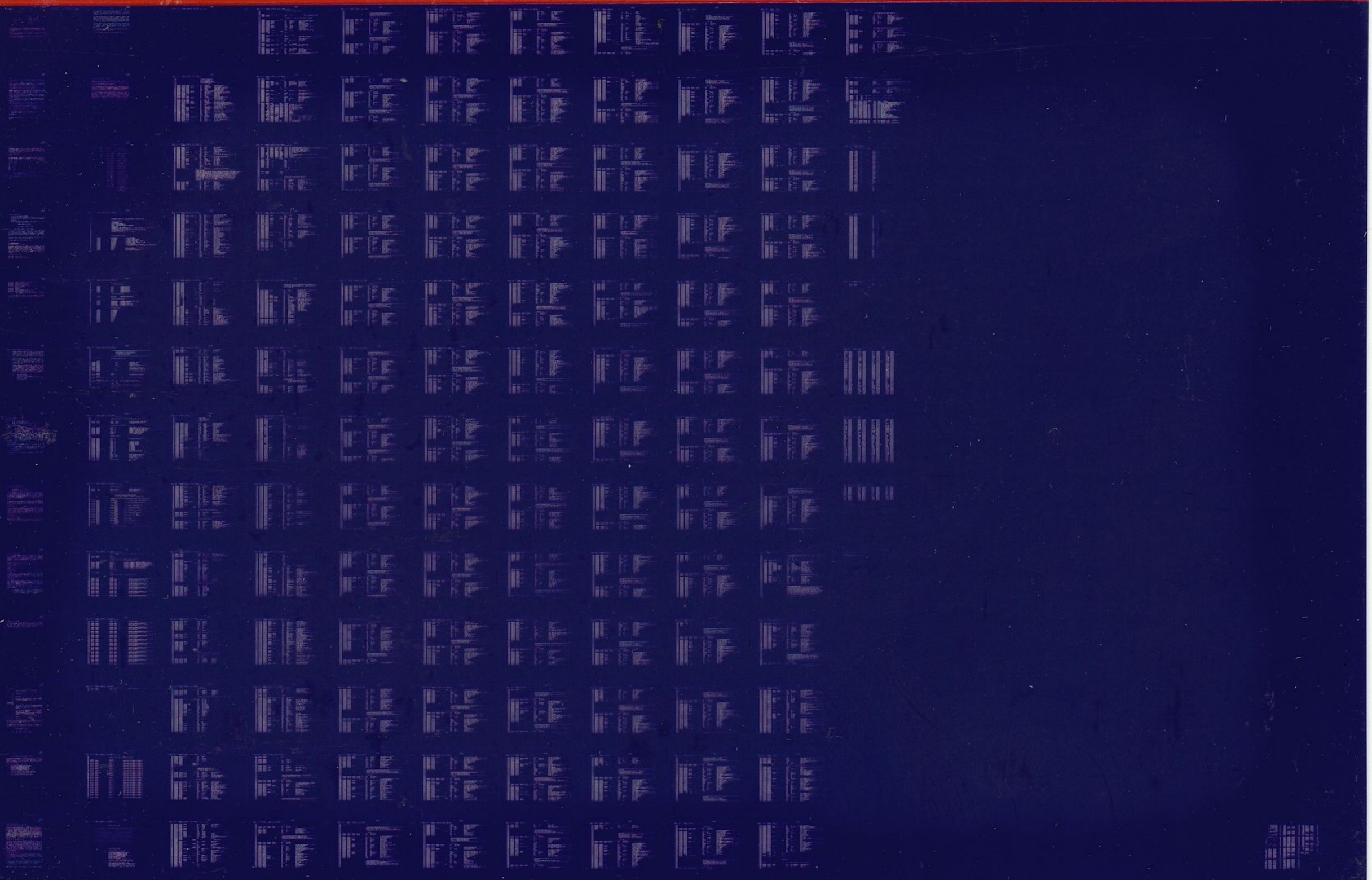
LPA/DMC-11

DIAGNOSTIC TEST 1
MD-11-DRLPL-A

EP-DRLPL-A-DL

FICHE 1 OF 1

MAR 1978
digital
MADE IN USA



IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DRLPL-A-D

PRODUCT NAME: LPA/DMC-11 DIAGNOSTIC TEST 1

DATE: JAN 1978

MAINTAINER: DIAGNOSTICS

1. ABSTRACT

this diagnostic is one of a series of diagnostics aimed at the lpa-11x system. please reference section 8.7 for a complete list.

The function of the m8200-yc diagnostics is to verify that the option operates according to specifications. The diagnostics verfiy that there are no malfunctions and the all operations of the m8200-yc are correct in its environment.

This diagnostic requires the user to recable the system, that is, the lpa-11x i/o bus must join the unibus.

Parameters must be set up to alert the diagnostics to the m8200-yc configuration. These parameters are contained in the STATUS TABLE and are generated in two ways: 1) Manual Input - the operator answers questions. 2) Autosizing - the program determines the parameters automatically.

performs write/read tests on the m8200-yc unibus registers, checks the micro-processor operation, checks out Main Memory, scratch pad memory, the ALU functions as well as interrupts and NPR operation.

NOTE: This diagnostic will run on a KMC11 (M8204), however it is not advised that this diagnostic be used to check a KMC11, rather you should check a KMC11 with the KMC11 diagnostic package.

NOTE: This diagnostic will run on a dmc11, however, it is not reommended that it be used to check a dmc-11.

Currently there are two off line diagnostics that are to be run in sequence to insure that if an error should occur it will be detected at an early stage.

NOTE: Additional diagnostics may be added in the future.

The two diagnostics are:

1. DRLPL [REV] m8200-yc Basic W/R and Micro-processor tests
2. DRLPM [REV] m8200-yc Jump and CROM tests

2. REQUIREMENTS

2.1 EQUIPMENT

Any PDP11 family CPU (except an LSI-11) with minimum 8k memory
ASR 33 (or equilivalent)
M8200-YC

2.2 STORAGE

Program will use all 8K of memory except where ABL and BOOTSTRAP LOADER reside. Locations 1500 thru 1640; contain the "STATUS TABLE" information which is generated at start of diagnostics by manual input (questions) or automatically (auto-sizing). This area is an overlay area and should not be altered by the operator.

3. LOADING PROCEEDURE

3.1 METHOD

All programs are in absolute format and are loaded using the ABSOLUTE LOADER. NOTE: if the diagnostics are on a media such as DISK ,MAGTAPE,DECTAPE, or CASSETTE; follow instructions for the monitor which has been provided on that specific media.

ABSOLUTE LOADER starting address *500

MEMORY	* SIZE
4k	17
8k	37
12k	57
16k	77
20k	117
24k	137
28k	157

3.1.1 Place address of ABS loader into switch register.
(also place 'HALT' SW up)

3.1.2 Depress 'LOAD ADDRESS' key on console and release.

3.1.3 Depress 'START KEY' on console and release (program should now be loading into CPU)

4. STARTING PROCEEDURE

a. Set switch register to 000200
b. Depress 'LOAD ADDRESS' key and release
c. Set SWR to zero for 'AUTO SIZING' or SWR bit0=1 for manual input (questions) or SWR bit7=1 to use existing parameters set up by a previous start or a previously run m8200-yc diagnostic.
d. Depress 'START KEY' and release. The program will type Maindec Name and program name (if this was the first start up of the program) and also the following:

MAP OF M8200-YC STATUS

PC	CSR	STAT1	STAT2	STAT3
001500	160010	145310	177777	000000

The program will type 'R' and proceed to run the diagnostic. The above is only an example. This would indicate the status table starting at add. 1500 in the program. In this example the table contains the information and status of an M8200-YC. THE STATUS TABLE MUST BE VERIFIED BY THE USER IF AUTO SIZING IS DONe. For information of status table see section 8.4 for help.

If the diagnostic was started with SW00=1 indicating manual parameter input then the following shows an example of the questions asked and some example answers:

```
HOW MANY M8200-YC'S TO BE TESTED?1

01
CSR ADDRESS?160010
VECTOR ADDRESS?310
BR PRIORITY LEVEL?  (4,5,6,7)?5
```

FOLLOWING THE QUESTIONS THE STATUS MAP IS PRINTED OUT AS DESCRIBED ABOVE, THE INFORMATION IN THE MAP REFLECTS THE ANSWERS TO THE QUESTIONS. IF THE DIAGNOSTIC WAS STARTED WITH SW00=0 and SW07=0 (AUTO-SIZING) then no questions are asked and only the status-map is printed out. If AUTO-SIZING is used the status information must be verified to be correct (match the hardware). if it does not match the hardware the diagnostic must be restarted with SW00=1 and the questions answered.

4.1 CONTROL SWITCH SETTINGS

SW 15 Set: Halt on error
SW 14 Set: Loop on current test
SW 13 Set: Inhibit error print out
SW 12 Set: Inhibit type out/abell on error.

SW 11 Set: Inhibit iterations. (quick pass)
SW 10 Set: Escape to next test on error
SW 09 Set: Loop with current data
SW 08 Set: Catch error and loop on it
SW 07 Set: Use previous status table.
SW 06 Set: Halt in ROMCLK routine before clocking micro-processor
SW 05 Set: Reserved
SW 04 Set: Reserved
SW 03 Set: Reselect m8200-yc's desired active
SW 02 Set: Lock on selected test
SW 01 Set: Restart program at selected test
SW 00 Set: Build new status table from questions. (If SW07=0 and SW00=0 a new status table is built by auto-sizing)

Switch 06 and 08-15 are dynamic and can be changed as needed while the diagnostic is running. Switches 00-03 and switch 07 are static, and are used only on starting or restarting the diagnostic.

4.1.2 SWITCH REGISTER OPTIONS (at start up)

SW 01 RESTART PROGRAM AT SELECTED TEST. It is strongly suggested that at least one pass has been made before trying to select a test, the reason being is that the program has to clear areas and set up parameters. When this switch is used the diagnostic will ask TEST NO.? Answer by typing the number of the test desired and carrige return to begin execution at the selected test.

SW 02 LOCK ON SELECTED TEST. This switch when used with SW01 will cause the program to constantly loop on the selected test. Hitting any key on the console will let it advance to the next test and loop until a key is hit again. If SW02=0 when SW01 is used. The program will begin at the selected test and continue normal operations.

SW 03 RESELECT M8200-YC'S DESIRED ACTIVE. Please note that a message is typed out for setting the switch register equal to m8200-yc's active. this means if the system has four m8200-ycs; bits 00,01,02,03 will be set in loc 'DMACTV' from the switch register. Using this switch(SW00) alters that location;therefore if four m8200-ycs are in the system ***DO NOT*** set switchs greater than SW 03 in the up position. this would be a fatal error. do not select more active m8200-ycs than there is information on in the status table.

METHOD:
A: Load address 200
B: Start with SW 00=1
C: Program will type message
D: Set a switch for each m8200-yc desired active.
E: Number (IF VALID) will be in data lights (excluding 11/05)
F: Set with any other switch settings desired.
PRESS CONTINUE.

4.1.3 DYNAMIC SWITCHES

ERROR SWITCHES

1. SW 12 Delete print out/bell on error.
2. SW 13 Delete error printout.
3. SW 15 Halt on the error.
4. SW 08 Goto beginning of the test(on error).
5. SW 10 Goto next test(on error).

SCOPE SWITCHES

1. SW06 Halt in ROMCLK routine before clocking micro-processor instruction. This allows the operator to scope a micro-processor instruction in the static state before it is clocked. [illegible] continue to resume running.
2. SW09 (if enabled by 'SCOP1') on an error; If an '*' is printed in front of the test no. (ex. *TEST NO. 10) SW09 is incorporated in that test and therefore SW09 is usually the best switch for the scope loop (SW14=0, SW10=0, SW09=1, SW08=0). If SW09 is not enabled; and there is a HARD error (constant); SW08 is best. (SW14=1,0, SW10=0, SW09=0, SW08=1). for intermittemt errors; SW14=1 will loop on test reguardless of error or no error. (SW14=1, SW10=0, SW09=0, SW08=1,0)
3. SW11 Inhibit interations.
4. SW14 Loop on current test.

4.2 STARTING ADDRESS

Starting address is at 000200 there are no other starting addresses for the m8200-yc diagnostics. (See Section 4.0)

NOTE: If address 000042 is non-zero the program assumes it is under ACT11 or XXDP control and will act accordingly after all available m8200-yc's are tested the program will return to 'XXDP' or 'ACT-11'.

5. OPERATING PROCEDURE

When program is initially started messages as described in section 4.0 will be printed, and program will begin running the diagnostic

5.2 PROGRAM AND/OR OPERATOR ACTION

The typical approach should be

1. Halt on error (via SW 15=1) when ever an error occurs.
2. Clear SW 15.
3. Set SW 14: (loop on this test)
4. Set SW 13: (inhibit error print out)

The TEST NUMBER and PC will be typed out and possibily an error message (this depends on the test) to give the operator an idea as to the source of the problem. If it is necessary to know more information concerning the error report; LOOK IN THE LISTING for that TEST NUMBER which was typed out and then NOTE THE PC of the ERROR REPORT this way the EXACT FUNCTION of the test CAN BE DETERMINED.

6. ERRORS

As described previously there will always be a TEST NUMBER and PC typed out at the time of an error (providing SW 13=0 and SW 12=0). in most cases additional information will be supplied in the the error message to give the operator an indication of the error.

6.2 ERROR RECOVERY

If for some reason the m8200-yc should 'HANG THE BUS' (gain control of bus so that console manual functions are inhibited) an init or power down/up is necessary for operator to regain control of cpu. If this should happen; look in location 'TSTNO' (address 1226)for the number of the test that was running at the time of the catastrophic error. In this way the operator will have an idea as to what the m8200-yc was doing at the time of the error.

7. RESTRICTIONS

7.1 STARTING RESTRICTIONS

See section 4. (PLEASE)
Status table should be verified reguardless of how program was started. Also it is important to use this listing along with the information printed on the TTY to completly isolate problems.

7.2 OPERATING RESTRICTIONS

The first time a m8200-yc diagnostic is loaded into core and run the STATUS TABLE must be set up. This is done by manual input (SW00=1) or by autosizing (SW00=0 and SW07=0). Thereafter however the status table need not be setup by subsequent restarts or even loading the next m8200-yc diagnostic because the STATUS TABLE is overlayed. The current parameters in the STATUS TABLE are used when SW07=1 on start up.

7.3 HARDWARE CONFIGURATION RESTRICTIONS

M8200-YC - Jumper W1 must be in, and switch 7 of E76 must be in the OFF position.

KMC(M8204)- Jumper W1 must be in.

m8200-yc must be in the Unibus.

8. MISCELLANEOUS

8.1 EXECUTION TIME

All m8200-yc device diagnostics will give an 'END PASS' message (providing no errors and sw12=0) within 4 mins. This is assuming SW11=1 (DELETE ITERATIONS) is set to give the fastest possible execution. The actual execution time depends greatly on the PDP11 CPU configuration and the amount of memory in the system.

8.2 PASS COMPLETE

NOTE: EVERY time the program is started; the tests will run as if SW11 (delete iterations) was up (=1). This is to 'VERIFY NO HARD ERRORS' as soon as possible. Therefore the first pass -EACH TIME PROGRAM IS STARTED- will be a 'QUICK PASS' until all m8200-yc's in system are tested. When the diagnostic has completed a pass the following is an example of the print out to be expected.

END PASS DRLPL CSR: 175000 VEC: 0300 PASSES: 000001
ERRORS: 000000

NOTE: The pass count and error counts are cummulitive for each m8200-yc that is running, and are set to zero only when the diagnostic is started. Therefore after an overnight run for example, the total passes and errors for each M8200-YC since the diagnostic was started are reflected in PASSES: and ERRORS:.

3.3 POWER FAIL TEST (#136)

THIS TEST MAY HANG ON SOME PROCESSORS IF AN M9301 IS PRESENT. TO AVOID HANGING, SW02 (power on reboot enable) on the M9301 must be in the off position. This test will also fail if the CPU power fail vector is set to any location other than 24. If this test hangs or fails due to either reason above, the following patch may be installed to skip this test:

LOC 33430 WAS 33600 SB 33772

8.4 KEY LOCATIONS

RETURN (1214) Contains the address where program will return when iteration count is reached or if loop on test is asserted.

NEXT (1216) Contains the address of the next test to be peformed.

TSTNO (1226) Contains the number of the test now being peformed.

RUN (1316) The bit in 'RUN' always points to the m8200-yc currently being tested. EXAMPLE: (RUN) 1302/0000000001000000 Means that m8200-yc no.06 is the m8200-yc now running.

DMCr00-DMCR17
DMST00-DMSt17
(1500)-(1640)

These locations contain the information needed to test up to 16 (decimal) m8200-ycs sequentialy. they contain the CSR,VECTOR and STATUS concerning the configuration of each m8200-yc.

DMACTV (1306) Each bit set in this location indicates that the associated m8200-yc will be tested in turn. EXAMPLE: (DMACTV) 1276/0000000000011111 means that m8200-yc no. 00,01,02,03,04 will be tested. EXAMPLE: (DMACTV) 1276/0000000000010001 Means that m8200-yc no. 00,04 will be tested.

DMCSR (1404) Contains the CSR of the current m8200-yc under test.

8.4A 'STATUS TABLE' (1500-1640)

The table is filled by AUTO SIZING or by the manual parameter input (questions) as described previously. Also if desired by user; the locations may be altered by hand (toggled in) to suit the specific configuration.

The example status map shown below contains information for two M8200-YC'S. the table can contain up to 16 M8200-YC'S. Following the map is a description of the bits for each map entry

MAP OF M8200-YC STATUS

PC	CSR	STAT1	STAT2	STAT3
001500	160010	145310	177777	000000

```
        001510 160020 016320  000000  000000
```

Each map entry contains 4 words which contain the status information for 1 M8200-YC. The PC shows where in core memory the first of the 4 words is. In the example above the first m8200-yc's status is in locations, 1500, 1502, 1504, and 1506. The second m8200-yc status is located at 1510, 1512, 1514, and 1516. The information contained in each 4 word entry is defined as follows:

CSR: Contains M8200-YC CSR address

STAT1: BITS 00-08 IS M8200-YC VECTOR ADDRESS
BIT15=1 MICRO-PROCESSOR HAS CRAM
BIT15=0 MICRO-PROCESSOR HAS CROM
BIT14=1 TURNAROUND CONNECTOR IS ON
BIT14=0 NO TURNAROUND CONNECTOR
BITS 09-11 IS M8200-YC BR PRIORITY LEVEL

STAT2: LOW BYTE IS SWITCH PAC#1 (DDCMP LINE NUMBER)
HIGH BYTE IS SWITCH PAC#2 (BM373 BOOT ADD)

STAT3: BIT0=1 RUN FREE RUNNING TESTS ON KMC11
BIT1=0 M8200-YC LPA MICRO CODE VERSION 3

8.5 METHOD OF AUTO SIZING

8.5.1 FINDING THE CONTROL STATUS REGISTER.

The auto-sizing routine finds a m8200-yc as follows: It starts at address 160000 and tests all address in increments of 10 up to and including address 167760. If the address does not time out, the following is done, the first CROM address is written to a 125252 then it is read back. If it contains a -1 or 125252 or 456 or 16520 a m8200-yc or KMC11 has been found, if not, the address is updated by 10 and the search continues. a 125252 indicates a KMC11 with CRAM, a 456 indicates a m8200-yc. THIS IS WHY THE STATUS TABLE MUST BE VERIFIED BY THE USER AND IF ANY OF THE INFORMATION DOEs NOT AGREE WITH THE HARDWARE THE DIAGNOSTIC MUST BE RESTARTED AND THE QUESTIONS MUST BE ANSWERED. All m8200-yc's in the system will be found by the auto-sizer. If it does not find a m8200-yc the diagnostic must be restarted and the questions answered.

8.5.2 FINDING THE VECTOR AND BR LEVEL

The vector area (address 300-776) is filled with the instruction IOT and '.+2' (next address). The processor status is started at 7 and the DMC is programmed to interrupt. The PS is lowered by 1 until the DMC interrupts, a delay is made and if no interupt occures at PS level 3 (because of a bad m8200-yc) the program assumes vector address 300 at BR level 5 and the problem should be fixed in the diagnostic. Once the problem is fixed; the program should be re-setup again to get correct vector. If an interupt occured; the address to which the m8200-yc interupted to is picked up and reported as the vector. NOTE: if the vector reported is not the vector set up by you; there is a problem and AUTO SIZING should not be done.

8.6 SOFTWARE SWITCH REGISTER

If the diagnostic is run on an 11/04 or other CPU without a switch register then a software switch register is used to allow user the same switch options as described previously. If the hardware switch register does not exist or if one does and it contains all ones (177777) this software switch register is used.

Control:

To obtain control at any allowable time during execution of the diagnostic the operator types a CTRL G on the console terminal keyboard. As soon as the CTRL G is recognized, by the diagnostic, the following message will be displayed:

    SWR=XXXXXX NEW?

Where XXXXXX is the current contents of the software switch register in octal. The software control routine will then

await operator action. At which time the operator is required to type one or more of the legal characters: 1) 0 - 7, 2) line feed(<LF>), 3) carriage return(<CR>), or 4) control-U (CTRL U). No check is made for legality. If the input character is not a <LF>, <CR>, or CTRL U it is assumed to be an octal digit.

To change the contents of the SSR the operator simply types the new desired value in octal - leading zeros need not be typed. And terminates the input string with a <CR> or <LF> depending on the program action desired as described below. The input value will be truncated to the last 6 digits typed. At least one digit must be typed on any given input string prior to the terminator before a change to the SSR will occur.

When the input string is terminated with a <CR> the diagnostic will continue execution from the point at which it was interrupted. If a <CR> is the only thing typed the program will continue without changing the SSR. The <LF> differs from the <CR> by restarting the program as if it were restarted at address 200.

