004375						.WORD 2301
	057662	006072						.WORD E232
	057664	003500						.WORD ERR201
6944	057666				CKLOOP			BRANCH TO BGNSEG IF ERRLOOP IS SET
	057666	104406						TRAP C\$CLP1
6945	057670	052777	000010	122402	BIS	#10,@CSRX		SELECT CHANNEL 2
6946	057676	012737	000002	002374	MOV	#2,CHAN		LOAD CHANNEL NUMBER
6947	057704	005737	002400		TST	INTFC2		HAS INTERRUPT IN CHANNEL 2 OCCURRED
6948	057710	001013			BNE	11\$		BRANCH IF YES
6949	057712	017737	122362	002502	MOV	@CSRX,BAD		GET CSR2 CONTENTS
6950	057720	012737	100010	002500	MOV	#100010,GOOD		BC OF,MUX SHOULD BE SET
6951	057726				ERRSOFT	2302,E232,ERR201		ERROR HANDLER
	057726	104457						TRAP C\$ERRSOFT
	057730	004376						.WORD 2302
	057732	006072						.WORD E232
	057734	003500						.WORD ERR201
6952	057736				CKLOOP			BRANCH TO BGNSEG IF ERRLOOP IS SET
	057736	104406						TRAP C\$CLP1
6953	057740				SETPRI	#PRI07		NO FURTHER INTERRUPT ALLOWED
	057740	012700	000340					MOV #PRI07,R0
	057744	104441						TRAP C\$SPRI

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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

6954	057746	042777	000010	122324		BIC	#10,@CSRX		;SELECT CHANNEL 1
6955	057754	012737	000001	002374		MOV	#1,CHAN		;LOAD CHANNEL NUMBER
6956	057762	013737	002356	002500		MOV	BUFAB,GOOD		;SET UP COMPARE VALUE
6957	057770	063737	002240	002500		ADD	BCINP,GOOD		...
6958	057776	017737	122300	002502		MOV	@BARX,BAD		;GET BAR1 CONTENTS
6959	060004	023737	002502	002500		CMP	BAD,GOOD		;HAS BAR1 THE CORRECT ADDRESS
6960	060012	001405				BEQ	23\$		;BRANCH IF YES
6961	060014					ERRSOFT	2303,E234,ERR501		;ERROR HANDLER
	060014	104457							TRAP C\$ERSOFT
	060016	004377							.WORD 2303
	060020	006200							.WORD E234
	060022	003702							.WORD ERR501
6962	060024					CKLOOP			;BRANCH TO BGNSEG IF ERRLOOP IS SET
	060024	104406							TRAP C\$CLP1
6963	060026	017737	122252	002502	23\$:	MOV	@BCRX,BAD		;GET BCR1 CONTENTS
6964	060034	005037	002500			CLR	GOOD		...
6965	060040	023737	002502	002500		CMP	BAD,GOOD		;IS BCR1 ZERO
6966	060046	001405				BEQ	30\$		;BRANCH IF YES
6967	060050					ERRSOFT	2304,E235,ERR501		;ERROR HANDLER
	060050	104457							TRAP C\$ERSOFT
	060052	004400							.WORD 2304
	060054	006231							.WORD E235
	060056	003702							.WORD ERR501
6968	060060					CKLOOP			;BRANCH TO BGNSEG IF ERRLOOP IS SET
	060060	104406							TRAP C\$CLP1
6969	060062	052777	000010	122210	30\$:	BIS	#10,@CSRX		;SELECT CHANNEL 2
6970	060070	012737	000002	002374		MOV	#2,CHAN		;LOAD CHANNEL NUMBER
6971	060076	013737	002360	002500	33\$:	MOV	BUFBB,GOOD		;SET UP COMPARE VALUE
6972	060104	063737	002240	002500		ADD	BCINP,GOOD		...
6973	060112	017737	122164	002502		MOV	@BARX,BAD		;GET BAR2 CONTENTS
6974	060120	023737	002500	002502		CMP	GOOD,BAD		;HAS BAR2 THE CORRECT ADDRESS
6975	060126	001405				BEQ	40\$		;BRANCH IF YES
6976	060130					ERRSOFT	2305,E234,ERR501		;ERROR HANDLER
	060130	104457							TRAP C\$ERSOFT
	060132	004401							.WORD 2305
	060134	006200							.WORD E234
	060136	003702							.WORD ERR501
6977	060140					CKLOOP			;BRANCH TO BGNSEG IF ERRLOOP IS SET
	060140	104406							TRAP C\$CLP1
6978	060142	017737	122136	002502	40\$:	MOV	@BCRX,BAD		;GET BCR2 CONTENTS
6979	060150	005737	002502			TST	BAD		;BCR2 CONTENTS SHOULD BE ZERO
6980	060154	001407				BEQ	43\$		;BRANCH IF YES
6981	060156	005037	002500			CLR	GOOD		;SET UP DATA FOR ERROR MESSAGE
6982	060162					ERRSOFT	2306,E235,ERR501		;ERROR HANDLER
	060162	104457							TRAP C\$ERSOFT
	060164	004402							.WORD 2306
	060166	006231							.WORD E235
	060170	003702							.WORD ERR501
6983	060172					CKLOOP			;BRANCH TO BGNSEG IF ERRLOOP IS SET
	060172	104406							TRAP C\$CLP1
6984	060174	013701	002356		43\$:	MOV	BUFAB,R1		;PROVIDE FIRST BYTE OF BUFFER A
6985	060200	013702	002360			MOV	BUFBB,R2		;PROVIDE FIRST BYTE OF BUFFER B
6986	060204	005037	002404			CLR	CNT1		;CLEAR BUFFER COUNTER
6987	060210	005237	002404		44\$:	INC	CNT1		...
6988	060214	122122				CMPB	(R1)+,(R2)+		;BUFFER A EQUAL BUFFER B
6989	060216	001433				BEQ	46\$		;IF YES CONTINUE
6990	060220	005037	002500			CLR	GOOD		;CLEAR GOOD

PC	Instruction	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	Op418	Op419	Op420	Op421	Op422	Op423	Op424	Op425	Op426	Op427	Op428	Op429	Op430	Op431	Op432	Op433	Op434	Op435	Op436	Op437	Op438	Op439	Op440	Op441	Op442	Op443	Op444	Op445	Op446	Op447	Op448	Op449	Op450	Op451	Op452	Op453	Op454	Op455	Op456	Op457	Op458	Op459	Op460	Op461	Op462	Op463	Op464	Op46
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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7032	060500	005437	002402		NEG	RSAVE		:BILD 2'COMPLEMENT
7033	060504	013777	002402	121572	MOV	RSAVE,@BCRX		:LOAD BCR1
7034	060512	012777	017167	121560	MOV	#17167,@CSRX		:DMA ENB,DMA DIR,INT ENB,BA16-21,SYS
7035	060520	052777	000010	121552	BIS	#10,@CSRX		:SELECT CHANNEL 2
7036	060526	012777	002624	121546	MOV	#TABE,@BARX		:LOAD BAR2 WITH STAR ADDRESS OF TABE
7037	060534	013777	002402	121542	MOV	RSAVE,@BCRX		:LOAD BCR2
7038	060542	012777	000101	121530	MOV	#101,@CSRX		:---SET DMA ENB,INT ENB CSR2-----
7039	060550	042777	000010	121522	BIC	#10,@CSRX		:SELECT CHANNEL 1
7040	060556	012737	000001	002374	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
7041	060564				SETPRI	#PRI00		:SET PRIORITY TO ZERO
	060564	012700	000000					MOV #PRI00,RO
	060570	104441						TRAP C\$SPRI
7042	060572	112777	000013	121470	MOVB	#13,@ICRHX		:---LOAD GTS INTO ACR 1-----
7043	060600	012702	077777		MOV	#77777,R2		:LOAD LOOP COUNTER
7044	060604	005737	002376		TST	INTFC1	3\$:	:IS INTERRUPT IN CHANNEL 1 OCCER
7045	060610	001015			BNE	6\$		:BRANCH IF YES
7046	060612	005302			DEC	R2		:DECREMENT COUNTER
7047	060614	001373			BNE	3\$		:IF NO,TEST AGIN
7048	060616	017737	121456	002502	MOV	@CSRX,BAD		:GET CSR1 CONTENTS
7049	060624	012737	040066	002500	MOV	#40066,GOOD		:NXM,BA 16+17,DMA DIR,SYS CONT
7050	060632				ERRSOFT	2308,E233,ERR201		:ERROR HANDLER
	060632	104457						TRAP C\$ERSOFT
	060634	004404						.WORD 2308
	060636	006123						.WORD E233
	060640	003500						.WORD ERR201
7051	060642				CKLOOP			:BRANCH TO BGNS.G IF ERRLOOP IS SET
	060642	104406						TRAP C\$CLP1
7052	060644				6\$:	SETPRI #PRI07		:NO FURTHER INTERRUPT ALLOWED
	060644	012700	000340					MOV #PRI07,RO
	060650	104441						TRAP C\$SPRI
7053	060652	112777	000014	121410	MOVB	#14,@ICRHX		:---LOAD TCA INTO ACR 1-----
7054	060660	052777	000010	121412	BIS	#10,@CSRX	10\$:	:SELECT CHANNEL 2
7055	060666	012737	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
7056	060674	017737	121400	002502	MOV	@CSRX,BAD		:GET CSR2 CONTENTS
7057	060702	042737	017000	002502	BIC	#17000,BAD		:IGNORE BIT 9-12
7058	060710	022737	000111	002502	CMP	#111,BAD		:INT ENB,MUX,DMA ENB SHOULD BE SET
7059	060716	001410			BEQ	12\$		:BRANCH IF YES
7060	060720	012737	000111	002500	MOV	#111,GOOD		:SET UP DATA FOR ERROR MESSAGE
7061	060726				ERRSOFT	2309,E401,ERR501		:ERROR HANDLER
	060726	104457						TRAP C\$ERSOFT
	060730	004405						.WORD 2309
	060732	005265						.WORD E401
	060734	003702						.WORD ERR501
7062	060736				CKLOOP			:BRANCH TO BGNSEG IF ERRLOOP IS SET
	060736	104406						TRAP C\$CLP1
7063	060740				12\$:	ENDSEG		
	060740							10001\$:
	060740	104405						TRAP C\$ESEG
7064	060742	005077	121332		CLR	@CSRX		:CLEAR CSR2,SELECT CHANNEL 1
7065	060746	017737	121320	002502	MOV	@IDRX,BAD		:READ DIR1 FOR CLEAR BO BIT IN IIR
7066	060754	005077	121320		CLR	@CSRX		:CLEAR CSR1
7067					----			----
7068					:PART 3 DMA OVER 32K			
7069					----			----
7070	060760	005037	002376		CLR	INTFC1		:CLEAR INTERRUPT FLAG
7071	060764	005037	002400		CLR	INTFC2		:CLEAR INTERRUPT FLAG
7072	060770	023727	002342	000001	CMP	PHHSIZ,#1		:IS THERE MORE THAN 32K

Address	Offset	Instruction	Comment
7073	060776	002404	
7074	061000	003005	
7075	061002	005737	002344
7076	061006	001002	
7077	061010	000137	063200
7078	061014	005037	002336
7079	061020	012737	000001 002334
7080	061026	004737	007724
7081	061032	013700	002340
7082	061036	010037	002356
7083	061042	012701	010000
7084	061046	005003	
7085	061050	012737	000001 177572
7086	061056	110320	
7087	061060	005203	
7088	061062	005301	
7089	061064	001374	
7090	061066	012701	010000
7091	061072	010037	002360
7092	061076	105020	
7093	061100	005301	
7094	061102	001375	
7095	061104	005037	177572
7096	061110	112777	000212 121152
7097	061116	013701	002314
7098	061122	062701	000040
7099	061126	010137	002412
7100	061132	113777	002412 121136
7101	061140	004737	011060
7102	061144	005077	121132
7103	061150	013737	002240 002402
7104	061156	005437	002402
7105	061162	013777	002402 121114
7106	061170	012777	000127 121102
7107	061176	052777	000010 121074
7108	061204	012777	010000 121070
7109	061212	013777	002402 121064
7110	061220	012777	000121 121052
7111	061226		
	061226	012700	000000
	061232	104441	
7112	061234	042777	000010 121036
7113	061242	012737	000001 002374
7114	061250	112777	000013 121012
7115	061256	012701	077777
7116	061262	005737	002376
7117	061266	001014	
7118	061270	005301	
7119	061272	001373	
7120	061274	017737	121000 002502
7121	061302	012737	100026 002500
7122	061310		
	061310	104457	
	061312	004406	
	061314	006072	
	061316	003500	
7123	061320	052777	000010 120752

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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7124	061326	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
7125	061334	005737	002400		TST	INFC2	:IS AN INTERRUPT IN CHANNEL 2 OCCURED
7126	061340	001012			BNE	25\$	:BRANCH IF YES
7127	061342	017737	120732	002502	MOV	@CSRX,BAD	:GET CSR2 CONTENTS
7128	061350	012737	100030	002500	MOV	#100030,GOOD	:BC OF,BA 16,MUX SHOULD BE SET
7129	061356				ERRSOFT	2311,E232,ERR201	:ERROR HANDLER
	061356	104457					TRAP C\$ERSOFT
	061360	004407					.WORD 2311
	061362	006072					.WORD E232
	061364	003500					.WORD ERR201
7130	061366				25\$: SETPRI	#PRI07	:NO FURTHER INTERRUPT ALLOWED
	061366	012700	000340				MOV #PRI07,R0
	061372	104441					TRAP C\$SPRI
7131	061374	042777	000010	120676	BIC	#10,@CSRX	:SELECT CHANNEL 1
7132	061402	012737	000001	002374	MOV	#1,CHAN	:LOAD CHANNEL NUMBER
7133	061410	112777	000014	120652	MOVB	#14,@ICRHX	:----LOAD TCA INTO ACR 1-----
7134	061416	013737	002336	002500	MOV	PHLOW,GOOD	:SET UP COMPARE VALUE
7135	061424	063737	002240	002500	ADD	BCINP,GOOD	
7136	061432	017737	120644	002502	MOV	@BARX,BAD	:GET BAR1 CONTENTS
7137	061440	023737	002502	002500	CMP	BAD,GOOD	:HAS BAR1 THE CORRECT ADDRESS
7138	061446	001404			BEQ	30\$	:BRANCH IF YES
7139	061450				ERRSOFT	2312,E234,ERR501	:ERROR HANDLER
	061450	104457					TRAP C\$ERSOFT
	061452	004410					.WORD 2312
	061454	006200					.WORD E234
	061456	003702					.WORD ERR501
7140	061460	017737	120620	002502	30\$: MOV	@BCRX,BAD	:GET BCR1 CONTENTS
7141	061466	005037	002500		CLR	GOOD	
7142	061472	023737	002502	002500	CMP	BAD,GOOD	:IS BCR1 ZERO
7143	061500	001404			BEQ	31\$	:BRANCH IF YES
7144	061502				ERRSOFT	2313,E235,ERR501	:ERROR HANDLER
	061502	04457					TRAP C\$ERSOFT
	061504	004411					.WORD 2313
	061506	006231					.WORD E235
	061510	003702					.WORD ERR501
7145	061512	052777	000010	120560	31\$: BIS	#10,@CSRX	:SELECT CHANNEL 2
7146	061520	012737	000002	002374	MOV	#2,CHAN	:LOAD CHANNEL NUMBER
7147	061526	013737	002360	002500	MOV	BUFBB,GOOD	:SET UP COMPARE VALUE
7148	061534	042737	160000	002500	BIC	#160000,GOOD	:CLEAR BIT 13+14+15
7149	061542	063737	002240	002500	ADD	BCINP,GOOD	
7150	061550	017737	120526	002502	MOV	@BARX,BAD	:GET BAR2 CONTENTS
7151	061556	023737	002500	002502	CMP	GOOD,BAD	:HAS BAR2 THE CORRECT ADDRESS
7152	061564	001404			BEQ	40\$	:BRANCH IF YES
7153	061566				ERRSOFT	2314,E234,ERR501	:ERROR HANDLER
	061566	104457					TRAP C\$ERSOFT
	061570	004412					.WORD 2314
	061572	006200					.WORD E234
	061574	003702					.WORD ERR501
7154	061576	017737	120502	002502	40\$: MOV	@BCRX,BAD	:GET BCR2 CONTENTS
7155	061604	005737	002502		TST	BAD	:BCR2 CONTENTS SHOULD BE ZERO
7156	061610	001406			BEQ	43\$	:BRANCH IF YES
7157	061612	005037	002500		CLR	GOOD	:SET UP DATA FOR ERROR MESSAGE
7158	061616				ERRSOFT	2315,E235,ERR501	:ERROR HANDLER
	061616	104457					TRAP C\$ERSOFT
	061620	004413					.WORD 2315
	061622	006231					.WORD E235
	061624	003702					.WORD ERR501

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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

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7159 061626 012737 000001 177572 43$: MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7160 061634 013701 002356 MOV BUFAB,R1 ;PROVIDE FIRST BYTE OF BUFFER A
7161 061640 013702 002360 MOV BUFBB,R2 ;PROVIDE FIRST BYTE OF BUFFER B
7162 061644 005037 002404 CLR CNT1 ;CLEAR BUFFER COUNTER
7163 061650 005237 002404 44$: INC CNT1 ;
7164 061654 122122 (MPB (R1)+,(R2)+ ;BUFFER A EQUAL BUFFER B
7165 061656 001446 BEQ 46$ ;IF YES CONTINUE
7166 061660 005037 002500 CLR GOOD ;CLEAR GOOD
7167 061664 005037 002502 CLR BAD ;CLEAR BAD
7168 061670 012737 000001 002426 MOV #1, TXADRL ;TX ADDRESS IS OVER 32K
7169 061676 012737 000001 002422 MOV #1, RXADRL ;RX ADDRESS IS OVER 32K
7170 061704 010137 002430 MOV R1, TXADRL ;GET ADDRESS OVER 32K
7171 061710 005337 002430 DEC TXADRL ;
7172 061714 042737 160000 002430 BIC #160000, TXADRL ;CLEAR PAR INFORMATION
7173 061722 013737 002430 002424 MOV TXADRL, RXADRL ;GENERATE RX ADDRESS FROM TX ADDRESS
7174 061730 052737 010000 002424 BIS #10000, RXADRL ;RX ADDR IS TX ADDRESS +2K
7175 061736 116137 177777 002500 MOVB -1(R1), GOOD ;
7176 061744 116237 177777 002502 MOVB -1(R2), BAD ;
7177 061752 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7178 061756 ERRSOF T 2316,E231,ERR231 ;ERROR HANDLER
                                TRAP CSERSOF T
                                .WORD 2316
                                .WORD E231
                                .WORD ERR231
7179 061766 012737 000001 177572 MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7180 061774 023737 002404 002240 46$: CMP CNT1,BCINP ;ALL BYTES COMPARED ?
7181 062002 001322 BNE 44$ ;IF NO, GET NEXT ONE
7182 062004 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7183 062010 005077 120264 CLR @CSRX ;CLEAR CSR2, SELECT CHANNEL 1
7184 062014 017737 120252 002502 MOV @IDRX, BAD ;READ DIR1 FOR CLEAR BO BIT IN IIR
7185 062022 005077 120252 CLR @CSRX ;CLEAR CSR1
7186 -----
7187 ;PART 4 DMA OVER 64K
7188 -----
7189 062026 005037 002376 PSEU33: CLR INTFC1 ;CLEAR INTERRUPT FLAG
7190 062032 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG
7191 062036 023727 002342 000002 CMP PHHS12,#2 ;IS THERE MORE THAN 64K
7192 062044 002404 BLT 11$ ;IF NO SKIP TEST
7193 062046 003005 BGT 13$ ;
7194 062050 005737 002344 TST PHLS12 ;
7195 062054 001002 BNE 13$ ;
7196 062056 000137 063200 11$: JMP EXQV23 ;JUMP TO TEST END
7197 062062 005037 002336 13$: CLR PHLOW ;LOAD INPUT FOR CONVERSION ROUTINE
7198 062066 012737 000002 002334 MOV #2, PHHIGH ;
7199 062074 004737 007724 JSR PC,PVCON ;CREATE VIRTUAL ADDRESS
7200 062100 013700 002340 MOV VIADD,R0 ;GET START ADDRESS OF BUFFER A
7201 062104 010037 002356 MOV R0,BUFAB ;LOAD START ADDRESS OF BUFFER A
7202 062110 012701 010000 MOV #10000,R1 ;LOAD COUNTER FOR 2K
7203 062114 005003 CLR R3 ;R3 CONTAINS
7204 062116 012737 000001 177572 MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7205 062124 110320 16$: MOVB R3,(R0)+ ;LOAD BUFFER WITH DATA
7206 062126 005203 INC R3 ;CREAT NEXT DATA
7207 062130 005301 DEC R1 ;
7208 062132 001374 BNE 16$ ;
7209 062134 012701 010000 MOV #10000,R1 ;LOAD 2K
7210 062140 010037 002360 MOV R0,BUFBB ;LOAD START ADDRESS OF BUFFER B
7211 062144 105020 20$: CLRB (R0)+ ;CLEAR BUFFER B