If a CTRL U is typed at any point in the input string prior to the terminator the input value will be disregarded and the prompt displayed (SWR = XXXXXX NEW?).

To set the SSR for the starting switches, first load the diagnostic, then hit CTRL G, then start the diagnostic.

8.7 lpa-11 (system) diagnostic summary

diagnostics for the lpa-11 are written at three levels: (1) total pdp-11 system, (2) lpa-11 system; and, (3) lpa-11 options.

level 1, is designed to isolate a failure to the lpa-il system. all options on the pdp-11 are exercised.

level 2 diagnostics isolate a failure to the individual option within the lpa-11. the level 2 diagnostic is md-11-drlpa. when the user runs drlpa he can generally tell which option diagnostic (level 3) to run next. m8254 and m8200-yc errors may look alike and drlpa may not be able to distinguish between them. arbitration errors will not be detected by this diagnostic.

level three diagnostics aid in determining if the error was in fact on the option the drlpa specified. the user may "loop" on the error. within level three, there are two groups of diagnostics. the first group requires no "extra" work by the user in order to run. group "a" diagnostics do not check arbitration, and require extra time for execution. the second group (group "b") requires that the user reconfigure the pdp-11 system. this reconfiguration involves cabling the unibus to the lpa's i/o bus.

the diagnostic for the m8254 falls into the group "b" catagory.

the lpall-kz diagnostic kit will include:

option	group	diag. #	diag. title
lpall-kz	level 2 diag.	md-ll-drlpa	lpall-kz system
m8254	"b"	md-ll-drm8a	m8254 (jpbm) diag.
aall-k	a	md-ll-drlpb	aall-k diag.
	b	md-ll-dzaac	aall-k diag.
arll	a	md-ll-drlpc	lpa/arll diag. #1
	a	md-ll-drlpd	lpa/arll diag. #2
	a	md-ll-drlpe	lpa/arll diag. #3
	b	md-ll-dzara	arll diag. #1
	b	md-ll-dzarb	arll diag. #2
	b	md-ll-dzarc	arll diag. #3
drll-k	a	md-ll-drlpf	lpa/drll-k diag.
	b	md-ll-dzdrg	drll-k diag.
kwll-k	a	md-ll-drlpg	lpa/kwll-k diag.
	b	md-ll-dzkwk	kwll-k diag.
lpsll	a	md-ll-drlph	lpa/lpsll diag. #1
	a	md-ll-drlpi	lpa/lpsll diag. #2
	a	md-ll-drlpj	lpa/lpsll diag. #3
	b	md-ll-dzlpc	lpsll diag. #1
	b	md-ll-dzlpd	lpsll diag. #2
	b	md-ll-dzlpi	lpsll diag. #3
adll-k	a	md-ll-drlpk	lpa/adll-k diag.
	b	md-ll-dzadl	adll-k diag.
m8200-yc	b	md-ll-dzlpl	lpa/m8200-yc basic micro-cpu r/w test
	b	md-ll-dzlpm	lpa/m8200-yc jmp+rom read test

```
                                ;*MAINDEC-11-DRLPL-A   BASIC LPA-M8200-YC CONTROLLER TEST
                                ;*COPYRIGHT 1976, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
                                ;*-------------------------------------------------------------

                                ;STARTING PROCEDURE
                                ;LOAD PROGRAM
                                ;LOAD ADDRESS 000200
                                ;SWR=0  AUTOSIZE M8200-YC
                                ;SW07=1  USE CURRENT M8200-YC PARAMETERS
                                ;SW00=1  INPUT NEW M8200-YC PARAMETERS
                                ;PRESS START
                                ;PROGRAM WILL TYPE "MAINDEC-11-DRLPL-A   BASIC LPA-M8200-YC CONTROLLER TEST"
                                ;PROGRAM WILL TYPE STATUS MAP
                                ;PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED
                                ;AT THE END OF A PASS, PROGRAM WILL TYPE PASS COMPLETE MESSAGE
                                ;AND THEN RESUME TESTING
                                ;SUBSEQUENT RESTARTS WILL NOT TYPE PROGRAM TITLE



                                ;SWITCH REGISTER OPTIONS
                                ;----------------------

  100000                        SW15=100000             ;=1,HALT ON ERROR
  040000                        SW14=40000              ;=1,LOOP ON CURRENT TEST
  020000                        SW13=20000              ;=1,INHIBIT ERROR TYPEOUT
  010000                        SW12=10000              ;=1,DELETE TYPEOUT/BELL ON ERROR.
  004000                        SW11=4000               ;=1,INHIBIT ITERATIONS
  002000                        SW10=2000               ;=1,ESCAPE TO NEXT TEST ON ERROR
  001000                        SW09=1000               ;=1,LOOP WITH CURRENT DATA
  000400                        SW08=400                ;=1,LOOP ON ERROR
  000200                        SW07=200                ;=1,USE CURRENT M8200-YC PARAMETERS, =0,AUTOSIZE M8200-YC
  000100                        SW06=100                ;=1, HALT BEFORE CLOCKING MICRO-PROCESSOR INSTRUCTION
  000040                        SW05=40
  000020                        SW04=20
  000010                        SW03=10                 ;RESELECT M8200-YC'S TO BE TESTED (ACTIVE)
  000004                        SW02=4                  ;LOCK ON TEST SELECT
  000002                        SW01=2                  ;RESTART PROGRAM AT SELECTED TEST
  000001                        SW00=1                  ;INPUT M8200-YC PARAMETERS
```

```
                        ;REGISTER DEFINITIONS
                        ;--------------------
000000                  R0=%0           ;GENERAL REGISTER
000001                  R1=%1           ;GENERAL REGISTER
000002                  R2=%2           ;GENERAL REGISTER
000003                  R3=%3           ;GENERAL REGISTER
000004                  R4=%4           ;GENERAL REGISTER
000005                  R5=%5           ;GENERAL REGISTER
000006                  SP=%6           ;PROCESSOR STACK POINTER
000007                  PC=%7           ;PROGRAM COUNTER

                        ;LOCATION EQUIVALENCIES
                        ;----------------------

177776                  PS=177776       ;PROCESSOR STATUS WORD
001200                  STACK=1200      ;START OF PROCESSOR STACK

                        ;INSTRUCTION DEFINITIONS
                        ;-----------------------

005746                  PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD
005726                  POP1SP=5726     ;INCREMENT PROCESSOR STACK 1 WORD
010046                  PUSHR0=10046    ;SAVE R0 ON STACK
012600                  POPR0=12600     ;RESTORE R0 FROM STACK
024646                  PUSH2SP=24646   ;DECREMENT STACK TWICE
022626                  POP2SP=22626    ;INCREMENT STACK TWICE
                        .EQUIV  EMT,HLT ;BASIC DEFINITION OF ERROR CALL

                        ;BIT DEFINITIONS
                        ;---------------

100000                  BIT15=100000
040000                  BIT14=40000
020000                  BIT13=20000
010000                  BIT12=10000
004000                  BIT11=4000
002000                  BIT10=2000
001000                  BIT9=1000
000400                  BIT8=400
000200                  BIT7=200
000100                  BIT6=100
000040                  BIT5=40
000020                  BIT4=20
000010                  BIT3=10
000004                  BIT2=4
000002                  BIT1=2
000001                  BIT0=1
```

```
                        ;:*****************************************************************************
                        ;-----------------------------------------------------------------------------
                                ;TRAPCATCAER FOR ILLEGAL INTERRUPTS
                                ;THE STANDARD "TRAP CATCHER" IS PLACED
                                ;BETWEEN ADDRESS 0 TO ADDRESS 776.
                                ;IT LOOKS LIKE "PC+2 HALT".
                        ;-----------------------------------------------------------------------------
                        ;:*****************************************************************************

            000000      .=0
                        ;STANDARD INTERRUPT VECTORS
                        ;--------------------------

            000024      .=24
000024  005346                  .PFAIL                  ;POWER FAIL HANDLER
000026  000340                  340                     ;SERVICE AT LEVEL 7
000030  004760                  .HLT                    ;ERROR HANDLER
000032  000340                  340                     ;SERVICE AT LEVEL 7
000034  004726                  .TRPSRV                 ;GENERAL HANDLER DISPATCH SERVICE
000036  000340                  340                     ;SERVICE AT LEVEL 7
            000040      .=40
000040  000000                  0                       ;SAVE FOR ACT-11 OR XXDP
000042  000000                  0                       ;RETURN ADDRESS IF UNDER ACT-11 OR XXDP
000044  000000                  0                       ;SAVE FOR ACT-11 OR XXDP
000046  003532                  $ENDAD                  ;FOR USE WITH ACT-11 OR XXDP
            000052      .=52
000052  000000                  0                       ;ACT-11 PROGRAM CHARACTERISTICS

            000174      .=174
000174  000000          DISPREG:0                       ;SOFTWARE DISPLAY REGISTER
000176  000000          SWREG:  0                       ;SOFTWARE SWITCH REGISTER

            000200      .=200
000200  000137  002002          JMP     .START          ;GO TO sTART OF PROGRAM


            001000      .=1000
001000  005377  040515  047111  MTITLE: .ASCII  <377><12>/MAINDEC-11-DRLPL-A/<377>
(2) 001025      102  051501  041511          .ASCIZ  /BASIC LPA-M8200-YC CONTROLLER TEST/<377>
(2)
            001200      .=1200

                        ;INDIRECT POINTERs TO sWITCH REGISTER AND LIGHT DISPLAY
                        ;-----------------------------------------------------

001200  177570          DISPLAY:177570
001202  177570          SWR:    177570
```

```
                                ;INDIRECT POINTERS TO TELETYPE VECTORS AND REGISTERS
                                ;--------------------------------------------------

001204  177560                  TKCSR:  177560          ;TELETYPE KEYBOARD CONTROL REGISTER
001206  177562                  TKDBR:  177562          ;TELETYPE KEYBOARD DATA BUFFER
001210  177564                  TPCSR:  177564          ;TELEPRINTER CONTROL REGISTER
001212  177566                  TPDBR:  177566          ;TELEPRINTER DATA BUFFER

                                ;PROGRAM CONTROL PARAMETERS
                                ;--------------------------

001214  000000                  RETURN: 0               ;SCOPE ADDRESS FOR LOOP ON TEST
001216  000000                  NEXT:   0               ;ADDRESS OF NEXT TEST TO BE EXECUTED
001220  000000                  LOCK:   0               ;ADDRESS FOR LOCK ON CURRENT DATA
001222  000003                  ICOUNT: 3               ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
001224  000000                  LPCNT:  0               ;NUMBER OF ITEREATIONS COMPLETED
001226  000000                  TSTNO:  0               ;NUMBER OF TEST IN PROGRESS
001230  000000                  PASCNT: 0               ;NUMBER OF PASSES COMPLETED
001232  000000                  ERRCNT: 0               ;TOTAL NUMBER OF ERRORS
001234  000000                  LSTERR: 0               ;PC OF LAST ERROR CALL

                                ;PROGRAM VARIABLES
                                ;-----------------

001236  000000                  STRTSW: 0               ;SWITCHES AT START OF PROGRAM
001240  000000                  STAT:   0               ;DM STATUS WORD STORAGE
001242  000000                  CLKX:   0
001244  000000                  MASKX:  0
001246  000000                  TEMp1:  0               ;TEMPORARY STORAGE
001250  000000                  TEMP2:  0               ;TEMPORARY STORAGE
001252  000000                  TEMP3:  0               ;TEMPORARY STORAGE
001254  000000                  TEMP4:  0               ;TEMPORARY STORAGE
001256  000000                  TEMP5:  0               ;TEMPORARY STORAGE
001260  000000                  SAVR0:  0               ;R0 STORAGE
001262  000000                  SAVR1:  0               ;R1 STORAGE
001264  000000                  SAVR2:  0               ;R2 STORAGE
001266  000000                  SAVR3:  0               ;R3 STORAGE
001270  000000                  SAVR4:  0               ;R4 STORAGE
001272  000000                  SAVR5:  0               ;R5 STORAGE
001274  000000                  SAVSP:  0               ;STACK POINTER STORAGE
001276  000000                  SAVPC:  0               ;PROGRAM COUNTER STORAGE
001300  000000                  ZERO:   0
001302  000001                  ONE:    1
001304  000000                  MEMLIM: 0               ;HIGHEST LOCATION FOR NPR'S
001306  000001                  DMACTV: .BLKW 1         ;M8200-YC'S SELECTED ACTIVE.
001310  000001                  DMNUM:  .BLKW 1         ;OCTAL NUMBER OF M8200-YC'S.
001312  000001                  SAVACT: .BLKW 1         ;ORIGINAL ACTV  DEVICES
001314  000001                  SAVNUM: .BLKW 1         ;WORKABLE NUMBER
001316  000000                  RUN:    0               ;POINTER TO RUNNING DEVICE.
                                .EVEN
001320  001472                  CREAM:  DM.MAP-6        ;TABLE POINTER.
001322  001676                  MILK:   CNT.MAP-4       ;TABLE POINTER
```

```
                                ;PROGRAM CONTROL FLAGS
                                ;---------------------

001324  000                   INIFLG: .BYTE   0               ;PROGRAM INITIALIZATION FLAG
001325  000                   ERRFLG: .BYTE   0               ;ERROR OCCURED FLAG
001326  000                   LOKFLG: .BYTE   0               ;LOCK ON CURRENT TEST FLAG
001327  000                   QV.FLG: .BYTE   0               ;QUICK VERIFY FLAG.
                                                              ;ON FIRST PASS OF EACH M8200-YC ITERATIONS WILL BE SUPPR
                                .EVEN

                                        ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
                                        ;POINTERS TO SUBROUTINES CAN BE FOUND
                                        ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS

                                ;:*****************************************************************
                                ;-----------------------------------------------------------------
001330                          .TRPTAB:
        104400                  SCOPE=TRAP+0            ;CALL TO SCOPE LOOP AND ITERATION HANDLER
001330  003606                          .SCOPE
        104401                  SCOP1=TRAP+1            ;CALL TO 100P ON CURRENT DATA HANDLER
001332  003746                          .SCOP1
        104402                  TYPE=TRAP+2             ;CALL TO TELETYPE OUTPUT ROUTINE
001334  003776                          .TYPE
        104403                  INSTR=TRAP+3            ;CALL TO ASCII STRING INPUT ROUTINE
001336  004060                          .INSTR
        104404                  INSTER=TRAP+4           ;CALL TO INPUT ERROR HANDLER
001340  004164                          .INSTER
        104405                  PARAM=TRAP+5            ;CALL TO NUMERICAL DATA INPUT ROUTINE
001342  004204                          .PARAM
        104406                  SAV05=TRAP+6            ;CALL TO REGISTER SAVE ROUTINE
001344  004404                          .SAV05
        104407                  RES05=TRAP+7            ;CALL TO REGISTER RESTORE ROUTINE
001346  004444                          .RES05
        104410                  CONVRT=TRAP+10          ;CALL TO DATA OUTPUT ROUTINE
001350  004476                          .CONVRT
        104411                  CNVRT=TRAP+11           ;CALL TO DATA OUTPUT ROUNTINE WITHOUT CR/LF.
001352  004502                          .CNVRT
        104412                  MSTCLR=TRAP+12          ;CALL TO ISUE A MASTER CLEAR
001354  005476                          .MSTCLR
        104413                  DELAY=TRAP+13           ;CALL TO DELAY
001356  005446                          .DELAY
        104414                  ROMCLK=TRAP+14          ;CALL TO CLOCK ROM ONCE
001360  005514                          .ROMCLK
        104415                  DATACLK=TRAP+15         ;CALL TO CLK DATA
001362  005562                          .DATACLK
        104416                  TIMER=TRAP+16           ;CALL TO DELAY A CLOCK TICK
001364  005626                          .TIMER

                                ;-----------------------------------------------------------------
                                ;:*****************************************************************
```

```
                        ;M8200-YC CONTROL INDICATORS FOR CURRENT M8200-YC UNDER TEST
                        ;--------------------------------------------------

001366  000000          STAT1:  0
001370  000000          STAT2:  0
001372  000000          STAT3:  0

                        ;M8200-YC VECTOR AND REGISTER INDIRECT POINTERS
                        ;---------------------------------------------

001374  000000          DMRvEC: 0               ;POINTER TO m8200-YC RECEIVER INTERRUPT VECTOR
001376  000000          DMRLVL: 0               ;POINTER TO M8200-YC RECEIVER INTERRUPT SERVICE PS
001400  000000          DMTVEC: 0               ;POINTER TO M8200-YC TRANSMITTER INTERRUPT VECTOR
001402  000000          DMTLVL: 0               ;POINTER TO M8200-YC TRANSMITTER INTERRUPT SERVICE PS
001404  000000          DMCSR:  0               ;POINTER TO M8200-YC CONTROL STATUS REGISTER
001406  000000          DMCSRH: 0               ;POINTER TO M8200-YC CONTROL STATUS REGISTER HIGH BYTE.
001410  000000          DMCTL:  0               ;POINTER TO M8200-YC CONTOL OUT REGISTER
001412  000000          DMP04:  0               ;POINTER TO M8200-YC PORT REGISTER(SEL 4)
001414  000000          DMP06:  0               ;POINTER TO M8200-YC PORT REGISTER(SEL 6)

                        ;TEMP STORAGE
                        ;-----------

001416  000000          TEMP:   0
        001460          .=.+40

                        ;M8200-YC STATUS TABLE AND ADDRESS ASSIGNMENTS
                        ;----------------------------------------

        001500          .=1500
001500                  DM.MAP:
001500  000001          DMCr00: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 00
001502  000001          DMS100: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 00
001504  000001          DMS200: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 00
001506  000001          DMS300: .BLKW   1               ;3RD STATUS WORD

001510  000001          DMCR01: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 01
001512  000001          DMS101: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 01
001514  000001          DMS201: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 01
001516  000001          DMS301: .BLKW   1               ;3RD STATUS WORD

001520  000001          DMCR02: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 02
001522  000001          DMS102: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 02
001524  000001          DMS202: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 02
001526  000001          DMS302: .BLKW   1               ;3RD STATUS WORD

001530  000001          DMCR03: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 03
001532  000001          DMS103: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 03
001534  000001          DMS203: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 03
001536  000001          DMS303: .BLKW   1               ;3RD STATUS WORD

001540  000001          DMCR04: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 04
001542  000001          DMS104: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 04
001544  000001          DMS204: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 04
```

```
    302  001546  000001                DMS304: .BLKW   1               ;3RD STATUS WORD
    303
    304  001550  000001                DMCR05: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 05
    305  001552  000001                DMS105: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 05
    306  001554  000001                DMS205: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 05
    307  001556  000001                DMS305: .BLKW   1               ;3RD STATUS WORD
    308
    309  001560  000001                DMCR06: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 06
    310  001562  000001                DMS106: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 06
    311  001564  000001                DMS206: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 06
    312  001566  000001                DMS306: .BLKW   1               ;3RD STATUS WORD
    313
    314  001570  000001                DMCR07: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 07
    315  001572  000001                DMS107: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 07
    316  001574  000001                DMS207: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 07
    317  001576  000001                DMS307: .BLKW   1               ;3RD STATUS WORD
    318
    319  001600  000001                DMCr10: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 10
    320  001602  000001                DMS110: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 10
    321  001604  000001                DMS210: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 10
    322  001606  000001                DMS310: .BLKW   1               ;3RD STATUS WORD
    323
    324  001610  000001                DMCR11: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 11
    325  001612  000001                DMS111: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 11
    326  001614  000001                DMS211: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 11
    327  001616  000001                DMS311: .BLKW   1               ;3RD STATUS WORD
    328
    329  001620  000001                DMCR12: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 12
    330  001622  000001                DMS112: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 12
    331  001624  000001                DMS212: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 12
    332  001626  000001                DMS312: .BLKW   1               ;3RD STATUS WORD
    333
    334  001630  000001                DMCR13: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 13
    335  001632  000001                DMS113: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 13
    336  001634  000001                DMS213: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 13
    337  001636  000001                DMS313: .BLKW   1               ;3RD STATUS WORD
    338
    339  001640  000001                DMCR14: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 14
    340  001642  000001                DMS114: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 14
    341  001644  000001                DMS214: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 14
    342  001646  000001                DMS314: .BLKW   1               ;3RD STATUS WORD
    343
    344  001650  000001                DMCr15: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 15
    345  001652  000001                DMS115: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 15
    346  001654  000001                DMS215: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 15
    347  001656  000001                DMS315: .BLKW   1               ;3RD STATUS WORD
    348
    349  001660  000001                DMCR16: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 16
    350  001662  000001                DMS116: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 16
    351  001664  000001                DMS216: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 16
    352  001666  000001                DMS316: .BLKW   1               ;3RD STATUS WORD
    353
    354  001670  000001                DMCR17: .BLKW   1               ;CONTROL STATUS REGISTER FOR M8200-YC NUMBER 17
    355  001672  000001                DMS117: .BLKW   1               ;VECTOR FOR M8200-YC NUMBER 17
```

```
   356  001674  000001                DMS217: .BLKW   1               ;DDCMP LINE# FOR M8200-YC NUMBER 17
   357  001676  000001                DMS317: .BLKW   1               ;3RD STATUS WORD
   358
   359  001700  000000                DM.END: 000000
```

```
                                ;M8200-YC PASS COUNT AND ERROR COUNT TABLE
                                ;-----------------------------------------

001702                          CNT.MAP:
001702  000000                  PACT00: 0               ;PASS COUNT FOR M8200-YC NUMBER 00
001704  000000                  ERCT00: 0               ;ERROR COUNT FOR M8200-YC NUMBER 00

001706  000000                  PACT01: 0               ;PASS COUNT FOR M8200-YC NUMBER 01
001710  000000                  ERCT01: 0               ;ERROR COUNT FOR M8200-YC NUMBER 01

001712  000000                  PACT02: 0               ;PASS COUNT FOR M8200-YC NUMBER 02
001714  000000                  ERCT02: 0               ;ERROR COUNT FOR M8200-YC NUMBER 02

001716  000000                  PACT03: 0               ;PASS COUNT FOR M8200-YC NUMBER 03
001720  000000                  ERCT03: 0               ;ERROR COUNT FOR M8200-YC NUMBER 03

001722  000000                  PACT04: 0               ;PASS COUNT FOR M8200-YC NUMBER 04
001724  000000                  ERCT04: 0               ;ERROR COUNT FOR M8200-YC NUMBER 04

001726  000000                  PACT05: 0               ;PASS COUNT FOR M8200-YC NUMBER 05
001730  000000                  ERCT05: 0               ;ERROR COUNT FOR M8200-YC NUMBER 05

001732  000000                  PACT06: 0               ;PASS COUNT FOR M8200-YC NUMBER 06
001734  000000                  ERCT06: 0               ;ERROR COUNT FOR M8200-YC NUMBER 06

001736  000000                  PACT07: 0               ;PASS COUNT FOR M8200-YC NUMBER 07
001740  000000                  ERCT07: 0               ;ERROR COUNT FOR M8200-YC NUMBER 07

001742  000000                  PACT10: 0               ;PASS COUNT FOR M8200-YC NUMBER 10
001744  000000                  ERCT10: 0               ;ERROR COUNT FOR M8200-YC NUMBER 10

001746  000000                  PACT11: 0               ;PASS COUNT FOR M8200-YC NUMBER 11
001750  000000                  ERCT11: 0               ;ERROR COUNT FOR M8200-YC NUMBER 11

001752  000000                  PACT12: 0               ;PASS COUNT FOR M8200-YC NUMBER 12
001754  000000                  ERCT12: 0               ;ERROR COUNT FOR M8200-YC NUMBER 12

001756  000000                  PACT13: 0               ;PASS COUNT FOR M8200-YC NUMBER 13
001760  000000                  ERCT13: 0               ;ERROR COUNT FOR M8200-YC NUMBER 13

001762  000000                  PACT14: 0               ;PASS COUNT FOR M8200-YC NUMBER 14
001764  000000                  ERCT14: 0               ;ERROR COUNT FOR M8200-YC NUMBER 14

001766  000000                  PACT15: 0               ;PASS COUNT FOR M8200-YC NUMBER 15
001770  000000                  ERCT15: 0               ;ERROR COUNT FOR M8200-YC NUMBER 15

001772  000000                  PACT16: 0               ;PASS COUNT FOR M8200-YC NUMBER 16
001774  000000                  ERCT16: 0               ;ERROR COUNT FOR M8200-YC NUMBER 16

001776  000000                  PACT17: 0               ;PASS COUNT FOR M8200-YC NUMBER 17
002000  000000                  ERCT17: 0               ;ERROR COUNT FOR M8200-YC NUMBER 17
```

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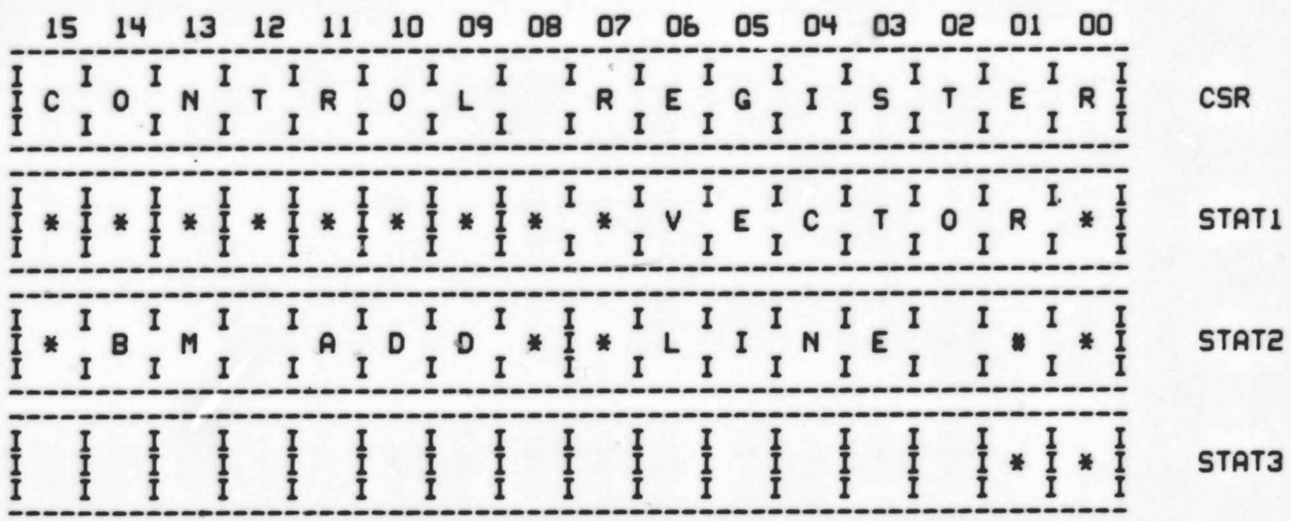
FORMAT OF STATUS TABLE



DEFINITION OF FORMAT

CSR: CONTAINS M8200-YC CSR ADDRESS

STAT1: BITS 00-08 IS M8200-YC VECTOR ADDRESS
BIT15=1 MICRO-PROCESSOR HAS CRAM
BIT15=0 MICRO-PROCESSOR HAS CROM
BIT14=1 ???? TURNAROUND CONNECTOR IS ON
BIT14=0 NO TURNAROUND CONNECTOR
BIT13=0 LINE UNIT IS AN M8201
BIT13=1 LINE UNIT IS AN M8202
BIT12=1 NO LINE UNIT
BITS 09-11 IS M8200-YC BR PRIORITY LEVEL

STAT2: LOW BYTE IS SWITCH PAC#1 (DDCMP LINE NUMBER)
HIGH BYTE IS SWITCH PAC#2 (BM873 BOOT ADD)