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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7212	062146	005301		DEC	R1		:2K CLEARED
7213	062150	001375		BNE	20\$		:IF YES,DO THE TEST
7214	062152	005037	177572	CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
7215	062156	112777	000212	MOVB	#212,@ICRHX		:---LOAD TON INTO ACR 1-----
7216	062164	013701	002314	MOV	DPA2,R1		:CREATE MLA2
7217	062170	062701	000040	ADD	#40,R1		:STORE MLA2
7218	062174	010137	002412	MOV	R1,MLA2		:---LOAD MLA2 INTO DOR 1-----
7219	062200	113777	002412	MOVB	MLA2,@IDRHX		:WAIT A LITTLE
7220	062206	004737	011060	JSR	PC,LOOP		:---LOAD START ADDRESS OF BUFFER A---
7221	062212	005077	120064	CLR	@BARX		:STORE BYTE COUNT INPUT
7222	062216	013737	002240	MOV	BCINP,RSAVE		:BILD 2'COMPL FOR BCR
7223	062224	005437	002402	NEG	RSAVE		:---LOAD INPUT INTO BCR 1-----
7224	062230	013777	002402	MOV	RSAVE,@BCRX		:DMA ENB,DMA DIR,INT ENB,BA 17,SYS C
7225	062236	012777	000147	MOV	#147,@CSRX		:SELECT CHANNEL 2
7226	062244	052777	000010	BIS	#10,@CSRX		:---LOAD START ADDRESS OF BUFFER B---
7227	062252	012777	010000	MOV	#10000,@BARX		:---LOAD INPUT INTO BCR 1---
7228	062260	013777	002402	MOV	RSAVE,@BCRX		:---SET DMA ENB,INT ENB,BIT17 IN CSR2
7229	062266	012777	000141	MOV	#141,@CSRX		:SET PRIORITY TO ZERO
7230	062274			SETPRI	#PRI00		
	062274	012700	000000				MOV #PRI00,RO
	062300	104441					TRAP C\$SPRI
7231	062302	042777	000010	BIC	#10,@CSRX		:SELECT CHANNEL 1
7232	062310	012737	000001	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
7233	062316	112777	000013	MOVB	#13,@ICRHX		:---LOAD GTS INTO ACR 1-----
7234	062324	012701	077777	MOV	#77777,R1		:LOAD LOOP COUNTER
7235	062330	005737	002376	TST	INTFC1		:IS INTERRUPT IN CHANNEL 1 OCCER
7236	062334	001014		BNE	24\$		:BRANCH IF YES
7237	062336	005301		DEC	R1		:DECREMENT COUNTER
7238	062340	001373		BNE	23\$		:IF NO,TEST AGIN
7239	062342	017737	117732	MOV	@CSRX,BAD		:GET CSR1 CONTENTS
7240	062350	012737	100046	MOV	#100046,GOOD		:BC OF,DMA DIR,BA 17,SYS CONT
7241	062356			ERRSOFT	2317,E232,ERR201		:ERROR HANDLER
	062356	104457					TRAP C\$ERSOFT
	062360	004415					.WORD 2317
	062362	006072					.WORD E232
	062364	003500					.WORD ERR201
7242	062366	052777	000010	BIS	#10,@CSRX		:SELECT CHANNEL 2
7243	062374	012737	000002	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
7244	062402	005737	002400	TST	INTFC2		:IS AN INTERRUPT IN CHANNEL 2 OCCURED
7245	062406	001012		BNE	25\$		:BRANCH IF YES
7246	062410	017737	117664	MOV	@CSRX,BAD		:GET CSR2 CONTENTS
7247	062416	012737	100050	MOV	#100050,GOOD		:BC OF,BA 17,MUX SHOULD BE SET
7248	062424			ERRSOFT	2318,E232,ERR201		:ERROR HANDLER
	062424	104457					TRAP C\$ERSOFT
	062426	004416					.WORD 2318
	062430	006072					.WORD E232
	062432	003500					.WORD ERR201
7249	062434			SETPRI	#PRI07		:NO FURTHER INTERRUPT ALLOWED
	062434	012700	000340				MOV #PRI07,RO
	062440	104441					TRAP C\$SPRI
7250	062442	042777	000010	BIC	#10,@CSRX		:SELECT CHANNEL 1
7251	062450	012737	000001	MOV	#1,CHAN		:LOAD CHANNEL NUMBER
7252	062456	112777	000014	MOVB	#14,@ICRHX		:---LOAD TCA INTO ACR 1-----
7253	062464	013737	002336	MOV	PHLOW,GOOD		:SET UP COMPARE VALUE
7254	062472	063737	002240	ADD	BCINP,GOOD		
7255	062500	017737	117576	MOV	@BARX,BAD		:GET BAR1 CONTENTS
7256	062506	023737	002502	CMP	BAD,GOOD		:HAS BAR1 THE CORRECT ADDRESS

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TEST 23: DMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2

7257	062514	001404				BEQ	30\$:BRANCH IF YES		
7258	062516					ERRSOFT	2319,E234,ERR501		:ERROR HANDLER		
	062516	104457								TRAP	C\$ERSOFT
	062520	004417								.WORD	2319
	062522	006200								.WORD	E234
	062524	003702								.WORD	ERR501
7259	062526	017737	117552	002502	30\$:	MOV	@BCRX,BAD		:GET BCR1 CONTENTS		
7260	062534	005037	002500			CLR	GOOD		:IS BCR1 ZERO		
7261	062540	023737	002502	002500		CMP	BAD,GOOD		:BRANCH IF YES		
7262	062546	001404				BEQ	31\$		:ERROR HANDLER		
7263	062550					ERRSOFT	2320,E235,ERR501				
	062550	104457								TRAP	C\$ERSOFT
	062552	004420								.WORD	2320
	062554	006231								.WORD	E235
	062556	003702								.WORD	ERR501
7264	062560	052777	000010	117512	31\$:	BIS	#10,@CSRX		:SELECT CHANNEL 2		
7265	062566	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER		
7266	062574	013737	002360	002500		MOV	BUFBB,GOOD		:SET UP COMPARE VALUE		
7267	062602	042737	160000	002500		BIC	#160000,GOOD		:CLEAR BIT 13+14+15		
7268	062610	063737	002240	002500		ADD	BCINP,GOOD		:...		
7269	062616	017737	117460	002502		MOV	@BARX,BAD		:GET BAR2 CONTENTS		
7270	062624	023737	002500	002502		CMP	GOOD,BAD		:HAS BAR2 THE CORRECT ADDRESS		
7271	062632	001404				BEQ	40\$		:BRANCH IF YES		
7272	062634					ERRSOFT	2321,E234,ERR501		:ERROR HANDLER		
	062634	104457								TRAP	C\$ERSOFT
	062636	004421								.WORD	2321
	062640	006200								.WORD	E234
	062642	003702								.WORD	ERR501
7273	062644	017737	117434	002502	40\$:	MOV	@BCRX,BAD		:GET BCR2 CONTENTS		
7274	062652	005737	002502			TST	BAD		:BCR2 CONTENTS SHOULD BE ZERO		
7275	062656	001406				BEQ	43\$		:BRANCH IF YES		
7276	062660	005037	002500			CLR	GOOD		:SET UP DATA FOR ERROR MESSAGE		
7277	062664					ERRSOFT	2322,E235,ERR501		:ERROR HANDLER		
	062664	104457								TRAP	C\$ERSOFT
	062666	004422								.WORD	2322
	062670	006231								.WORD	E235
	062672	003702								.WORD	ERR501
7278	062674	012737	000001	177572	43\$:	MOV	#1,SRO		:**ENABLE MEMORY MANAGEMENT**		
7279	062702	013701	002356			MOV	BUFAB,R1		:PROVIDE FIRST BYTE OF BUFFER A		
7280	062706	013702	002360			MOV	BUFBB,R2		:PROVIDE FIRST BYTE OF BUFFER B		
7281	062712	005037	002404			CLR	CNT1		:CLEAR BUFFER COUNTER		
7282	062716	005237	002404		44\$:	INC	CNT1		:...		
7283	062722	122122				CMPB	(R1)+,(R2)+		:BUFFER A EQUAL BUFFER B		
7284	062724	001446				BEQ	46\$		:IF YES CONTINUE		
7285	062726	005037	002500			CLR	GOOD		:CLEAR GOOD		
7286	062732	005037	002502			CLR	BAD		:CLEAR BAD		
7287	062736	012737	000002	002426		MOV	#2,TXADRH		:TX ADDRESS IS OVER 64K		
7288	062744	012737	000002	002422		MOV	#2,RXADRH		:RX ADDRESS IS OVER 64K		
7289	062752	010137	002430			MOV	R1,TXADRL		:GET ADDRESS OVER 64K		
7290	062756	005337	002430			DEC	TXADRL		:...		
7291	062762	042737	160000	002430		BIC	#160000,TXADRL		:CLEAR PAR INFORMATION		
7292	062770	013737	002430	002424		MOV	TXADRL,RXADRL		:GENERATE RX ADDRESS FROM TX ADDRESS		
7293	062776	057137	010000	002424		BIS	#10000,RXADRL		:RX ADDRESS IS TX ADDRESS +2K		
7294	063004	116137	177777	002500		MOVB	-1(R1),GOOD		:SET UP DATA FOR ERROR MESSAGE		
7295	063012	116237	177777	002502		MOVB	-1(R2),BAD		:...		
7296	063020	005037	177572			CLR	SRO		:**DISABLE MEMORY MANAGEMENT**		
7297	063024					ERRSOFT	2323,E231,ERR231		:ERROR HANDLER		

Address	Offset	Hex	Symbol	Instruction	Comment	Trap	CS
063024	104457					TRAP	C\$ERSOFT
063026	004423					.WORD	2323
063030	006010					.WORD	E231
063032	003744					.WORD	ERR231
7298	063034	012737	000001	177572	MOV #1,SRO	; **ENABLE MEMORY MANAGEMENT**	
7299	063042	023737	002404	002240	46\$: CMP CN1,BCINP	; ALL BYTES COMPARED ?	
7300	063050	001322			BNE 44\$	; IF NO, GET NEXT ONE	
7301	063052	005037	177572		CLR SRO	; **DISABLE MEMORY MANAGEMENT**	
7302	063056	042777	000010	117214	BIC #10,@CSRX	; SELECT CHANNEL 1	
7303	063064	112777	000077	117204	MOVB #77,@IDRMX	; ---LOAD UNL INTO DOR 1-----	
7304	063072	004737	011060		JSR PC,LOOP	; WAIT A LITTLE	
7305	063076	112777	000200	117164	MOVB #200,@ICRMX	; ---LOAD SWRST INTO ACR 1-----	
7306	063104	112777	000000	117156	MOVB #0,@ICRMX	; ---LOAD NOT SWRST INTO ACR 1-----	
7307	063112	005737	002234		TST QVP	; IS QUICK VERIFY PASS SELECTED	
7308	063116	001030			BNE EXQV23	; IF YES EXIT TEST	
7309	063120	005237	002322		INC ITRCNT	; INCREMENT COUNTER	
7310	063124	023737	002322	002320	CMP ITRCNT,ITRDEF	; ALL DONE	
7311	063132	001422			BEQ EXQV23	; BRANCH IF YES	
7312	063134	112777	000217	117126	MOVB #217,@ICRMX	; ---LOAD SIC INTO ACR 1-----	
7313	063142	004737	011072		JSR PC,WAIT	; WAIT A LITTLE	
7314	063146	112777	000017	117114	MOVB #17,@ICRMX	; ---LOAD NOT SIC INTO ACR 1-----	
7315	063154	012777	000010	117116	MOV #10,@CSRX	; CLEAR CSR1,SELECT CHANNEL 2	
7316	063162	005077	117112		CLR @CSRX	; CLEAR CSR2,SELECT CHANNEL 1	
7317	063166	017737	117100	002502	MOV @IDRX,BAD	; READ DIR1 FOR CLEAR BO BIT IN IIR	
7318	063174	000137	057306		JMP ITAC23	; IF NO TEST ITERATION	
7319	063200				EXQV23: EXIT	; EXIT TEST	
	063200	104432				TRAP	C\$EXIT
	063202	000064				.WORD	L10054-
7320							
7321					.NLIST	BEX	
7322	063204	045	123	062	1SHD23: .ASCII	/ %S2%ADMA DATA TRANSFER TEST FROM CHANNEL 1 TO 2%/	
7323					.LIST	BEX	
7324					.EVEN		
7325	063266				ENDTST		
	063266					L10054:	
	063266	104401				TRAP	C\$ETST

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TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7327 .SBTTL TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1
7328 :*****
7329 : IEX - TEST 24
7330 : PART 1 SENDS DATA VIA THE IEC/IEEE BUS FROM CHAN. 2 TO 1 BY MEANS OF A DMA
7331 : I.E. CHANNEL 2 WHICH IS SELECTED AS TALKER PERFORMS A DATI CYCLE,
7332 : WHEREAS CHANNEL 1 WHICH IS SELECTED AS A LISTENER PERFORMS A DATOB
7333 : CYCLE. THE MAX. SELECTABLE BYTE COUNT FOR THIS DATA TRANSFER IS
7334 : IS 2K BYTES AND THE HIGHEST BUS ADDRESS IS BELOW 32K.
7335 : PART 2 CHECKS THE NON EXISTENT MEMORY BIT OF CHANNEL 1.
7336 : THIS IS DONE BY A DMA FROM A NON EXISTING I/O PAGE ADDRESS SELECTED
7337 : IN THE BUS ADDRESS REGISTER OF CHANNEL 2 (DATOB CYCLE).
7338 : PART 3 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
7339 : OVER 32K (IF MEMORY MANAGEMENT IS AVAILABLE).
7340 : PART 4 SAME PROCEDURE AS IN PART 1 EXCEPT THE DATA TRANSFER IS EXECUTED
7341 : OVER 64K (IF MEMORY MANAGEMENT IS AVAILABLE).
7342 :*****
7343 BGNTST
7344 063270 005737 002324 TST PNTF ;IS THE PNT FLAG SET
7345 063270 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
7346 063276 012746 067204 PRINTF #TSHD24 ;...
7347 063312 062706 000004 MOV #TSHD24,-(SP)
7348 063322 004737 010710 MOV #1,-(SP)
7349 063326 104431 000002 MOV SP,R0
7350 063330 062700 000002 TRAP C$PNTF
7351 063334 010037 002356 ADD #4,SP
7352 063340 012701 010000 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
7353 063344 005003 ITAC24: JSR PC,BGIN2 ;SET UP PARAMETER
7354 063346 110320 MEMORY R0 ;GET THE FIRST FREE MEMORY LOCATION
7355 063350 005203 TRAP C$MEM
7356 063352 005301 ADD #2,R0 ;USE THE SEC.FREE LOCATION FOR BUFFER
7357 063354 001374 MOV R0,BUFAB ;LOAD START ADDRESS OF BUFFER A
7358 063356 010037 002360 MOV #10000,R1 ;BUILD 2K BUFFER SIZE
7359 063362 012746 000340 CLR R3 ;R3 CONTAINS THE LOADED DATA
7360 063366 012746 010152 1$: MOVB R3,(R0)+ ;LOAD DATA INTO BUFFER A
7361 063372 013746 002246 INC R3 ;CREATE NEW DATA
7362 063376 012746 000003 DEC R1 ;2K LOADED
7363 063402 104437 TRAP C$SVEC ;IF NO, LOAD NEXT DATA BYTE
7364 063404 062706 000010 MOV R0,BUFB ;LOAD START ADDRESS OF BUFFER B
7365 063410 012746 000340 SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
7366 063414 012746 010142 MOV #PRI07,-(SP)
7367 063420 013746 002244 MOV #INTSC2,-(SP)
7368 063424 012746 000003 MOV VECC2,-(SP)
7369 063430 104437 TRAP C$SVEC
7370 063432 062706 000010 ADD #10,SP
7371 063436 112777 000212 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
7372 063444 013701 002312 MOV #PRI07,-(SP)
7373 063450 062701 000040 MOV #INTSC1,-(SP)
7374 063454 010137 002410 MOV VECC1,-(SP)
7375 063458 112777 000212 MOV #3,-(SP)
7376 063462 013701 002312 TRAP C$SVEC
7377 063466 062701 000040 ADD #10,SP
7378 063470 010137 002410 116624 MOVB #212,@ICRH ;----LOAD TON INTO ACR 2-----
7379 063474 013701 002312 MOV DPA1,R1 ;CREATE MLA1
7380 063478 062701 000040 ADD #40,R1 ;...
7381 063482 010137 002410 MOV R1,MLA1 ;STORE MLA1

```

Address	Hex	Dec	Hex	Dec	Label	Instruction	Comment
7365	063460	113777	002410	116610		MOVB	MLA1,@IDRHX
7366	063466	004737	011060			JSR	PC,LOOP
7367	063472					BGNSEG	
	063472	104404					
7368	063474	005037	002400			CLR	INTFC2
7369	063500	005037	002376			CLR	INTFC1
7370	063504	052777	000010	116566		BIS	#10,@CSRX
7371	063512	013777	002356	116562		MOV	BUFAB,@BARX
7372	063520	013737	002240	002402		MOV	BCINP,RSAVE
7373	063526	005437	002402			NEG	RSAVE
7374	063532	013777	002402	116544		MOV	RSAVE,@BCRX
7375	063540	012777	000107	116532		MOV	#107,@CSRX
7376	063546	042777	000010	116524		BIC	#10,@CSRX
7377	063554	013700	002360			MOV	BUFBB,R0
7378	063560	012701	010000			MOV	#10C00,R1
7379	063564	105020			2\$:	CLRB	(R0)+
7380	063566	005301				DEC	R1
7381	063570	001375				BNE	2\$
7382	063572	013777	002360	116502		MOV	BUFBB,@BARX
7383	063600	013777	002402	116476		MOV	RSAVE,@BCRX
7384	063606	012777	000101	116464		MOV	#101,@CSRX
7385	063614					SETPRI	#PRI00
	063614	012700	000000				
	063620	104441					
7386	063622	052777	000010	116450		BIS	#10,@CSRX
7387	063630	012737	000002	002374		MOV	#2,CHAN
7388	063636	112777	000013	116424		MOVB	#13,@ICRHX
7389	063644	012701	077777			MOV	#77777,R1
7390	063650	005737	002400		13\$:	TST	INTFC2
7391	063654	001015				BNE	10\$
7392	063656	005301				DEC	R1
7393	063660	001373				BNE	13\$
7394	063662	017737	116412	002502		MOV	@CSRX,BAD
7395	063670	012737	100016	002500		MOV	#100016,GOOD
7396	063676					ERRSOFT	2401,E232,ERR201
	063676	104457					
	063700	004541					
	063702	006072					
	063704	003500					
7397	063706					CKLOOP	
	063706	104406					
7398	063710	042777	000010	116362	10\$:	BIC	#10,@CSRX
7399	063716	012737	000001	002374		MOV	#1,CHAN
7400	063724	005737	002376			TST	INTFC1
7401	063730	001013				BNE	11\$
7402	063732	017737	116342	002502		MOV	@CSRX,BAD
7403	063740	012737	100000	002500		MOV	#100000,GOOD
7404	063746					ERRSOFT	2402,E232,ERR201
	063746	104457					
	063750	004542					
	063752	006072					
	063754	003500					
7405	063756</						

```

:-----LOAD MLA1 INTO DOR 2-----
:WAIT A LITTLE

                                TRAP      C$BSEG

:CLEAR INTERRUPT FLAG
:CLEAR INTERRUPT FLAG
:SELECT CHANNEL 2
:---LOAD START ADDRESS OF TABLE A ---
:STORE BYTE COUNT INPUT
:BILD 2'COMPL FOR BCR
:----LOAD INPUT INTO BCR 2-----
:----DMA ENB,DMA DIR,INT ENB,SYS CON.
:SELECT CHANNEL 1
:LOAD START ADDRESS OF BUFFER B
:BUILD 2K BUFFER SIZE
:FILL BUFFER B WITH ZERO
:2K LOADED
:IF NO, CLEAR NEXT BUFFER LOCATION
:----LOAD START ADDRESS OF TABLE B----
:----LOAD INPUT INTO BCR 1---
:----SET DMA ENB,INT ENB IN CSR1-----
:SET PRIORITY TO ZERO

                                MOV        #PRI00,R0
                                TRAP      C$SPRI

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:----LOAD GTS INTO ACR 2-----
:LOAD LOOP COUNTER
:IS INTERRUPT IN CHANNEL 2 OCCER
:BRANCH IF YES
:DECREMENT COUNTER
:IF MORE,TEST AGAIN
:GET CSR2 CONTENTS
:BC OF ,MUX,DMA DTR,SYS CONT SHOULD SET
:ERROR HANDLER

                                TRAP      C$ERSOFT
                                .WORD     2401
                                .WORD     E232
                                .WORD     ERR201

:BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:IS AN INTERRUPT IN CHANNEL 1 OCCURED
:BRANCH IF YES
:GET CSR1 CONTENTS
:BC OF SHUOLD BE SET
:ERROR HANDLER

                                TRAP      C$ERSOFT
                                .WORD     2402
                                .WORD     E232
                                .WORD     ERR201

:BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:NO FURTHER INTERRUPT ALLOWED

```

Address	Hex	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	
---------	-----	-------	----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--

```

MOV          #PRI07,RO
TRAP        C$SPRI
:-----LOAD TCA INTO ACR 2-----
:SET UP COMPARE VALUE
:
:GET BAR2 CONTENTS
:HAS BAR2 THE CORRECT ADDRESS
:BRANCH IF YES
:ERROR HANDLER
:
:TRAP        C$ERSOFT
:WORD       2403
:WORD       E234
:WORD       ERR501
:BRANCH TO BGNSEG IF ERRLOOP IS SET
:TRAP        C$CLP1
:GET BCR2 CONTENTS
:
:IS BCR2 ZERO
:BRANCH IF YES
:ERROR HANDLER
:
:TRAP        C$ERSOFT
:WORD       2404
:WORD       E235
:WORD       ERR501
:BRANCH TO BGNSEG IF ERRLOOP IS SET
:TRAP        C$CLP1
:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:SET UP COMPARE VALUE
:
:GET BAR1 CONTENTS
:HAS BAR1 THE CORRECT ADDRESS
:BRANCH IF YES
:ERROR HANDLER
:
:TRAP        C$ERSOFT
:WORD       2405
:WORD       E234
:WORD       ERR501
:BRANCH TO BGNSEG IF ERRLOOP IS SET
:TRAP        C$CLP1
:GET BCR1 CONTENTS
:BCR1 CONTENTS SHOULD BE ZERO
:BRANCH IF YES
:SET UP DATA FOR ERROR MESSAGE
:ERROR HANDLER
:
:TRAP        C$ERSOFT
:WORD       2406
:WORD       E235
:WORD       ERR501
:BRANCH TO BGNSEG IF ERRLOOP IS SET
:TRAP        C$CLP1
:PROVIDE FIRST BYTE OF BUFFER A
:PROVIDE FIRST BYTE OF BUFFER B
:CLEAR BUFFER COUNTER
:
:BUFFER A EQUAL BUFFER B
:IF YES CONTINUE

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 66-3
TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

```

7444 064246 005037 002500          CLR      GOOD          ;CLEAR GOOD
7445 064252 005037 002502          CLR      BAD           ;CLEAR BAD
7446 064256 005037 002426          CLR      TXADRH        ;SET UP DATA FOR ERROR MESSAGE
7447 064262 010137 002430          MOV      R1,TXADRL        ;...
7448 064266 005337 002430          DEC      TXADRL         ;...
7449 064272 005037 002422          CLR      RXADRH        ;...
7450 064276 010237 002424          MOV      R2,RXADRL        ;...
7451 064302 005337 002424          DEC      RXADRL         ;...
7452 064306 116137 177777 002500  MOVB     -1(R1),GOOD    ;SET UP DATA FOR ERROR MESSAGE
7453 064314 116237 177777 002502  MOVB     -1(R2),BAD     ;...
7454 064322          ERRSOFT 2407,E250,ERR231 ;ERROR HANDLER
      064322 104457          TRAP      C$ERSOFT
      064324 004547          .WORD    2407
      064326 005726          .WORD    E250
      064330 003744          .WORD    ERR231
7455 064332          CKLOOP          ;BRANCH TO BGNSEG IF ERRLOOP IS SET
      064332 104406          TRAP      C$CLP1
7456 064334 023737 002404 002240 46$: CMP      CNT1,BCINP    ;ALL BYTES COMPARED ?
7457 064342 001335          BNE          44$                ;IF NO, GET NEXT ONE
7458 064344          ENDSEG
      10000$:
      064344 104405          TRAP      C$ESEG
7459 064346 005077 115726          CLR      @CSRX          ;CLEAR CSR1,
7460 064352 017737 115714 002502  MOV      @IDRX,BAD     ;READ DIR1 FOR CLEAR BO BIT IN IIR
7461 064360 052777 000010 115712  BIS      #10,@CSRX    ;SELECT CHANNEL 2
7462 064366 005077 115706          CLR      @CSRX          ;CLEAR CSR2,SELECT CHANNEL 1
7463          ;+-----+
7464          ;PART 2 CHECK THE NON EXISTENT MEMORY BIT OF CHAN. 1 (THE I/O PAGE IS USED
7465          ;FOR NON EXISTENT MEMORY)
7466          ;+-----+
7467 064372 012701 002624  PSEU24: MOV      #TABE,R1        ;CLEAR TWO WORD IN TABEL E
7468 064376 005021          CLR      (R1)+
7469 064400 005011          CLR      (R1)
7470 064402          SETVEC   #4,#NXM,#PRI07    ;SET UP VECTOR FOR TRAP TO 4
      064402 012746 000340          MOV      #PRI07,-(SP)
      064406 012746 010132          MOV      #NXM,-(SP)
      064412 012746 000004          MOV      #4,-(SP)
      064416 012746 000003          MOV      #3,-(SP)
      064422 104437          TRAP      C$SVEC
      064424 062706 000010          ADD      #10,SP
7471 064430 005037 002326          CLR      NXMFLG        ;CLEAR FLAG
7472 064434 012701 160000          MOV      #160000,R1      ;LOAD FIRST ADDRESS OF I/O PAGE
7473 064440 005711          TST      (R1)                ;FIND A NON EXISTEND LOCATION
7474 064442 005737 002326          TST      NXMF G
7475 064446 062701 000002          ADD      #2,R1
7476 064452 001772          BEQ      1$
7477 064454          CLRVEC   #4
      064454 012700 000004          ;NEXT I/O PAGE ADD.(NO AUTO INCR.1'/44!)
      064460 104436          ;SET VECTOR 4 TO NORMAL STATE
      064462 162701 000002          MOV      #4,R0
      064466          TRAP      C$CVEC
7478 064462          SUB      #2,R1
7479 064466          BGNSEG
      064466 104404          ;...
7480 064470 005037 002376          TRAP      C$BSEG
7481 064474 005037 002400          CLR      INTFC1        ;CLEAR INTERRUPT FLAG
7482 064500 042777 000010 115572  CLR      INTFC2        ;CLEAR INTERRUPT FLAG
7483 064506 010177 115570          BIC      #10,@CSRX    ;SELECT CHANNEL 1
7484 064512 012737 000002 002402  MOV      R1,@BARX      ;LOAD BAR1 WITH A NON EXISTS I/O ADDR.
      MOV      #2,RSAVE    ;LOAD NUMBER OF BYTE COUNTS

```


HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 66-4
TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7485	064520	005437	002402		NEG	RSAVE		:BILD 2'COMPLEMENT
7486	064524	013777	002402	115552	MOV	RSAVE,@BCRX		:LOAD BCR1
7487	064532	052777	000010	115540	BIS	#10,@CSRX		:SELECT CHANNEL 2
7488	064540	012777	000117	115532	MOV	#117,@CSRX		:DMA ENB,DMA DIR,INT ENB,SYS
7489	064546	012777	002624	115526	MOV	#TABE,@BARX		:LOAD BAR2 WITH STAR ADDRESS OF TABE
7490	064554	013777	002402	115522	MOV	RSAVE,@BCRX		:LOAD BCR2
7491	064562	042777	000010	115510	BIC	#10,@CSRX		:SELECT CHANNEL 1
7492	064570	012777	017161	115502	MOV	#17161,@CSRX		:---SET DMA ENB,BA 16-21,INT ENB CSR1-
7493	064576	052777	000010	115474	BIS	#10,@CSRX		:SELECT CHANNEL 2
7494	064604	012737	000002	002374	MOV	#2,CHAN		:LOAD CHANNEL NUMBER
7495	064612				SETPRI	#PRI00		:SET PRIORITY TO ZERO
	064612	012700	000000					
	064616	104441						MOV #PRI00,R0
7496	064620	112777	000013	115442	MOVB	#13,@ICRHX		TRAP C\$SPRI
7497	064626	012702	077777		MOV	#77777,R2		:---LOAD GTS INTO ACR 2-----
7498	064632	005737	002400		TST	INTFC2		:LOAD LOOP COUNTER
7499	064636	001015			BNE	6\$		:IS INTERRUPT IN CHANNEL 2 OCCER
7500	064640	005302			DEC	R2		:BRANCH IF YES
7501	064642	001373			BNE	3\$		:DECREMENT COUNTER
7502	064644	017737	115430	002502	MOV	@CSRX,BAD		:IF NO,TEST AGIN
7503	064652	012737	100016	002500	MOV	#100016,GOOD		:GET CSR2 CONTENTS
7504	064660				ERRSOFT	2408,E232,ERR201		:BC OF,MUX,DMA DIR,SYS CONT SHOULD SET
	064660	104457						:ERROR HANDLER
	064662	004550						TRAP C\$ERSOFT
	064664	006072						.WORD 2408
	064666	003500						.WORD E232
7505	064670				CKLOOP			.WORD ERR201
	064670	104406						TRAP C\$CLP1
7506	064672				SETPRI	#PRI07		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	064672	012700	000340					:NO FURTHER INTERRUPT ALLOWED
	064676	104441						MOV #PRI07,R0
7507	064700	112777	000014	115362	MOVB	#14,@ICRHX		TRAP C\$SPRI
7508	064706	042777	000010	115364	BIC	#10,@CSRX		:---LOAD TCA INTO ACR 2-----
7509	064714	012737	000001	002374	MOV	#1,CHAN		:SELECT CHANNEL 1
7510	064722	017737	115352	002502	MOV	@CSRX,BAD		:LOAD CHANNEL NUMBER
7511	064730	042737	017000	002502	BIC	#17000,BAD		:GET CSR1 CONTENTS
7512	064736	022737	040060	002502	CMP	#40060,BAD		:IGNORE BIT 9-12
7513	064744	001410			BEQ	12\$		:NXM,BA 16+17 SHOULD BE SET
7514	064746	012737	040060	002500	MOV	#40060,GOOD		:BRANCH IF YES
7515	064754				ERRSOFT	2409,E401,ERR501		:SET UP DATA FOR ERROR MESSAGE
	064754	104457						:ERROR HANDLER
	064756	004551						TRAP C\$ERSOFT
	064760	005265						.WORD 2409
	064762	003702						.WORD E401
7516	064764				CKLOOP			.WORD ERR501
	064764	104406						TRAP C\$CLP1
7517	064766				12\$:	ENDSEG		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	064766							10001\$:
	064766	104405						TRAP C\$ESEG
7518	064770	005077	115304		CLR	@CSRX		:CLEAR CSR1
7519	064774	017737	115272	002502	MOV	@IDRX,BAD		:READ DIR1 FOR CLEAR BO BIT IN IIR
7520	065002	052777	000010	115270	BIS	#10,@CSRX		:SELECT CHANNEL 2
7521	065010	005077	115264		CLR	@CSRX		:CLEAR CSR2,SELECT CHANNEL 1
7522					++++			-----
7523					:PART 3 DMA OVER 32K			-----
7524					++++			-----
7525	065014	005037	002376		CLR	INTFC1		:CLEAR INTERRUPT FLAG

HARDWARE TESTS MACRO M11:3 06-SEP-82 16:46 PAGE 66-5
TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7526	065020	005037	002400		CLR	INTFC2		:CLEAR INTERRUPT FLAG
7527	065024	023727	002342	000001	CMP	PHHS1Z,#1		:IS THERE MORE THAN 32K
7528	065032	002404			BLT	11\$		:IF NO SKIP TEST
7529	065034	003005			BGT	13\$		
7530	065036	005737	002344		TST	PHLS1Z		
7531	065042	001002			BNE	13\$		
7532	065044	000137	067200		JMP	EXQV24	11\$:	:JUMP TO TEST END
7533	065050	005037	002336		CLR	PHLOW	13\$:	:LOAD INPUT FOR CONVERSION ROUTINE
7534	065054	012737	000001	002334	MOV	#1,PHHIGH		
7535	065062	004737	007724		JSR	PC,PVCON		:CREATE VIRTUAL ADDRESS
7536	065066	013700	002340		MOV	VIADD,R0		:GET START ADDRESS OF BUFFER A
7537	065072	010037	002356		MOV	R0,BUFAB		:LOAD START ADDRESS OF BUFFER A
7538	065076	012701	010000		MOV	#10000,R1		:LOAD COUNTER FOR 2K
7539	065102	005003			CLR	R3		:R3 CONTAINS
7540	065104	012737	000001	177572	MOV	#1,SRO		:**ENABLE MEMORY MANAGEMENT**
7541	065112	110320			MOVB	R3,(R0)+	16\$:	:LOAD BUFFER WITH DATA
7542	065114	005203			INC	R3		:CREAT NEXT DATA
7543	065116	005301			DEC	R1		
7544	065120	001374			BNE	16\$		
7545	065122	012701	010000		MOV	#10000,R1		:LOAD 2K
7546	065126	010037	002360		MOV	R0,BUFB		:LOAD START ADDRESS OF BUFFER B
7547	065132	105020			CLRB	(R0)+	20\$:	:CLEAR BUFFER B
7548	065134	005301			DEC	R1		:2K CLEARED
7549	065136	001375			BNE	20\$		:IF YES,DO THE TEST
7550	065140	052777	000010	115132	BIS	#10,@CSRX		:SELECT CHANNEL 2
7551	065146	005037	177572		CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
7552	065152	112777	000212	115110	MOVB	#212,@ICRHX		:----LOAD TON INTO ACR 2-----
7553	065160	013701	002312		MOV	DPA1,R1		:CREATE MLA1
7554	065164	062701	000040		ADD	#40,R1		
7555	065170	010137	002410		MOV	R1,MLA1		:STORE MLA1
7556	065174	113777	002410	115074	MOVB	MLA1,@IDRHX		:----LOAD MLA1 INTO DOR 2-----
7557	065202	004737	011060		JSR	PC,LOOP		:WAIT A LITTLE
7558	065206				BGNSEG			
7559	065210	052777	000010	115062	BIS	#10,@CSRX		TRAP C\$BSEG
7560	065216	005077	115060		CLR	@BARX		:SELECT CHANNEL 2
7561	065222	013737	002240	002402	MOV	BCINP,RSVE		:---LOAD START ADDRESS OF BUFFER A---
7562	065230	005437	002402		NEG	RSVE		:STORE BYTE COUNT INPUT
7563	065234	013777	002402	115042	MOV	RSVE,@BCRX		:BILD 2'COMPL FOR BCR
7564	065242	012777	000127	115030	MOV	#127,@CSRX		:---LOAD INPUT INTO BCR 2-----
7565	065250	042777	000010	115022	BIC	#10,@CSRX		:DMA ENB,DMA DIR,INT ENB,BIT 16,SYS C
7566	065256	012777	010000	115016	MOV	#10000,@BARX		:SELECT CHANNEL 1
7567	065264	013777	002402	115012	MOV	RSVE,@BCRX		:---LOAD START ADDRESS OF BUFFER B---
7568	065272	012777	000121	115000	MOV	#121,@CSRX		:---LOAD INPUT INTO BCR 1---
7569	065300				SETPRI	#PRI00		:---SET DMA ENB,INT ENB,BIT16 IN CSR1
	065300	012700	000000					:SET PRIORITY TO ZERO
	065304	104441					MOV #PRI00,R0	
7570	065306	052777	000010	114764	BIS	#10,@CSRX		TRAP C\$SPRI
7571	065314	012737	000002	002374	MOV	#2,CHAN		:SELECT CHANNEL 2
7572	065322	112777	000013	114740	MOVB	#13,@ICRHX		:LOAD CHANNEL NUMBER
7573	065330	012701	077777		MOV	#77777,R1		:---LOAD GTS INTO ACR 2-----
7574	065334	005737	002400		TST	INTFC2		:LOAD LOOP COUNTER
7575	065340	001015			BNE	24\$		:IS INTERRUPT IN CHANNEL 2 OCCER
7576	065342	005301			DEC	R1		:BRANCH IF YES
7577	065344	001373			BNE	23\$		:DECREMENT COUNTER
7578	065346	017737	114726	002502	MOV	@CSRX,BAD		:IF NO,TEST AGIN
7579	065354	012737	100036	002500	MOV	#100036,GOOD		:GET CSR2 CONTENTS
								:BC OF,MUX,DMA DIR,BA 16,SYS CONT

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TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7580	065362				ERRSOFT 2410,E232,ERR201		:ERROR HANDLER	
	065362	104457					TRAP	C\$ERSOFT
	065364	004552					.WORD	2410
	065366	006072					.WORD	E232
	065370	003500					.WORD	ERR201
7581	065372				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET	
	065372	104406					TRAP	C\$CLP1
7582	065374	042777	000010	114676	24\$: BIC #10,@CSRX		:SELECT CHANNEL 1	
7583	065402	012737	000001	002374	MOV #1,CHAN		:LOAD CHANNEL NUMBER	
7584	065410	005737	002376		TST INTFC1		:IS AN INTERRUPT IN CHANNEL 1 OCCURED	
7585	065414	001013			BNE 25\$		:BRANCH IF YES	
7586	065416	017737	114656	002502	MOV @CSRX,BAD		:GET CSR1 CONTENTS	
7587	065424	012737	100020	002500	MOV #100020,GOOD		:BC OF,BA 16 SHOULD BE SET	
7588	065432				ERRSOFT 2411,E232,ERR201		:ERROR HANDLER	
	065432	104457					TRAP	C\$ERSOFT
	065434	004553					.WORD	2411
	065436	006072					.WORD	E232
	065440	003500					.WORD	ERR201
7589	065442				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET	
	065442	104406					TRAP	C\$CLP1
7590	065444				25\$: SETPRI #PRI07		:NO FURTHER INTERRUPT ALLOWED	
	065444	012700	000340				MOV	#PRI07,RO
	065450	104441					TRAP	C\$SPRI
7591	065452	052777	000010	114620	BIS #10,@CSRX		:SELECT CHANNEL 2	
7592	065460	012737	000002	002374	MOV #2,CHAN		:LOAD CHANNEL NUMBER	
7593	065466	112777	000014	114574	MOVB #14,@ICRHX		:----LOAD TCA INTO ACR 2-----	
7594	065474	013737	002336	002500	MOV PHLOW,GOOD		:SET UP COMPARE VALUE	
7595	065502	063737	002240	002500	ADD BCINP,GOOD		:...	
7596	065510	017737	114566	002502	MOV @BARX,BAD		:GET BAR2 CONTENTS	
7597	065516	023737	002502	002500	CMP BAD,GOOD		:HAS BAR2 THE CORRECT ADDRESS	
7598	065524	001404			BEQ 30\$		:BRANCH IF YES	
7599	065526				ERRSOFT 2412,E234,ERR501		:ERROR HANDLER	
	065526	104457					TRAP	C\$ERSOFT
	065530	004554					.WORD	2412
	065532	006200					.WORD	E234
	065534	003702					.WORD	ERR501
7600	065536	017737	114542	002502	30\$: MOV @BCRX,BAD		:GET BCR2 CONTENTS	
7601	065544	005037	002500		CLR GOOD		:	
7602	065550	023737	002502	002500	CMP BAD,GOOD		:IS BCR2 ZERO	
7603	065556	001404			BEQ 31\$		:BRANCH IF YES	
7604	065560				ERRSOFT 2413,E235,ERR501		:ERROR HANDLER	
	065560	104457					TRAP	C\$ERSOFT
	065562	004555					.WORD	2413
	065564	006231					.WORD	E235
	065566	003702					.WORD	ERR501
7605	065570	042777	000010	114502	31\$: BIC #10,@CSRX		:SELECT CHANNEL 1	
7606	065576	012737	000001	002374	MOV #1,CHAN		:LOAD CHANNEL NUMBER	
7607	065604	013737	002360	002500	MOV BUFBF,GOOD		:SET UP COMPARE VALUE	
7608	065612	042737	160000	002500	BIC #160000,GOOD		:CLEAR BIT 13+14+15	
7609	065620	063737	002240	002500	ADD BCINP,GOOD		:...	
7610	065626	017737	114450	002502	MOV @BARX,BAD		:GET BAR1 CONTENTS	
7611	065634	023737	002500	002502	CMP GOOD,BAD		:HAS BAR1 THE CORRECT ADDRESS	
7612	065642	001404			BEQ 40\$		:BRANCH IF YES	
7613	065644				ERRSOFT 2414,E234,ERR501		:ERROR HANDLER	
	065644	104457					TRAP	C\$ERSOFT
	065646	004556					.WORD	2414
	065650	006200					.WORD	E234

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TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

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7614 065652 003702 114424 002502 40$: MOV @BCRX,BAD ;GET BCR1 CONTENTS .WORD ERR501
7615 065654 017737 002502 TST BAD ;BCR1 CONTENTS SHOULD BE ZERO
7616 065662 005737 BEQ 43$ ;BRANCH IF YES
7617 065666 001406 CLR GOOD ;SET UP DATA FOR ERROR MESSAGE
7618 065670 005037 002500 ERRSOF T 2415,E235,ERR501 ;ERROR HANDLER
      065674 104457 TRAP C$ERSOF T
      065676 004557 .WORD 2415
      065700 006231 .WORD E235
      065702 003702 .WORD ERR501
7619 065704 012737 000001 177572 43$: MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7620 065712 013701 002356 MOV BUFAB,R1 ;PROVIDE FIRST BYTE OF BUFFER A
7621 065716 013702 002360 MOV BUFBB,R2 ;PROVIDE FIRST BYTE OF BUFFER B
7622 065722 005037 002404 CLR CNT1 ;CLEAR BUFFER COUNTER
7623 065726 005237 002404 44$: INC CNT1
7624 065732 122122 CMPB (R1)+,(R2)+ ;BUFFER A EQUAL BUFFER B
7625 065734 001446 BEQ 46$ ;IF YES CONTINUE
7626 065736 005037 002500 CLR GOOD ;CLEAR GOOD
7627 065742 005037 002502 CLR BAD ;CLEAR BAD
7628 065746 012737 000001 002426 MOV #1,TXADRH ;TX ADDRESS IS OVER 32K
7629 065754 012737 000001 002422 MOV #1,RXADRH ;RX ADDRESS IS OVER 32K
7630 065762 010137 002430 MOV R1,TXADRL ;GET ADDRESS OVER 32K
7631 065766 005337 002430 DEC TXADRL
7632 065772 042737 160000 002430 BIC #160000,TXADRL ;CLEAR PAR INFORMATION
7633 066000 013737 002430 002424 MOV TXADRL,RXADRL ;GENERATE RX ADDRESS FROM TX ADDRESS
7634 066006 052737 010000 002424 BIS #10000,RXADRL ;RX ADDRIS IS TX ADDRESS +2K
7635 066014 116137 177777 002500 MOVB -1(R1),GOOD ;SET UP DATA FOR ERROR MESSAGE
7636 066022 116237 177777 002502 MOVB -1(R2),BAD
7637 066030 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7638 066034 005037 177572 ERRSOF T 2416,E250,ERR231 ;ERROR HANDLER
      066034 104457 TRAP C$ERSOF T
      066036 004560 .WORD 2416
      066040 005726 .WORD E250
      066042 003744 .WORD ERR231
7639 066044 012737 000001 177572 46$: MOV #1,SRO ;**ENABLE MEMORY MANAGEMENT**
7640 066052 023737 002404 002240 CMP CNT1,BCINP ;ALL BYTES COMPARED ?
7641 066060 001322 BNE 44$ ;IF NO, GET NEXT ONE
7642 066062 005037 177572 CLR SRO ;**DISABLE MEMORY MANAGEMENT**
7643 066066 005037 177572 ENDSEG
      10002$:
      066066 104405 TRAP C$ESEG
7644 066070 005077 114204 CLR @CSRX ;CLEAR CSR1
7645 066074 017737 114172 002502 MOV @IDRX,BAD ;READ DIR1 FOR CLEAR BO BIT IN IIR
7646 066102 052777 000010 114170 BIS #10,@CSRX ;SELECT CHANNEL 2
7647 066110 005077 114164 CLR @CSRX ;CLEAR CHANNEL 2,SELECT CHANNEL 1
7648
7649 ;+++-----
7650 ;PART 4 DMA OVER 64K
7651 ;+++-----
7651 066114 005037 002376 PSEU34: CLR INTFC1 ;CLEAR INTERRUPT FLAG
7652 066120 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG
7653 066124 023727 002342 000002 CMP PHHSIZ,#2 ;IS THERE MORE THAN 64K
7654 066132 002404 BLT 11$ ;IF NO SKIP TEST
7655 066134 003005 BGT 13$
7656 066136 005737 002344 TST PHLSIZ
7657 066142 001002 BNE 13$
7658 066144 000137 067200 11$: JMP EXQV24 ;JUMP TO TEST END
7659 066150 005037 002336 13$: CLR PHLOW ;LOAD INPUT FOR CONVERSION ROUTINE

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Address	Hex	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	Op418
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:CREATE VIRTUAL ADDRESS
:GET START ADDRESS OF BUFFER A
:LOAD START ADDRESS OF BUFFER A
:LOAD COUNTER FOR 2K
:R3 CONTAINS
:**ENABLE MEMORY MANAGEMENT**
:LOAD BUFFER WITH DATA
:CREAT NEXT DATA
:
:LOAD 2K
:LOAD START ADDRESS OF BUFFER B
:CLEAR BUFFER B
:2K CLEARED
:IF YES,DO THE TEST
:SELECT CHANNEL 2
:**DISABLE MEMORY MANAGEMENT**
:---LOAD TON INTO ACR 2-----
:CREATE MLA1
:
:STORE MLA1
:---LOAD MLA1 INTO DOR 2-----
:WAIT A LITTLE
:---LOAD START ADDRESS OF BUFFER A---
:STORE BYTE COUNT INPUT
:BILD 2*COMPL FOR BCR
:---LOAD INPUT INTO BCR 1-----
:-DMA ENB,DMA DIR,INT ENB,BA 17,SYS C
:SELECT CHANNEL 1
:---LOAD START ADDRESS OF BUFFER B---
:---LOAD INPUT INTO BCR 1---
:---SET DMA ENB,INT ENB,BIT17 IN CSR1
:SET PRIORITY TO ZERO
                                MOV      #PR100,R0
                                TRAP     C$SPRI

:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:---LOAD GTS INTO ACR 2-----
:LOAD LOOP COUNTER
:IS INTERRUPT IN CHANNEL 2 OCCER
:BRANCH IF YES
:DECREMENT COUNTER
:IF NO,TEST AGIN
:GET CSR2 CONTENTS
:BC OF,MUX,DMA DIR,BA 17,SYS CONT
:ERROR HANDLER
                                TRAP     C$ERSOFT
                                .WORD     2417
                                .WORD     E232
                                .WORD     ERR201

:SELECT CHANNEL 1
:LOAD CHANNEL NUMBER
:IS AN INTERRUPT IN CHANNEL 1 OCCURED
:BRANCH IF YES
:GET CSR1 CONTENTS
:BC OF,BA 17 SHOULD BE SET

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TEST 24: DMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1

7711	066520				ERRSOFT 2418,E232,ERR201		:ERROR HANDLER	
	066520	104457						TRAP C\$ERSOFT
	066522	004562						.WORD 2418
	066524	006072						.WORD E232
	066526	003500						.WORD ERR201
7712	066530			25\$:	SETPRI #PRI07		:NO FURTHER INTERRUPT ALLOWED	
	066530	012700	000340					MOV #PRI07,R0
	066534	104441						TRAP C\$SPRI
7713	066536	052777	000010	113534	BIS #10,@CSRX		:SELECT CHANNEL 2	
7714	066544	012737	000002	002374	MOV #2,CHAN		:LOAD CHANNEL NUMBER	
7715	066552	112777	000014	113510	MOVB #14,@ICRHX		:----LOAD TCA INTO ACR 2-----	
7716	066560	013737	002336	002500	MOV PHLOW,GOOD		:SET UP COMPARE VALUE	
7717	066566	063737	002240	002500	ADD BCINP,GOOD			
7718	066574	017737	113502	002502	MOV @BARX,BAD		:GET BAR2 CONTENTS	
7719	066602	023737	002502	002500	CMP BAD,GOOD		:HAS BAR2 THE CORRECT ADDRESS	
7720	066610	001404			BEQ 30\$		:BRANCH IF YES	
7721	066612				ERRSOFT 2419,E234,ERR501		:ERROR HANDLER	
	066612	104457						TRAP C\$ERSOFT
	066614	004563						.WORD 2419
	066616	006200						.WORD E234
	066620	003702						.WORD ERR501
7722	066622	017737	113456	002502	30\$: MOV @BCRX,BAD		:GET BCR2 CONTENTS	
7723	066630	005037	002500		CLR GOOD		:	
7724	066634	023737	002502	002500	CMP BAL,GOOD		:IS BCR2 ZERO	
7725	066642	001404			BEQ 31\$		:BRANCH IF YES	
7726	066644				ERRSOFT 2420,E235,ERR501		:ERROR HANDLER	
	066644	104457						TRAP C\$ERSOFT
	066646	004564						.WORD 2420
	066650	006231						.WORD E235
	066652	003702						.WORD ERR501
7727	066654	042777	000010	113416	31\$: BIC #10,@CSRX		:SELECT CHANNEL 1	
7728	066662	012737	000001	002374	MOV #1,CHAN		:LOAD CHANNEL NUMBER	
7729	066670	013737	002360	002500	MOV BUFBB,GOOD		:SET UP COMPARE VALUE	
7730	066676	042737	160000	002500	BIC #160000,GOOD		:CLEAR BIT 13+14+15	
7731	066704	063737	002240	002500	ADD BCINP,GOOD			
7732	066712	017737	113364	002502	MOV @BARX,BAD		:GET BAR1 CONTENTS	
7733	066720	023737	002500	002502	CMP GOOD,BAD		:HAS BAR1 THE CORRECT ADDRESS	
7734	066726	001404			BEQ 40\$		:BRANCH IF YES	
7735	066730				ERRSOFT 2421,E234,ERR501		:ERROR HANDLER	
	066730	104457						TRAP C\$ERSOFT
	066732	004565						.WORD 2421
	066734	006200						.WORD E234
	066736	003702						.WORD ERR501
7736	066740	017737	113340	002502	40\$: MOV @BCRX,BAD		:GET BCR1 CONTENTS	
7737	066746	005737	002502		TST BAD		:BCR1 CONTENTS SHOULD BE ZERO	
7738	066752	001406			BEQ 43\$		:BRANCH IF YES	
7739	066754	005037	002500		CLR GOOD		:SET UP DATA FOR ERROR MESSAGE	
7740	066760				ERRSOFT 2422,E235,ERR501		:ERROR HANDLER	
	066760	104457						TRAP C\$ERSOFT
	066762	004566						.WORD 2422
	066764	006231						.WORD E235
	066766	003702						.WORD ERR501
7741	066770	012737	000001	177572	43\$: MOV #1,SRO		:**ENABLE MEMORY MANAGEMENT**	
7742	066776	013701	002356		MOV BUFAB,R1		:PROVIDE FIRST BYTE OF BUFFER A	
7743	067002	013702	002360		MOV BUFBB,R2		:PROVIDE FIRST BYTE OF BUFFER B	
7744	067006	005037	002404		CLR CNT1		:CLEAR BUFFER COUNTER	
7745	067012	005237	002404		44\$: INC CNT1		:	

Address	Offset	Hex	Symbol	Instruction	Comment
7746	067016	122122		CMPB (R1)+,(R2)+	;BUFFER A EQUAL BUFFER B
7747	067020	001446		BEQ 46\$	;IF YES CONTINUE
7748	067022	005037	002500	CLR GOOD	;CLEAR GOOD
7749	067026	005037	002502	CLR BAD	;CLEAR BAD
7750	067032	012737	000002	MOV #2,TXADRH	;TX ADDRESS IS OVER 64K
7751	067040	012737	000002	MOV #2,RXADRH	;RX ADDRESS IS OVER 64K
7752	067046	010137	002430	MOV R1,TXADRL	;GET ADDRESS OVER 64K
7753	067052	005337	002430	DEC TXADRL	;
7754	067056	042737	160000	BIC #160000,TXADRL	;CLEAR PAR INFORMATION
7755	067064	013737	002430	MOV TXADRL,RXADRL	;GENERATE RX ADDRESS FROM TX ADDRESS
7756	067072	052137	010000	BIS #10000,RXADRL	;RX ADDRESS IS TX ADDRESS +2K
7757	067100	116137	177777	MOVB -1(R1),GOOD	;SET UP DATA FOR ERROR MESSAGE
7758	067106	116237	177777	MOVB -1(R2),BAD	;
7759	067114	005037	177572	CLR SRO	;**DISABLE MEMORY MANAGEMENT**
7760	067120			ERRSOFT 2423,E250,ERR231	;ERROR HANDLER
	067120	104457			TRAP C\$ERSOFT
	067122	004567			.WORD 2423
	067124	005726			.WORD E250
	067126	003744			.WORD ERR231
7761	067130	012737	000001	MOV #1,SRO	;**ENABLE MEMORY MANAGEMENT**
7762	067136	023737	002404	CMP CNT1,BCINP	;ALL BYTES COMPARED ?
7763	067144	001322		BNE 46\$	;IF NO, GET NEXT ONE
7764	067146	005037	177572	CLR SRO	;**DISABLE MEMORY MANAGEMENT**
7765	067152	005737	002234	TST QVP	;IS QUICK VERIFY PASS SELECTED
7766	067156	001010		BNE EXQV24	;IF YES EXIT TEST
7767	067160	005237	002322	INC ITRCNT	;INCREMENT COUNTER
7768	067164	023737	002322	CMP ITRCNT,ITRDEF	;ALL DONE
7769	067172	001402		BEQ EXQV24	;BRANCH IF YES
7770	067174	000137	063322	JMP ITAC24	;IF NO TEST ITERATION
7771	067200			EXQV24: EXIT	;EXIT TEST
	067200	104432			TRAP C\$EXIT
	067202	000064			.WORD L10055-
7772					
7773				.NLIST	BEX
7774	067204	045	123	.ASCIZ	/S2%ADMA DATA TRANSFER TEST FROM CHANNEL 2 TO 1%/
7775				.LIST	BEX
7776				.EVEN	
7777	067266			ENDTST	
	067266				L10055:
	067266	104401			TRAP C\$ETST

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TEST 25: MCR FUNCTION TEST OF CHANNEL 1

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7779          .SBTTL TEST 25: MCR FUNCTION TEST OF CHANNEL 1
7780          :*****
7781          :               IEX - TEST 25
7782          :PART 1 CHANNEL 2 TRANSMITS 9 DATA BYTES (50) AND THEN
7783          :A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177)
7784          :VIA THE IEC/IEEE BUS TO CHANNEL 2. AFTER RECEIVING THESE CHARACTERS
7785          :THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 2 (COMP END).
7786          :PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7787          :CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE
7788          :EOS CHARACTERS ARE TRANSMITTED.
7789          :I.E 2 EOS CHAR.(25), 1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25)
7790          :*****
7791          BGNTST
7792          067270      005737      002324      TST      PNTF      ;IS THE PNT FLAG SET
7793          067274      001410      BEQ      7%      ;IF YES, PRINT THE TEST HEADER
7794          067276      012746      070742      PRINTF    #TSHD25      ....
7795          067302      012746      000C01      MOV      #TSHD25,-(SP)
7796          067306      010600      MOV      #1,-(SP)
7797          067310      104417      MOV      SP,R0
7798          067312      062706      000004      TRAP     C$PNTF
7799          067316      005037      002322      ADD      #4,SP
7800          067322      004737      010710      7%:      CLR      ITRCNT      ;CLEAR ITERATION COUNTER
7801          067326      012746      000340      JSR      PC,BGIN2      ;SET UP PARAMETER
7802          067332      012746      010152      ITAC25: SETVEC  VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
7803          067336      013746      002246      MOV      #PRI07,-(SP)
7804          067342      012746      000003      MOV      #INTSC2,-(SP)
7805          067346      104437      MOV      VECC2,-(SP)
7806          067350      062706      000010      MOV      #3,-(SP)
7807          067354      012746      000340      TRAP     C$SVEC
7808          067360      012746      010142      ADD      #10,SP
7809          067364      013746      002244      SETVEC  VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
7810          067370      012746      000003      MOV      #PRI07,-(SP)
7811          067374      104437      MOV      #INTSC1,-(SP)
7812          067376      062706      000010      MOV      VECC1,-(SP)
7813          067402      112777      000212      MOV      #3,-(SP)
7814          067410      013701      002312      TRAP     C$SVEC
7815          067414      062701      000040      ADD      #10,SP
7816          067420      010137      002410      MOV      #212,@ICRHX
7817          067424      113777      002410      MOV      DPA1,R1
7818          067432      004737      011060      ADD      #40,R1
7819          067436      042777      000010      MOV      R1,MLA1
7820          067444      005077      112636      MOV      MLA1,@IDRHX
7821          067450      113777      002236      JSR      PC,LOOP
7822          067456      052777      100177      BIC      #10,@CSRX
7823          067464      052777      000010      CLR      @MCRX
7824          067472      012777      002734      MOV      MCINP,@MCRHX
7825          067500      013737      002236      BIS      #100177,@MCRX
7826          067506      062737      000011      BIS      #10,@CSRX
7827          067514      005437      002402      MOV      #TABF,@BARX
7828          067520      013777      002402      MOV      MCINP,RSAVE
7829          067526      005437      002402      ADD      #11,RSAVE
7830          067532      012777      000107      NEG      RSAVE
7831          067540      012777      000107      MOV      RSAVE,@BCRX
7832          067540      012777      000107      NEG      RSAVE
7833          067540      012777      000107      MOV      #107,@CSRX
7834          067540      012777      000107      BGNSEG
7835          067540      012777      000107      ;-----LOAD TON INTO ACR 2-----
7836          067540      012777      000107      ;CREATE MLA1
7837          067540      012777      000107      ;...
7838          067540      012777      000107      ;STORE MLA1
7839          067540      012777      000107      ;----LOAD MLA1 INTO DOR 2-----
7840          067540      012777      000107      ;WAIT A LITTLE
7841          067540      012777      000107      ;SELECT CHANNEL 1
7842          067540      012777      000107      ;CLEAR THE MATCH CHARACTER REGISTER
7843          067540      012777      000107      ;---LOAD CNT INPUT INTO MCR HIGH BYTE-
7844          067540      012777      000107      ;--- ENB MATCH BIT +EOS (177) IN MCR1--
7845          067540      012777      000107      ;SELECT CHANNEL 2
7846          067540      012777      000107      ;---LOAD START ADDRESS OF TABLE F ----
7847          067540      012777      000107      ;STORE MATCH CHARACTER COUNT INPUT
7848          067540      012777      000107      ;ADD 11(OCTAL) DATA BYTES TO INPUT
7849          067540      012777      000107      ;BILD 2'COMPL FOR BCR
7850          067540      012777      000107      ;----LOAD INPUT+DATA BYTES INTO BCR 2-
7851          067540      012777      000107      ;REBUILD INPUT + DATA FOR COUNTER
7852          067540      012777      000107      ;----DMA ENB,DMA DIR,INT ENB IN CSR2--

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Address	Hex	Dec	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op41
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TEST 25: MCR FUNCTION TEST OF CHANNEL 1

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7860 070032 010137 002430      MOV      R1, TXADRL      ;...
7861 070036 005337 002430      DEC      TXADRL      ;...
7862 070042 005037 002422      CLR      RXADRL      ;...
7863 070046 010237 002424      MOV      R2, RXADRL      ;...
7864 070052 005337 002424      DEC      RXADRL      ;...
7865 070056 114137 002500      MOV      -(R1), GOOD      ;SET UP DATA FOR ERROR MESSAGE
7866 070062 114237 002502      MOV      -(R2), BAD      ;...
7867 070066 000000 000000      ERRSOF 2503, E250, ERR231 ;ERROR HANDLER
                                TRAP      C$ERSOF 1
                                .WORD    2503
                                .WORD    E250
                                .WORD    ERR231
                                TRAP      C$CLP1
7868 070076 104457 000000      CKLOOP      ;BRANCH TO BGNSEG IF ERRLOOP IS SET
                                TRAP      C$CLP1
7869 070100 023737 002404 002402 33$: CMP      CNT1, RSAVE      ;ALL BYTES COMPARED ?
7870 070106 001337 000000      BNE      30$      ;IF NOT, GET NEXT ONE
7871 070110 000000 000000      ENDSEG
                                10000$:
                                TRAP      C$ESEG
7872 070112 012777 000010 112160      MOV      #10, @CSRX      ;SELECT CHA. 2, CLR ALL BIT IN CHA.1
7873 070120 112777 000014 112142      MOV      #14, @ICRH      ;---LOAD TCA INTO ACR 2---
7874 070126 017737 112140 002502      MOV      @IDRX, BAD      ;READ DIR2 REG. FOR CLEAR ACCRO SIGNAL
7875 070130 000000 000000      ;+++-----
7876 070134 000000 000000      ;PART 2 CHECK THE FALSE NUMBER OF EOS CHARACTERS
7877 070138 000000 000000      ;+++-----
7878 070134 012777 000002 112136      MOV      #2, @CSRX      ;SELECT CHANNEL 1, SET SYS CON. IN CHA.2
7879 070142 005077 112140 000000      CLR      @MCRX      ;CLEAR MCR1 REGISTER
7880 070146 113777 002236 112134      MOV      MCINP, @MCRX      ;---LOAD CNT INPUT INTO MCR 1---
7881 070154 052777 100025 112124      BIS      #100025, @MCRX      ;---ENB MATCH + EOS CHARACTER (25)---
7882 070162 052777 000010 112110      BIS      #10, @CSRX      ;SELECT CHANNEL 2
7883 070170 012777 003250 112104      MOV      #TABK, @BARX      ;---LOAD START ADDRESS OF BUFFER K---
7884 070176 013737 002236 002402      MOV      MCINP, RSAVE      ;STORE MATCH CHARACTER CNT INPUT
7885 070204 062737 000003 002402      ADD      #3, RSAVE      ;ADD 3 DATA BYTES TO CNT INPUT
7886 070212 005437 002402 000000      NEG      RSAVE      ;BILD 2' COMPL FOR BCR
7887 070216 013777 002402 112060      MOV      RSAVE, @BCRX      ;---LOAD BYTE COUNT REGISTER---
7888 070224 005437 002402 000000      NEG      RSAVE      ;REBUILD INPUT+ DATA FOR COUNTER CNT1
7889 070230 012777 000107 112042      MOV      #107, @CSRX      ;---DMA ENB, DMA DIR, INT ENB, SYS CON
7890 070236 000000 000000      BGNSEG
                                TRAP      C$BSEG
7891 070240 005037 002400 000000      CLR      INTFC2      ;CLEAR INTERRUPT FLAG
7892 070244 005037 002376 000000      CLR      INTFC1      ;CLEAR INTERRUPT FLAG
7893 070250 042777 000010 112022      BIC      #10, @CSRX      ;SELECT CHANNEL 1
7894 070256 012700 000102 000000      MOV      #66, R0      ;CLEAR BUFFER TABH
7895 070262 012701 003146 000000      MOV      #TABH, R1
7896 070266 105021 000000 000000      CLR      (R1)+
7897 070270 105300 000000 000000      DECB     R0
7898 070272 001375 000000 000000      BNE      34$
7899 070274 012777 003146 112000      MOV      #TABH, @BARX      ;---LOAD START ADDRESS OF BUFFER H---
7900 070302 012777 177675 111774      MOV      #177675, @BCRX      ;---LOAD MAX. TRANSFER INTO BCR 1---
7901 070310 012777 000101 111762      MOV      #101, @CSRX      ;---SET DMA ENB, INT ENB IN CSR1-
7902 070316 052777 000010 111754      BIS      #10, @CSRX      ;SELECT CHANNEL 2
7903 070324 012737 000002 002374      MOV      #2, CHAN      ;LOAD CHANNEL NUMBER
7904 070332 000000 000000 000000      SETPRI   #PRI00      ;SET PRI. TO ZERO (ALLOW INTERRUPT)
                                MOV      #PRI00, R0
                                TRAP      C$SPRI
7905 070340 112777 000013 111722      MOV      #13, @ICRH      ;---LOAD GTS INTO ACR 2---
7906 070346 012701 007777 000000      MOV      #7777, R1      ;LOAD COUNTER

```

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TEST 25: MCR FUNCTION TEST OF CHANNEL 1

```

7907 070352 005737 002400      40$:  TST      INTFC2
7908 070356 001015              BNE      43$
7909 070360 005301              DEC      R1
7910 070362 001373              BNE      40$
7911 070364 017737 111710 002502  MOV      @CSRX,BAD
7912 070372 012737 100016 002500  MOV      #100016,GOOD
7913 070400              ERRSOFT 2504,E232,ERR201
      070400 104457
      070402 004710
      070404 006072
      070406 003500
7914 070410              CKLOOP
      070410 104406
7915 070412 042777 000010 111660 43$:  BIC      #10,@CSRX
7916 070420 012737 000001 002374  MOV      #1,CHAN
7917 070426 005737 002376      TST      INTFC1
7918 070432 001013              BNE      41$
7919 070434 017737 111640 002502  MOV      @CSRX,BAD
7920 070442 012737 020000 002500  MOV      #20000,GOOD
7921 070450              ERRSOFT 2505,E232,ERR201
      070450 104457
      070452 004711
      070454 006072
      070456 003500
7922 070460              CKLOOP
      070460 104406
7923 070462              41$:  SETPRI  #PRI07
      070462 012700 000340
      070466 104441
7924 070470 012701 003250      MOV      #TABK,R1
7925 070474 012702 003146      MOV      #TABH,R2
7926 070500 005037 002404      CLR      CNT1
7927 070504 005237 002404      INC      CNT1
7928 070510 122122      60$:  CMPB     (R1)+,(R2)+
7929 070512 001433      BEQ      63$
7930 070514 005037 002500      CLR      GOOD
7931 070520 005037 002502      CLR      BAD
7932 070524 005037 002426      CLR      TXADRH
7933 070530 010137 002430      MOV      R1,TXADRL
7934 070534 005337 002430      DEC      TXADRL
7935 070540 005037 002422      CLR      RXADRH
7936 070544 010237 002424      MOV      R2,RXADRL
7937 070550 005337 002424      DEC      RXADRL
7938 070554 116137 177777 002500  MOVB     -1(R1),GOOD
7939 070562 116237 177777 002502  MOVB     -1(R2),BAD
7940 070570              ERRSOFT 2506,E250,ERR231
      070570 104457
      070572 004712
      070574 005726
      070576 003744
7941 070600              CKLOOP
      070600 104406
7942 070602 023737 002404 002402 63$:  CMP      CNT1,RSAVE
7943 070610 001335              BNE      60$
7944 070612              ENDSEG
      070612
      070612 104405

```