STAT3: BIT0=1 DO FREE RUNNING TESTS ON KMC
(MUST BE SET TO A ONE MANUALLY [PROGRAM DZDMI ONLY])
KMC MUST HAVE MICRO-CODE WRITTEN FROM RUNNING
DZDMG TEST 2 FIRST
BIT1=1 M8200-YC-AL LOCAL HIGH SPEED MICRO-CODE
BIT1=0 M8200-YC-AR REMOTE LOW SPEED MICRO-CODE

```
                                        ;PROGRAM INITIALIZATION
                                        ;LOCK OUT INTERRUPTS
                                        ;SET UP PROCESSOR STACK
                                        ;SET UP POWER FAIL VECTOR
                                        ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
                                        ;TYPE TITLE MESSAGE

002002  012737  000340  177776  .START: MOV     #340,PS         ;LOCK OUT INTERRUPTS
002010  012706  001200                  MOV     #STACK,SP       ;SET UP STACK
002014  012737  005346  000024          MOV     #.PFAIL,@#24    ;SET UP POWER FAIL VECTOR
002022  013737  001310  001314          MOV     DMNUM,SAVNUM    ;SAVE NUMBER OF DEVICES IN SYSTEM.
002030  005037  010056                  CLR     SWFLG           ;CLEAR SOFT TYPEOUT FLAG
002034  105037  001325                  CLRB    ERRFLG          ;CLEAR ERROR FLAG
002040  105037  001327                  CLRB    QV.FLG          ;ZERO QUICK VERIFY FLAG
002044  012737  001470  001320          MOV     #DM.MAP-10,CREAM;GET MAP POINTER.
002052  012737  001676  001322          MOV     #CNT.MAP-4,MILK ;GET PASS COUNT MAP POINTER
002060  012737  100000  001316          MOV     #BIT15,RUN      ;POINT POINTER TO FIRST DEVICE.
002066  012700  001702                  MOV     #CNT.MAP,R0     ;PASS COUNT POINTER TO R0
002072  005020                  23$:     CLR     (R0)+           ;CLEAR TABLE
002074  022700  002002                  CMP     #CNT.MAP+100,R0 ;DONE YET?
002100  001374                          BNE     23$             ;KEEP GOING
002102  005037  001234                  CLR     LSTERR          ;CLEAR LAST ERROR POINTER
002106  012737  000001  001226          MOV     #1,TSTNO        ;SET UP FOR TEST 1
002114  012737  002002  001214          MOV     #.START,RETURN  ;SET UP FOR POWER FAIL BEFORE
                                        ;TESTING STARTS
002122  013746  000006                  MOV     @#6,-(SP)       ;SAVE CURRENT VECTORS
002126  013746  000004                  MOV     @#4,-(SP)       ;
002132  012737  002166  000004          MOV     #6$,@#4         ;SET UP FOR TIMEOUT
002140  012737  177570  001202          MOV     #177570,SWR     ;SET SWR TO HARD SWR ADDRESS
002146  012737  177570  001200          MOV     #177570,DISPLAY ;SET DISPLAY TO HARD SWR ADDRESS
002154  022777  177777  177020          CMP     #-1,@SWR        ;REFERENCE HARDWARE SWITCH REGISTER
002162  001402                          BEQ     6$+2            ;IF = -1 USE SOFT SWR ANYWAY
002164  000407                          BR      7$              ;IF IT EXISTS AND NOT = -1 USE HARD SWR
002166  022626                  6$:     CMP     (SP)+,(SP)+     ;ADJUST STACK
002170  012737  000176  001202          MOV     #SWREG,SWR      ;POINTER TO SOFT SWR
002176  012737  000174  001200          MOV     #DISPREG,DISPLAY;POINTER TO SOFT DISPLAY REG
002204  012637  000004          7$:     MOV     (SP)+,@#4       ;RESTORE VECTORS
002210  012637  000006                  MOV     (SP)+,@#6       ;
002214  105737  001324                  TSTB    INIFLG          ;HAS INITIALIZATION BEEN PERFORMED
002220  001012                          BNE     20$             ;BR IF YES
002222  022737  003532  000042          CMP     #$ENDAD,@#42    ;IF ACT-11 AUTOMATIC MODE, DON'T TYPE ID
002230  001406                          BEQ     20$             ;
002232  104402  001000                  TYPE    ,MTITLE         ;TYPE TITLE MESSAGE
002236  104402  036450                  TYPE    ,ROM1           ;TYPE VERSION MESSAGE
002242  104402  035102                  TYPE    ,MESWCH         ;TYPE SWITCH 7 MESSAGE
002246  004737  007646          20$:    JSR     PC,CKSWR        ;CHECK FOR SOFT SWR
002252  017737  176724  001236          MOV     @SWR,STRTSW     ;STORE STARTING SWITCHES
002260  005737  000042                  TST     @#42            ;IS IT RUNNING IN AUTO MODE?
002264  001402                          BEQ     .+6             ;BR IF NO
002266  005037  001236                  CLR     STRTSW          ;IF YES, CLEAR SWITCHES
002272  032737  000001  001236          BIT     #SW00,STRTSW    ;IF SW00=1, QUESTIONS ARE ASKED.
002300  001012                          BNE     17$             ;BR IF SW00=1
002302  105737  001236                  TSTB    STRTSW          ;BIT7=1??
```

```
                                BPL     17$             ;BR IF SW07=0
                                TST     DMACTV          ;ARE ANY DEVICES SELECTED?
                                BNE     16$             ;BR IF YES
                                TYPE,   NOACT           ;NO DEVICES SELECTED.
                                HALT                    ;STOP THE SHOW
                                BR      .-2             ;DISQUALIFY CONTINUE SWITCH
                        17$:    JSR     PC,AUTO.SIZE    ;GO DO THE AUTO SIZE
                        16$:    TSTB    INIFLG          ;FIRST TIME?
                                BEQ     21$             ;BR IF YES
                                TSTB    STRTSW          ;IF USING SAME PARAMETERS DONT TYPE MAP
                                BMI     1$
                                BIT     #BIT1!BIT2,STRTSW;IS TEST NO. OR LOCK SELECTED
                                BEQ     24$             ;IF NO THEN TYPE STATUS
                                BR      1$              ;IF YES DO NOT TYPE STATUS
                        21$:    COM     INIFLG          ;SET FLAG
                        24$:    TYPE    ,XHEAD          ;TYPE HEADER
                                MOV     #DM.MAP,R4      ;SET POINTER
                        5$:     MOV     R4,TEMP1        ;SET ADDRESS
                                MOV     (R4)+,TEMP2     ;SET CSR
                                BEQ     1$              ;ALL DONE IF ZERO
                                MOV     (R4)+,TEMP3     ;SET STAT1
                                MOV     (R4)+,TEMP4     ;SET STAT2
                                MOV     (R4)+,TEMP5     ;SET STAT3
                                CONVRT                  ;TYPE OUT STATUS MAP
                                XSTATQ                  ;
                                BR      5$
                        1$:     MOV     #DM.MAP,R0      ;R0 POINTS TO STATUS TABLE

;;;*****************************************************************************
;;;*AUTO SIZE TEST
;;;*THIS TEST VERIFYS THAT THE M8200-YCS AND/OR KMC11S ARE AT THE CORRECT FLOATING
;;;*ADDRESSES FOR YOUR SYSTEM. IF THIS TEST FAILS, IT IS NOT A HARDWARE ERROR.
;;;*CHECK THE ADDRESSES OF ALL FLOATING DEVICES (DJ,DH,DQ,DU,DUP,LK,DMC,DZ,KMC).
;;;*IF THERE ARE NO OTHER FLOATING DEVICES BEFORE THE M8200-YC, THE FIRST
;;;*M8200-YC ADDRESS IS 760070, KMC11 IS 760110. NO DEVICE SHOULD EVER BE AT
;;;*ADDRESS 760000. THIS TEST MAY REQUIRE 2 OR MORE ATTEMPTS TO GET THE
;;;*RIGHT ADDRESSES. AFTER YOU HAVE CHANGED THE ADDRESS TO WHAT IT TOLD
;;;*YOU THE FIRST TIME, IT MAY COME BACK AND TELL YOU A DIFFERENT ADDRESS
;;;*THE NEXT TIME YOU RUN IT. PLEASE HAVE PATIENCE, THE FINAL ADDRESS
;;;*WILL BE CORRECT (AS LONG AS ALL DEVICES IN FRONT OF THE DMC'S ARE
;;;*CORRECT).
;;;*****************************************************************************

                                MOV     @#4,-(SP)       ;SAVE LOC 4
                                MOV     @#6,-(SP)       ;SAVE LOC 6
                                CLR     @#6             ;CLEAR VEC+2
                                CLR     TEMP3           ;CLEAR FLAG
                                CLR     R5              ;R5=0=DMC, R5=-1=KMC
                        AUSTRT: MOV     (R0),DMCSR      ;GET NEXT DMC CSR
                                BEQ     AUDONE          ;BR IF DONE
                                TST     R5              ;DMC OR KMC?
                                BNE     1$              ;BR IF KMC
                                BIT     #BIT15,2(R0)    ;CHECK FOR DMC CSR
                                BNE     SKIP            ;SKIP IF NOT DMC
```

```
                                        BR      2$              ;ITS A DMC SO CONTINUE
002502  032760  100000  000002  1$:     BIT     #BIT15,2(R0)    ;CHECK FOR KMC CSR
002510  001454                          BEQ     SKIP            ;SKIP IF NOT KMC
002512  012737  002704  000004  2$:     MOV     #NODEV,@#4      ;SET UP FOR TIMEOUT
002520  005705                          TST     R5              ;DMC OR KMC?
002522  001003                          BNE     3$              ;BR IF KMC
002524  012703  000006                  MOV     #6,R3           ;R3 IS COUNT OF DEVICES BEFORE DMC
002530  000402                          BR      4$              ;GO ON
002532  012703  000010          3$:     MOV     #10,R3          ;R3 IS COUNT OF DEVICES BEFORE KMC
002536  012702  003020          4$:     MOV     #DEVTAB,R2      ;R2 IS DEVICE TABLE PONTER
002542  012701  160010                  MOV     #160010,R1      ;START WITH ADDRESS 160010
002546  005711                  FLOAT:  TST     (R1)            ;CHECK ADDRESS IN R1
002550  111204                          MOVB    (R2),R4         ;IF NO TIMEOUT, GET NEXT ADDRESS
002552  060401                          ADD     R4,R1           ;IN R1
002554  005201                          INC     R1              ;
002556  040401                          BIC     R4,R1           ;
002560  005703                          TST     R3              ;ANY MORE DEVICES TO CHECK FOR?
002562  001371                          BNE     FLOAT           ;BR IF YES
002564  012737  002710  000004          MOV     #ERR,@#4        ;OK ONLY DMC'S ARE LEFT, SET UP FOR TIMEOUT
002572  010137  003032                  MOV     R1,XLOC         ;SAVE FIRST DMC/KMC ADDRESS
002576  005705                  FY:     TST     R5              ;DMC OR KMC?
002600  001005                          BNE     1$              ;BR IF KMC
002602  032760  100000  000002          BIT     #BIT15,2(R0)    ;CHECK FOR DMC CSR
002610  001014                          BNE     SKIP            ;SKIP IF NOT DMC
002612  000404                          BR      2$              ;ITS A DMC SO CONTINUE
002614  032760  100000  000002  1$:     BIT     #BIT15,2(R0)    ;CHECK FOR KMC CSR
002622  001407                          BEQ     SKIP            ;SKIP IF NOT KMC
002624  005711                  2$:     TST     (R1)            ;CHECK DMC ADDRESS
002626  020137  001404                  CMP     R1,DMCSR        ;DOES IT MATCH
002632  001411                          BEQ     OK              ;BR IF YES
002634  062701  000010                  ADD     #10,R1          ;GET NEXT DMC ADDRESS
002640  000756                          BR      FY              ;DO IT AGAIN
002642  062700  000010          SKIP:   ADD     #10,R0          ;SKIP TO nEXT CSR IN TABLE
002646  011037  001404                  MOV     (R0),DMCSR      ;GET NEXT CSR
002652  001470                          BEQ     AUDONE          ;BR IF DONe
002654  000750                          BR      FY              ;ELSE CONTINUE
002656  062700  000010          OK:     ADD     #10,R0          ;SKIP TO NEXT DMC CSR
002662  062737  000010  003032          ADD     #10,XLOC        ;UPDATE EXPECTED DMC/KMC ADDRESS
002670  011037  001404                  MOV     (R0),DMCSR      ;GET NEXT DMC/KMC CSR
002674  001457                          BEQ     AUDONE          ;BR IF DONe
002676  013701  003032                  MOV     XLOC,R1         ;GET EXPECTED DMC/KMC ADDRESS
002702  000735                          BR      FY              ;CONTINUE
002704  122243                  NODEV:  CMPB    (R2)+,-(R3)     ;ON TIMEOUT, INC R2, DEC R3
002706  000002                          RTI                     ;RETURN
002710  005737  001252          ERR:    TST     TEMp3           ;CHECK FLAG IF = 0 TYPE HEADER
002714  001014                          BNE     1$              ;SKIP HEADER
002716  104402                          TYPE                    ;TYPEOUT HEADER MESSAGE
002720  007244                          CONERR                  ;CONFIGURATION ERROR!!!!
002722  012737  002710  001276          MOV     #ERR,SAVPC      ;SAVE PC FOR TYPEOUT
002730  104411                          CNVRT                   ;TYPE OUT ERROR PC
002732  003000                          ERRPC                   ;
002734  104402                          TYPE                    ;TYPE REST OF HEADER
002736  007323                          CNERR                   ;
002740  012737  177777  001252          MOV     #-1,TEMP3       ;SET FLAG SO IT ONLY GETS TYPED ONCE
```

```
                                1$:     MOV     R1,SAVR1        ;SAVE R1 FOR TYPEOUT
                                        CONVRT
                                        CONTAB                  ;TYPE CSR VALUES
                                        TST     R5              ;DMC OR KMC ?
                                        BNE     3$              ;BR IF KMC
                                        TYPE
                                        DMCM
                                        BR      4$              ;CONTINUE
                                3$:     TYPE
                                        KMCM
                                4$:     CMP     (SP)+,(SP)+     ;ADJUST STACK
                                        BR      OK              ;BR TO gET OUT
                                ERRPC:  1
                        002             .BYTE   6,2
                                        SAVPC
                                CONTAB: 2
                        004             .BYTE   6,4
                                        XLOC
                        002             .BYTE   6,2
                                        DMCSR
                                DEVTAB: .BYTE   7               ;DJ
                                        .BYTE   17              ;DH
                                        .BYTE   7               ;DQ
                                        .BYTE   7               ;DU
                                        .BYTE   7               ;DUP
                                        .BYTE   7               ;LK
                                        .BYTE   7               ;DMC
                                        .BYTE   7               ;DZ
                                        .BYTE   7               ;KMC
                                        .EVEN
                                XLOC:   0
                                AUDONE: TST     R5              ;DMC?
                                        BNE     1$              ;BR IF KMC AND ALL DONe
                                        MOV     #-1,R5          ;SET R5 TO -1 (KMC)
                                        MOV     #DM.MAP,R0      ;RESET R0 TO START OF TABLE
                                        BR      AUSTRT          ;GO DO KMC'S
                                1$:     MOV     (SP)+,@#6       ;RESTORE LOC 6
                                        MOV     (SP)+,@#4       ;RESTORE LOC 4
                                        BIT     #SW03,STRTSW    ;SELECT SPECIFIC DEVICES??
                                        BEQ     3$              ;BR IF NO.
                                        TYPE    ,MNEW           ;TYPE THE MESSAGE.
                                        CLR     R0              ;ZERO DATA LIGHTS
                                        HALT                    ;WAIT FOR USER TO TELL WHAT DEVICES TO rUN
                                        CMP     @SWR,SAVACT     ;IS THE NUMBER VALID?
                                        BLOS    2$              ;BR IF NUMBER IS OK.
                                        TYPE    ,MERR3          ;TELL USER OF INVALID NUMBER.
                                        HALT                    ;STOP EVERY THING.
                                        BR      .-2             ;RESTART THE PROGRAM AGAIN.
                                2$:     MOV     @SWR,DMACTV     ;GET NEW DEVICE PATTERN
                                        MOV     DMACTV,R0       ;SHOW THE USER WHAT HE SELECTED.
                                        HALT                    ;CONTINUE DYNAMIC SWITCHES.
                                3$:     MOV     #300,R0         ;PREPARE TO CLEAR THE FLOATING
                                        MOV     #302,R1         ;VECTOR AREA. 300-776
                                4$:     MOV     R1,(R0)+        ;START PUTTING "PC+2 - HALT"
```

```
                                        CLR     (R1)+           ;IN VECTOR AREA.
                                        CMP     (R0)+,(R1)+     ;POP POINTERS
                                        CMP     #1000,R0        ;ALL DONE??
                                        BNE     4$              ;BR IF NO.

                                ;TEST START AND RESTART
                                ;----------------------

                                .BEGIN: MOV     #STACK,SP       ;SET UP STACK
                                        MOV     @#6,-(SP)       ;SAVE LOC 6
                                        MOV     @#4,-(SP)       ;SAVE LOC 4
                                        CLR     R0              ;START AT 0
                                        MOV     #2$,@#4         ;SET UP FOR TIME OUT
                                        CLR     @#6             ;TO AUTOSIZE MEMORY
                                6$:     TST     (R0)+           ;CHECK ADDRESS IN R0
                                        CMP     #157776,R0      ;IS IT AT LEAST 28K
                                        BNE     6$              ;BR IF NO
                                        SUB     #7776,R0        ;SAVE 2K FOR MONITORS
                                7$:     MOV     R0,MEMLIM       ;STORE MEMORY LIMIT
                                        MOV     (SP)+,@#4       ;RESTORE LOC 4
                                        MOV     (SP)+,@#6       ;RESTORE LOC 6
                                        BR      10$             ;CONTINUE
                                2$:     CMP     (SP)+,(SP)+     ;ADJUST STACK
                                        SUB     #4,R0           ;GET LAST GOOD ADDRESS
                                        SUB     #7776,R0        ;SAVE 2K FOR MONITORS
                                        CMP     #30000,R0       ;IS IT 8K?
                                        BNE     7$              ;BR IF NO
                                        MOV     #37400,R0       ;IF 8K DON'T SAVE 2K
                                        BR      7$              ;
                                10$:    MOV     #340,PS         ;LOCK OUT INTERRUPTS
                                        BIT     #BIT2,STRTSW    ;CHECK FOR LOCK ON TEST
                                        BEQ     1$              ;BR IF NO LOCK DESIRED.
                                        TYPE    ,MLOCK          ;TYPE LOCK SELECTED.
                                        MOV     #NOP,TTST       ;ADJUST SCOPE ROUTINE.
                                        MOV     #NOP,TTST+2     ;SET UP TO LOCK
                                        BR      3$              ;CONTINUE ALONG.
                                1$:     MOV     BRW,TTST        ;PREPARE NORMAL SCOPE ROUTINE
                                        MOV     BRX,TTST+2      ;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
                                3$:     MOV     #CYCLE,RETURN   ;START AT "CYCLE" FIND WHICH DEVICE TO TEST
                                4$:     BIT     #SW01,STRTSW    ;IS TEST NO. SELECTED?
                                        BNE     5$              ;BR IF YES
                                        TYPE    ,MR             ;TYPE R
                                5$:     JMP     @RETURN         ;START TESTING
```

```
                                                ;END OF PASS
                                                ;TYPE NAME OF TEST
                                                ;UPDATE PASS COUNT
                                                ;CHECK FOR EXIT TO ACT-11
                                                ;RESTART TEST

003374  000005                          .EOP:   RESET                   ;MAKE THE  WORLD CLEAN AGAIN.
003376  005037  001234                          CLR     LSTERR          ;CLEAR LAST ERROR PC
003402  105037  001325                          CLRB    ERRFLG          ;CLEAR ERROR FLAG
003406  005237  001230                          INC     PASCNT          ;UPDATE PASS COUNT
003412  013777  001230  175560                  MOV     PASCNT,@DISPLAY ;DISPLAY PASS COUNT
003420  104402  005743                          TYPE    ,MEPASS         ;TYPE END PASS
003424  104402  006102                          TYPE    ,MCSRX          ;TYPE CSR
003430  104411  003556                          CNVRT   ,XCSR           ;SHOW IT
003434  104402  006110                          TYPE    ,MVECX          ;TYPE VECTOR
003440  104411  003564                          CNVRT   ,XVEC           ;SHOW IT
003444  104402  006116                          TYPE    ,MPASSX         ;TYPE PASSES
003450  104411  003572                          CNVRT   ,XPASS          ;SHOW IT
003454  104402  006127                          TYPE    ,MERRX          ;TYPE ERRORS
003460  104411  003600                          CNVRT   ,XERR           ;SHOW IT
003464  013700  001322                          MOV     MILK,R0         ;GET POINTER TO PASS COUNT
003470  013720  001230                          MOV     PASCNT,(R0)+    ;STORE PASS COUNT FOR THIS M8200-YC
003474  013720  001232                          MOV     ERRCNT,(R0)+    ;STORE ERROR COUNT FOR THIS M8200-YC
003500  005337  001314                          DEC     SAVNUM          ;ARE ALL DEVICES TESTED?
003504  001017                                  BNE     RESTRT          ;BR IF NO.
003506  112737  000377  001327                  MOVB    #377,QV.FLG     ;SET THE QUICK VERIFY FLAG.
003514  013737  001310  001314                  MOV     DMNUM,SAVNUM    ;RESTORE THE COUNT
003522  013701  000042                          MOV     @#42,R1         ;CHECK FOR ACT-11 OR DDP
003526  001406                                  BEQ     RESTRT          ;IF NOT, CONTINUE TESTING
003530  000005                                  RESET                   ;STOP THE SHOW--CLEAR THE WORLD
003532                                  $ENDAD:
003532  004711                                  JSR     PC,(R1)
003534  000240                                  NOP
003536  000240                                  NOP
003540  000240                                  NOP
003542  000240                                  NOP
003544  012737  010120  001214  RESTRT:  MOV     #CYCLE,RETURN
003552  000137  010120                  JMP     CYCLE
003556  000001                  XCSR:   1
003560     006      002                 .BYTE   6,2
003562  001404                          DMCSR
003564  000001                  XVEC:   1
003566     004      002                 .BYTE   4,2
003570  001374                          DMRVEC
003572  000001                  XPASS:  1
003574     006      002                 .BYTE   6,2
003576  001230                          PASCNT
003600  000001                  XERR:   1
003602     006      002                 .BYTE   6,2
003604  001232                          ERRCNT

                                                ;SCOPE LOOP AND INTERATION HANDLER
                                                ;--------------------------------
```

```
                                .SCOPE: JSR     PC,CKSWR        ;CKECK FOR SOFT SWR
                                        MOV     R0,(SP)         ;SAVE R0 ON THE STACK
                                        BIT     #BIT14,@SWR     ;"LOOP ON THIS TEST"?
                                TTST:   BEQ     1$              ;BR IF NO.  (IF LOCK SW01=1; THIS LOC =240)
                                        BR      3$              ;GOTO 3$    (IF LOCK SW01=1; THIS LOC =240)
                                        TST     DONE            ;WAS TKCSR DONE SET?
                                        BEQ     3$              ;BR IF NO (LOCKED ON TEST)
                                        CLR     DONE            ;YES, CLEAR FLAG
                                        BR      2$              ;GO TO nEXT TEST
                                1$:     BIT     #SW11,@SWR      ;DELETE ITERATION?  (QUICK PASS)
                                        BNE     2$              ;BR IF YES
                                        TSTB    QV.FLG          ;HAVE PASSES BEECOMPLETED?
                                        BEQ     2$              ;BR IF QUICK PASS.
                                        INC     LPCNT           ;UPDATE ITERATION COUNTER
                                        CMP     LPCNT,ICOUNT    ;ARE ALL ITERATIONS DONe??
                                        BLOS    3$              ;BR IF NOT YET
                                2$:     CLRB    ERRFLG          ;PREPARE FOR NEW TEST
                                        CLR     LPCNT           ;START ICOUNTER AT 0
                                        CLR     LOCK
                                        MOV     #20,ICOUNT      ;RESET ITERATIONS
                                        MOV     NEXT,RETURN     ;GET NEXT TEST
                                3$:     MOV     (SP),R0         ;POP R0 OFF OF THE STACK
                                        POP2SP                  ;FAKE AN "RTI"
                                        MOV     DMCSR,R1        ;R1 CONTAINS BASE M8200-YC ADDRESS
                                        JMP     @RETURN         ;GO DO THE TEST
                                BRW:    1407
                                BRX:    437
                                DONE:   0

                                        ;CHECK FOR FREEZE ON CURRENT DATA
                                        ;--------------------------------

                                .SCOP1: JSR     PC,CKSWR        ;CHECK FOR SOFT SWR
                                        BIT     #SW09,@SWR      ;IS SW09=1(SET)?
                                        BEQ     1$              ;BR IF NOT SET.
                                        TST     LOCK
                                        BEQ     1$
                                        MOV     LOCK,(SP)       ;GOTO THE ADDRESS IN LOCK.
                                1$:     RTI                     ;GO BACK.

                                        ;TELETYPE OUTPUT ROUTINE
                                        ;-----------------------

                                .TYPE:  MOV     R5,-(SP)        ;SAVE R5 ON THE STACK.
                                        MOV     @2(SP),R5       ;GET ADDRESS OF MESSAGE.
                                        ADD     #2,2(SP)        ;POP OVER ADDRESS.