```

;IS INTERRUPT IN CHANNEL 2 OCCUR
;BRANCH IF YES
;IS TIME OVER
;IF NO, TEST AGAIN
;GET CSR2 CONTENTS
;BC OF,DMA DIR,SYS CONT,MUX SHOULD SET
;ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     2504
      .WORD     E232
      .WORD     ERR201
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP      C$CLP1
;SELECT CHANNEL1
;LOAD CHANNEL NUMBER
;IS THERE AN INTERRUPT IN CHANNEL 1 ALSO
;BRANCH IF YES
;GET CSR1 CONTENTS
;COMP END SHOULD BE SET
;ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     2505
      .WORD     E232
      .WORD     ERR201
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP      C$CLP1
;DISABLE INTERRUPTS
      MOV      #PRI07,R0
      TRAP      C$SPRI
;PROVIDE FIRST BYTE OF BUFFER K
;PROVIDE FIRST BYTE OF BUFFER H
;CLEAR COUNTER
;BYTE COUNT
;BUFFER K EQUAL BUFFER H
;IF YES,CONTINUE
;CLEAR GOOD
;CLEAR BAD
;SET UP DATA FOR ERROR MESSAGE
....
....
....
....
;SET UP DATA FOR ERROR MESSAGE
;ERROR HANDLER
      TRAP      C$ERSOFT
      .WORD     2506
      .WORD     E250
      .WORD     ERR231
;BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP      C$CLP1
;ALL BYTES COMPARED ?
;IF NO,GET NEXT ONE
10001$:
      TRAP      C$ESEG

```

Address	Hex	Dec	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op41
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HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 68
TEST 26: MCR FUNCTION TEST OF CHANNEL 2

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7970 .SBTTL TEST 26: MCR FUNCTION TEST OF CHANNEL 2
7971 .....
7972 IEX - TEST 26
7973 PART 1 CHANNEL 1 TRANSMITS 9 DATA BYTES (50) AND THEN
7974 A PREDEFINED QUANTITY (MC INPUT) OF SUCCESSIVE EOS CHARACTERS (177)
7975 VIA THE IEC/IEEE BUS TO CHANNEL 2. AFTER RECEIVING THESE CHARACTERS
7976 THE DMA DATA TRANSFER IS TERMINATED BY CHANNEL 2 (COMP END).
7977 PART 2 SAME AS PART 1 EXCEPT THAT A WRONG QUANTITY OF SUCCESSIVE EOS
7978 CHARACTERS ARE TRANSMITTED BEFORE THE CORRECT QUANTITY OF SUCCESSIVE
7979 EOS CHARACTERS ARE TRANSMITTED.
7980 I.E 2 EOS CHAR.(25), 1 DATA BYTE (50) THAN THE PREDEFINED EOS CHAR.(25)
7981 .....
7982 BGNTST
7983 071012 005737 002324 TST PNTF ;IS THE PNT FLAG SET
7984 071016 001410 BEQ 7$ ;IF YES, PRINT THE TEST HEADER
7985 071020 PRINTF #TSHD26 ;...
7986 071012 012746 072474 MOV #TSHD26,-(SP)
7987 071024 012746 000001 MOV #1,-(SP)
7988 071030 010600 MOV SP,R0
7989 071032 104417 TRAP C$PNTF
7990 071034 062706 000004 ADD #4,SP
7991 071040 005037 002322 7$: CLR ITRCNT ;CLEAR ITERATION COUNTER
7992 071044 004737 010534 JSR PC,BGIN1 ;SET UP PARAMETER
7993 071050 ITAC26: SETVEC VECC2,#INTSC2,#PRI07 ;SET VECTOR FOR CHANNEL 2
7994 071050 012746 000340 MOV #PRI07,-(SP)
7995 071054 012746 010152 MOV #INTSC2,-(SP)
7996 071060 013746 002246 MOV VECC2,-(SP)
7997 071064 012746 000003 MOV #3,-(SP)
7998 071070 104437 TRAP C$SVEC
7999 071072 062706 000010 ADD #10,SP
8000 071076 SETVEC VECC1,#INTSC1,#PRI07 ;SET VECTOR FOR CHANNEL 1
8001 071076 012746 000340 MOV #PRI07,-(SP)
8002 071102 012746 010142 MOV #INTSC1,-(SP)
8003 071106 013746 002244 MOV VECC1,-(SP)
8004 071112 012746 000003 MOV #3,-(SP)
8005 071116 104437 TRAP C$SVEC
8006 071120 062706 000010 ADD #10,SP
8007 071124 112777 000212 111136 MOVB #212,@ICRHX ;----LOAD TON INTO ACR 1-----
8008 071132 013701 002314 MOV DPA2,R1 ;CREATE MLA2
8009 071136 062701 000040 ADD #40,R1 ;
8009 071142 010137 002412 MOV R1,MLA2 ;STORE MLA2
8009 071146 113777 002412 111122 MOVB MLA2,@IDRHX ;----LOAD MLA2 INTO DOR 1-----
8009 071154 004737 011060 JSR PC,LOOP ;WAIT A LITTLE
8009 071160 052777 000010 111112 BIS #10,@CSRX ;SELECT CHANNEL 2
8009 071166 005077 111114 CLR @MCRX ;CLEAR MCR2 REGISTER
8009 071172 113777 002236 111110 MOVB MCINP,@MCRHX ;---LOAD CNT INPUT INTO MCR HIGH BYTE-
8009 071200 052777 100125 111100 BIS #100125,@MCRX ;--- ENB MATCH BIT +EOS (125) IN MCR2--
8000 071206 BGNSEG
8001 071206 104404 TRAP C$BSEG
8001 071210 005037 002400 CLR INTFC2 ;CLEAR INTERRUPT FLAG
8002 071214 005037 002376 CLR INTFC1 ;CLEAR INTERRUPT FLAG
8003 071220 042777 000010 111052 BIC #10,@CSRX ;SELECT CHANNEL 1
8004 071226 012777 002514 111046 MOV #TABD,@BARX ;---LOAD START ADDRESS OF TABLE D ---
8005 071234 013737 002236 002402 MOV MCINP,RSAVE ;STORE MATCH CHARACTER COUNT INPUT
8006 071242 062737 000011 002402 ADD #11,RSAVE ;ADD 11(OCTAL) DATA BYTES TO INPUT
8007 071250 005437 002402 NEG RSAVE ;BILD 2'COMPL FOR BCR

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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

8008	071254	013777	002402	111022	MOV	RSABE, @BCRX	-----LOAD INPUT+DATA BYTES INTO BCR 1-
8009	071262	005437	002402		NEG	RSABE	:REBUILD INPUT+DATA FOR COUNTER CNT1
8010	071266	012777	000107	111004	MOV	#107, @CSRX	:-----DMA ENB, DMA DIR, INT ENB, SYS CONT
8011	071274	052777	000010	110776	BIS	#10, @CSRX	:SELECT CHANNEL 2
8012	071302	012700	000110		MOV	#72, R0	:CLEAR BUFFER TABE
8013	071306	012701	002624		MOV	#TABE, R1	:....
8014	071312	105021			CLRB	(R1)+	:....
8015	071314	105300			DECB	R0	:....
8016	071316	001375			BNE	2\$:....
8017	071320	012777	002624	110754	MOV	#TABE, @BARX	:-----LOAD START ADDRESS OF TABLE E----
8018	071326	012777	177667	110750	MOV	#177667, @BCRX	:-----LOAD INTO BCR 1---
8019	071334	012777	000101	110736	MOV	#101, @CSRX	:-----SET DMA ENB, INT ENB IN CSR2
8020	071342				SETPRI	#PRI00	:SET PRIORITY TO ZERO
	071342	012700	000000				MOV #PRI00, R0
	071346	104441					TRAP C\$SPRI
8021	071350	042777	000010	110722	BIC	#10, @CSRX	:SELECT CHANNEL 1
8022	071356	012737	000001	002374	MOV	#1, CHAN	:LOAD CHANNEL NUMBER
8023	071364	112777	000013	110676	MOVB	#13, @ICRHX	:-----LOAD GTS INTO ACR 1-----
8024	071372	012701	077777		MOV	#77777, R1	:LOAD LOOP COUNTER
8025	071376	005737	002376		TST	INTFC1	:IS INTERRUPT IN CHANNEL 1 OCCER
8026	071402	001015			BNE	10\$	:BRANCH IF YES
8027	071404	005301			DEC	R1	:DECREMENT COUNTER
8028	071406	001373			BNE	13\$	:IF NO, TEST AGIN
8029	071410	017737	110664	002502	MOV	@CSRX, BAD	:GET CSR1 CONTENTS
8030	071416	012737	100006	002500	MOV	#100006, GOOD	:BC OF, DMA DIR, SYS CONT SHOULD BE SET
8031	071424				ERRSOFT	2601, E232, ERR201	:ERROR HANDLER
	071424	104457					TRAP C\$ERSOFT
	071426	005051					.WORD 2601
	071430	006072					.WORD E232
	071432	003500					.WORD ERR201
8032	071434				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	071434	104406					TRAP C\$CLP1
8033	071436	052777	000010	110634	BIS	#10, @CSRX	:SELECT CHANNEL 2
8034	071444	012737	000002	002374	MOV	#2, CHAN	:LOAD CHANNEL NUMBER
8035	071452	005737	002400		TST	INTFC2	:IS AN INTERRUPT IN CHANNEL 2 OCCURED
8036	071456	001013			BNE	11\$	:BRANCH IF YES
8037	071460	017737	110614	002502	MOV	@CSRX, BAD	:GET CSR2 CONTENTS
8038	071466	012737	020010	002500	MOV	#20010, GOOD	:COMP END, MUX SHOULD BE SET
8039	071474				ERRSOFT	2602, E232, ERR201	:ERROR HANDLER
	071474	104457					TRAP C\$ERSOFT
	071476	005052					.WORD 2602
	071500	006072					.WORD E232
	071502	003500					.WORD ERR201
8040	071504				CKLOOP		:BRANCH TO BGNSEG IF ERRLOOP IS SET
	071504	104406					TRAP C\$CLP1
8041	071506				SETPRI	#PRI07	:NO FURTHER INTERRUPT ALLOWED
	071506	012700	000340				MOV #PRI07, R0
	071512	104441					TRAP C\$SPRI
8042	071514	012701	002514		MOV	#TABD, R1	:PROVIDE FIRST BYTE OF BUFFER D
8043	071520	012702	002624		MOV	#TABE, R2	:PROVIDE FIRST BYTE OF BUFFER E
8044	071524	005037	002404		CLR	CNT1	:CLEAR BUFFER COUNTER
8045	071530	005237	002404		INC	CNT1	:BYTE COUNT
8046	071534	122122			CMPB	(R1)+, (R2)+	:BUFFER D EQUAL TO BUFFER E
8047	071536	001433			BEQ	33\$	:IF YES, CONTINUE
8048	071540	005037	002500		CLR	GOOD	:CLEAR GOOD
8049	071544	005037	002502		CLR	BAD	:CLEAR BAD
8050	071550	005037	002426		CLR	TXADRH	:SET UP DATA FOR ERROR MESSAGE

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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

8051	071554	010137	002430			MOV	R1, TXADRL		
8052	071560	005337	002430			DEC	TXADRL		....
8053	071564	005037	002422			CLR	RXADRH		....
8054	071570	010237	002424			MOV	R2, RXADRL		....
8055	071574	005337	002424			DEC	RXADRL		....
8056	071600	116137	177777	002500		MOVB	-1(R1), GOOD		;	SET UP DATA FOR ERROR MESSAGE
8057	071606	116237	177777	002502		MOVB	-1(R2), BAD		;	
8058	071614					ERRSOFT	2603, E231, ERR231		;	ERROR HANDLER
	071614	104457							TRAP	C\$ERSOFT
	071616	005053							.WORD	2603
	071620	006010							.WORD	E231
	071622	003744							.WORD	ERR231
8059	071624					CKLOOP			;	BRANCH TO BGNSEG IF ERRLOOP IS SET
	071624	104406							TRAP	C\$CLP1
8060	071626	023737	002404	002402	33\$:	CMP	CNT1, RSAVE		;	ALL BYTES COMPARED ?
8061	071634	001335				BNE	30\$		;	IF NOT, GET NEXT ONE
8062	071636					ENDSEG				
	071636								10000\$:	
	071636	104405							TRAP	C\$ESEG
8063	071640	005077	110434			CLR	@CSRX		;	SELECT CHAN. 1, CLR ALL BIT IN CHA.2
8064	071644	112777	000014	110416		MOVB	#14, @ICRX		;	LOAD TCA INTO ACR 1-----
8065	071652	017737	110414	002502		MOV	@IDRX, BAD		;	READ DIR1 TO CLEAR ACCRO SIGNAL
8066	071660	005077	110414			CLR	@CSRX		;	CLEAR CSR1
8067						;	+++-----			
8068						;	PART 2 CHECK THE FALSE NUMBER OF EOS CHARACTERS			
8069						;	+++-----			
8070	071664	052777	000012	110406		BIS	#12, @CSRX		;	SET SYS CON IN CHA 1, SELECT CHANNEL 2
8071	071672	005077	110410			CLR	@MCRX		;	CLEAR MCR2 REGISTER
8072	071676	113777	002236	110404		MCVB	MCINP, @MCRX		;	LOAD CNT INPUT INTO MCR 2-----
8073	071704	052777	100012	110374		BIS	#100012, @MCRX		;	ENB MATCH + EOS CHARACTER (12)
8074	071712	042777	000010	110360		BIC	#10, @CSRX		;	SELECT CHANNEL 1
8075	071720	012737	000001	002374		MOV	#1, CHAN		;	LOAD CHANNEL NUMBER
8076	071726	012777	003044	110346		MOV	#TABG, @BARX		;	LOAD START ADDRESS OF BUFFER G----
8077	071734	013737	002236	002402		MOV	MCINP, RSAVE		;	STORE MATCH CHARACTER CNT INPUT
8078	071742	062737	000003	002402		ADD	#3, RSAVE		;	ADD 3 DATA BYTES TO CNT INPUT
8079	071750	005437	002402			NEG	RSAVE		;	BILD 2'COMPL FOR BCR
8080	071754	013777	002402	110322		MOV	RSAVE, @BCRX		;	LOAD BYTE COUNT REGISTER 1-----
8081	071762	005437	002402			NEG	RSAVE		;	REBUILD INPUT+DATA FOR COUNTER CNT1
8082	071766	012777	000107	110304		MOV	#107, @CSRX		;	DMA ENB, DMA DIR, INT ENB, SYS CONT
8083	071774					BGNSEG				
	071774	104404							TRAP	C\$BSEG
8084	071776	005037	002400			CLR	INTFC2		;	CLEAR INTERRUPT FLAG
8085	072002	005037	002376			CLR	INTFC1		;	CLEAR INTERRUPT FLAG
8086	072006	052777	000010	110264		BIS	#10, @CSRX		;	SELECT CHANNEL 2
8087	072014	012700	000102			MOV	#66, R0		;	CLEAR BUFFER TABH
8088	072020	012701	003146			MOV	#TABH, R1		;	
8089	072024	105021			34\$:	CLRB	(R1)+		;	
8090	072026	105300				DECB	R0		;	
8091	072030	001375				BNE	34\$;	
8092	072032	012777	003146	110242		MOV	#TABH, @BARX		;	LOAD START ADDRESS OF BUFFER H---
8093	072040	012777	177675	110236		MOV	#177675, @BCRX		;	LOAD MAX. TRANSFER INTO BCR 2---
8094	072046	012777	000101	110224		MOV	#101, @CSRX		;	SET DMA ENB, INT ENB IN CSR2-----
8095	072054	042777	000010	110216		BIC	#10, @CSRX		;	SELECT CHANNEL 1
8096	072062	012737	000001	002374		MOV	#1, CHAN		;	LOAD CHANNEL NUMBER
8097	072070					SETPRI	#PRI00		;	SET PRI. TO ZERO (ALLOW INTERRUPT)
	072070	012700	000000						MOV	#PRI00, R0
	072074	104441							TRAP	C\$SPRI

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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

```

8098 072076 112777 000013 110164      MOVB    #13,@!CRHX
8099 072104 012701 077777      MOV     #77777,R1
8100 072110 005737 002376      40$:    TST     INTFC1
8101 072114 001015      BNE     43$
8102 072116 005301      DEC     R1
8103 072120 001373      BNE     40$
8104 072122 017737 110152 002502      MOV     @CSRX,BAD
8105 072130 012737 100006 002500      MOV     #100006,GOOD
8106 072136      ERRSOFT 2604,E232,ERR201
      072136 104457
      072140 005054
      072142 006072
      072144 003500
8107 072146      CKLOOP
      072146 104406
8108 072150 052777 000010 110122 43$:    BIS     #10,@CSRX
8109 072156 012737 000002 002374      MOV     #2,CHAN
8110 072164 005737 002400      TST     INTFC2
8111 072170 001013      BNE     41$
8112 072172 017737 110102 002502      MOV     @CSRX,BAD
8113 072200 012737 020010 002500      MOV     #20010,GOOD
8114 072206      ERRSOFT 2605,E232,ERR201
      072206 104457
      072210 005055
      072212 006072
      072214 003500
8115 072216      CKLOOP
      072216 104406
8116 072220      41$:    SETPRI  #PRI07
      072220 012700 000340
      072224 104441
8117 072226 012701 003044      MOV     #TABG,R1
8118 072232 012702 003146      MOV     #TABH,R2
8119 072236 005037 002404      CLR     CNT1
8120 072242 005237 002404      60$:    INC     CNT1
8121 072246 122122      CMPB    (R1)+,(R2)+
8122 072250 001431      BEQ     63$
8123 072252 005037 002500      CLR     GOOD
8124 072256 005037 002502      CLR     BAD
8125 072262 005037 002426      CLR     TXADRH
8126 072266 010137 002430      MOV     R1,TXADRL
8127 072272 005337 002430      DEC     TXADRL
8128 072276 005037 002422      CLR     RXADRH
8129 072302 010237 002424      MOV     R2,RXADRL
8130 072306 005337 002424      DEC     RXADRL
8131 072312 114137 002500      MOVB    -(R1),GOOD
8132 072316 114237 002502      MOVB    -(R2),BAD
8133 072322      ERRSOFT 2606,E231,ERR231
      072322 104457
      072324 005056
      072326 006010
      072330 003744
8134 072332      CKLOOP
      072332 104406
8135 072334 023737 002404 002402 63$:    CMP     CNT1,RSAVE
8136 072342 001337      BNE     60$
8137 072344      ENDSEG

```

```

:---LOAD GTS INTO ACR 1-----
:LOAD COUNTER
:IS INTERRUPT IN CHANNEL 1 OCCUR
:BRANCH IF YES
:IS TIME OVER
:IF NO, TEST AGAIN
:GET CSR1 CONTENTS
:BC OF,DMA DIR,SYS CONT,SHOULD BE SET
:ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   2604
      .WORD   E232
      .WORD   ERR201
:BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
:SELECT CHANNEL 2
:LOAD CHANNEL NUMBER
:IS THERE AN INTERRUPT IN CHANNEL 2 -
:BRANCH IF YES
:GET CSR2 CONTENTS
:COMP END,MUX SHOULD BE SET
:ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   2605
      .WORD   E232
      .WORD   ERR201
:BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
:DISABLE INTERRUPTS
      MOV     #PRI07,R0
      TRAP    C$SPRI
:PROVIDE FIRST BYTE OF BUFFER G
:PROVIDE FIRST BYTE OF BUFFER H
:CLEAR COUNTER
:BYTE COUNT
:BUFFER G EQUAL BUFFER H
:IF YES,CONTINUE
:CLEAR GOOD
:CLEAR BAD
:SET UP DATA FOR ERROR MESSAGE
:....
:....
:....
:....
:SET UP DATA FOR ERROR MESSAGE
:....
:ERROR HANDLER
      TRAP    C$ERSOFT
      .WORD   2606
      .WORD   E231
      .WORD   ERR231
:BRANCH TO BGNSEG IF ERRLOOP IS SET
      TRAP    C$CLP1
:ALL BYTES COMPARED ?
:IF NO,GET NEXT ONE

```


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TEST 26: MCR FUNCTION TEST OF CHANNEL 2

```

      072344
      072344 104405
8138 072346 042777 000010 107724      BIC      #10,@CSRX      ;SELECT CHANNEL 1
8139 072354 112777 000014 107706      MOVB     #14,@ICRHX    ;---LOAD TCA INTO ACR 1-----
8140 072362 112777 000077 107706      MOVB     #77,@IDRHX    ;---LOAD UNL INTO DOR 1-----
8141 072370 004737 011060      JSR       PC,LOOP      ;WAIT A LITTLE
8142 072374 112777 000200 107666      MOVB     #200,@ICRHX   ;---LOAD SWRST INTO ACR 1-----
8143 072402 112777 000000 107660      MOVB     #0,@ICRHX    ;---LOAD NOT SWRST INTO ACR 1-----
8144 072410 005737 002234      TST       QVP          ;IS QUICK VERIFY PASS SELECTED ?
8145 072414 001025      BNE      EXQV26      ;IF YES EXIT TEST
8146 072416 005237 002322      INC       ITRCNT      ;ITERATION COUNTER +1
8147 072422 023737 002322 002320      CMP      ITRCNT,ITRDEF ;DEFAULT ITERATION EXECUTED
8148 072430 001417      BEQ       EXQV26      ;IF YES EXIT TEST
8149 072432 012777 000010 107640      MCV      #10,@CSRX    ;CLEAR CSR1,SELECT CHANNEL 2
8150 072440 005077 107634      CLR      @CSRX        ;CLEAR CSR2,SELECT CHANNEL 1
8151 072444 112777 000217 107616      MOVB     #217,@ICRHX  ;---LOAD SIC INTO ACR 1-----
8152 072452 004737 011072      JSR       PC,WAIT      ;WAIT A LITTLE
8153 072456 112777 000017 107604      MOVB     #17,@ICRHX   ;---LOAD NOT SIC INTO ACR 1-----
8154 072464 000137 071050      JMP      ITAC26       ;IF NO TEST ITERATION
8155 072470      EXQV26: EXIT    TST
      072470      TRAP      C$EXIT
      072472 104432      .WORD    L10057-.
      000050
8156
8157
8158 072474      045      123      062  TSMD26: .NLISI  BEX
      .ASCIZ  /%S2%AMCR FUNCTION TEST OF CHANNEL 2%/
8159      .LIST  BEX
8160      .EVEN
8161 072542      ENDTST
      072542
      072542 104401

```

L10057: TRAP C\$EIST

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TEST 27: EXTENDED ADDRESS BIT (Q22-BUS)TEST