                                4$:     TST     SWFLG           ;SOFT SWR MESSAGE?
                                        BNE     1$              ;IF YES TYPE IT OUT REGARDLESS OF SW12
                                        BIT     #SW12,@SWR      ;INHIBIT ALL PRINT OUT??
                                        BNE     3$              ;BR IF NO PRINT OUT WANTED (SW12=1)
                                1$:     TSTB    (R5)            ;IS NUMBER MINUS? (MSB=1(BIT7))
                                        BPL     2$              ;BR IF NUMBER IS PLUS
                                        TYPE    ,MCRLF          ;TYPE A CR/LF!
                                2$:     TSTB    @TPCSR          ;TTY READY?
```

```
                                        BPL     2$              ;BR IF NO.
                                        MOVB    (R5)+,@TPDBR    ;PRINT CURRENT CHAR.
                                        BNE     4$              ;IF NOT ZERO KEEP PRINTING!
                                3$:     MOV     (SP)+,R5        ;END OF OUTPUT. RESTORE R5
                                        RTI                     ;GO HOME
                                        ;-------------------------

                                .INSTR: MOV     R3,-(SP)        ;SAVE R3 ON STACK
                                        MOV     R4,-(SP)        ;SAVE R4 ON STACK
                                        MOV     @4(SP),.MSG
                                        ADD     #2,4(SP)
                                .INST1: TYPE
                                .MSG:   0
                                        MOV     #INBUF,R4
                                        MOV     #7,R3
                                1$:     TSTB    @TKCSR
                                        BPL     1$
                                        MOVB    @TKDBR,(R4)
                                        BICB    #200,(R4)
                                        CMPB    (R4)+,#15
                                        BEQ     INSTR2
                                2$:     TSTB    @TPCSR
                                        BPL     2$
                                        MOV     @TKDBR,@TPDBR
                                        DEC     R3
                                        BNE     1$
                                        MOV     (SP)+,R4
                                        MOV     (SP)+,R3
                                .INSTE: TYPE    ,MQM
                                        MOV     R3,-(SP)
                                        MOV     R4,-(SP)
                                        BR      .INST1
                                INSTR2: MOV     (SP)+,R4        ;RESTORE R4
                                        MOV     (SP)+,R3        ;RESTORE R3
                                        RTI

                                        ;CONVERT ASCII STRING TO OCTAL
                                        ;-----------------------------

                                .PARAM: MOV     R5,-(SP)
                                        MOV     R4,-(SP)
                                        MOV     4(SP),R5
                                        MOV     (R5)+,LOLIM
                                        MOV     (R5)+,HILIM
                                        MOV     (R5)+,DEVADR
                                        MOVB    (R5)+,LOBITS
                                        MOVB    (R5)+,ADRCNT
                                        MOV     R5,4(SP)
                                PARAM1: CLR     R5
                                        MOV     #INBUF,R4
                                        CMPB    #15,(R4)
                                        BEQ     PARERR
                                1$:     CMPB    (R4),#60
                                        BLT     PARERR
```

```
                                        CMPB    (R4),#67
                                        BGT     PARERR
                                        BICB    #60,(R4)
                                        BISB    (R4)+,R5
                                        CMPB    #15,(R4)
                                        BEQ     LIMITS
                                        ASL     R5
                                        ASL     R5
                                        ASL     R5
                                        BR      1$
                                PARERR: INSTER
                                        BR      PARAM1

                                        ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
                                        ;--------------------------------------

                                LIMITS: CMP     R5,HILIM
                                        BHI     PARERR
                                        CMP     R5,LOLIM
                                        BLO     PARERR
                                        BITB    LOBITS,R5
                                        BNE     PARERR

                                        ;STORE NUMBER AT SPECIFIED ADDRESS

                                1$:     MOV     DEVADR,R4
                                        MOV     R5,(R4)+
                                        ADD     #2,R5
                                        DECB    ADRCNT
                                        BNE     1$
                                        MOV     (SP)+,R4
                                        MOV     (SP)+,R5
                                        RTI
                                LOLIM:  0
                                HILIM:  0
                                DEVADR: 0
                                LOBITS: 0
                                ADRCNT=LOBITS+1

                                        ;SAVE PC OF TEST THAT FAILED AND R0-R5
                                        ;------------------------------------

004404  016637  000004  001276  .SAV05: MOV     4(SP),SAVPC     ;SAVE R7 (PC)

                                        ;SAVE R0-R5

004412  010537  001272          SV05:   MOV     R5,SAVR5        ;SAVE R5
004416  010437  001270                  MOV     R4,SAVR4        ;SAVE R4
004422  010337  001266                  MOV     R3,SAVR3        ;SAVE R3
004426  010237  001264                  MOV     R2,SAVR2        ;SAVE R2
004432  010137  001262                  MOV     R1,SAVR1        ;SAVE R1
004436  010037  001260                  MOV     R0,SAVR0        ;SAVE R0
004442  000002                         RTI                     ;LEAVE.
```

```
                                        ;RESTORE R0-R5

004444  013700  001260        .RES05: MOV     SAVR0,R0        ;RESTORE R0
004450  013701  001262                MOV     SAVR1,R1        ;RESTORE R1
004454  013702  001264                MOV     SAVR2,R2        ;RESTORE R2
004460  013703  001266                MOV     SAVR3,R3        ;RESTORE R3
004464  013704  001270                MOV     SAVR4,R4        ;RESTORE R4
004470  013705  001272                MOV     SAVR5,R5        ;RESTORE R5
004474  000002                      RTI                     ;LEAVE

                                        ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
                                        ;-------------------------------------------------------

004476  104402  005702        .CONVR: TYPE    ,MCRLF
004502  010046                .CNVRT: MOV     R0,-(SP)
004504  010146                        MOV     R1,-(SP)
004506  010346                        MOV     R3,-(SP)
004510  010446                        MOV     R4,-(SP)
004512  010546                        MOV     R5,-(SP)
004514  017601  000012                MOV     @12(SP),R1
004520  062766  000002  000012        ADD     #2,12(SP)
004526  012137  004720                MOV     (R1)+,WRDCNT
004532  112137  004722        1$:     MOVB    (R1)+,CHRCNT
004536  112137  004723                MOVB    (R1)+,SPACNT
004542  013137  004724                MOV     @(R1)+,BINWRD
004546  122737  000003  004722        CMPB    #3,CHRCNT
004554  001003                      BNE     2$
004556  042737  177400  004724      BIC     #177400,BINWRD
004564  013704  004724        2$:     MOV     BINWRD,R4
004570  113705  004722                MOVB    CHRCNT,R5
004574  012700  001416                MOV     #TEMP,R0
004600  010403                3$:     MOV     R4,R3
004602  042703  177770                BIC     #177770,R3
004606  062703  000060                ADD     #060,R3
004612  110320                      MOVB    R3,(R0)+
004614  000241                      CLC
004616  006004                      ROR     R4
004620  000241                      CLC
004622  006004                      ROR     R4
004624  000241                      CLC
004626  006004                      ROR     R4
004630  005305                      DEC     R5
004632  001362                      BNE     3$
004634  012703  007604              MOV     #MDATA,R3
004640  114023                4$:     MOVB    -(R0),(R3)+
004642  105337  004722                DECB    CHRCNT
004646  001374                      BNE     4$
004650  105737  004723                TSTB    SPACNT
004654  001405                      BEQ     6$
004656  112723  000040        5$:     MOVB    #040,(R3)+
004662  105337  004723                DECB    SPACNT
004666  001373                      BNE     5$
004670  105013                6$:     CLRB    (R3)
004672  104402  007604                TYPE    ,MDATA
```

```
  997  004676  005337  004720                    DEC     WRDCNT
  998  004702  001313                            BNE     1$
  999  004704  012605                            MOV     (SP)+,R5
 1000  004706  012604                            MOV     (SP)+,R4
 1001  004710  012603                            MOV     (SP)+,R3
 1002  004712  012601                            MOV     (SP)+,R1
 1003  004714  012600                            MOV     (SP)+,R0
 1004  004716  000002                            RTI
 1005  004720  000000                 WRDCNT:    0
 1006  004722  000000                 CHRCNT:    0
 1007          004723                 SPACNT=CHRCNT+1
 1008  004724  000000                 BINWRD:    0
 1009
 1010
 1011                                            ;TRAP DISPATCH SERVICE
 1012                                            ;ARGUMENT OF TRAP IS EXTRACTED
 1013                                            ;AND USED AS OFFSET TO OBTAIN POINTER
 1014                                            ;TO SELECTED SUBROUTINE
 1015
 1016  004726  011646                 .TRPSR:    MOV     (SP),-(SP)      ;GET PC OF RETURN
 1017  004730  162716  000002                    SUB     #2,(SP)         ;=PC OF TRAP
 1018  004734  017616  000000                    MOV     @(SP),(SP)      ;GET TRP
 1019  004740  006316                 TRPOK:     ASL     (SP)            ;MULTIPLY TRAP ARG BY 2
 1020  004742  042716  177001                    BIC     #177001,(SP)    ;CLEAR UNWANTED BITS
 1021  004746  062716  001330                    ADD     #.TRPTAB,(SP)   ;POINTER TO SUBROUTINE ADDRESS
 1022  004752  017616  000000                    MOV     @(SP),(SP)      ;SUBROUTINE ADDRESS
 1023  004756  000136                            JMP     @(SP)+          ;GO TO SUBROUTINE
 1024
 1025                                            ;ERROR HANDLER
 1026                                            ;-------------
 1027
 1028  004760  004737  007646         .HLT:      JSR     PC,CKSWR        ;CHECK FOR SOFT SWR
 1029  004764  032777  010000  174210             BIT     #SW12,@SWR      ;BELL ON ERROR?
 1030  004772  001406                            BEQ     XBX             ;BR IF NO BELL
 1031  004774  105777  174210                    TSTB    @TPCSR          ;TTY READY.
 1032  005000  100003                            BPL     XBX             ;DON'T WAIT IF TTY NOT READY.
 1033  005002  112777  000207  174202            MOVB    #207,@TPDBR     ;PUSH A BELL AT THE TTY.
 1034  005010  032777  020000  174164 XBX:       BIT     #SW13,@SWR      ;DELETE ERROR PRINT OUT?
 1035  005016  001105                            BNE     HALTS           ;BR IF NO PRINT OUT WANTED.
 1036  005020  021637  001234                    CMP     (SP),LSTERR     ;WAS THIS ERROR FOUND LAST TIME?
 1037  005024  001404                            BEQ     1$              ;BR IF YES
 1038  005026  011637  001234                    MOV     (SP),LSTERR     ;RECORD BEING HERE
 1039  005032  105037  001325                    CLRB    ERRFLG          ;PREPARE HEADER
 1040  005036  104406                 1$:        SAV05                   ;SAVE ALL PROC REGISTERS
 1041  005040  011605                            MOV     (SP),R5         ;GET THE PC OF ERROR
 1042  005042  162705  000002                    SUB     #2,R5           ;GET ADDRESS OF TRAP CALL
 1043  005046  011504                            MOV     (R5),R4         ;GET HLT INSTRUCTION
 1044  005050  006304                            ASL     R4              ;MULT BY TWO
 1045  005052  061504                            ADD     (R5),R4         ;DOUBLE IT
 1046  005054  006304                            ASL     R4              ;MULT AGAIN
 1047  005056  042704  177001                    BIC     #177001,R4      ;CLEAR JUNK
 1048  005062  062704  036574                    ADD     #.ERRTAB,R4     ;GET POINTER
 1049  005066  012437  005202                    MOV     (R4)+,ERRMSG    ;GET ERROR MESSAGE
 1050  005072  012437  005214                    MOV     (R4)+,DATAHD    ;GET DATA HEADRER
```

```
 1051  005076  011437  005226                MOV     (R4),DATABP     ;GET DATA TABLE
 1052  005102  105737  001325                TSTB    ERRFLG          ;TYPE HEADREER
 1053  005106  001403                        BEQ     TYPMSG          ;BR IF YES
 1054  005110  005737  005226                TST     DATABP          ;DOES DATA TABLE EXIST?
 1055  005114  001040                        BNE     TYPDAT          ;BR IF YES.
 1056  005116  104402  005702        TYPMSG: TYPE    ,MCRLF
 1057  005122  104402  005702                TYPE    ,MCRLF
 1058  005126  005737  001220                TST     LOCK
 1059  005132  001402                        BEQ     1$
 1060  005134  104402  006152                TYPE    ,MASTEK
 1061  005140  104402  006140        1$:     TYPE    ,MTSTN
 1062  005144  104411  005340                CNVRT   ,XTSTN          ;SHOW IT
 1063  005150  104402  006232                TYPE    ,MERRPC         ;TYPE PC.
 1064  005154  104411  005332                CNVRT   ,ERTABO         ;SHOW IT
 1065  005160  104402  005702                TYPE    ,MCRLF          ;GIVE A CR/LF
 1066  005164  112737  177777  001325        MOVB    #-1,ERRFLG      ;NO MORE HEADER UNLESS NO DATA TABLE.
 1067  005172  005737  005202                TST     ERRMSG          ;IS THERE AN ERROR MESSAGE?
 1068  005176  001402                        BEQ     WRKO.FM         ;BR IF NO.
 1069  005200  104402                        TYPE                    ;TYPE
 1070  005202  000000                ERRMSG: 0                       ;    ERROR MESSAGE
 1071  005204                         WRKO.FM:
 1072  005204  005737  005214                TST     DATAHD          ;DATA HEADER?
 1073  005210  001402                        BEQ     TYPDAT          ;BR IF NO
 1074  005212  104402                        TYPE                    ;TYPE
 1075  005214  000000                DATAHD: 0                       ;    DATA HEADER
 1076  005216  005737  005226        TYPDAT: TST     DATABP          ;DATA TABLE?
 1077  005222  001402                        BEQ     RESREG          ;BR IF NO.
 1078  005224  104410                        CONVRT                  ;SHOW
 1079  005226  000000                DATABP: 0                       ;    DATA TABLE
 1080  005230  104407                RESREG: RESO5                   ;RESTORE PROC REGISTERS
 1081  005232  022737  003532  000042  HALTS:  CMP     #$ENDAD,@#42    ;IF ACT-11 AUTOMATIC MODE, HALT!!
 1082  005240  001403                        BEQ     1$
 1083  005242  005777  173734                TST     @SWR            ;HALT ON ERROR?
 1084  005246  100005                        BPL     EXITER          ;BR IF NO HALT ON ERROR
 1085  005250  010046                1$:     PUSHRO                  ;SAVE RO
 1086  005252  016600  000002                MOV     2(SP),RO        ;SHOW ERROR PC IN DATA LIGHTS
 1087  005256  000000                        HALT                    ;HALT
 1088  005260  012600                        POPRO                   ;GET RO
 1089  005262  005237  001232        EXITER: INC     ERRCNT          ;UPDATE ERROR COUNT
 1090  005266  032777  000400  173706        BIT     #SW08,@SWR      ;GOTO TOP OF TEST?
 1091  005274  001007                        BNE     1$              ;BR IF YES
 1092  005276  032777  002000  173676        BIT     #SW10,@SWR      ;GOTO NEXT TEST?
 1093  005304  001411                        BEQ     2$              ;BR IF NO
 1094  005306  013737  001216  001214        MOV     NEXT,RETURN     ;SET FOR NEXT TEST
 1095  005314  012706  001200        1$:     MOV     #STACK,SP       ;RESET SP
 1096  005320  013701  001404                MOV     DMCSR,R1        ;SET UP R1
 1097  005324  000177  173664                JMP     @RETURN         ;GOTO SPECIFIED TEST
 1098  005330  000002                2$:     RTI                     ;RETURN
 1099  005332  000001                ERTABO: 1
 1100  005334     006     002                .BYTE   6,2
 1101  005336  001276                        SAVPC
 1102  005340  000001                XTSTN:  1
 1103  005342     003     002                .BYTE   3,2
 1104  005344  001226                        TSTNO
```

```
                                        ;ENTER HERE ON POWER FAILURE
                                        ;--------------------------


                            .PFAIL:
005346  012737  005360  000024            MOV     #RESTART,24             ;SET UP FOR POWER UP TRAP
005354  000000                            HALT                            ;HALT ON POWER DOWN NORMAL
005356  000777                            BR      .

                                        ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED


005360                      RESTAR:
005360  012737  005346  000024            MOV     #.PFAIL,24      ;SET UP FOR POWER FAILURE
005366  012706  001200                    MOV     #STACK,SP       ;RESET THE STACK POINTER
005372  013701  001404                    MOV     DMCSR,R1        ;RESTORE R1
005376  005037  001416                    CLR     TEMP            ;READY FOR TIMMER
005402  005237  001416                    INC     TEMP            ;PLUS ONE TO THE TIMER!
005406  001375                            BNE     .-4             ;BR IF MORE TO GO
005410  104402  005705                    TYPE    ,MPFAIL         ;TYPE THE MESSAGE
005414  104411  005440                    CNVRT   ,PFTAB          ;TELL WHAT TEST TO RETURN TO.
005420  105037  001325                    CLRB    ERRFLG          ;START CLEAN
005424  005037  001234                    CLR     LSTERR          ;"""""""""""""
005430  005011                            CLR     (R1)            ;CLEAR MAINT BITS
005432  104412                            MSTCLR                  ;START CLEAN UP OF DEVICE
005434  000177  173554                    JMP     @RETURN         ;START DOING THAT TEST AGAIN.
005440  000001              PFTAB:        1
005442     003     002      .BYTE   3,2
005444  001226                            TSTNO

                            .DELAY:
005446  012777  000020  173736            MOV     #20,@DMP04
005454  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
005456  121111                            121111                  ;POKE CLOCK DELAY BIT
005460                      1$:
005460  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
005462  121224                            121224                  ;PORT4=IBUS*11
005464  032777  000020  173720            BIT     #BIT4,@DMP04    ;IS CLOCK BIT SET?
005472  001772                            BEQ     1$              ;BR IF NO
005474  000002                            RTI

005476                      .MSTCLR:
005476  152777  000100  173702            BISB    #BIT6,@DMCSRH   ;SET MASTER CLEAR
005504  142777  000300  173674            BICB    #BIT6!BIT7,@DMCSRH  ;CLEAR MASTER CLEAR AND RUN
005512  000002                            RTI                     ;RETURN

005514                      .ROMCLK:
005514  152777  000002  173664            BISB    #BIT1,@DMCSRH   ;SET ROMI
005522  013677  173666                    MOV     @(SP)+,@DMP06   ;LOAD INSTRUCTION IN SEL6
005526  062746  000002                    ADD     #2,-(SP)        ;ADJUST STACK
005532  032777  000100  173442            BIT     #SW06,@SWR      ;HALT IF SW06 =1
005540  001401                            BEQ     1$              ;BR IF SW06 =0
005542  000000                            HALT                    ;HALT BEFORE CLOCKING INSTRUCTION
005544  152777  000003  173634  1$:       BISB    #BIT1!BIT0,@DMCSRH ;CLOCK INSTRUCTION
005552  142777  000007  173626            BICB    #BIT2!BIT1!BIT0,@DMCSRH  ;CLEAR ROM0, ROMI, STEP
```

```
 1159  005560  000002                          RTI
 1160
 1161  005562                        .DATACLK:
 1162  005562  013637  001416                  MOV     @(SP)+,TEMP     ;PUT TICK COUNT IN TEMP
 1163  005566  062746  000002                  ADD     #2,-(SP)        ;ADJUST STACK
 1164  005572  152777  000020  173606  1$:     BISB    #BIT4,@DMCSRH   ;SET STEP LU
 1165  005600  027777  173600  173576          CMP     @DMCSR,@DMCSR   ;WASTE TIME
 1166  005606  142777  000020  173572          BICB    #BIT4,@DMCSRH   ;CLEAR STEP LU
 1167  005614  005337  001416                  DEC     TEMP            ;DEC TICK COUNT
 1168  005620  001364                          BNE     1$              ;BR IF NOT DONE
 1169  005622  000002                          RTI                     ;RETURN
 1170  005624  000001                3$:       .BLKW 1
 1171
 1172  005626                        .TIMER:
 1173  005626  013637  001416                  MOV     @(SP)+,TEMp     ;MOVE COUNT TO TEMp
 1174  005632  062746  000002                  ADD     #2,-(SP)        ;ADJUST STACK
 1175  005636                        1$:
 1176  005636  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 1177  005640  021364                          021364                  ;PORT4←IBUS* REG11
 1178  005642  032777  000002  173542          BIT     #2,@DMP04       ;IS PGM CLOCK BIT CLEAR?
 1179  005650  001772                          BEQ     1$              ;BR IF YES
 1180  005652                        2$:
 1181  005652  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 1182  005654  021364                          021364                  ;PORT4←IBUS* REG11
 1183  005656  032777  000002  173526          BIT     #2,@DMP04       ;IS PGM CLOCK BIT SET?
 1184  005664  001372                          BNE     2$              ;BR IF YES
 1185  005666  005337  001416                  DEC     TEMP            ;DEC COUNT
 1186  005672  001361                          BNE     1$              ;BR IF NOT DONE
 1187  005674  000002                          RTI                     ;RETURN
 1188
 1189  005676  020040  000077        MQM:      .ASCIZ  /  ?/
  (2)  005702  005015     000        MCRLF:    .ASCIZ  <15><12>
  (2)  005705     377  053520  020122 MPFAIL:   .ASCIZ  <377>/PWR FAILED. RESTART AT TEST /
  (2)  005743     377  047105  020104 MEPASS:   .ASCIZ  <377>/END PASS DRLPL  /
  (2)  005765     377  000122        MR:       .ASCIZ  <377>/R/
  (2)  005770  047377  020117  042504 MERR2:    .ASCIZ  <377>/NO DEVICES PRESENT./
  (2)  006015     377  047111  052523 MERR3:    .ASCIZ  <377>/INSUFFICIENT DATA!/
  (2)  006041     377  042524  052123 MTSTPC:   .ASCIZ  <377>/TEST PC-/
  (2)  006053     377  047514  045503 MLOCK:    .ASCIZ  <377>/LOCK ON SELECTED TEST/
  (2)  006102  051503  035122  000040 MCSRX:    .ASCIZ  /CSR: /
  (2)  006110  042526  035103  000040 MVECX:    .ASCIZ  /VEC: /
  (2)  006116  040520  051523  051505 MPASSX:   .ASCIZ  /PASSES: /
  (2)  006127     105  051122  051117 MERRX:    .ASCIZ  /ERRORS: /
  (2)  006140  042524  052123  047040 MTSTN:    .ASCIZ  /TEST NO: /
  (2)  006152  000052        MASTEK:   .ASCIZ  /*/
  (2)  006154  051777  052105  051440 MNEW:     .ASCIZ  <377>/SET SWITCH REG TO M8200-YC'S DESIRED ACTIVE./
  (2)  006232  041520  020072     000 MERRPC:   .ASCIZ  /PC: /
  (2)  006237     212  020040  020040 XHEAD:    .ASCII  <212>/            MAP OF M8200-YC STATUS/
  (2)  006301     377  020040  020040          .ASCII  <377>/            --------------------/
  (2)  006340  020212  050040  020103          .ASCII  <212>/  PC      CSR     STAT1    STAT2    STAT3/
  (2)  006412  026777  026455  026455          .ASCIZ  <377>/------  ------  ------   ------   ------/
  (2)  006466  044377  053517  046440 NUM:     .ASCIZ  <377>/HOW MANY M8200-YC'S TO BE TESTED?/
  (2)  006531     377  051503  020122 CSR:     .ASCIZ  <377>/CSR ADDRESS?/
  (2)  006547     377  042526  052103 VEC:     .ASCIZ  <377>/VECTOR ADDRESS?/
```

```
   (2)  006570  041377  020122  051120  PRIO:    .ASCIZ  <377>/BR PRIORITY LEVEL? (4,5,6,7)?/
   (2)  006627     377  043111  042040  CRAM:    .ASCIZ  <377>/IF DMC HAS CRAM (M8204) TYPE "Y", IF CROM (M8200) TYPE "N" ?/
   (2)  006725     377  044127  041511  MODU:    .ASCIZ  <377>/WHICH LINE UNIT? IF NONE TYPE "N", IF M8201 TYPE "1", IF M8202 TYP
   (2)  007037     377  053523  052111  LINE:    .ASCIZ  <377>/SWITCH PAC#1 (DDCMP LINE #)?/
   (2)  007075     377  053523  052111  BM:      .ASCIZ  <377>/SWITCH PAC#2 (BM873 BOOT ADD)?/
   (2)  007135     377  051511  052040  CONN:    .ASCIZ  <377>/IS THE LOOP BACK CONNECTOR ON?/
   (2)  007175     377  047516  042040  NOACT:   .ASCIZ  <377>/NO DEVICES ARE SELECTED/
   (2)  007226  005377  053523  036522  SWMES:   .ASCIZ  <377><12>/SWR= /
   (2)  007236  042516  037527  000040  SWMES1:  .ASCIZ  /NEW? /
   (2)  007244  177777  034115  030062  CONERR:  .ASCIZ  <377><377>/M8200-YC FOUND AT NON-STANDARD ADDRESS  PC: /
   (2)  007323     377  054105  042520  CNERR:   .ASCIZ  <377>/EXPECTED  FOUND/
   (2)  007344  024040  034115  030062  DMCM:    .ASCIZ  / (M8200-YC) /
   (2)  007361     040  045450  041515  KMCM:    .ASCIZ  / (KMC) /
   (2)  007371     377  034115  030062  SPEED:   .ASCIZ  <377>/M8200-YC-AR(REMOTE,LOW SPEED) OR M8200-YC-AL(LOCAL,HIGH SPEED) TYP
   (2)          007514                .EVEN
   (2)  007514  000005                XSTATQ:  5
1190    007516     006  003                    .BYTE   6,3
1191    007520  001246                        TEMP1
1192    007522     006  003                    .BYTE   6,3
1193    007524  001250                        TEMP2
1194    007526     006  003                    .BYTE   6,3
1195    007530  001252                        TEMP3
1196    007532     006  003                    .BYTE   6,3
1197    007534  001254                        TEMP4