```

8163          .SBTTL TEST 27: EXTENDED ADDRESS BIT (Q22-BUS)TEST
8164          .....
8165          IEX - TEST 27
8166          THIS TEST IS ONLY BE CARRIED OUT IF A 22-BIT Q-BUS (11/23B) IS USED
8167          AND IF THE AVAILABLE MEMORY IS GREATER THAN 128K.
8168
8169          PART 1 FINDS OUT IF AVAILABLE MEMORY IS GREATER THAN 128K. IF YES, THEN
8170          A DMA IS CARRIED OUT BY SENDING 2K DATA VIA THE IEC/IEEE BUS
8171          FROM CHANNEL 1 TO 2. THE DMA CROSS THE BOUNDARY
8172          THE SEQUENCE DESCRIBED ABOVE IS ALSO EXECUTED WITH 256K (BA 19 SET),
8173          512K (BA 20 SET) AND 1024K (BA 21 SET).
8174          PART 2 SAME AS PART 1 EXCEPT THE CHANNELS. THE DMA DATA TRANSFER
8175          IS CARRIED OUT FROM CHANNEL 2 TO 1.
8176          .....
8177          BGNTEST
8178          072544          READBUS          ;DETERMINE BUS TYPE          T27::
8179          072544 104407          BCOMPLETE 3$          ;BRANCH IF Q-BUS          TRAP      C$RDBU
8180          072546 103415          TST      PNTF          ;IS THE PNT FLAG SET          BCS      3$
8181          072550 005737 002324          BEQ      2$          ;IF YES, PRINT MESSAGE
8182          072554 001410          PRINTF   #INFO3          ;....
8183          072556 012746 076502          MOV      #INFO3,-(SP)
8184          072562 012746 000001          MOV      #1,-(SP)
8185          072566 010600          MCV      SP,R0
8186          072570 104417          TRAP     C$PNTF
8187          072572 062706 000004          ADD      #4,SP
8188          072576          2$: EXIT      TST          ;EXIT TEST          TRAP     C$EXIT
8189          072576 104432          .WORD    L10060-
8190          072600 002654          3$: MOV      #4,MASK          ;IS THE PNT FLAG SET
8191          072602 012737 000004 002350          TST      PNTF          ;IF YES, PRINT THE TEST HEADER
8192          072610 005737 002324          BEQ      7$          ;....
8193          072614 001410          PRINTF   #TSHD27
8194          072616 012746 075406          MOV      #TSHD27,-(SP)
8195          072622 012746 000001          MOV      #1,-(SP)
8196          072626 010600          MOV      SP,R0
8197          072630 104417          TRAP     C$PNTF
8198          072632 062706 000004          ADD      #4,SP
8199          072636          7$: SETVEC   VECC1,#INTSC1,#PRI07          ;SET VECTOR FOR CHANNEL 1
8200          072636 012746 000340          MOV      #PRI07,-(SP)
8201          072642 012746 010142          MOV      #INTSC1,-(SP)
8202          072646 013746 002244          MOV      VECC1,-(SP)
8203          072652 012746 000003          MOV      #3,-(SP)
8204          072656 104437          TRAP     C$SVEC
8205          072660 062706 000010          ADD      #10,SP
8206          072664          SETVEC   VECC2,#INTSC2,#PRI07          ;SET VECTOR FOR CHANNEL 2
8207          072664 012746 000340          MOV      #PRI07,-(SP)
8208          072670 012746 010152          MOV      #INTSC2,-(SP)
8209          072674 013746 002246          MOV      VECC2,-(SP)
8210          072700 012746 000003          MOV      #3,-(SP)
8211          072704 104437          TRAP     C$SVEC
8212          072706 062706 000010          ADD      #10,SP
8213          072712 005037 002364          CLR      CSRMS1          ;LOAD MASK FOR CSR1
8214          072716 012737 001000 002366          MOV      #1000,CSRMS2          ;LOAD EXTENDED ADDR BIT FOR RX CHANNEL
8215          072724 005037 002376          ITAC27: CLR      INTFC1          ;CLEAR INTERRUPT FLAG

```

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TEST 27: EXTENDED ADDRESS BIT (Q22-BJS)TEST

8193	072730	005037	002400		CLR	INTFC2	:CLEAR INTERRUPT FLAG
8194	072734	023737	002342	002350	CMP	PHHSIZ,MASK	:IS THERE MORE THAN 128K
8195	072742	002404			BLT	11\$	:IF NO SKIP TEST
8196	072744	003005			BGT	13\$	
8197	072746	005737	002344		TST	PHLSIZ	
8198	072752	001002			BNE	13\$	
8199	072754			11\$:	EXIT	TST	:EXIT TEST
	072754	104432					TRAP C\$EXIT
	072756	002476					.WORD L10060-
8200	072760	004737	010534	13\$:	JSR	PC,BGIN1	:
8201	072764	000240			NOP		
8202	072766	012737	177777	002336	MOV	#177777,PHLGW	:LOAD INPUT FOR CONVERSION ROUTINE
8203	072774	013704	002350		MOV	MASK,R4	:...
8204	073000	005304			DEC	R4	:...
8205	073002	010437	002334		MOV	R4,PHHIGH	:...
8206	073006	004737	007724		JSR	PC,PVCON	:CREATE VIRTUAL ADDRESS
8207	073012	013700	002340		MOV	VIADD,R0	:GET START ADDRESS OF BUFFER A
8208	073016	010037	002356		MOV	R0,BUFAB	:LOAD START ADDRESS OF BUFFER A
8209	073022	012701	010000		MOV	#10000,R1	:LOAD COUNTER FOR 2K
8210	073026	005003			CLR	R3	:R3 CONTAINS DATA
8211	073030	012737	000020	172516	MOV	#20,SR3	:**ENABLE 22-BIT MEMORY MANAGEMENT**
8212	073036	012737	000001	177572	MOV	#1,SR0	:**ENABLE MEMORY MANAGEMENT**
8213	073044	110310			MOVB	R3,(R0)	:LOAD FIRST DATA BYTE
8214	073046	012700	120000		MOV	#120000,R0	:SET UP ADDRESS FOR NEXT DATA BYTE
8215	073052	005237	172352		INC	KPAR5	:LOAD NEXT PAGE
8216	073056	005203		16\$:	INC	R3	:CREATE NEXT DATA
8217	073060	110320			MOVB	R3,(R0)+	:LOAD BUFFER WITH DATA
8218	073062	005301			DEC	R1	:...
8219	073064	001374			BNE	10\$:...
8220	073066	005300			DEC	R0	:...
8221	073070	012701	010000		MOV	#10000,R1	:LOAD 2K
8222	073074	010037	002360		MOV	R0,BUFB8	:LOAD START ADDRESS OF BUFFER B
8223	073100	000240		20\$:	NOP		
8224	073102	105020			CLRB	(R0)+	:CLEAR BUFFER B
8225	073104	005301			DEC	R1	:2K CLEARED
8226	073106	001374			BNE	20\$	:IF YES,DO THE TEST
8227	073110	005037	177572		CLR	SR0	:**DISABLE MEMORY MANAGEMENT**
8228	073114	112777	000212	107146	MOVB	#212,@ICRHX	:-----LOAD TON INTO ACR 1-----
8229	073122	013701	002314		MOV	DPA2,R1	:CREATE MLA2
8230	073126	062701	000040		ADD	#40,R1	:...
8231	073132	010137	002412		MOV	R1,MLA2	:STORE MLA2
8232	073136	113777	002412	107132	MOVB	MLA2,@IDRHX	:-----LOAD MLA2 INTO DOR 1-----
8233	073144	004737	011060		JSR	PC,LOOP	:WAIT A LITTLE
8234	073150	012777	177777	107124	MOV	#177777,@BARX	:---LOAD START ADDRESS OF BUFFER A---
8235	073156	013737	002240	002402	MOV	BCINP,RSAVE	:STORE BYTE COUNT INPUT
8236	073164	005437	002402		NEG	RSAVE	:BUILD 2'COMPL FOR BCR
8237	073170	013777	002402	107106	MOV	RSAVE,@BCRX	:---LOAD INPUT INTO BCR 1-----
8238	073176	012777	000167	107074	MOV	#167,@CSRX	:DMA ENB,DMA DIR,INT ENB,SYS CO,BA16+17
8239	073204	053777	002364	107066	BIS	CSRMS1,@CSRX	:--LOAD ADDITIONAL EXTENDED ADDRESS BIT
8240	073212	052777	000010	107060	BIS	#10,@CSRX	:SELECT CHANNEL 2
8241	073220	012777	007777	107054	MOV	#7777,@BARX	:-----LOAD START ADDRESS OF BUFFER B---
8242	073226	013777	002402	107050	MOV	RSAVE,@BCRX	:---LOAD INPUT INTO BCR 2---
8243	073234	012777	000111	107036	MOV	#111,@CSRX	:---SET DMA ENB,INT ENB IN CSR2
8244	073242	053777	002366	107030	BIS	CSRMS2,@CSRX	:---LOAD EXTENDED ADDRESS BITS-----
8245	073250				SETPRI	#PRI00	:SET PRIORITY TO ZERO
	073250	012700	000000				MOV #PRI00,R0
	073254	104441					TRAP C\$PRI

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TEST 27: EXTENDED ADDRESS BIT (Q22-BUS) TEST

8246	073256	042777	000010	107014		BIC	#10,@CSRX		;SELECT CHANNEL 1
8247	073264	012737	000001	002374		MOV	#1,CHAN		;LOAD CHANNEL NUMBER
8248	073272	112777	000013	106770		MOVB	#13,@ICRHX		;----LOAD GTS INTO ACR 1-----
8249	073300	012701	077777			MOV	#77777,R1		;LOAD LOOP COUNTER
8250	073304	005737	002376		23\$:	TST	INTFC1		;HAS INTERRUPT IN CHANNEL 1 OCCURED
8251	073310	001017				BNE	24\$		;BRANCH IF YES
8252	073312	005301				DEC	R1		;DECREMENT COUNTER
8253	073314	001373				BNE	23\$		;IF NO,TEST AGAIN
8254	073316	017.37	106756	002502		MOV	@CSRX,BAD		;GET CSR1 CONTENTS
8255	073324	012737	100066	002500		MOV	#100066,GOOD		;BC OF,DMA DIR,SYS CONT
8256	073332	053737	002364	002500		BIS	CSRMS1,GOOD		;SET EXTENDED ADDRESS BIT TO CSR CONT.
8257	073340					ERRSOFT	2701,E232,ERR201		;ERROR HANDLER
	073340	104457						TRAP	C\$ERSOFT
	073342	005215						.WORD	2701
	073344	006072						.WORD	E232
	073346	003500						.WORD	ERR201
8258	073350	052777	000010	106722	24\$:	BIS	#10,@CSRX		;SELECT CHANNEL 2
8259	073356	012737	000002	002374		MOV	#2,CHAN		;LOAD CHANNEL NUMBER
8260	073364	005737	002400			TST	INTFC2		;HAS AN INTERRUPT IN CHANNEL 2 OCCURED
8261	073370	001015				BNE	25\$		;BRANCH IF YES
8262	073372	017737	106702	002502		MOV	@CSRX,BAD		;GET CSR2 CONTENTS
8263	073400	012737	100010	002500		MOV	#100010,GOOD		;BC OF,MUX SHOULD BE SET
8264	073406	053737	002366	002500		BIS	CSRMS2,GOOD		;SET EXTENDED ADDRESS BIT TO CSR CONT.
8265	073414					ERRSOFT	2702,E232,ERR201		;ERROR HANDLER
	073414	104457						TRAP	C\$ERSOFT
	073416	005216						.WORD	2702
	073420	006072						.WORD	E232
	073422	003500						.WORD	ERR201
8266	073424				25\$:	SETPRI	#PRI07		;NO FURTHER INTERRUPT ALLOWED
	073424	012700	000340					MOV	#PRI07,R0
	073430	104441						TRAP	C\$SPRI
8267	073432	042777	000010	106640		BIC	#10,@CSRX		;SELECT CHANNEL 1
8268	073440	012737	000001	002374		MOV	#1,CHAN		;LOAD CHANNEL NUMBER
8269	073446	112777	000014	106614		MOVB	#14,@ICRHX		;----LOAD TCA INTO ACR 1-----
8270	073454	013737	002336	002500		MOV	PHLOW,GOOD		;SET UP COMPARE VALUE
8271	073462	063737	002240	002500		ADD	BCINP,GOOD		;...
8272	073470	017737	106606	002502		MOV	@BARX,BAD		;GET BAR1 CONTENTS
8273	073476	023737	002502	002500		CMP	BAD,GOOD		;HAS BAR1 THE CORRECT ADDRESS
8274	073504	001404				BEQ	30\$		;BRANCH IF YES
8275	073506					ERRSOFT	2703,E234,ERR501		;ERROR HANDLER
	073506	104457						TRAP	C\$ERSOFT
	073510	005217						.WORD	2703
	073512	006200						.WORD	E234
	073514	003702						.WORD	ERR501
8276	073516	017737	106562	002502	30\$:	MOV	@BCRX,BAD		;GET BCR1 CONTENTS
8277	073524	005037	002500	002500		CLR	GOOD		;...
8278	073530	023737	002502	002500		CMP	BAD,GOOD		;IS BCR1 ZERO
8279	073536	001404				BEQ	31\$		;BRANCH IF YES
8280	073540					ERRSOFT	2704,E235,ERR501		;ERROR HANDLER
	073540	104457						TRAP	C\$ERSOFT
	073542	005220						.WORD	2704
	073544	006231						.WORD	E235
	073546	003702						.WORD	ERR501
8281	073550	052777	000010	106522	31\$:	BIS	#10,@CSRX		;SELECT CHANNEL 2
8282	073556	012737	000002	002374		MOV	#2,CHAN		;LOAD CHANNEL NUMBER
8283	073564	013737	002360	002500		MOV	BUFBB,GOOD		;SET UP COMPARE VALUE
8284	073572	042737	160000	002500		BIC	#160000,GOOD		;CLEAR BIT 13+14+15

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TEST 27: EXTENDED ADDRESS BIT (Q22-BUS) TEST

8285	073600	063737	002240	002500	ADD	BCINP,GOOD	...
8286	073606	017737	106470	002502	MOV	@BARX,BAD	:GET BAR2 CONTENTS
8287	073614	023737	002500	002502	CMP	GOOD,BAD	:HAS BAR2 THE CORRECT ADDRESS
8288	073622	001404			BEQ	43\$	:BRANCH IF YES
8289	073624				ERRSOFT	2705,E234,ERR501	:ERROR HANDLER
	073624	104457					TRAP C\$ERSOFT
	073626	005221					.WORD 2705
	073630	006200					.WORD E234
	073632	003702					.WORD ERR501
8290	073634	012737	000001	177572	43\$:	MOV #1,SRO	:**ENABLE MEMORY MANAGEMENT**
8291	073642	005337	172352		DEC	KPAR5	:CROSS THE BOUNDARY FOR FIRST BYTE
8292	073646	013701	002356		MOV	BUFAB,R1	:PROVIDE FIRST BYTE OF BUFFER A
8293	073652	111103			MOVB	(R1),R3	:GET THE FIRST DATA BYTE
8294	073654	010137	002340		MOV	R1,VIADD	:SET UP DATA FOR CONVERSION ROUTINE
8295	073660	004737	010024		JSR	PC,VPCON	:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8296	073664	012701	120000		MOV	#120000,R1	:POINT TO NEXT LOCATION
8297	073670	005237	172352		INC	KPAR5	:CROSS THE BOUNDARY FOR NEXT DATA BYTE'S
8298	073674	013702	002360		MOV	BUFBB,R2	:PROVIDE FIRST BYTE OF BUFFER B
8299	073700	012737	000001	002404	MOV	#1,CNT1	:SET UP COUNTER FOR DATA COMPARE
8300	073706	120322			CMPB	R3,(R2)+	:COMPARE THE FIRST DATA BYTE
8301	073710	000240			NOP		
8302	073712	001415			BEQ	44\$	:BRANCH IF EQUAL TO NEXT COMPARE
8303	073714	005037	002500		CLR	GOOD	:CLEAR HIGH BYTE OF GOOD
8304	073720	005037	002502		CLR	BAD	:CLEAR HIGH BYTE OF BAD
8305	073724	110337	002500		MOVB	R3,GOOD	:LOAD FIRST TX DATA FOR ERROR MESSAGES
8306	073730	013737	002334	002426	MOV	PHHIGH,TXADRH	:FIRST TX ADDRESS
8307	073736	013737	002336	002430	MOV	PHLOW,TXADRL	:GET ADDRESS OVER 128K
8308	073744	000425			BR	45\$	:BRANCH TO ERROR REPORT
8309	073746	005237	002404		44\$:	INC CNT1	
8310	073752	122122			CMPB	(R1)+,(R2)+	:BUFFER A EQUAL BUFFER B
8311	073754	001453			BEQ	46\$	:IF YES CONTINUE
8312	073756	005037	002500		CLR	GOOD	:CLEAR GOOD
8313	073762	005037	002502		CLR	BAD	:CLEAR BAD
8314	073766	010137	002340		MOV	R1,VIADD	
8315	073772	004737	010024		JSR	PC,VPCON	:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8316	073776	013737	002334	002426	MOV	PHHIGH,TXADRH	:TX ADDRESS IS OVER 128K
8317	074004	013737	002336	002430	MOV	PHLOW,TXADRL	
8318	074012	116137	177777	002500	MOVB	-1(R1),GOOD	:...LOAD TX DATA FOR ERROR MESSAGE
8319	074020	010237	002340		45\$:	MOV R2,VIADD	:SET UP DATA FOR CONVERSION ROUTINE
8320	074024	004737	010024		JSR	PC,VPCON	:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8321	074030	013737	002334	002422	MOV	PHHIGH,RXADRH	:RX ADDRESS IS OVER 128K
8322	074036	013737	002336	002424	MOV	PHLOW,RXADRL	:GET ADDRESS OVER 128K
8323	074044	005337	002430		DEC	TXADRL	:...
8324	074050	005337	002424		DEC	RXADRL	
8325	074054	116237	177777	002502	MOVB	-1(R2),BAD	:LOAD RX DATA FOR ERROR MESSAGE
8326	074062	005037	177572		CLR	SRO	:**DISABLE MEMORY MANAGEMENT**
8327	074066				ERRSOFT	2706,E231,ERR231	:ERROR HANDLER
	074066	104457					TRAP C\$ERSOFT
	074070	005222					.WORD 2706
	074072	006010					.WORD E231
	074074	003744					.WORD ERR231
8328	074076	012737	000001	177572	46\$:	MOV #1,SRO	:**ENABLE MEMORY MANAGEMENT**
8329	074104	023737	002404	002240	CMP	CNT1,BCINP	:ALL BYTES COMPARED ?
8330	074112	001315			BNE	44\$	:IF NO, GET NEXT ONE
8331	074114	005037	177572		CLR	SRO	:**DISABLE MEMORY MANAGEMENT**
8332	074120	005077	106154		CLR	@CSRX	:CLEAR CSR2,SELECT CHANNEL 1
8333	074124	017737	106142	002502	MOV	@IDRX,BAD	:READ DIR1 FOR CLEAR BO BIT IN IIR

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TEST 27: EXTENDED ADDRFS BIT (Q22-BUS)TEST

```

8334 074132 005077 106142          CLR      @CSRX          ;CLEAR CSR1
8335                                     :+++-----:
8336                                     ;PART 2 DMA DATA TRANSFER FROM CHANNEL 2 TO 1
8337                                     :+++-----:
8338 074136 005037 002376          PSEU27: CLR      INTFC1          ;CLEAR INTERRUPT FLAG FOR CHANNEL 1
8339 074142 005037 002400          CLR      INTFC2          ;CLEAR INTERRUPT FLAG FOR CHANNEL 2
8340 074146 004737 010710          JSR      PC,BGIN2          ;SET UP PARAMETER
8341 074152 000240                  NOP
8342 074154 012737 177777 002336  MOV      #177777,PHLOW          ;LOAD INPUT FOR CONVERSION ROUTINE
8343 074162 013704 002350          MOV      MASK,R4          ;...
8344 074166 005304                  DEC      R4          ;...
8345 074170 010437 002334          MOV      R4,PHHIGH
8346 074174 004737 007724          JSR      PC,PVCON          ;CREATE VIRTUAL ADDRESS
8347 074200 013700 002340          MOV      VIADD,R0          ;GET START ADDRESS OF BUFFER A
8348 074204 010037 002356          MOV      R0,BUFAB          ;LOAD START ADDRESS OF BUFFER A
8349 074210 012701 010000          MOV      #10000,R1          ;LOAD COUNTER FOR 2K
8350 074214 005003                  CLR      R3          ;R3 CONTAINS DATA
8351 074216 012737 000020 172516  MOV      #20,SR3          ;**ENABLE 22-BIT MEMORY MANAGEMENT**
8352 074224 012737 000001 177572  MOV      #1,SR0          ;**ENABLE MEMORY MANAGEMENT**
8353 074232 110310                  MOV      R3,(R0)          ;LOAD FIRST DATA BYTE
8354 074234 012700 120000          MOV      #120000,R0          ;SET UP ADDRESS FOR NEXT DATA BYTE
8355 074240 005237 172352          INC      KPAR5          ;LOAD NEXT PAGE
8356 074244 005203 16$:          INC      R3          ;CREATE NEXT DATA
8357 074246 110320                  MOV      R3,(R0)+          ;LOAD BUFFER WITH DATA
8358 074250 005301                  DEC      R1
8359 074252 001374                  BNE      16$
8360 074254 005300                  DEC      R0
8361 074256 012701 010000          MOV      #10000,R1          ;LOAD 2K
8362 074262 010037 002360          MOV      R0,BUFB          ;LOAD START ADDRESS OF BUFFER B
8363 074266 000240 20$:          JCP
8364 074270 105020                  CLRB      (R0)+          ;CLEAR BUFFER B
8365 074272 005301                  DEC      R1          ;2K CLEARED
8366 074274 001374                  BNE      20$          ;IF YES,DO THE TEST
8367 074276 005037 177572          CLR      SR0          ;**DISABLE MEMORY MANAGEMENT**
8368 074302 112777 000212 105760  MOV      #212,@ICRH          ;---LOAD TON INTO ACR 2-----
8369 074310 013701 002312          MOV      DPA1,R1          ;CREATE MLA1
8370 074314 062701 000040          ADD      #40,R1
8371 074320 010137 002410          MOV      R1,MLA1          ;STORE MLA1
8372 074324 113777 002410 105744  MOV      MLA1,@IDRH          ;---LOAD MLA1 INTO DOR 2-----
8373 074332 004737 011060          JSR      PC,LOOP          ;WAIT A LITTLE
8374 074336 012777 177777 105736  MOV      #177777,@BARX          ;---LOAD START ADDRESS OF BUFFER A---
8375 074344 013737 002240 002402  MOV      BCINP,RSAVE          ;STORE BYTE COUNT INPUT
8376 074352 005437 002402          NEG      RSAVE          ;BUILD 2'COMPL FOR BCR
8377 074356 013777 002402 105720  MOV      RSAVE,@BCRX          ;---LOAD INPUT INTO BCR 1-----
8378 074364 012777 000177 105706  MOV      #177,@CSRX          ;-DMA ENB,DMA DIR,INT ENB,SYS CO,BA16+17
8379 074372 053777 002364 105700  BIS      CSRMS1,@CSRX          ;--LOAD ADDITIONAL EXTENDED ADDRESS BIT
8380 074400 042777 000010 105672  BIC      #10,@CSRX          ;SELECT CHANNEL 1
8381 074406 012777 007777 105666  MOV      #7777,@BARX          ;---LOAD START ADDRESS OF BUFFER B---
8382 074414 013777 002402 105662  MOV      RSAVE,@BCRX          ;---LOAD INPUT INTO BCR 1---
8383 074422 012777 000101 105650  MOV      #101,@CSRX          ;---SET DMA ENB,INT ENB IN CSR1
8384 074430 053777 002366 105642  BIS      CSRMS2,@CSRX          ;---LOAD EXTENDED ADDRESS BITS-----
8385 074436                  SETPRI      #PRI00          ;SET PRIORITY TO ZERO
8386 074444 052777 000010 105626  BIS      #10,@CSRX          ;SELECT CHANNEL 2
8387 074452 012737 000002 002374  MOV      #2,CHAN          ;LOAD CHANNEL NUMBER
8388 074460 112777 000013 105602  MOV      #13,@ICRH          ;---LOAD GTS INTO ACR 2-----

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TEST 27: EXTENDED ADDRESS BIT (Q22-BUS) TEST