1198    007536     006  002                    .BYTE   6,2
1199    007540  001256                        TEMP5
1200                                .EVEN
1201
1202                                        ;BUFFERS FOR INPUT-OUTPUT
1203
1204    007542  000000                INBUF:  0
1205            007604                .=.+40
1206    007604  000000                MDATA:  0
1207            007646                .=.+40
1208
1209
1210                                        ;ROUTINE USED TO CHANGE SOFTWARE SWITCH
1211                                        ;REGISTER USING THE CONSOLE TERMINAL
1212                                        ;---------------------------------------
1213
1214    007646  022737  000176  001202  CKSWR:  CMP     #SWREG,SWR      ;IS THE SOFT SWR BEING USED?
1215    007654  001077                        BNE     CKSWR5          ;BR IF NO
1216    007656  105777  171322                TSTB    @TKCSR          ;IS DONE SET?
1217    007662  100003                        BPL     2$              ;GO ON IF NOT SET
1218    007664  012737  177777  003744        MOV     #-1,DONE        ;IF DONE SET, SET FLAG
1219    007672  022777  000007  171306  2$:     CMP     #7,@TKDBR       ;WAS CTRL G TYPED? (7 BIT ASCII)
1220    007700  001404                        BEQ     1$              ;BR IF YES
1221    007702  022777  000207  171276        CMP     #207,@TKDBR     ;WAS CTRL G TYPED? (8 BIT ASCII)
1222    007710  001061                        BNE     CKSWR5          ;BR IF NO
1223    007712  010246                1$:     MOV     R2,-(SP)        ;STORE R2
1224    007714  010346                        MOV     R3,-(SP)        ;STORE R3
1225    007716  010446                        MOV     R4,-(SP)        ;STORE R4
1226    007720  012737  177777  010056        MOV     #-1,SWFLG       ;SET SOFT TYPE OUT FLAG
1227    007726  005002                CKSWR1: CLR     R2              ;CLEAR NEW SWR CONTENTS
```

```
1228  007730  012704  177777              MOV     #-1,R4          ;SET FLAG TO ALL ONES
1229  007734  104402  007226              TYPE    ,SWMES          ;TYPE "SWR= "
1230  007740  104411            CKSWR2:   CNVRT                   ;TYPE OUT PRESENT CONTENTS
1231  007742  010112                      SOFTSW                  ;OF SOFT SWITCH REGISTER
1232  007744  104402  007236    CKSWR3:   TYPE    ,SWMES1         ;TYPE "NEW? "
1233  007750  004737  010060    CKSWR4:   JSR     PC,INCHAR       ;GET RESPONSE
1234  007754  022703  000015              CMP     #15,R3          ;WAS IT A CR?
1235  007760  001424                      BEQ     5$              ;BR IF YES
1236  007762  022703  000012              CMP     #12,R3          ;WAS IT A LF?
1237  007766  001416                      BEQ     4$              ;BR IF YES
1238  007770  022703  000025              CMP     #25,R3          ;WAS IT CTRL U?
1239  007774  001754                      BEQ     CKSWR1          ;BR IF YES(START OVER)
1240  007776  022703  000007              CMP     #7,R3           ;IF CNTL G GET NEXT CHAR
1241  010002  001762                      BEQ     CKSWR4
1242  010004  005004                      CLR     R4              ;IT MUST BE A DIGIT SO CLR FLAG
1243  010006  042703  177770              BIC     #177770,R3      ;ONLY 0-7 ARE LEGAL SO MASK OFF BITS
1244  010012  006302                      ASL     R2              ;SHIFT R2 3 TIMES
1245  010014  006302                      ASL     R2
1246  010016  006302                      ASL     R2
1247  010020  050302                      BIS     R3,R2           ;ADD LAST DIGIT
1248  010022  000752                      BR      CKSWR4          ;GET NEXT CHARACTER
1249  010024  012766  002002  000006  4$: MOV     #.START,6(SP)   ;LF WAS TYPED SO GO TO START
1250  010032  005704            5$:     TST     R4              ;IS FLAG CLEAR?
1251  010034  001002                      BNE     6$              ;IF NOT DON'T CHANGE SOFT SWR
1252  010036  010277  171140              MOV     R2,@SWR         ;IF YES THEN WRITE NEW CONTENTS TO SOFT SWR
1253  010042  005037  010056    6$:     CLR     SWFLG           ;CLEAR TYPEOUT FLAG
1254  010046  012604                      MOV     (SP)+,R4        ;RESTORE R4
1255  010050  012603                      MOV     (SP)+,R3        ;RESTORE R3
1256  010052  012602                      MOV     (SP)+,R2        ;RESTORE R2
1257  010054  000207            CKSWR5:   RTS     PC              ;RETURN
1258
1259  010056  000000            SWFLG:    0
1260
1261  010060  105777  171120    INCHAR:   TSTB    @TKCSR
1262  010064  100375                      BPL     .-4
1263  010066  017703  171114              MOV     @TKDBR,R3
1264  010072  105777  171112              TSTB    @TPCSR
1265  010076  100375                      BPL     .-4
1266  010100  010377  171106              MOV     R3,@TPDBR
1267  010104  042703  000200              BIC     #BIT7,R3
1268  010110  000207                      RTS     PC
1269
1270  010112  000001            SOFTSW:   1
1271  010114     006      002             .BYTE   6,2
1272  010116  000176                      SWREG
```

```
                                        ;
                                        ;ROUTINE USED TO "CYCLE" THROUGH UP TO 16 M8200-YC'S
                                        ;THIS ROUTINE SETS UP THE CONTROL ADDRESS FOR THE DIAGNOSTIC
                                        ;AND RUNS THE SPECIFIED M8200-YC'S.   THIS ROUTINE *MUST*
                                        ;BE RUN FIRST BEFORE ENTERING THE DIAGNOSTIC FOR THE
                                        ;SETUP NECESSARY.
                                        ;
010120  005737  001306          CYCLE:  TST     DMACTV          ;ARE ANY M8200-YC'S TO BE TESTED?
010124  001004                          BNE     1$              ;BR IF OK.
010126  104402  007175                  TYPE    ,NOACT          ;NO M8200-YC'S SELECTED!!
010132  000000                          HALT                    ;STOP THE SHOW.
010134  000776                          BR      .-2             ;DISQUALIFY CONT. SW.
010136  000241                  1$:     CLC                     ;CLEAR PROC. CARRY BIT.
010140  006137  001316                  ROL     RUN             ;UPDATE POINTER
010144  005537  001316                  ADC     RUN             ;CATCH CARRY FROM RUN
010150  062737  000004  001322          ADD     #4,MILK         ;UPDATE POINTER
010156  062737  000010  001320          ADD     #10,CREAM       ;UPDATE ADDRESS POINTER.
010164  022737  001700  001320          CMP     #DM.MAP+200,CREAM
010172  001006                          BNE     2$              ;KEEP GOING; NOT ALL TESTED FOR.
010174  012737  001500  001320          MOV     #DM.MAP,CREAM   ;RESET ADDRESS POINTER.
010202  012737  001702  001322          MOV     #CNT.MAP,MILK   ;RESET PASS COUNT POINTER
010210  033737  001316  001306  2$:     BIT     RUN,DMACTV      ;IS THIS ONE ACTIVE?
010216  001747                          BEQ     1$              ;BR IF NO
010220  013700  001320                  MOV     CREAM,R0        ;GET ADDRESS POINTER
010224  013702  001322                  MOV     MILK,R2         ;GET PASS COUNT POINTER
010230  012037  001404                  MOV     (R0)+,DMCSR     ;LOAD SYSTEM CTRL. REG
010234  011037  001374                  MOV     (R0),DMRVEC     ;LOAD VECTOR
010240  042737  177000  001374          BIC     #177000,DMRVEC  ;CLEAR UNWANTED BITS
010246  012037  001366                  MOV     (R0)+,STAT1     ;LOAD STAT1
010252  012037  001370                  MOV     (R0)+,STAT2     ;LOAD STAT2
010256  012037  001372                  MOV     (R0)+,STAT3     ;LOAD STAT3
010262  012237  001230                  MOV     (R2)+,PASCNT    ;LOAD PASS COUNT
010266  012237  001232                  MOV     (R2)+,ERRCNT    ;LOAD ERROR COUNT
010272  012700  000002                  MOV     #2,R0           ;SAVE CORE THIS WAY!
010276  013737  001404  001406          MOV     DMCSR,DMCSRH
010304  005237  001406                  INC     DMCSRH
010310  013737  001406  001410          MOV     DMCSRH,DMCTL
010316  005237  001410                  INC     DMCTL
010322  013737  001410  001412          MOV     DMCTL,DMP04
010330  060037  001412                  ADD     R0,DMP04
010334  013737  001412  001414          MOV     DMP04,DMP06
010342  060037  001414                  ADD     R0,DMP06

010346  013737  001374  001376          MOV     DMRVEC,DMRLVL   ;PTY LVL
010354  060037  001376                  ADD     R0,DMRLVL       ;
010360  013737  001376  001400          MOV     DMRLVL,DMTVEC   ;TX VEC
010366  060037  001400                  ADD     R0,DMTVEC       ;
010372  013737  001400  001402          MOV     DMTVEC,DMTLVL   ;TX LVL
010400  060037  001402                  ADD     R0,DMTLVL

010404  032737  000002  001236          BIT     #SW01,STRTSW    ;IS TEST NO. SELECTED
010412  001450                          BEQ     7$              ;BR IF NO
```

```
1327  010414                          4$:
1328  010414  005737  000042                  TST     @#42            ;RUNNING IN AUTO MODE?
1329  010420  001045                          BNE     7$              ;BR IF YES
1330  010422  104402  005702                  TYPE    ,MCRLF
1331  010426  104403                          INSTR                   ;GET TEST NO.
1332  010430  006140                          MTSTN
1333  010432  104405                          PARAM
1334  010434  000001                          1
1335  010436  001000                          1000
1336  010440  001226                          TSTNO
1337  010442     000                  .BYTE   0
1338  010443     001                  .BYTE   1
1339  010444  012700  012372                  MOV     #TST1,R0
1340  010450  022710                  5$:     CMP     (PC)+,(R0)      ;CMP FIRST WORD TO 12737
1341  010452  012737                          MOV     (PC)+,@(PC)+
1342  010454  001020                          BNE     6$              ;BR IF NOT SAME
1343  010456  023760  001226  000002          CMP     TSTNO,2(R0)     ;DOES TSTNO MATCH?
1344  010464  001014                          BNE     6$              ;BR IF NO
1345  010466  022760  001226  000004          CMP     #TSTNO,4(R0)    ;IS LAST WORD OK?
1346  010474  001010                          BNE     6$              ;BR IF NO
1347  010476  010037  001214                  MOV     R0,RETURN       ;IT IS A LEGAL TEST SO DO IT
1348  010502  104402  005765                  TYPE    ,MR
1349  010506  042737  000002  001236          BIC     #SW01,STRTSW
1350  010514  000412                          BR      8$
1351  010516  005720                  6$:     TST     (R0)+           ;POP R0
1352  010520  020027  034006                  CMP     R0,#TLAST+10    ;AT END YET?
1353  010524  001351                          BNE     5$              ;BR IF NO
1354  010526  104402  005676                  TYPE    ,MQM            ;YES ILLEGAL TEST NO.
1355  010532  000730                          BR      4$              ;TRY AGAIN
1356
1357  010534  012737  012372  001214  7$:     MOV     #TST1,RETURN    ;PREPARE RETURN ADDRESS
1358  010542  013701  001404          8$:     MOV     DMCSR,R1        ;R1 = BASE M8200-YC ADDRESS
1359  010546  000177  170442                  JMP     @RETURN         ;GO START TESTING.
1360
1361
1362                                          ;ROUTINE USED TO "AUTO SIZE" THE M8200-YC
1363                                          ;CSR AND VECTOR.
1364                                          ;NOTE:   THE CSR MAY BE ANY WHERE IN THE
1365                                          ;        ADDRESS RANGE (170440:170510)
1366                                          ;        AND THE VECTOR MAY BE ANY WHERE IN THE
1367                                          ;        FLOATING VECTOR RANGE (300:770)
1368                                          ;
1369
1370  010552                          AUTO.SIZE:
1371  010552  000005                          RESET                   ;INSURE A BUS INIT.
1372  010554  012702  001500          CSRMAP: MOV     #DM.MAP,R2      ;LOAD MAP POINTER.
1373  010560  005022                  1$:     CLR     (R2)+           ;ZERO ENTIRE MAP
1374  010562  022702  001700                  CMP     #DM.END,R2      ;ALL DONE?
1375  010566  001374                          BNE     1$              ;BR IF NO
1376  010570  005037  001310                  CLR     DMNUM           ;SET OCTAL NUMBER OF M8200-YC'S TO 0
1377  010574  012702  001500                  MOV     #DM.MAP,R2      ;R2 POINTS TO M8200-YC MAP
1378  010600  005037  001306                  CLR     DMACTV          ;CLEAR ACTIVE
1379  010604  032737  000001  001236          BIT     #SW00,STRTSW    ;QUESTIONS?
1380  010612  001002                          BNE     .+6             ;BR IF YES
```

```
 1381  010614  000137  011322            JMP     7$              ;IF NO SKIP QUESTIONS
 1382  010620  012737  000001  001256    MOV     #1,TEMP5        ;START WITH 1
 1383  010626  104403                    INSTR
 1384  010630  006466                    NUM
 1385  010632  104405                    PARAM
 1386  010634  000001                    1
 1387  010636  000020                    16.
 1388  010640  001252                    TEMP3
 1389  010642     000                    .BYTE   0
 1390  010643     001                    .BYTE   1
 1391  010644  013737  001252  001310    MOV     TEMP3,DMNUM     ;DMNUM = HOW MANY
 1392  010652  104402  005702      12$:  TYPE    ,MCRLF
 1393  010656  104410                    CONVRT                  ;TYPE WHICH DMC IS BEING DONE
 1394  010660  012054                    WHICH                   ;TEMP5 IS WHICH DMC
 1395  010662  005237  001256            INC     TEMP5
 1396  010666  104403                    INSTR
 1397  010670  006531                    CSR
 1398  010672  104405                    PARAM
 1399  010674  170440                    170440
 1400  010676  170510                    170510
 1401  010700  001254                    TEMP4
 1402  010702     000                    .BYTE   0
 1403  010703     001                    .BYTE   1
 1404  010704  013722  001254            MOV     TEMP4,(R2)+     ;STORE CSR IN MAP
 1405  010710  104403                    INSTR
 1406  010712  006547                    VEC
 1407  010714  104405                    PARAM
 1408  010716  000000                    0
 1409  010720  000776                    776
 1410  010722  001254                    TEMP4
 1411  010724     000                    .BYTE   0
 1412  010725     001                    .BYTE   1
 1413  010726  013712  001254            MOV     TEMP4,(R2)      ;STORE VECTOR IN MAP
 1414  010732  104402      10$:  TYPE
 1415  010734  006570                    PRIO                    ;ASK WHAT BR LEVEL
 1416  010736  004737  012340            JSR     PC,INTTY        ;GET RESPONSE
 1417  010742  022703  000024            CMP     #24,R3          ;
 1418  010746  101014                    BHI     50$             ;BR IF LESS THAN 4
 1419  010750  022703  000027            CMP     #27,R3          ;
 1420  010754  103411                    BLO     50$             ;BR IF GREATER THAN 7
 1421  010756  012704  000011            MOV     #11,R4          ;R4 = NUMBER OF SHIFTS
 1422  010762  006303                    ASL     R3              ;SHIFT R3 LEFT
 1423  010764  005304                    DEC     R4              ;DEC SHIFT COUNT
 1424  010766  001375                    BNE     .-4             ;BR IF NOT DONE
 1425  010770  042703  170777            BIC     #170777,R3      ;BIC UNWANTED BITS
 1426  010774  050312                    BIS     R3,(R2)         ;PUT BR LEVEL IN STATUS MAP
 1427  010776  000403                    BR      8$              ;CONTINUE
 1428  011000  104402      50$:  TYPE
 1429  011002  005676                    MQM                     ;RESPONSE IS OUT OF LIMITS
 1430  011004  000752                    BR      10$             ;TRY AGAIN
 1431  011006                      8$:
 1432  011006  000137  011300            JMP     33$
 1433  011012  104402                    TYPE
 1434  011014  006627                    CRAM                    ;DOES DMC HAVE CRAM?
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1435  011016  004737  012340                    JSR     PC,INTTY        ;GET REPLY
1436  011022  022703  000131                    CMP     #131,R3
1437  011026  001427                           BEQ     9$              ;YES
1438  011030  022703  000116                    CMP     #116,R3         ;NO
1439  011034  001403                           BEQ     40$             ;NOT A Y OR N
1440  011036  104402                           TYPE
1441  011040  005676                           MQM                     ;TYPE "?"
1442  011042  000761                           BR      8$              ;ASK AGAIN
1443  011044  104402                  40$:     TYPE
1444  011046  007371                           SPEED                   ;M8200-YC-AR OR M8200-YC-AL?
1445  011050  004737  012340                    JSR     PC,INTTY        ;GET RESPONSE
1446  011054  022703  000122                    CMP     #122,R3         ;IS IT R
1447  011060  001414                           BEQ     16$             ;BR IF REMOTE
1448  011062  022703  000114                    CMP     #114,R3         ;IS IT L
1449  011066  001403                           BEQ     41$             ;BR IF LOCAL
1450  011070  104402                           TYPE
1451  011072  005676                           MQM
1452  011074  000763                           BR      40$             ;TRY AGAIN
1453  011076  052762  000002  000004  41$:     BIS     #BIT1,4(R2)     ;SET BIT1 IN STAT3
1454  011104  000402                           BR      16$             ;CONTINUE
1455  011106  052712  100000           9$:     BIS     #BIT15,(R2)     ;SET BIT 15 IF CRAM
1456  011112  104402                  16$:     TYPE
1457  011114  006725                           MODU                    ;ASK WHICH LINE UNIT
1458  011116  004737  012340                    JSR     PC,INTTY        ;GET REPLY
1459  011122  022703  000021                    CMP     #21,R3          ;"1"
1460  011126  001417                           BEQ     30$
1461  011130  022703  000022                    CMP     #22,R3          ;"2"
1462  011134  001412                           BEQ     31$
1463  011136  022703  000116                    CMP     #116,R3         ;"N"
1464  011142  001403                           BEQ     32$
1465  011144  104402                           TYPE
1466  011146  005676                           MQM                     ;IF NOT A 1,2 OR N TYPE "?"
1467  011150  000760                           BR      16$             ;TRY AGIAN
1468  011152  052722  010000           32$:     BIS     #BIT12,(R2)+    ;SET BIT 12 IN STAT2 IF NO LU
1469  011156  022222                           CMP     (R2)+,(R2)+     ;POP OVER STAT2 AND STAT3
1470  011160  000447                           BR      33$
1471  011162  052712  020000           31$:     BIS     #BIT13,(R2)     ;SET BIT 13 IN STAT2 IF M8202
1472  011166  104402                  30$:     TYPE
1473  011170  007135                           CONN                    ;ASK IF LOOP-BACK IS ON
1474  011172  004737  012340                    JSR     PC,INTTY        ;GET REPLY
1475  011176  022703  000131                    CMP     #131,R3         ;Y
1476  011202  001406                           BEQ     17$
1477  011204  022703  000116                    CMP     #116,R3         ;N
1478  011210  001406                           BEQ     18$
1479  011212  104402                           TYPE
1480  011214  005676                           MQM                     ;IF NOT Y OR N TYPE "?"
1481  011216  000763                           BR      30$             ;TRY AGAIN
1482  011220  052722  040000           17$:     BIS     #BIT14,(R2)+    ;TURNAROUND IS CONNECTED
1483  011224  000402                           BR      19$
1484  011226  042722  040000           18$:     BIC     #BIT14,(R2)+    ;NO TURNAROUND
1485  011232                           19$:
1486  011232  104403                           INSTR
1487  011234  007037                           LINE
1488  011236  104405                           PARAM
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```
1489  011240  000000                          0
1490  011242  000377                          377
1491  011244  001254                          TEMP4
1492  011246     000                          .BYTE   0
1493  011247     001                          .BYTE   1
1494  011250  113722  001254                 MOVB    TEMP4,(R2)+     ;STORE SWITCH PAC IN MAP
1495  011254  104403                          INSTR
1496  011256  007075                          BM
1497  011260  104405                          PARAM
1498  011262  000000                          0
1499  011264  000377                          377
1500  011266  001254                          TEMP4
1501  011270     000                          .BYTE   0
1502  011271     001                          .BYTE   1
1503  011272  113722  001254                 MOVB    TEMP4,(R2)+     ;STORE SWITCH PAC IN MAP
1504  011276  005722                          TST     (R2)+           ;POP OVER STAT3
1505  011300                        33$:
1506  011300  062702  000006                 ADD     #6,R2
1507  011304  005337  001252                 DEC     TEMp3           ;DEC DMC COUNT
1508  011310  001402                          BEQ     34$             ;BR IF DONE
1509  011312  000137  010652                 JMP     12$             ;JUMP IF NOT
1510  011316  000137  011754          34$:   JMP     13$             ;CONTINUE
1511  011322  012701  170440          7$:    MOV     #170440,R1      ;SET FOR FIRST ADDRESS TO BE TESTED
1512  011326  012737  012046  000004        MOV     #6$,@#4         ;SET FOR NON-EXISTANT DEVICE TIME OUT
1513  011334  005011                  2$:    CLR     (R1)            ;CLEAR SEL0
1514  011336  005711                          TST     (R1)            ;IF M8200-YC DMCSR S/B 0
1515  011340  001173                          BNE     3$              ;IF NO DEV ; TRAP TO 4. IF NO BIT 8 THEN NO M8200-YC
1516  011342  005061  000006                 CLR     6(R1)           ;CLEAR SEL6
1517  011346  000424                          BR      21$
1518  011350  005761  000006                 TST     6(R1)           ;IF M8200-YC THEN DMRiC S/B =0!
1519  011354  001165                          BNE     3$              ;BR IF NOT M8200-YC
1520  011356  012711  002000                 MOV     #BIT10,(R1)     ;SET ROMO
1521  011362  005061  000004                 CLR     4(R1)           ;CLEAR SEL4
1522  011366  012761  125252  000006         MOV     #125252,6(R1)   ;WRITE THIS TO sEL6
1523  011374  052711  020000                 BIS     #BIT13,(R1)     ;WRITE IT!
1524  011400  022761  125252  000004         CMP     #125252,4(R1)   ;WAS IT WRITTEN?
1525  011406  001004                          BNE     21$             ;IF NO IT IS NOT CRAM
1526  011410  052762  100000  000002         BIS     #BIT15,2(R2)    ;SET BIT15 IF CRAM
1527  011416  000431                          BR      22$
1528  011420  012711  001000          21$:   MOV     #BIT9,(R1)      ;SET ROMI
1529  011424  012761  100400  000006         MOV     #100400,6(R1)   ;PUT INSTRUCTION IN SEL6
1530  011432  012711  001400                 MOV     #BIT9!BIT8,(R1) ;CLOCK INSTRUCTION (MICRO PROC PC TO 0)
1531  011436  012711  002000                 MOV     #BIT10,(R1)     ;SET ROMO
1532  011442  022761  000456  000006         CMP     #456,6(R1)      ;IS IT LOCAL CROM
1533  011450  001411                          BEQ     23$             ;BR IF YES
1534  011452  022761  016520  000006         CMP     #16520,6(R1)    ;IS IT REMOTE CROM?
1535  011460  001410                          BEQ     22$             ;BR IF YES
1536  011462  022761  177777  000006         CMP     #-1,6(R1)       ;NO CROM?
1537  011470  001404                          BEQ     22$             ;BR IF YES
1538  011472  000516                          BR      3$              ;NOT A DMC
1539  011474  052762  000002  000006  23$:   BIS     #BIT1,6(R2)     ;SET BIT 1 IN STAT3
1540                        ;AT THIS POINT IT IS ASSUMED THAT R1 HOLDS A M8200-YC CSR ADDRESS.
1541  011502  010122                  22$:    MOV     R1,(R2)+        ;STORE CSR IN CORE TABLE.
1542  011504  012711  001000          15$:    MOV     #BIT9,(R1)      ;CLEAR LINE UNIT LOOP
```

```
1543  011510  005061  000004            CLR     4(R1)               ;CLEAR PORT4
1544  011514  012761  122113  000006    MOV     #122113,6(R1)       ;LOAD INSTRUCTION (CLR DTR)
1545  011522  052711  000400            BIS     #BIT8,(R1)          ;CLOCK INSTRUCTION
1546  011526  012761  021264  000006    MOV     #021264,6(R1)       ;LOAD INSTRUCTION
1547  011534  052711  000400            BIS     #BIT8,(R1)          ;CLOCK INSTRUCTION
1548  011540  122761  000377  000004    CMPB    #377,4(R1)          ;IS IT ALL ONES?
1549  011546  001003                     BNE     .+10                ;BR IF NO
1550  011550  052712  010000            BIS     #BIT12,(R2)         ;IF YES, NO LINE UNIt, SET STATUS BIT
1551  011554  000436                     BR      20$
1552  011556  032761  000002  000004    BIT     #BIT1,4(R1)         ;IS SWITCH A ONE?
1553  011564  001403                     BEQ     .+10                ;BR IF M8201
1554  011566  052712  060000            BIS     #BIT13!BIT14,(R2)   ;M8202 ASSUME CONNECTOR
1555  011572  000427                     BR      20$                 ;CONNECTOR ON)
1556  011574  032761  000010  000004    BIT     #BIT3,4(R1)         ;IS MRDY SET
1557  011602  001023                     BNE     20$                 ;BR IF M8201 NO CONNECTOR (ON LINE)
1558  011604  012761  000100  000004    MOV     #BIT6,4(R1)         ;LOAD PORT4
1559  011612  012761  122113  000006    MOV     #122113,6(R1)       ;LOAD INSTRUCTION
1560  011620  052711  000400            BIS     #BIT8,(R1)          ;CLOCK INSTRUCTION(SET DTR)
1561  011624  012761  021264  000006    MOV     #021264,6(R1)       ;LOAD INSTRUCTION
1562  011632  052711  000400            BIS     #BIT8,(R1)          ;CLOCK INSTRUCTION(READ MODEM REG)
1563  011636  032761  000010  000004    BIT     #BIT3,4(R1)         ;IS MRDY SET NOW?
1564  011644  001402                     BEQ     20$                 ;BR IF NO CONNECTOR
1565  011646  052712  040000            BIS     #BIT14,(R2)         ;SET STATUS BIT FOR CONNECTOR
1566  011652  005722          20$:       TST     (R2)+               ;POP POINTER
1567  011654  012761  021324  000006    MOV     #021324,6(R1)       ;PUT INSTRUCTION IN PORT6
1568  011662  012711  001400            MOV     #BIT9!BIT8,(R1)     ;PORT4←LU 15
1569  011666  156122  000004            BISB    4(R1),(R2)+         ;STORE DDCMP LINE # IN TABLE
1570  011672  012761  021344  000006    MOV     #021344,6(R1)       ;PORT6←INSTRUCTION
1571  011700  012711  001400            MOV     #BIT8!BIT9,(R1)     ;CLOCK INSTR.
1572  011704  156122  000004            BISB    4(R1),(R2)+         ;STORE BM873 ADD IN TABLE