8389	074466	012701	077777			MOV	#77777,R1		:LOAD LOOP COUNTER
8390	074472	005737	002400	23\$:		TST	INTFC2		:HAS INTERRUPT IN CHANNEL 2 OCCURED
8391	074476	001017				BNE	24\$		:BRANCH IF YES
8392	074500	005301				DEC	R1		:DECREMENT COUNTER
8393	074502	001373				BNE	23\$		:IF NO,TEST AGAIN
8394	074504	017737	105570	002502		MOV	@CSRX,BAD		:GET CSR2 CONTENTS
8395	074512	012737	100016	002500		MOV	#100016,GOOD		:BC OF DMA DIR,SYS CONT
8396	074520	053737	002364	002500		BIS	CSRMS1,GOOD		:SET EXTENDED ADDRESS BIT TO CSR CONT.
8397	074526					ERRSOFT	2707,E232,ERR201		:ERROR HANDLER
	074526	104457							TRAP C\$ERSOFT
	074530	005223							.WORD 2707
	074532	006072							.WORD E232
	074534	003500							.WORD ERR201
8398	074536	042777	000010	105534	24\$:	BIC	#10,@CSRX		:SELECT CHANNEL 1
8399	074544	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
8400	074552	005737	002376			TST	INTFC1		:HAS AN INTERRUPT IN CHANNEL 1 OCCURED
8401	074556	001015				BNE	25\$		:BRANCH IF YES
8402	074560	017737	105514	002502		MOV	@CSRX,BAD		:GET CSR1 CONTENTS
8403	074566	012737	100000	002500		MOV	#100000,GOOD		:BC OF SHOULD BE SET
8404	074574	053737	002366	002500		BIS	CSRMS2,GOOD		:SET EXTENDED ADDRESS BIT TO CSR CONT.
8405	074602					ERRSOFT	2708,E232,ERR201		:ERROR HANDLER
	074602	104457							TRAP C\$ERSOFT
	074604	005224							.WORD 2708
	074606	006072							.WORD E232
	074610	003500							.WORD ERR201
8406	074612				25\$:	SETPRI	#PRI07		:NO FURTHER INTERRUPT ALLOWED
	074612	012700	000340						MOV #PRI07,R0
	074616	104441							TRAP C\$SPRI
8407	074620	052777	000010	105452		BIS	#10,@CSRX		:SELECT CHANNEL 2
8408	074626	012737	000002	002374		MOV	#2,CHAN		:LOAD CHANNEL NUMBER
8409	074634	112777	000014	105426		MOVB	#14,@ICRHX		:---LOAD TCA INTO ACR 2-----
8410	074642	013737	002336	002500		MOV	PHLOW,GOOD		:SET UP COMPARE VALUE
8411	074650	063737	002240	002500		ADD	BCINP,GOOD		:...
8412	074656	017737	105420	002502		MOV	@BARX,BAD		:GET BAR1 CONTENTS
8413	074664	023737	002502	002500		CMP	BAD,GOOD		:HAS BAR1 THE CORRECT ADDRESS
8414	074672	001404				BEQ	30\$		:BRANCH IF YES
8415	074674					ERRSOFT	2709,E234,ERR501		:ERROR HANDLER
	074674	104457							TRAP C\$ERSOFT
	074676	005225							.WORD 2709
	074700	006200							.WORD E234
	074702	003702							.WORD ERR501
8416	074704	017737	105374	002502	30\$:	MOV	@BCRX,BAD		:GET BCR1 CONTENTS
8417	074712	005037	002500			CLR	GOOD		:...
8418	074716	023737	002502	002500		CMP	BAD,GOOD		:IS BCR1 ZERO
8419	074724	001404				BEQ	31\$		:BRANCH IF YES
8420	074726					ERRSOFT	2710,E235,ERR501		:ERROR HANDLER
	074726	104457							TRAP C\$ERSOFT
	074730	005226							.WORD 2710
	074732	006231							.WORD E235
	074734	003702							.WORD ERR501
8421	074736	042777	000010	105334	31\$:	BIC	#10,@CSRX		:SFLECT CHANNEL 2
8422	074744	012737	000001	002374		MOV	#1,CHAN		:LOAD CHANNEL NUMBER
8423	074752	013737	002360	002500		MOV	BUFBB,GOOD		:SET UP COMPARE VALUE
8424	074760	042737	160000	002500		BIC	#160000,GOOD		:CLEAR BIT 13+14+15
8425	074766	063737	002240	002500		ADD	BCINP,GOOD		:...
8426	074774	017737	105302	002502		MOV	@BARX,BAD		:GET BAR2 CONTENTS
8427	075002	023737	002500	002502		CMP	GOOD,BAD		:HAS BAR2 THE CORRECT ADDRESS

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TEST 27: EXTENDED ADDRESS BIT (Q22-BUS) TEST

8428	075010	001404			BEQ	43\$:BRANCH IF YES
8429	075012				ERRSOFT	2711,E234,ERR501			:ERROR HANDLER
	075012	104457						TRAP	C\$ERSOFT
	075014	005227						.WORD	2711
	075016	006200						.WORD	E234
	075020	003702						.WORD	ERR501
8430	075022	012737	000001	177572	43\$:	MOV	#1,SRO		:**ENABLE MEM Y MANAGEMENT**
8431	075030	005337	172352			DEC	KPAR5		:CROSS THE BOUNDERY FOR FIRST BYTE
8432	075034	013701	002356			MOV	BUFAB,R1		:PROVIDE FIRST BYTE OF BUFFER A
8433	075040	111103				MOVB	(R1),R3		:GET THE FIRST DATA BYTE
8434	075042	010137	002340			MOV	R1,VIADD		:SET UP DATA FOR CONVERSION ROUTINE
8435	075046	004737	010024			JSR	PC,VPCON		:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8436	075052	012701	120000			MOV	#120000,R1		:POINT TO NEXT LOCATION
8437	075056	005237	172352			INC	KPAR5		:CROSS THE BOUNDERY FOR NEXT DATA BYTE'S
8438	075062	013702	002360			MOV	BUFBB,R2		:PROVIDE FIRST BYTE OF BUFFER B
8439	075066	012737	000001	002404		MOV	#1,CNT1		:SET UP COUNTER FOR DATA COMPARE
8440	075074	120322				CMFB	R3,(R2)+		:COMPARE THE FIRST DATA BYTE
8441	075076	000240				NOP			
8442	075100	001415				BEQ	44\$		:BRANCH IF EQUAL TO NEXT COMPARE
8443	075102	005037	002500			CLR	GOOD		:CLEAR HIGH BYTE OF GOOD
8444	075106	005037	002502			CLR	BAD		:CLEAR HIGH BYTE OF BAD
8445	075112	110337	002500			MOVB	R3,GOOD		:LOAD FIRST TX DATA FOR ERROR MESSAGES
8446	075116	013737	002334	002426		MOV	PHHIGH,TXADRH		:FIRST TX ADDRESS
8447	075124	013737	002336	002430		MOV	PHLOW,TXADRL		:GET ADDRESS OVER 128K
8448	075132	000425				BR	45\$		:BRANCH TO ERROR REPORT
8449	075134	005237	002404		44\$:	INC	CNT1		
8450	075140	122122				CMFB	(R1)+,(R2)+		:BUFFER A EQUAL BUFFER B
8451	075142	001453				BEQ	46\$		:IF YES CONTINUE
8452	075144	005037	002500			CLR	GOOD		:CLEAR GOOD
8453	075150	005037	002502			CLR	BAD		:CLEAR BAD
8454	075154	010137	002340			MOV	R1,VIADD		
8455	075160	004737	010024			JSR	PC,VPCON		:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8456	075164	013737	002334	002426		MOV	PHHIGH,TXADRH		:TX ADDRESS IS OVER 128K
8457	075172	013737	002336	002430		MOV	PHLOW,TXADRL		
8458	075200	116137	177777	002500		MOVB	-1(R1),GOOD		:LOAD TX DATA FOR ERROR MESSAGE
8459	075206	010237	002340		45\$:	MOV	R2,VIADD		:SET UP DATA FOR CONVERSION ROUTINE
8460	075212	004737	010024			JSR	PC,VPCON		:VIRTUAL TO PHYSICAL CONVERSION ROUTINE
8461	075216	013737	002334	002422		MOV	PHHIGH,RXADRH		:RX ADDRESS IS OVER 128K
8462	075224	013737	002336	002424		MOV	PHLOW,RXADRL		:GET ADDRESS OVER 128K
8463	075232	005337	002430			DEC	TXADRL		:...
8464	075236	005337	002424			DEC	RXADRL		
8465	075242	116237	177777	002502		MOVB	-1(R2),BAD		:LOAD RX DATA FOR ERROR MESSAGE
8466	075250	005037	177572			CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
8467	075254					ERRSOFT	2712,E250,ERR231		:ERROR HANDLER
	075254	104457						TRAP	C\$ERSOFT
	075256	005230						.WORD	2712
	075260	005726						.WORD	E250
	075262	003744						.WORD	ERR231
8468	075264	012737	000001	177572		MOV	#1,SRO		:**ENABLE MEMORY MANAGEMENT**
8469	075272	023737	002404	002240	46\$:	CMP	CNT1,BCINP		:ALL BYTES COMPARED ?
8470	075300	001315				BNE	44\$		:IF NO, GET NEXT ONE
8471	075302	005037	177572			CLR	SRO		:**DISABLE MEMORY MANAGEMENT**
8472	075306	005077	104766			CLR	@CSRX		:CLEAR CSR2,SELECT CHANNEL 1
8473	075312	017737	104754	002502		MOV	@IDRX,BAD		:READ DIR1 FOR CLEAR BO BIT IN IIR
8474	075320	005077	104754			CLR	@CSRX		:CLEAR CSR1
8475	075324	006337	002350			ASL	MASK		:NEXT MEMORY RANGE
8476	075330	022737	001000	002364		CMP	#1000,CSRMS1		:WAS BA 18 SET


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8477 075336 003403
8478 075340 012737 000400 002362 BLE 50$ ;BRANCH IF EQUAL OR GREATER
8479 075346 006337 002362 50$: MOV #400,CSRMSK ;SET BA 18
8480 075352 053737 002362 002364 ASL CSRMSK
8481 075360 006337 002366 BIS CSRMSK,CSRMS1
8482 075364 000240 ASL CSRMS2 ;SET EXTENDED ADDRESS BIT FOR RX CHANNEL
8483 075366 022737 020000 002366 NOP ;ALL EXTENDED ADDRESS BIT TESTED
8484 075374 001402 CMP #20000,CSRMS2 ;IF YES, EXIT TEST
8485 075376 000137 072724 BEQ EXQV27
8486 075402 JMP ITAC27
      075402 104432 EXQV27: EXIT TST
      075404 000050
8487
8488 075406 045 123 062 TSHD27: .NLIST BEX TRAP C$EXIT
8489 .ASCIZ /%S2% AQ-22 EXTENDED ADDRESS BIT TEST%N/ .WORD L10060-
8490 .LIST BEX
8491 075454 .EVEN
      075454 .ENDTST
      075454 104401

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L10060: TRAP C\$ETST

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TEST 28: ADDITIONAL STANDBY TEST

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8493 .SBTTL TEST 28: ADDITIONAL STANDBY TEST
8494 :*****
8495 :               IEX - TEST 28
8496 : THIS TEST MOVES A SLIDING ONE'S BIT PATTERN ACROSS THE
8497 : ADDRESS LINE 16,17,18,19,20,21 IGNORING NXM ERRORS BUT CHECKING
8498 : THE ADDRESS REGISTER LINES TO THE BUS.
8499 :
8500 : THE PATTERN SHOULD BE CHECKED ON A LOGIC ANALYSER .
8501 : THE LOGIC ANALYSER HAS TO BE CONNECT TO ADDRESS LINES 16-21,
8502 : THE TRIGGER HAS TO BE CONNECET TO THE SIGNAL ADREN L (E9,PIN4).
8503 :
8504 : THIS TEST IS ONLY CARRIED OUT IF A Q-BUS IS USED AND IF YOU ANSWER
8505 : THE SOFTWARE QUESTION.
8506 :*****
8507 BGNTST
                                T28::
8508 075456 005737 002242      TST      MAINB      ;IS THIS TEST SELECTED
8509 075462 001015           BNE      3$          ;EXIT IF NO
8510 075464 005737 002324      TST      PNTF      ;IS THE PNT FLAG SET
8511 075470 001410           BEQ      2$          ;IF YES, PRINT INFORMATION
8512 075472           PRINTF  #INFO2      ;PRINT MESSAGE FOR USER
                                MOV      #INFO2,-(SP)
                                MOV      #1,-(SP)
                                MOV      SP,R0
                                TRAP     C$PNTF
                                ADD      #4,SP
8513 075512           2$:      EXIT      TST      ;EXIT TEST
                                TRAP     C$EXIT
                                .WORD    L10061-.
8514 075516           3$:      READBUS      ;ARE YOU ON A Q-BUS
                                TRAP     C$RDBU
8515 075520           BCOMPLETE 5$          ;BRANCH IF Q-BUS
                                BCS      5$
8516 075522 005737 002324      TST      PNTF      ;IS THE PNT FLAG SET
8517 075526 001410           BEQ      11$         ;IF YES, PRINT INFORMATION
8518 075530           PRINTF  #INFO3      ;PRINT MESSAGE FOR USER
                                MOV      #INFO3,-(SP)
                                MOV      #1,-(SP)
                                MOV      SP,R0
                                TRAP     C$PNTF
                                ADD      #4,SP
8519 075550           11$:     EXIT      TST      ;IF UNI-BUS EXIT TEST
                                TRAP     C$EXIT
                                .WORD    L10061-.
8520 075554 005737 002324      5$:      TST      PNTF      ;IS THE PNT FLAG SET
8521 075560 001410           BEQ      7$          ;IF YES, PRINT THE TEST HEADER
8522 075562           PRINTF  #TSHD28     ;....
                                MOV      #TSHD28,-(SP)
                                MOV      #1,-(SP)
                                MOV      SP,R0
                                TRAP     C$PNTF
                                ADD      #4,SP
8523 075602           7$:      PRINTF  #INFO1      ;PRINT MESSAGE FOR USER
                                MOV      #INFO1,-(SP)
                                MOV      #1,-(SP)
                                MOV      SP,R0
                                TRAP     C$PNTF
075456 012746 076374
075476 012746 000001
075502 010600
075504 104417
075506 062706 000004
075512 104432
075514 001204
075516 104407
075520 103415
075522 005737 002324
075526 001410
075530 012746 076502
075534 012746 000001
075540 010600
075542 104417
075544 062706 000004
075550 104432
075552 001146
075554 005737 002324
075560 001410
075562 012746 076220
075566 012746 000001
075572 010600
075574 104417
075576 062706 000004
075602 012746 076244
075606 012746 000001
075612 010600
075614 104417

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Address	Hex	Dec	Label	Instruction	Comment
8524	075616	062706	000004	SETVEC #4,#NXM,#340	:SET UP NON-EXISTENT MEMORY TRAP VECTOR
	075622	012746	000340		ADD #4,SP
	075626	012746	010132		MOV #340,-(SP)
	075632	012746	000004		MOV #NXM,-(SP)
	075636	012746	000003		MOV #4,-(SP)
	075642	104437			MOV #3,-(SP)
	075644	062706	000010		TRAP C\$SVEC
8525	075650			SETVEC VECC1,#INTSC1,#PRI07	:SET UP INTERRUPT VECTOR
	075654	012746	000340		ADD #10,SP
	075658	012746	010142		MOV #PRI07,-(SP)
	075660	013746	002244		MOV #INTSC1,-(SP)
	075664	012746	000003		MOV VECC1,-(SP)
	075670	104437			MOV #3,-(SP)
	075672	062706	000010		TRAP C\$SVEC
	075676	004737	010534		ADD #10,SP
8526	075702	112777	000212	104360 JSR PC,BGIN1	:SET UP PARAMETER
8527	075710	013701	002314	MOV #212,@ICRH	:--SELECT CHANNEL 1 AS TALKER-----
8528	075714	062701	000040	MOV DPA2,R1	:CREATE MLA2
8529	075720	010137	002412	ADD #40,R1	:--
8530	075724	113777	002412	MOV R1,MLA2	:STORE MLA2
8531	075732	004737	011060	104344 MOVB MLA2,@IDRH	:----LOAD MLA2 INTO DOR 1-----
8532	075736	000240		JSR PC,LOOP	:WAIT A LITTLE
8533	075740	005037	002370	ITAC28: NOP	:CLEAR ANSWER LOCATION
8534	075744	104443		CLR ANS	:ASK ,READY FOR TRIGGER
8535	075746	000404		GMANIL TRMSG,ANS,-1,NO	TRAP C\$GMAN
	075750	002370			BR 10000\$
	075752	000120			.WORD ANS
	075754	076563			.WORD T\$CODE
	075756	177777			.WORD TRMSG
	075760				.WORD -1
8536	075760	005737	002370		10000\$:
8537	075764	001764		TST ANS	:TEST ANSWER
8538	075766	012737	000020	BEQ ITAC28	:IF ANSWER WAS YES, DO THE TEST
8539	075774	005037	002376	202350 MOV #20,MASK	:SET UP MASK FOR LOADING BA BIT IN CSR
8540	076000	000240		NEXTBA: CLR INTFC1	:CLEAR INTERRUPT FLAG
8541	076002	005077	104274	NOP	
8542	076006	012737	000001	CLR @BARX	:LOAD BAR READ LOCATION
8543	076014	005437	002402	MOV #1,RSAVE	:GET BYTE COUNT
8544	076020	013777	002402	NEG RSAVE	:BILD 2'COMPL FOR BCR
8545	076026	013777	002350	MOV RSAVE,@BCRX	:LOAD READ ADDRESS
8546	076034	052777	000107	104244 MOV MASK,@CSRX	:LOAD EXTENDED ADDRESS BIT INTO CSR
8547	076042	012700	000000	104236 BIS #107,@CSRX	:SET DMA ENB, INT ENB, DMA DIR INTO CSR
	076046	104441		SETPRI #PRI00	:ALLOW INTERRUPT
8548	076050	112777	000013	104212 MOVB #13,@ICRH	MOV #PRI00,RO
8549	076056	012701	077777	MOV #77777,R1	TRAP C\$SPRI
8550	076062	005737	002376	13\$: TST INTFC1	:--LOAD GTS INTO ACR 1, START DMA----
8551	076066	001013		BNE 10\$	:LOAD LOOP COUNTER
8552	076070	005301		DEC R1	:HAS INTERRUPT OCCURRED
8553	076072	001373		BNE 13\$	:BRANCH IF YES
8554	076074	104457		ERRSOFT 2801,E271	:DECREMENT COUNTER
	076076	005361			:TEST AGAIN
	076100	076634			TRAP C\$ERRSOFT
	076102	000000			.WORD 2801
					.WORD E271
					.WORD 0

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 70-2
 TEST 28: ADDITIONAL STANDBY TEST

```

8555 076104          SETPRI #PRI07          ;DISABLE INTERRUPT
      076104 012700 000340
      076110 104441
3556 076112          EXIT TST
      076112 104432
      076114 000604
8557 076116          SETPRI #PRI07          ;DISABLE INTERRUPT
      076116 012700 000340
      076122 104441
      076124 022737 001000 002350
8558 076124 022737 001000 002350
8559 076132 003411
8560 076134 006337 002350
8561 076140 023727 002350 000100
8562 076146 001312
8563 076150 012737 000400 002350
8564 076156 006337 002350
8565 076162 000240
8566 076164 000240
8567 076166 000240
8568 076170 112777 000014 104072
8569 076176 017737 104070 002502
8570 076204 022737 020000 002350
8571 076212 001270
8572 076214          EXIT TST
      076214 104432
      076216 000502
      TRAP C$EXIT
      .WORD L10061-.

8573
8574
8575 076220          045 123 062 TSHD28: .NLIST BEX
8576 076244          045 116 045 INFO1: .ASCII /%S2%ASTANDBY TEST%N/
8577 076323          045 101 101 .ASCII /%N%ACONNECT YOUR LOGIC ANALYSER TO BDAL 16-21%N/
8578 076374          045 123 062 INFO2: .ASCII /%AAND THE TRIGGER TO ADREN L (E9,PIN4)%N/
8579 076445          045 123 071 .ASCII /%S2%AFOR SELECT THIS TEST PLEASE ANSWER%N/
8580 076502          045 123 062 INFO3: .ASCII /%S9%ATHE SOFTWARE QUESTION%N/
8581 076563          111 123 040 TRIMSG: .ASCII /%S2%ATHIS TEST IS ONLY FOR THE Q-BUS INTERFACE%N/
8582 076634          116 117 040 E271: .ASCII /IS THE LOGIC ANALYSER READY FOR TRIGGER?/
8583          .LIST BEX
8584          .EVEN
8585 076720          .ENDTST
      076720
      076720 104401
      L10061:
      TRAP C$EXIT

8586
8587 076722          ENDMOD
8588

```

HARDWARE TESTS MACRO M1113 06-SEP-82 16:46 PAGE 71
TEST 28: ADDITIONAL STANDBY TEST

8591
8592
8593
8594
8595
8596
8597
8608
8609
8638
8639 076722
8640
8641
8642
8643
8644
8645
8646
8647
8648
8649

.TITLE PARAMETER CODING

.SBTTL HARDWARE PARAMETER CODING SECTION

BGNMOD

++
: 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

.WORD L10062-LSHARD/2
LSHARD::

8651
8661

076724 000032
076724 000031
076726 077010
076730 160000
076732 177776

GPRMA HPM1,0,0,160000,177776,YES

.WORD TSCODE
.WORD HPM1
.WORD TSLLOLIM
.WORD TSHILIM

8662

076734 001031
076736 077046
076740 000200
076742 000770

GPRMA HPM2,2,0,200,770,YES

.WORD TSCODE
.WORD HPM2
.WORD TSLLOLIM
.WORD TSHILIM

8663

076744 002032
076746 077104
076750 000340
076752 000004
076754 000006

GPRMD HPM3,4,0,340,4,6,YES

.WORD TSCODE
.WORD HPM3
.WORD 340
.WORD TSLLOLIM
.WORD TSHILIM

8664

076756 003032
076760 077164
076762 177777
076764 000000
076766 000036

GPRMD HPM4,6,0,-1,0,36,YES

.WORD TSCODE
.WORD HPM4
.WORD -1
.WORD TSLLOLIM
.WORD TSHILIM

8665

076770 004032
076772 077226
076774 177777
076776 000000
077000 000036

GPRMD HPM5,10,0,-1,0,36,YES

.WORD TSCODE
.WORD HPM5
.WORD -1
.WORD TSLLOLIM
.WORD TSHILIM

8666

077002 005120
077004 077271
077006 177777

GPRML HPM6,12,-1,NO

.WORD TSCODE
.WORD HPM6
.WORD -1

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 71-1
 HARDWARE PARAMETER CODING SECTION