1573  011710  005722                     TST     (R2)+               ;POP OVER STAT3
1574  011712  005011                     CLR     (R1)                ;CLEAR ROMI
1575  011714  005237  001310            INC     DMNUM               ;UPDATE DEVICE COUNTER
1576  011720  022737  000020  001310    CMP     #20,DMNUM           ;ARE MAX. NO. OF DEV FOUND?
1577  011726  001412                     BEQ     13$                 ;YES DON'T LOOK FOR ANY MORE.
1578  011730  005011          3$:        CLR     (R1)                ;CLEAR BIT 10
1579  011732  005061  000006            CLR     6(R1)               ;CLEAR SEL 6
1580  011736  062701  000010    14$:    ADD     #10,R1              ;UPDATE CSR POINTER ADDRESS
1581  011742  022701  170510            CMP     #170510,R1
1582  011746  001402                     BEQ     13$                 ;BR IF DONE
1583  011750  000137  011334            JMP     2$                  ;JUMP IF NOT
1584  011754  005037  001306    13$:    CLR     DMACTV
1585  011760  005737  001310            TST     DMNUM               ;WERE ANY M8200-YC'S FOUND AT ALL?
1586  011764  001423                     BEQ     5$                  ;ERROR AUTO SIZER FOUND NO M8200-YC'S IN THIS SYS.
1587  011766  013701  001310            MO      DMNuM,R1
1588  011772  010137  001314            MO      R1,SAVNUM           ;SAVE NUMBER OF DEVICES
1589  011776  000241          4$:        CLC
1590  012000  006137  001306            ROL     DMACTV              ;GENERATE ACTIVE REGISTER OF DEVICES.
1591  012004  005237  001306            INC     DMACTV              ;SET THE BIT
1592  012010  005301                     DEC     R1
1593  012012  001371                     BNE     4$                  ;BR IF MORE TO GENERATE
1594  012014  012737  000006  000004    MOV     #6,@#4              ;RESTORE TRAP VECTOR
1595  012022  013737  001306  001312    MOV     DMACTV,SAVACT       ;SAVE ACTIVE REGISTER
1596  012030  000137  012062            JMP     VECMAP              ;GO FIND THE VECTOR NOW.
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 1597  012034  104402  005770          5$:     TYPE    ,MERR2          ;NOTIFY OPR THAT NO M8200-YC'S FOUND.
 1598  012040  005000                          CLR     R0              ;MAKE DATA LIGHTS ZERO
 1599  012042  000000                          HALT                    ;STOP THE SHOW
 1600  012044  000776                          BR      .-2             ;DISABLE CONT. SW.
 1601  012046  012716  011736          6$:     MOV     #14$,(SP)       ;ENTERED BY NON-EXISTANT TIME-OUT.
 1602  012052  000002                          RTI                     ;RETURN TO MAINSTREAM
 1603
 1604  012054  000001                  WHICH:  1
 1605  012056     002      002                 .BYTE   2,2
 1606  012060  001256                          TEMP5
 1607
 1608  012062  032737  000001  001236  VECMAP: BIT     #SW00,STRTSW
 1609  012070  001114                          BNE     5$
 1610  012072  012737  000340  000022          MOV     #340,@#22       ;SET IOT TRAP PRIO TO 7
 1611  012100  012737  012254  000020          MOV     #4$,@#20        ;SET IOT TRAP VECTOR
 1612  012106  012702  001500                  MOV     #DM.MAP,R2      ;SET SOFTWARE POINTER
 1613  012112  012700  000300                  MOV     #300,R0         ;FLOATING VECTORS START HERE.
 1614  012116  012701  000302                  MOV     #302,R1         ;PC OF IOT INSTR.
 1615  012122  010120                  1$:     MOV     R1,(R0)+        ;START FILLING VECTOR AREA
 1616  012124  012721  000004                  MOV     #4,(R1)+        ;WITH .+2; IOT
 1617  012130  022021                          CMP     (R0)+,(R1)+     ;ADD 2 TO r0 +R1
 1618  012132  020127  001000                  CMP     R1,#1000
 1619  012136  101771                          BLOS    1$              ;BR IF MORE TO FILL
 1620  012140  013737  001306  001246          MOV     DMACTV,TEMP1    ;STORE TEMPORALLY
 1621  012146  006037  001246          2$:     ROR     TEMP1           ;BRING OUT A BIT
 1622  012152  103063                          BCC     5$              ;BR IF ALL DONE
 1623  012154  012704  000012                  MOV     #12,R4          ;R4 IS INDEX REGISTER
 1624  012160  016437  012324  177776          MOV     BRLVL(R4),PS    ;SET PS TO 7
 1625  012166  011201                          MOV     (R2),R1
 1626  012170  012761  000200  000004          MOV     #200,4(R1)
 1627  012176  012711  001000                  MOV     #BIT9,(R1)      ;SET ROMI
 1628  012202  012761  121111  000006          MOV     #121111,6(R1)   ;PUT INSTRUCTION IN PORT6
 1629  012210  012711  001400                  MOV     #BIT9!BIT8,(R1) ;FORCE AN INTERRUPT
 1630  012214  105200                  7$:     INCB    R0              ;STALL
 1631  012216  001376                          BNE     .-2             ;FOR TIME TO INTERUPT
 1632  012220  162704  000002                  SUB     #2,R4           ;GET NEXT LOWEST PS LEVEL
 1633  012224  001404                          BEQ     6$              ;BR IF R4 = 0
 1634  012226  016437  012324  177776          MOV     BRLVL(R4),PS    ;MOVE NEXT LOWER LEVEL IN PS
 1635  012234  000767                          BR      7$              ;BR TO DELAY
 1636  012236  052762  005300  000002  6$:     BIS     #5300,2(R2)     ;NO INTERUPT ASSUME 300 AT LEVEL 5 AND FIX M8200-YC LATE
 1637  012244  005011                  3$:     CLR     (R1)            ;CLEAR ROMI
 1638  012246  062702  000010                  ADD     #10,R2          ;POP SOFTWARE POINTER
 1639  012252  000735                          BR      2$              ;KEEP GOING
 1640  012254  051662  000002          4$:     BIS     (SP),2(R2)      ;GET VECTOR ADDRESS
 1641  012260  042762  000007  000002          BIC     #7,2(R2)        ;CLEAR JUNK
 1642  012266  016405  012326                  MOV     BRLVL+2(R4),R5  ;GET BR LEVEL OF M8200-YC
 1643  012272  006305                          ASL     R5              ;SHIFT LEVEL 4 PLACES
 1644  012274  006305                          ASL     R5              ;TO THE LEFT FOR THE
 1645  012276  006305                          ASL     R5              ;STATUS TABLE
 1646  012300  006305                          ASL     R5
 1647  012302  042705  170777                  BIC     #170777,R5      ;CLEAR UNWANTED BITS
 1648  012306  050562  000002                  BIS     R5,2(R2)        ;PUT BR LEVEL IN STATUS TABLE
 1649  012312  022626                          CMP     (SP)+,(SP)+     ;POP IOT JUNK OFF STACK
 1650  012314  012716  012244                  MOV     #3$,(SP)        ;SET FOR RETURN
```

```
                                        RTI
                                5$:     RTS     PC              ;ALL DONe WITH "AUTO SIZING"

                                BRLVL:  0       ;LEVEL 0
                                        0       ;LEVEL 0
                                        200     ;LEVEL 4
                                        240     ;LEVEL 5
                                        300     ;LEVEL 6
                                        340     ;LEVEL 7

                                INTTY:  TSTB    @TKCSR          ;WAIT FOR DONE
                                        BPL     .-4
                                        MOV     @TKDBR,R3       ;PUT CHAR IN R3
                                        TSTB    @TPCSR          ;WAIT UNTIL PRINTER IS READY
                                        BPL     .-4
                                        MOV     R3,@TPDBR       ;ECHO CHAR
                                        BIC     #BIT7!BIT5,R3   ;MASK OFF LOWER CASE
                                        RTS     PC              ;RETURN


                                ;************************** TEST 1 **************************
                                ;*VERIFY THAT REFERENCING UNIbUS DEVICE REGISTERS
                                ;*DOES NOT CAUSE A TIME OUT TRAP
                                ;:********************************************************************

                                ;  TEST 1
                                ;--------------
                                TST1:   MOV     #1,TSTNO
                                        MOV     #TST2,NEXT
                                        MOV     #1$,LOCK
                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
                                        MOV     DMC+R,R1        ;R1 CONTAINS BASE M8200-YC ADDRESS
                                        MOV     #4,R0           ;4 REGISTERS TO BE TESTED
                                        MOV     #2$,4           ;SET UP TIMEOUT TRAP
                                        MOV     #340,6          ;LEVEL 7
                                1$:     TST     (R1)            ;REFERENCE DEVICE REGISTER
                                        NOP
                                        SCOP1                   ;SW09=1?
                                        ADD     #2,R1           ;NEXT REGISTER
                                        DEC     R0              ;DEC REGISTER COUNT
                                        BNE     1$              ;BR IF NOT LAST REGISTER
                                        MOV     #6,4            ;RESTORE LOC 4
                                        CLR     6               ;RESTORE LOC 6
                                        SCOPE                   ;SCOPE THIS TEST
                                2$:     MOV     (SP),R2         ;GET PC OF TRAP
                                        HLT     1               ;TIME-OUT ERROR
                                        RTI


                                ;************************** TEST 2 **************************
                                ;*VERIFY THAT RUN CAN BE CLEARED
                                ;:********************************************************************
```

```
                                        ;  TEST 2
                                        ;--------------
012500  012737  000002  001226  TST2:   MOV     #2,TSTNO
012506  012737  012530  001216          MOV     #TST3,NEXT
                                                        ;R1 CONTAINS BASE M8200-YC ADDRESS
012514  005011                          CLR     (R1)    ;CLEAR DMCSR
012516  005005                          CLR     R5      ;CLEAR "EXPECTED"
012520  011104                          MOV     (R1),R4 ;PUT DMCSR IN "FOUND"
012522  001401                          BEQ     1$      ;BR IF CLEARED
012524  104002                          HLT     2       ;ERROR DMCSR NOT CLEARED
012526  104400                  1$:     SCOPE           ;SCOPE THIS TEST

                                        ;************************** TEST 3 **************************
                                        ;*UNIBUS REGISTER WORD DUAL ADDRESSING TEST
                                        ;*LOAD ALL REGISTERS WITH INCREMENTING PATTERN
                                        ;*READ BACK ALL REGISTERS TO VERIFY CORRECT ADDRESSING
                                        ;:*********************************************************

                                        ;  TEST 3
                                        ;--------------
012530  012737  000003  001226  TST3:   MOV     #3,TSTNO
012536  012737  012660  001216          MOV     #TST4,NEXT
012544  012737  012560  001220          MOV     #1$,LOCK
                                                        ;R1 CONTAINS BASE M8200-YC ADDRESS
012552  104412                          MSTCLR          ;MASTER CLEAR M8200-YC
012554  012700  000001                  MOV     #1,R0   ;START PATTERN AT 1
012560  005011                  1$:     CLR     (R1)    ;CLEAR REGISTER
012562  010005                          MOV     R0,R5   ;PUT DATA IN "EXPECTED"
012564  010011                          MOV     R0,(R1) ;WRITE DMC REGISTER WITH PATTERN
012566  011104                          MOV     (R1),R4 ;READ DMC REGISTER INTO "FOUND"
012570  020504                          CMP     R5,R4   ;IS DATA CORRECT
012572  001401                          BEQ     2$      ;BR IF YES
012574  104002                          HLT     2       ;DATA ERROR
012576  104401                  2$:     SCOP1           ;SW09=1?
012600  005721                          TST     (R1)+   ;NEXT REGISTER
012602  005200                          INC     R0      ;INCREMENT DATA PATTERN
012604  022700  000005                  CMP     #5,R0   ;LAST REGISTER?
012610  001363                          BNE     1$      ;BR IF NO
012612  013701  001404                  MOV     DMCSR,R1        ;BASE M8200-YC  ADDRESS TO R1
012616  012700  000001                  MOV     #1,R0   ;RESTART PATTERN AT 1
012622  012737  012630  001220          MOV     #3$,LOCK        ;NEW SCOP1
012630  010005                  3$:     MOV     R0,R5   ;PUT DATA IN "EXPECTED"
012632  011104                          MOV     (R1),R4 ;READ DMC REGISTER INTO "FOUND"
012634  020504                          CMP     R5,R4   ;IS DATA CORRECT
012636  001401                          BEQ     4$      ;BR IF YES
012640  104002                          HLT     2       ;DUAL ADDRESSING ERROR
012642  104401                  4$:     SCOP1           ;SW09=1?
012644  005721                          TST     (R1)+   ;NEXT REGISTER
012646  005200                          INC     R0      ;INCREMENT PATTERN
012650  022700  000005                  CMP     #5,R0   ;LAST REGISTER?
012654  001365                          BNE     3$      ;BR IF NO
012656  104400                          SCOPE           ;SCOPE THIS TEST
```

```
                                        ;*************************** TEST 4 ****************************
                                        ;*CONTROL STATUS REGISTER WRITE/READ TEST
                                        ;*SET BIT0, VERIFY BIT0 WAS SET
                                        ;*CLEAR BIT0, VERIFY BIT0 WAS CLEARED
                                        ;:***********************************************************

                                        ;  TEST 4
                                        ;--------------
012660  012737  000004  001226  TST4:  MOV     #4,TSTNO
012666  012737  012756  001216         MOV     #TST5,NEXT
012674  012737  012704  001220         MOV     #1$,LOCK
012702  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
012704  013701  001404          1$:    MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
012710  012705  000001                 MOV     #BIT0,R5        ;PUT DATA IN "EXPECTED"
012714  010511                         MOV     R5,(R1)         ;WRITE BIT 0
012716  011104                         MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
012720  020504                         CMP     R5,R4           ;IS DATA CORRECT
012722  001401                         BEQ     2$              ;BR IF YES
012724  104002                         HLT     2               ;DATA ERROR
012726  104401                 2$:     SCOP1                   ;SW09 UP?
012730  012737  012736  001220         MOV     #3$,LOCK        ;NEW SCOP1
012736  042711  000001          3$:    BIC     #BIT0,(R1)      ;CLEAR BIT 0
012742  005005                         CLR     R5              ;CLEAR "EXPECTED"
012744  011104                         MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
012746  001402                         BEQ     4$              ;BR IF ZERO
012750  104002                         HLT     2               ;DATA ERROR BIT0 NOT CLEARED
012752  104401                         SCOP1                   ;SW09 UP?
012754  104400                 4$:     SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 5 ****************************
                                        ;*CONTROL STATUS REGISTER WRITE/READ TEST
                                        ;*SET BIT1, VERIFY BIT1 WAS SET
                                        ;*CLEAR BIT1, VERIFY BIT1 WAS CLEARED
                                        ;:***********************************************************

                                        ;  TEST 5
                                        ;--------------
012756  012737  000005  001226  TST5:  MOV     #5,TSTNO
012764  012737  013054  001216         MOV     #TST6,NEXT
012772  012737  013002  001220         MOV     #1$,LOCK
013000  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
013002  013701  001404          1$:    MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
013006  012705  000002                 MOV     #BIT1,R5        ;PUT DATA IN "EXPECTED"
013012  010511                         MOV     R5,(R1)         ;WRITE BIT 1
013014  011104                         MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
013016  020504                         CMP     R5,R4           ;IS DATA CORRECT
013020  001401                         BEQ     2$              ;BR IF YES
013022  104002                         HLT     2               ;DATA ERROR
013024  104401                 2$:     SCOP1                   ;SW09 UP?
013026  012737  013034  001220         MOV     #3$,LOCK        ;NEW SCOP1
013034  042711  000002          3$:    BIC     #BIT1,(R1)      ;CLEAR BIT 1
```

```
1813  013040  005005                          CLR     R5              ;CLEAR "EXPECTED"
1814  013042  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
1815  013044  001402                          BEQ     4$              ;BR IF ZERO
1816  013046  104002                          HLT     2               ;DATA ERROR BIT1 NOT CLEARED
1817  013050  104401                          SCOP1                   ;SW09 UP?
1818  013052  104400              4$:         SCOPE                   ;SCOPE THIS TEST
1819
1820
1821                                          ;*************************** TEST 6 ****************************
1822                                          ;*CONTROL STATUS REGISTER WRITE/READ TEST
1823                                          ;*SET BIT2, VERIFY BIT2 WAS SET
1824                                          ;*CLEAR BIT2, VERIFY BIT2 WAS CLEARED
1825                                          ;:***********************************************************
1826
1827                                          ;  TEST 6
1828                                          ;--------------
1829  013054  012737  000006  001226  TST6:   MOV     #6,TSTNO
1830  013062  012737  013152  001216          MOV     #TST7,NEXT
1831  013070  012737  013100  001220          MOV     #1$,LOCK
1832  013076  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
1833  013100  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
1834  013104  012705  000004                  MOV     #BIT2,R5        ;PUT DATA IN "EXPECTED"
1835  013110  010511                          MOV     R5,(R1)         ;WRITE BIT 2
1836  013112  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
1837  013114  020504                          CMP     R5,R4           ;IS DATA CORRECT
1838  013116  001401                          BEQ     2$              ;BR IF YES
1839  013120  104002                          HLT     2               ;DATA ERROR
1840  013122  104401              2$:         SCOP1                   ;SW09 UP?
1841  013124  012737  013132  001220          MOV     #3$,LOCK        ;NEW SCOP1
1842  013132  042711  000004          3$:     BIC     #BIT2,(R1)      ;CLEAR BIT 2
1843  013136  005005                          CLR     R5              ;CLEAR "EXPECTED"
1844  013140  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
1845  013142  001402                          BEQ     4$              ;BR IF ZERO
1846  013144  104002                          HLT     2               ;DATA ERROR BIT2 NOT CLEARED
1847  013146  104401                          SCOP1                   ;SW09 UP?
1848  013150  104400              4$:         SCOPE                   ;SCOPE THIS TEST
1849
1850
1851                                          ;*************************** TEST 7 ****************************
1852                                          ;*CONTROL STATUS REGISTER WRITE/READ TEST
1853                                          ;*SET BIT5, VERIFY BIT5 WAS SET
1854                                          ;*CLEAR BIT5, VERIFY BIT5 WAS CLEARED
1855                                          ;:***********************************************************
1856
1857                                          ;  TEST 7
1858                                          ;--------------
1859  013152  012737  000007  001226  TST7:   MOV     #7,TSTNO
1860  013160  012737  013250  001216          MOV     #TST10,NEXT
1861  013166  012737  013176  001220          MOV     #1$,LOCK
1862  013174  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
1863  013176  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
1864  013202  012705  000040                  MOV     #BIT5,R5        ;PUT DATA IN "EXPECTED"
1865  013206  010511                          MOV     R5,(R1)         ;WRITE BIT 5
1866  013210  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
```

```
 1867  013212  020504                          CMP     R5,R4           ;IS DATA CORRECT
 1868  013214  001401                          BEQ     2$              ;BR IF YES
 1869  013216  104002                          HLT     2               ;DATA ERROR
 1870  013220  104401                  2$:     SCOP1                   ;SW09 UP?
 1871  013222  012737  013230  001220          MOV     #3$,LOCK        ;NEW SCOP1
 1872  013230  042711  000040          3$:     BIC     #BIT5,(R1)      ;CLEAR BIT 5
 1873  013234  005005                          CLR     R5              ;CLEAR "EXPECTED"
 1874  013236  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1875  013240  001402                          BEQ     4$              ;BR IF ZERO
 1876  013242  104002                          HLT     2               ;DATA ERROR BIT5 NOT CLEARED
 1877  013244  104401                          SCOP1                   ;SW09 UP?
 1878  013246  104400                  4$:     SCOPE                   ;SCOPE THIS TEST
 1879
 1880                                          ;*************************** TEST 10 ****************************
 1881                                          ;*CONTROL STATUS REGISTER WRITE/READ TEST
 1882                                          ;*SET BIT6, VERIFY BIT6 WAS SET
 1883                                          ;*CLEAR BIT6, VERIFY BIT6 WAS CLEARED
 1884                                          ;:************************************************************
 1885
 1886                                          ;  TEST 10
 1887                                          ;--------------
 1888
 1889  013250  012737  000010  001226  TST10:  MOV     #10,TSTNO
 1890  013256  012737  013346  001216          MOV     #TST11,NEXT
 1891  013264  012737  013274  001220          MOV     #1$,LOCK
 1892  013272  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 1893  013274  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
 1894  013300  012705  000100                  MOV     #BIT6,R5        ;PUT DATA IN "EXPECTED"
 1895  013304  010511                          MOV     R5,(R1)         ;WRITE BIT 6
 1896  013306  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1897  013310  020504                          CMP     R5,R4           ;IS DATA CORRECT
 1898  013312  001401                          BEQ     2$              ;BR IF YES
 1899  013314  104002                          HLT     2               ;DATA ERROR
 1900  013316  104401                  2$:     SCOP1                   ;SW09 UP?
 1901  013320  012737  013326  001220          MOV     #3$,LOCK        ;NEW SCOP1
 1902  013326  042711  000100          3$:     BIC     #BIT6,(R1)      ;CLEAR BIT 6
 1903  013332  005005                          CLR     R5              ;CLEAR "EXPECTED"
 1904  013334  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1905  013336  001402                          BEQ     4$              ;BR IF ZERO
 1906  013340  104002                          HLT     2               ;DATA ERROR BIT6 NOT CLEARED
 1907  013342  104401                          SCOP1                   ;SW09 UP?
 1908  013344  104400                  4$:     SCOPE                   ;SCOPE THIS TEST
 1909
 1910
 1911                                          ;*************************** TEST 11 ****************************
 1912                                          ;*CONTROL STATUS REGISTER WRITE/READ TEST
 1913                                          ;*SET BIT7, VERIFY BIT7 WAS SET
 1914                                          ;*CLEAR BIT7, VERIFY BIT7 WAS CLEARED
 1915                                          ;:************************************************************
 1916
 1917                                          ;  TEST 11
 1918                                          ;--------------
 1919  013346  012737  000011  001226  TST11:  MOV     #11,TSTNO
 1920  013354  012737  013444  001216          MOV     #TST12,NEXT
```

```
 1921  013362  012737  013372  001220          MOV     #1$,LOCK
 1922  013370  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 1923  013372  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
 1924  013376  012705  000200                  MOV     #BIT7,R5        ;PUT DATA IN "EXPECTED"
 1925  013402  010511                          MOV     R5,(R1)         ;WRITE BIT 7
 1926  013404  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1927  013406  020504                          CMP     R5,R4           ;IS DATA CORRECT
 1928  013410  001401                          BEQ     2$              ;BR IF YES
 1929  013412  104002                          HLT     2               ;DATA ERROR
 1930  013414  104401                  2$:     SCOP1                   ;SW09 UP?
 1931  013416  012737  013424  001220          MOV     #3$,LOCK        ;NEW SCOP1
 1932  013424  042711  000200          3$:     BIC     #BIT7,(R1)      ;CLEAR BIT 7
 1933  013430  005005                          CLR     R5              ;CLEAR "EXPECTED"
 1934  013432  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1935  013434  001402                          BEQ     4$              ;BR IF ZERO
 1936  013436  104002                          HLT     2               ;DATA ERROR BIT7 NOT CLEARED
 1937  013440  104401                          SCOP1                   ;SW09 UP?
 1938  013442  104400                  4$:     SCOPE                   ;SCOPE THIS TEST
 1939
 1940
 1941                                          ;*************************** TEST 12 ****************************
 1942                                          ;*CONTROL STATUS REGISTER WRITE/READ TEST
 1943                                          ;*SET BIT9, VERIFY BIT9 WAS SET
 1944                                          ;*CLEAR BIT9, VERIFY BIT9 WAS CLEARED
 1945                                          ;:************************************************************
 1946
 1947                                          ;  TEST 12