8667
 8668
 8669 077010

ENDHRD

L10062: .EVEN

8670
 8671 077010

8672	077010	104	105	126	HPM1:	.NLIST BEX	
8673	077046	126	105	103	HPM2:	.ASCIZ /DEVICE ADDRESS	/
8674	077104	120	122	111	HPM3:	.ASCIZ /VECTOR ADDRESS	/
8675	077164	104	105	126	HPM4:	.ASCIZ /PRIORITY LEVEL (FOR LSI WITH FIXED PRI. TYPE 4)/	
8676	077226	104	105	126	HPM5:	.ASCIZ /DEVICE PRIMARY ADDRESS CH.1	/
8677	077271	111	123	040	HPM6:	.ASCIZ /DEVICE PRIMARY ADDRESS CH.2	/
8678						.ASCIZ /IS TESTABLE IN ?	/
8679						.EVEN	
8680						.LIST BEX	

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 73
SOFTWARE PARAMETER CODING SECTION

```

8689      .SBTTL  SOFTWARE PARAMETER CODING SECTION
8690
8691      : **
8692      : THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
8693      : THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
8694      : MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
8695      : INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
8696      : MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
8697      : WITH THE OPERATOR.
8698      : --
8699
8700 077334      BGNSFT
      077334      000115
      077336
      L$SOFT::      .WORD L10063-L$SCFT/2
8701
8710
8711 077336      GPRML  PMQVP,0,-1,YES
      077336      000130
      077340      077400
      077342      177777
      .WORD      T$CODE
      .WORD      PMQVP
      .WORD      -1
8712 077344      GPRMD  SPRM2,2,D,-1,3,77,YES
      077344      001052
      077346      077427
      077350      177777
      077352      000003
      077354      000077
      .WORD      T$CODE
      .WORD      SPRM2
      .WORD      -1
      .WORD      T$LLOLIM
      .WORD      T$HILIM
8713 077356      GPRMD  SPRM4,4,D,-1,1,3777,YES
      077356      002052
      077360      077471
      077362      177777
      077364      000001
      077366      003777
      .WORD      T$CODE
      .WORD      SPRM4
      .WORD      -1
      .WORD      T$LLOLIM
      .WORD      T$HILIM
8714 077370      GPRML  SPRM5,6,-1,YES
      077370      003130
      077372      077520
      077374      177777
      .WORD      T$CODE
      .WORD      SPRM5
      .WORD      -1
8715 077376      EXIT    SFT
      077376      075004
      .WORD      T$CODE
8716
8717 077400      121      125      111  PMQVP:  .NLIST BEX
8718 077427      116      125      115  .ASCIZ  /QUICK VERIFY TEST      /
8719 077471      116      125      115  SPRM2:  .ASCIZ  /NUMBER OF MATCH CHARACTER COUNTS /
8720 077520      104      117      040  SPRM4:  .ASCIZ  /NUMBER OF BYTE COUNTS /
      .ASCIZ  /DO YOU WANT THE ADDITIONAL STANDBY TEST//
8721      .LIST BEX
8722      .EVEN
8723
8724 077570      ENDSFT
      .EVEN
      L10063:
      077570
8725
8726
8733
8734 077570      $PATCH::
8735 077570      .BLKW  50      : PATCH AREA
8736 077710      .BLKB  400-<.8377> : LASTAD SHIFT FOR LSI BUG
8737
8738

```

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 73-1
SOFTWARE PARAMETER CODING SECTION

8745

8746 100000

LASTAD

100000 100024

100002 000010

100004

LSLAST::

8747 100004

ENDMOD

.EVEN
.WORD TSFREE
.WORD TSSIZE

PARAMETER CODING MACRO M1113 06-SEP-82 16:46 PAGE 74
SOFTWARE PARAMETER CODING SECTION

8749					
8750					
8753					
8764	100004		BGNSETUP	1	
8765	100004		BGNPTAB		
	100004	000000			.WORD 0
	100006	000006			.WORD L10066-.12-1
	100010				L10064:
8766	100010	160140	.WORD	160140	:1ST (OF 8) REGISTER ADDRESS
8767	100012	000420	.WORD	420	:1ST (OF 2) VECTOR ADDRESS
8768	100014	000300	.WORD	PRI06	:INTERRUPT PRIORITY
8769	100016	000000	.WORD	0	:DEVICE PRIMARY ADDRESS FOR CH.1
8770	100020	000001	.WORD	1	:DEVICE PRIMARY ADDRESS FOR CH.2
8771	100022	000000	.WORD	0	:DEFAULT VALUE FOR TESTCABLE
8772					
8773	100024		ENDPTAB		
	100024				L10066:
8774	100024		ENDSETUP		
8775		000001	.END		

PARAMETER CODING
SYMBOL TABLE

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ADR = 000020 G	CDAT3 002440 G	CSGPL0= 000030	EXQV11 036766	F\$HARD= 000004
ANS 002370 G	CDAT4 002442 G	CSGPRI= 000040	EXQV12 040646	F\$HW = 000013
ASSEMB= 000010	CDAT5 002444 G	CSINIT= 000011	EXQV13 043034	F\$INIT= 000006
A1 017024	CDAT6 002446 G	CSINLP= 000020	EXQV14 043736	F\$JMP = 000050
A10 033612	CDAT7 002450 G	CSMANI= 000050	EXQV15 044720	F\$MOD = 000000
A11 035360	CDAT8 002452 G	CSMEM = 000031	EXQV16 045256	F\$MSG = 000011
A12 037130	CDAT9 002454 G	CSMSG = 000023	EXQV17 045640	F\$PROT= 000021
A2 023124	CHAN 002374 G	CSOPEN= 000034	EXQV18 051730	F\$PWR = 000017
A81 030060	CNT1 002404 G	CSPTB= 000014	EXQV19 053040	F\$RPT = 000012
A82 031242	COPA1 020402	CSPTF= 000017	EXQV2 013332	F\$SEG = 000003
A9 032026	COPA10 034546	CSPTS= 000016	EXQV20 054112	F\$SOFT= 000005
BAD 002502 G	COPA11 036314	CSPTX= 000015	EXQV21 055162	F\$SRV = 000010
BARX 002302 G	COPA12 040152	CSQIO = 000377	EXQV22 057176	F\$SUB = 000002
BCINP 002240 G	COPA2 024620	CSRDBU= 000007	EXQV23 063200	F\$SW = 000014
BCRX 002304 G	COPA9 032776	CSREFG= 000047	EXQV24 067200	F\$TEST= 000001
BGIN1 010534 G	COPB1 021264	CSRESE= 000033	EXQV25 070736	GETPRM 011244
BGIN2 010710 G	COPB2 025562	CSREVI= 000003	EXQV26 072470	GOOD 002500 G
BIT0 = 000001 G	COPC1 021616	CSRFLA= 000021	EXQV27 075402	GSCNTO= 000200
BIT00 = 000001 G	COPC2 026122	CSRPT = 000025	EXQV3 014036	G\$DELM= 000372
BIT01 = 000002 G	COPD1 022460	CSSEFG= 000046	EXQV4 015516	G\$DISP= 000003
BIT02 = 000004 G	COPD2 027000	CSSPRI= 000041	EXQV5 016726	G\$EXCP= 000400
BIT03 = 000010 G	CSRMSK 002362 G	CSVEEC= 000037	EXQV6 022774	G\$HILI= 000002
BIT04 = 000020 G	CSRMS1 002364 G	CS\$PRI= 000013	EXQV7 027330	G\$LOLI= 000001
BIT05 = 000040 G	CSRMS2 002366 G	DFPTBL 002216 G	EXQV9 033450	G\$NO = 000000
BIT06 = 000100 G	CSRNAM 014042	DIAGMC= 000000	E\$END = 002100	G\$OFFS= 000400
BIT07 = 000200 G	CSRX 002300 G	DMAHAD 004715	E\$LOAD= 000035	G\$OFFSI= 000376
BIT08 = 000400 G	CULPA 010220 G	DPA1 002312 G	E101 005012 G	G\$PRMA= 000001
BIT09 = 001000 G	C\$AU = 000052	DPA2 002314 G	E200 005057 G	G\$PRMD= 000002
BIT1 = 000002 G	C\$AUTO= 000061	EF.CON= 000036 G	E222 005675 G	G\$PRML= 000000
BIT10 = 002000 G	C\$BRK = 000022	EF.NEW= 000035 G	E231 006010 G	G\$RADA= 000140
BIT11 = 004000 G	C\$BSEG= 000004	EF.PWR= 000034 G	E232 006072 G	G\$RADB= 000000
BIT12 = 010000 G	C\$BSUB= 000002	EF.RES= 000037 G	E233 006123 G	G\$RADD= 000040
BIT13 = 020000 G	C\$CEFG= 000045	EF.STA= 000040 G	E234 006200 G	G\$RADL= 000120
BIT14 = 040000 G	C\$CLCK= 000062	EMG101 004116	E235 006231 G	G\$RADO= 000020
BIT15 = 100000 G	C\$CLEA= 000012	EMG201 004170	E250 005726 G	G\$XFER= 000004
BIT2 = 000004 G	C\$CLOS= 000035	EMG202 004330	E271 076634	G\$YES = 000010
BIT3 = 000010 G	C\$CLP1= 000006	EMG203 004265	E301 005124 G	HFLP = 000000
BIT4 = 000020 G	C\$CVEC= 000036	EMG231 004651	E302 005162 G	HOE = 100000 G
BIT5 = 000040 G	C\$DCLN= 000044	EMG401 004425	E303 005230 G	HPM1 077010
BIT6 = 000100 G	C\$DODU= 000051	EMG402 004521	E400 005172	HPM2 077046
BIT7 = 000200 G	C\$DRPT= 000024	EMG501 004560	E401 005265 G	HPM3 077104
BIT8 = 000400 G	C\$DU = 000053	ERNU 002432 G	E402 005316 G	HPM4 077164
BIT9 = 001000 G	C\$EDIT= 000003	ERRBLK 002512 G	E403 005353 G	HPM5 077226
BOE = 000400 G	C\$ERDF= 000055	ERRMSG 002510 G	E501 005406 G	HPM6 077271
BUFAB 002356 G	C\$ERHR= 000056	ERRNBR 002506 G	E502 005447 G	IBE = 010000 G
BUFBB 002360 G	C\$ERRO= 000060	ERRTYP 002504 G	E801 005510 G	ICRHX 002270 G
CDAT1 002434 G	C\$ERSF= 000054	ERR101 003454 G	E802 005566 G	ICRLX 002266 G
CDAT10 002456 G	C\$ERSO= 000057	ERR201 003500 G	E901 005644 G	ICRNAM 013350
CDAT11 002460 G	C\$ESCA= 000010	ERR202 003556 G	FINIT1 012046	ICRX 002264 G
CDAT12 002462 G	C\$ESEG= 000005	ERR231 003744 G	FINIT2 012136	IDRHX 002276 G
CDAT13 002464 G	C\$ESUB= 000003	ERR401 003616 G	FMDROP 012370	IDRLX 002274 G
CDAT14 002466 G	C\$ETST= 000001	ERR402 003654 G	F\$AU = 000015	IDRNAM 013355
CDAT15 002470 G	C\$EXIT= 000032	ERR501 003702 G	F\$AUTO= 000020	IDRX 002272 G
CDAT16 002472 G	C\$GETB= 000026	EVL = 000004 G	F\$BGN = 000040	IDU = 000040 G
CDAT17 002474 G	C\$GETW= 000027	EXINI 011220	F\$CLEA= 000007	IER = 020000 G
CDAT18 002476 G	C\$GMAN= 000043	EXQV1 012624	F\$DU = 000016	IIRHX 002254 G
CDAT2 002436 G	C\$GPHR= 000042	EXQV10 035220	F\$END 000041	IIRLX 002252 G

PARAMETER CODING
SYMBOL TABLE

MACRO M1113 06-SEP-82 16:46 PAGE 74-2

IIRNAM	013336	
IIRX	002250	G
INFO1	076244	
INFO2	076374	
INFO3	076502	
INTERR	010162	G
INTFC1	002376	G
INTFC2	002400	G
INTSC1	010142	G
INTSC2	010152	G
ISR	= 000100	G
ISRMX	002262	G
ISRLX	002260	G
ISRNAM	013343	
ISRX	002256	G
ITAC13	041002	
ITAC14	043150	
ITAC15	044054	
ITAC16	045030	
ITAC17	046376	
ITAC18	050756	
ITAC19	052066	
ITAC20	053204	
ITAC21	054254	
ITAC22	055320	
ITAC23	057306	
ITAC24	063322	
ITAC25	067326	
ITAC26	071050	
ITAC27	072724	
ITAC28	075736	
ITRAC1	012510	
ITRAC2	012736	
ITRAC3	013464	
ITRAC4	014130	
ITRAC5	015626	
ITRCNT	002322	G
ITRDEF	002320	G
IXE	= 004000	G
ISAU	= 000041	
ISAUTO	= 000041	
ISCLN	= 000041	
ISDU	= 000041	
ISHRD	= 000041	
ISINIT	= 000041	
ISMOD	= 000041	
ISMSG	= 000041	
ISPROT	= 000040	
ISPTAB	= 000041	
ISPR	= 000041	
ISRPT	= 000041	
ISSEG	= 000041	
ISSETU	= 000041	
ISSFT	= 000041	
ISSRV	= 000041	
ISSUB	= 000041	
ISTST	= 000041	
JSJMP	= 000167	
KPAR0	= 172340	
KPAR1	= 172342	
KPAR2	= 172344	
KPAR3	= 172346	
KPAR4	= 172350	
KPAR5	= 172352	
KPAR6	= 172354	
KPAR7	= 172356	
KPDR0	= 172300	
KPDR1	= 172302	
KPDR2	= 172304	
KPDR3	= 172306	
KPDR4	= 172310	
KPDR5	= 172312	
KPDR6	= 172314	
KPDR7	= 172316	
LOCATE	= 012636	G
LOE	= 040000	G
LOGDEV	= 002372	G
LOOP	= 011060	
LOT	= 000010	G
LSACP	= 002110	G
LSAPT	= 002036	G
LSAU	= 012422	G
LSAUT	= 002070	G
LSAUTO	= 012230	G
LSCCP	= 002106	G
LSCLEA	= 012314	G
LSCO	= 002032	G
LSDEPO	= 002011	G
LSDESC	= 003414	G
LSDESP	= 002076	G
LSDEVP	= 002060	G
LSDISP	= 002124	G
LSDL	= 002116	G
LSDTP	= 002040	G
LSDTYP	= 002034	G
LSDU	= 012340	G
LSDUT	= 002072	G
LSDVLY	= 003352	G
SEF	= 002052	G
SENV	= 002044	G
SERR	= 002504	G
SETP	= 002102	G
SEXP1	= 002046	G
SEXP4	= 002064	G
SEXP5	= 002066	G
SHARD	= 076724	G
SHIME	= 002120	G
SHPCP	= 002016	G
SHPTP	= 002022	G
SHW	= 002216	G
SICP	= 002104	G
SINIT	= 011120	G
SLADP	= 002026	G
SLAST	= 100004	G
LSLOAD	= 002100	G
LSLUN	= 002074	G
LSMREV	= 002050	G
LSNAME	= 002000	G
LSPRIO	= 002042	G
LSPROT	= 011112	G
LSPRT	= 002112	G
LSREPP	= 002062	G
LSREV	= 002010	G
LSRPT	= 011104	G
LSOFT	= 077336	G
SSPC	= 002056	G
SSPCP	= 002020	G
SSPTP	= 002024	G
SSSTA	= 002030	G
SSW	= 002234	G
LSTEST	= 002114	G
LSTIML	= 002014	G
LUNIT	= 002012	G
L10000	= 002232	
L10001	= 002244	
L10002	= 003476	
L10003	= 003554	
L10004	= 003614	
L10005	= 003652	
L10006	= 003700	
L10007	= 003742	
L10010	= 004110	
L10011	= 006656	
L10012	= 010140	
L10013	= 010150	
L10014	= 010160	
L10015	= 010216	
L10016	= 011110	
L10020	= 012226	
L10021	= 012312	
L10022	= 012336	
L10023	= 012420	
L10024	= 012426	
L10025	= 012702	
L10026	= 012640	
L10027	= 013422	
L10030	= 014074	
L10031	= 015572	
L10032	= 016760	
L10033	= 023060	
L10034	= 027414	
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L10037	= 035314	
L10040	= 037064	
L10041	= 040742	
L10042	= 043114	
L10043	= 044020	
L10044	= 044774	
L10045	= 046342	
L10046	= 050720	
L10047	= 052030	
L10050	= 053140	
L10051	= 054210	
L10052	= 055260	
L10053	= 057246	
L10054	= 063266	
L10055	= 067266	
L10056	= 071010	
L10057	= 072542	
L10060	= 075454	
L10061	= 076720	
L10062	= 077010	
L10063	= 077570	
L10064	= 100010	
L10066	= 100024	
MAINB	= 002242	G
MASCOM	= 002352	G
MASK	= 002350	G
MCINP	= 002236	G
MCRHX	= 002310	G
MCRNAM	= 013362	
MCRX	= 002306	G
MEMINI	= 007176	G
MLA1	= 002410	G
MLA2	= 002412	G
MMFLG	= 002332	G
MM22	= 002330	G
MSA1	= 002420	G
MSIZE	= 007672	
MTA1	= 002414	G
MTA2	= 002416	G
NEWT	= 011236	
NEXTBA	= 075774	
NXM	= 010132	G
NXMFLG	= 002326	G
ONEFIL	= 000001	
OSAPTS	= 000000	
OSAU	= 000001	
OSBGNR	= 000000	
OSBGNS	= 000001	
OSDU	= 000001	
OSERRT	= 000001	
OSGNSW	= 000001	
OSPOIN	= 000001	
OSSETU	= 000001	
PHHIGH	= 002334	G
PHHSIZ	= 002342	G
PHLOW	= 002336	G
PHLSIZ	= 002344	G
PLEV	= 002316	G
PMQVP	= 077400	
PNT	= 001000	G
PNTF	= 002324	G
PRI	= 002000	G
PRI00	= 000000	G
PRI01	= 000040	G
PRI02	= 000100	G
PRI03	= 000140	G
PRI04	= 000200	G
PRI05	= 000240	G
PRI06	= 000300	G
PRI07	= 000340	G
PSEU1	= 042022	
PSEU16	= 045530	
PSEU17	= 047504	
PSEU18	= 056222	
PSEU23	= 060344	
PSEU24	= 064372	
PSEU27	= 074136	
PSEU33	= 062026	
PSEU34	= 066114	
PSEU5	= 044376	
PVCON	= 007724	G
QVP	= 002234	G
QVT3	= 014010	
REGADD	= 002354	G
REGERR	= 006612	G
REGMSG	= 007077	
REGTST	= 006262	G
REGTS1	= 006320	G
RERR1	= 006660	
RERR2	= 006732	
RERR3	= 007010	
RSAVE	= 002402	G
RXADRH	= 002422	G
RXADRL	= 002424	G
SDPA	= 002406	G
SFPTBL	= 002234	G
SIZEFA	= 002346	G
SPRM2	= 077427	
SPRM4	= 077471	
SPRM5	= 077520	
SR0	= 177572	
SR1	= 177574	
SR2	= 177576	
SR3	= 172516	
STARST	= 011224	
SVCGBL	= 000000	
SVCINS	= 000001	
SVC SUB	= 000001	
SVC TAG	= 000001	
SVC TST	= 000001	
SSSYM	= 010000	
TABD	= 002514	G
TABE	= 002624	G
TABF	= 002734	G
TABG	= 003044	G
TABH	= 003146	G
TABK	= 003250	G
TQVP6	= 022636	
TQVP7	= 027172	
TRIMSG	= 076563	
TSHD1	= 012642	
TSHD10	= 035224	

PARAMETER CODING
SYMBOL TABLE

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TSHD11	036772	TSHD8	031730	TSSAVL=	177777	TSSSEG=	010001	T26	071012	G	
TSHD12	040652	TSHD9	033454	TSSSEGL=	177777	TSSSOF=	010063	T27	072544	G	
TSHD13	043040	TXADRH	002426 G	TSSSEK0=	010001	TSSSRV=	010026	T28	075456	G	
TSHD14	043742	TXADRL	002430 G	TSSSIZE=	000010	TSSSW =	010001	T3	013424	G	
TSHD15	044724	T\$ARGC=	000001	TSSSUBN=	000000	TSSTES=	010061	T3SEC	013500		
TSHD16	046262	T\$CODE=	075004	T\$TAGL=	177777	T1	012430	G	T4	014076	G
TSHD17	050644	T\$ERRN=	005361	T\$TAGN=	010067	T10	033550	G	T5	015574	G
TSHD18	051734	T\$EXCP=	000000	T\$TEMP=	000000	T11	035316	G	T6	016762	G
TSHD19	053044	T\$FLAG=	000041	T\$TEST=	000034	T12	037066	G	T7	023062	G
TSHD2	013367	T\$FREE=	100024	T\$TSTM=	177777	T13	040744	G	T8	027416	G
TSHD20	054116	T\$GMAN=	000000	T\$TSTS=	000001	T14	043116	G	T9	031764	G
TSHD21	055166	T\$HILI=	003777	T\$SAU =	010024	T15	044022	G	UAM	=	000200 G
TSHD22	057202	T\$LAST=	000001	T\$SAUT=	010021	T16	044776	G	UNIMSK	013514	
TSHD23	063204	T\$LOLI=	000001	T\$SCLE=	010022	T17	046344	G	VECC1	002244	G
TSHD24	067204	T\$LSYM=	010000	T\$SDAT=	010066	T18	050722	G	VECC2	002246	G
TSHD25	070742	T\$LTNO=	000034	T\$SDU =	010023	T19	052032	G	VIADD	002340	G
TSHD26	072474	T\$NEST=	177777	T\$SHAR=	010062	T2	012704	G	VPCON	010024	G
TSHD27	075406	T\$NS0 =	000000	T\$SHW =	010000	T20	053142	G	WAIT	011072	G
TSHD28	076220	T\$NS1 =	000005	T\$SINI=	010020	T21	054212	G	X\$ALWA=	000000	
TSHD3	014047	T\$NS2 =	000003	T\$MSG=	010011	T22	055262	G	X\$FALS=	000040	
TSHD4	015522	T\$PCNT=	000000	T\$SPC =	000001	T23	057250	G	X\$OFFS=	000400	
TSHD5	016732	T\$PTAB=	010065	T\$SPRO=	010017	T24	063270	G	X\$TRUE=	000020	
TSHD6	023000	T\$PTHV=	000001	T\$SPTA=	010065	T25	067270	G	\$PATCH	077570	G
TSHD7	027334	T\$PTNU=	000001	T\$SRP1=	010016						

. ABS. 100024 000
000000 001
ERRORS DETECTED: 0

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DYNAMIC MEMORY: 20774 WORDS (79 PAGES)
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