 1948                                          ;--------------
 1949  013444  012737  000012  001226  TST12:  MOV     #12,TSTNO
 1950  013452  012737  013542  001216          MOV     #TST13,NEXT
 1951  013460  012737  013470  001220          MOV     #1$,LOCK
 1952  013466  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 1953  013470  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
 1954  013474  012705  001000                  MOV     #BIT9,R5        ;PUT DATA IN "EXPECTED"
 1955  013500  010511                          MOV     R5,(R1)         ;WRITE BIT 9
 1956  013502  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1957  013504  020504                          CMP     R5,R4           ;IS DATA CORRECT
 1958  013506  001401                          BEQ     2$              ;BR IF YES
 1959  013510  104002                          HLT     2               ;DATA ERROR
 1960  013512  104401                  2$:     SCOP1                   ;SW09 UP?
 1961  013514  012737  013522  001220          MOV     #3$,LOCK        ;NEW SCOP1
 1962  013522  042711  001000          3$:     BIC     #BIT9,(R1)      ;CLEAR BIT 9
 1963  013526  005005                          CLR     R5              ;CLEAR "EXPECTED"
 1964  013530  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
 1965  013532  001402                          BEQ     4$              ;BR IF ZERO
 1966  013534  104002                          HLT     2               ;DATA ERROR BIT9 NOT CLEARED
 1967  013536  104401                          SCOP1                   ;SW09 UP?
 1968  013540  104400                  4$:     SCOPE                   ;SCOPE THIS TEST
 1969
 1970
 1971                                          ;*************************** TEST 13 ****************************
 1972                                          ;*CONTROL STATUS REGISTER WRITE/READ TEST
 1973                                          ;*SET BIT11, VERIFY BIT11 WAS SET
 1974                                          ;*CLEAR BIT11, VERIFY BIT11 WAS CLEARED
```

```
                                        ;;*****************************************************************
                                        ;  TEST 13
                                        ;--------------
013542  012737  000013  001226  TST13:  MOV     #13,TSTNO
013550  012737  013640  001216          MOV     #TST14,NEXT
013556  012737  013566  001220          MOV     #1$,LOCK
013564  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
013566  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
013572  012705  004000                  MOV     #BIT11,R5       ;PUT DATA IN "EXPECTED"
013576  010511                          MOV     R5,(R1)         ;WRITE BIT 11
013600  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
013602  020504                          CMP     R5,R4           ;IS DATA CORRECT
013604  001401                          BEQ     2$              ;BR IF YES
013606  104002                          HLT     2               ;DATA ERROR
013610  104401          2$:             SCOP1                   ;SW09 UP?
013612  012737  013620  001220          MOV     #3$,LOCK        ;NEW SCOP1
013620  042711  004000          3$:     BIC     #BIT11,(R1)     ;CLEAR BIT 11
013624  005005                          CLR     R5              ;CLEAR "EXPECTED"
013626  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
013630  001402                          BEQ     4$              ;BR IF ZERO
013632  104002                          HLT     2               ;DATA ERROR BIT11 NOT CLEARED
013634  104401                          SCOP1                   ;SW09 UP?
013636  104400          4$:             SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 14 ****************************
                                        ;*CONTROL STATUS REGISTER WRITE/READ TEST
                                        ;*SET BIT12, VERIFY BIT12 WAS SET
                                        ;*CLEAR BIT12, VERIFY BIT12 WAS CLEARED
                                        ;*****************************************************************

                                        ;  TEST 14
                                        ;--------------
013640  012737  000014  001226  TST14:  MOV     #14,TSTNO
013646  012737  013736  001216          MOV     #TST15,NEXT
013654  012737  013664  001220          MOV     #1$,LOCK
013662  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
013664  013701  001404          1$:     MOV     DMCSR,R1        ;PUT REGISTER ADDRESS IN R1
013670  012705  010000                  MOV     #BIT12,R5       ;PUT DATA IN "EXPECTED"
013674  010511                          MOV     R5,(R1)         ;WRITE BIT 12
013676  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
013700  020504                          CMP     R5,R4           ;IS DATA CORRECT
013702  001401                          BEQ     2$              ;BR IF YES
013704  104002                          HLT     2               ;DATA ERROR
013706  104401          2$:             SCOP1                   ;SW09 UP?
013710  012737  013716  001220          MOV     #3$,LOCK        ;NEW SCOP1
013716  042711  010000          3$:     BIC     #BIT12,(R1)     ;CLEAR BIT 12
013722  005005                          CLR     R5              ;CLEAR "EXPECTED"
013724  011104                          MOV     (R1),R4         ;READ CONTROL STATUS REGISTER
013726  001402                          BEQ     4$              ;BR IF ZERO
013730  104002                          HLT     2               ;DATA ERROR BIT12 NOT CLEARED
013732  104401                          SCOP1                   ;SW09 UP?
013734  104400          4$:             SCOPE                   ;SCOPE THIS TEST
```

```
                                        ;*************************** TEST 15 ****************************
                                        ;*CONTROL OUT REGISTER WRITE/READ TEST
                                        ;*SET BIT0, VERIFY BIT0 WAS SET
                                        ;*CLEAR BIT0, VERIFY BIT0 WAS CLEARED
                                        ;:************************************************************************

                                        ;  TEST 15
                                        ;--------------
013736  012737  000015  001226  TST15:  MOV     #15,TSTNO
013744  012737  014034  001216          MOV     #TST16,NEXT
013752  012737  013762  001220          MOV     #1$,LOCK
013760  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
013762  013701  001410          1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
013766  012705  000001                  MOV     #BIT0,R5        ;PUT DATA IN "EXPECTED"
013772  010511                          MOV     R5,(R1)         ;WRITE BIT 0
013774  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
013776  020504                          CMP     R5,R4           ;IS DATA CORRECT
014000  001401                          BEQ     2$              ;BR IF YES
014002  104002                          HLT     2               ;DATA ERROR
014004  104401          2$:             SCOP1                   ;SW09 UP?
014006  012737  014014  001220          MOV     #3$,LOCK        ;NEW SCOP1
014014  042711  000001          3$:     BIC     #BIT0,(R1)      ;CLEAR BIT 0
014020  005005                          CLR     R5              ;CLEAR "EXPECTED"
014022  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
014024  001402                          BEQ     4$              ;BR IF ZERO
014026  104002                          HLT     2               ;DATA ERROR BIT0 NOT CLEARED
014030  104401                          SCOP1                   ;SW09 UP?
014032  104400          4$:             SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 16 ****************************
                                        ;*CONTROL OUT REGISTER WRITE/READ TEST
                                        ;*SET BIT1, VERIFY BIT1 WAS SET
                                        ;*CLEAR BIT1, VERIFY BIT1 WAS CLEARED
                                        ;:************************************************************************

                                        ;  TEST 16
                                        ;--------------
014034  012737  000016  001226  TST16:  MOV     #16,TSTNO
014042  012737  014132  001216          MOV     #TST17,NEXT
014050  012737  014060  001220          MOV     #1$,LOCK
014056  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
014060  013701  001410          1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
014064  012705  000002                  MOV     #BIT1,R5        ;PUT DATA IN "EXPECTED"
014070  010511                          MOV     R5,(R1)         ;WRITE BIT 1
014072  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
014074  020504                          CMP     R5,R4           ;IS DATA CORRECT
014076  001401                          BEQ     2$              ;BR IF YES
014100  104002                          HLT     2               ;DATA ERROR
014102  104401          2$:             SCOP1                   ;SW09 UP?
014104  012737  014112  001220          MOV     #3$,LOCK        ;NEW SCOP1
014112  042711  000002          3$:     BIC     #BIT1,(R1)      ;CLEAR BIT 1
```

```
                                        CLR     R5              ;CLEAR "EXPECTED"
                                        MOV     (R1),R4         ;READ CONTROL OUT REGISTER
                                        BEQ     4$              ;BR IF ZERO
                                        HLT     2               ;DATA ERROR BIT1 NOT CLEARED
                                        SCOP1                   ;SW09 UP?
                                4$:     SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 17 ****************************
                                        ;*CONTROL OUT REGISTER WRITE/READ TEST
                                        ;*SET BIT2, VERIFY BIT2 WAS SET
                                        ;*CLEAR BIT2, VERIFY BIT2 WAS CLEARED
                                        ;:************************************************************

                                        ;  TEST 17
                                        ;--------------
                        000017  001226  TST17:  MOV     #17,TSTNO
                        014230  001216          MOV     #TST20,NEXT
                        014156  001220          MOV     #1$,LOCK
                                                MSTCLR                  ;MASTER CLEAR M8200-YC
                        013701  001410          1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
                        012705  000004                  MOV     #BIT2,R5        ;PUT DATA IN "EXPECTED"
                                                MOV     R5,(R1)         ;WRITE BIT 2
                                                MOV     (R1),R4         ;READ CONTROL OUT REGISTER
                                                CMP     R5,R4           ;IS DATA CORRECT
                                                BEQ     2$              ;BR IF YES
                                                HLT     2               ;DATA ERROR
                                        2$:     SCOP1                   ;SW09 UP?
                        014210  001220          MOV     #3$,LOCK        ;NEW SCOP1
                        000004          3$:     BIC     #BIT2,(R1)      ;CLEAR BIT 2
                                                CLR     R5              ;CLEAR "EXPECTED"
                                                MOV     (R1),R4         ;READ CONTROL OUT REGISTER
                                                BEQ     4$              ;BR IF ZERO
                                                HLT     2               ;DATA ERROR BIT2 NOT CLEARED
                                                SCOP1                   ;SW09 UP?
                                4$:             SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 20 ****************************
                                        ;*CONTROL OUT REGISTER WRITE/READ TEST
                                        ;*SET BIT6, VERIFY BIT6 WAS SET
                                        ;*CLEAR BIT6, VERIFY BIT6 WAS CLEARED
                                        ;:************************************************************

                                        ;  TEST 20
                                        ;--------------
                        000020  001226  TST20:  MOV     #20,TSTNO
                        014326  001216          MOV     #TST21,NEXT
                        014254  001220          MOV     #1$,LOCK
                                                MSTCLR                  ;MASTER CLEAR M8200-YC
                        013701  001410          1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
                        012705  000100                  MOV     #BIT6,R5        ;PUT DATA IN "EXPECTED"
                                                MOV     R5,(R1)         ;WRITE BIT 6
                                                MOV     (R1),R4         ;READ CONTROL OUT REGISTER
```

```
                                        CMP     R5,R4           ;IS DATA CORRECT
                                        BEQ     2$              ;BR IF YES
                                        HLT     2               ;DATA ERROR
                                        SCOP1                   ;SW09 UP?
                                2$:     MOV     #3$,LOCK        ;NEW SCOP1
                                3$:     BIC     #BIT6,(R1)      ;CLEAR BIT 6
                                        CLR     R5              ;CLEAR "EXPECTED"
                                        MOV     (R1),R4         ;READ CONTROL OUT REGISTER
                                        BEQ     4$              ;BR IF ZERO
                                        HLT     2               ;DATA ERROR BIT6 NOT CLEARED
                                        SCOP1                   ;SW09 UP?
                                4$:     SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 21 ****************************
                                        ;*CONTROL OUT REGISTER WRITE/READ TEST
                                        ;*SET BIT7, VERIFY BIT7 WAS SET
                                        ;*CLEAR BIT7, VERIFY BIT7 WAS CLEARED
                                        ;:************************************************************

                                        ;  TEST 21
                                        ;--------------
                        TST21:  MOV     #21,TSTNO
                                MOV     #TST22,NEXT
                                MOV     #1$,LOCK
                                MSTCLR                  ;MASTER CLEAR M8200-YC
                                1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
                                        MOV     #BIT7,R5        ;PUT DATA IN "EXPECTED"
                                        MOV     R5,(R1)         ;WRITE BIT 7
                                        MOV     (R1),R4         ;READ CONTROL OUT REGISTER
                                        CMP     R5,R4           ;IS DATA CORRECT
                                        BEQ     2$              ;BR IF YES
                                        HLT     2               ;DATA ERROR
                                        SCOP1                   ;SW09 UP?
                                2$:     MOV     #3$,LOCK        ;NEW SCOP1
                                3$:     BIC     #BIT7,(R1)      ;CLEAR BIT 7
                                        CLR     R5              ;CLEAR "EXPECTED"
                                        MOV     (R1),R4         ;READ CONTROL OUT REGISTER
                                        BEQ     4$              ;BR IF ZERO
                                        HLT     2               ;DATA ERROR BIT7 NOT CLEARED
                                        SCOP1                   ;SW09 UP?
                                4$:     SCOPE                   ;SCOPE THIS TEST

                                        ;*************************** TEST 22 ****************************
                                        ;*CONTROL OUT REGISTER WRITE/READ TEST
                                        ;*SET BIT12, VERIFY BIT12 WAS SET
                                        ;*CLEAR BIT12, VERIFY BIT12 WAS CLEARED
                                        ;:************************************************************

                                        ;  TEST 22
                                        ;--------------
                        TST22:  MOV     #22,TSTNO
                                MOV     #TST23,NEXT
```

```
2191  014440  012737  014450  001220          MOV     #1$,LOCK
2192  014446  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2193  014450  013701  001410          1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
2194  014454  012705  010000                  MOV     #BIT12,R5       ;PUT DATA IN "EXPECTED"
2195  014460  010511                          MOV     R5,(R1)         ;WRITE BIT 12
2196  014462  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
2197  014464  020504                          CMP     R5,R4           ;IS DATA CORRECT
2198  014466  001401                          BEQ     2$              ;BR IF YES
2199  014470  104002                          HLT     2               ;DATA ERROR
2200  014472  104401                  2$:     SCOP1                   ;SW09 UP?
2201  014474  012737  014502  001220          MOV     #3$,LOCK        ;NEW SCOP1
2202  014502  042711  010000          3$:     BIC     #BIT12,(R1)     ;CLEAR BIT 12
2203  014506  005005                          CLR     R5              ;CLEAR "EXPECTED"
2204  014510  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
2205  014512  001402                          BEQ     4$              ;BR IF ZERO
2206  014514  104002                          HLT     2               ;DATA ERROR BIT12 NOT CLEARED
2207  014516  104401                          SCOP1                   ;SW09 UP?
2208  014520  104400                  4$:     SCOPE                   ;SCOPE THIS TEST
2209
2210
2211                                  ;*************************** TEST 23 ****************************
2212                                  ;*CONTROL OUT REGISTER WRITE/READ TEST
2213                                  ;*SET BIT13, VERIFY BIT13 WAS SET
2214                                  ;*CLEAR BIT13, VERIFY BIT13 WAS CLEARED
2215                                  ;:************************************************************
2216
2217                                  ;  TEST 23
2218                                  ;--------------
2219  014522  012737  000023  001226  TST23:  MOV     #23,TSTNO
2220  014530  012737  014620  001216          MOV     #TST24,NEXT
2221  014536  012737  014546  001220          MOV     #1$,LOCK
2222  014544  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2223  014546  013701  001410          1$:     MOV     DMCTL,R1        ;PUT REGISTER ADDRESS IN R1
2224  014552  012705  020000                  MOV     #BIT13,R5       ;PUT DATA IN "EXPECTED"
2225  014556  010511                          MOV     R5,(R1)         ;WRITE BIT 13
2226  014560  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
2227  014562  020504                          CMP     R5,R4           ;IS DATA CORRECT
2228  014564  001401                          BEQ     2$              ;BR IF YES
2229  014566  104002                          HLT     2               ;DATA ERROR
2230  014570  104401                  2$:     SCOP1                   ;SW09 UP?
2231  014572  012737  014600  001220          MOV     #3$,LOCK        ;NEW SCOP1
2232  014600  042711  020000          3$:     BIC     #BIT13,(R1)     ;CLEAR BIT 13
2233  014604  005005                          CLR     R5              ;CLEAR "EXPECTED"
2234  014606  011104                          MOV     (R1),R4         ;READ CONTROL OUT REGISTER
2235  014610  001402                          BEQ     4$              ;BR IF ZERO
2236  014612  104002                          HLT     2               ;DATA ERROR BIT13 NOT CLEARED
2237  014614  104401                          SCOP1                   ;SW09 UP?
2238  014616  104400                  4$:     SCOPE                   ;SCOPE THIS TEST
2239
2240
2241                                  ;*************************** TEST 24 ****************************
2242                                  ;*PORT4 REGISTER WRITE/READ TEST
2243                                  ;*FLOAT A ONE THROUGH PORT4 REGISTER
2244                                  ;*FLOAT A ZERO THROUGH PORT4 REGISTER
```

```
2245                                    ;:**********************************************************************
2246
2247                                    ;  TEST 24
2248                                    ;--------------
2249  014620  012737  000024  001226  TST24:  MOV     #24,TSTNO
2250  014626  012737  014744  001216           MOV     #TST25,NEXT
2251  014634  012737  014654  001220           MOV     #64$,LOCK
2252  014642  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2253  014644  013701  001412                  MOV     DMP04,R1                ;PUT REGISTER ADDRESS IN R1
2254  014650  012700  000001                  MOV     #1,R0           ;START WITH BIT0
2255  014654                          64$:
2256  014654  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
2257  014656  010511                          MOV     R5,(R1)         ;WRITE PORT4 REGISTER
2258  014660  011104                          MOV     (R1),R4         ;READ PORT4 REGISTER
2259  014662  020504                          CMP     R5,R4           ;COMPARE EXPECTED AND FOUND
2260  014664  001401                          BEQ     65$             ;BR IF OK
2261  014666  104002                          HLT     2               ;WRITE/READ ERROR
2262  014670  104401                  65$:    SCOP1                   ;LOOP TO 64$ IF SW09=1
2263  014672  000241                          CLC                     ;CLEAR CARRY
2264  014674  006100                          ROL     R0              ;SHIFT TO NEXT BIT
2265  014676  001366                          BNE     64$             ;BR IF NOT DONe YET?
2266  014700  012737  014712  001220          MOV     #66$,LOCK       ;NEW SCOP1
2267  014706  012700  000001                  MOV     #1,R0           ;START WITH BIT0
2268  014712                          66$:
2269  014712  005100                          COM     R0              ;CHANGE TO A FLOATING ZERO
2270  014714  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
2271  014716  010511                          MOV     R5,(R1)         ;WRITE PORT4 REGISTER
2272  014720  011104                          MOV     (R1),R4         ;READ PORT4 REGISTER
2273  014722  020504                          CMP     R5,R4           ;COMPARE EXPECTED AND FOUND
2274  014724  001401                          BEQ     67$             ;BR IF OK
2275  014726  104002                          HLT     2               ;WRITE/READ ERROR
2276  014730  104401                  67$:    SCOP1                   ;LOOP TO 66$ IF SW09=1
2277  014732  005100                          COM     R0              ;CHANGE BACK TO A FLOATING ONE
2278  014734  000241                          CLC                     ;CLEAR CARRY
2279  014736  006100                          ROL     R0              ;SHIFT TO NEXT BIT
2280  014740  001364                          BNE     66$             ;BR IF NOT DONE YET?
2281  014742  104400                          SCOPE                   ;SCOPE THIS TEST
2282
2283
2284                                    ;************************** TEST 25 **************************
2285                                    ;*PORT6 REGISTER WRITE/READ TEST
2286                                    ;*FLOAT A ONE THROUGH PORT6 REGISTER
2287                                    ;*FLOAT A ZERO THROUGH PORT6 REGISTER
2288                                    ;:**********************************************************************
2289
2290                                    ;  TEST 25
2291                                    ;--------------
2292  014744  012737  000025  001226  TST25:  MOV     #25,TSTNO
2293  014752  012737  015070  001216           MOV     #TST26,NEXT
2294  014760  012737  015000  001220           MOV     #64$,LOCK
2295  014766  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2296  014770  013701  001414                  MOV     DMP06,R1                ;PUT REGISTER ADDRESS IN R1
2297  014774  012700  000001                  MOV     #1,R0           ;START WITH BIT0
2298  015000                          64$:
```

```
2299  015000  010005                        MOV     R0,R5           ;PUT "EXPECTED" IN R5
2300  015002  010511                        MOV     R5,(R1)         ;WRITE PORT6 REGISTER
2301  015004  011104                        MOV     (R1),R4         ;READ PORT6 REGISTER
2302  015006  020504                        CMP     R5,R4           ;COMPARE EXPECTED AND FOUND
2303  015010  001401                        BEQ     65$             ;BR IF OK
2304  015012  104002                        HLT     2               ;WRITE/READ ERROR
2305  015014  104401              65$:      SCOP1                   ;LOOP TO 64$ IF SW09=1
2306  015016  000241                        CLC                     ;CLEAR CARRY
2307  015020  006100                        ROL     R0              ;SHIFT TO NEXT BIT
2308  015022  001366                        BNE     64$             ;BR IF NOT DONE YET?
2309  015024  012737  015036  001220        MOV     #66$,LOCK       ;NEW SCOP1
2310  015032  012700  000001              MOV     #1,R0           ;START WITH BIT0
2311  015036                        66$:
2312  015036  005100                        COM     R0              ;CHANGE TO A FLOATING ZERO
2313  015040  010005                        MOV     R0,R5           ;PUT "EXPECTED" IN R5
2314  015042  010511                        MOV     R5,(R1)         ;WRITE PORT6 REGISTER
2315  015044  011104                        MOV     (R1),R4         ;READ PORT6 REGISTER
2316  015046  020504                        CMP     R5,R4           ;COMPARE EXPECTED AND FOUND
2317  015050  001401                        BEQ     67$             ;BR IF OK
2318  015052  104002                        HLT     2               ;WRITE/READ ERROR
2319  015054  104401              67$:      SCOP1                   ;LOOP TO 66$ IF SW09=1
2320  015056  005100                        COM     R0              ;CHANGE BACK TO A FLOATING ONE
2321  015060  000241                        CLC                     ;CLEAR CARRY
2322  015062  006100                        ROL     R0              ;SHIFT TO NEXT BIT
2323  015064  001364                        BNE     66$             ;BR IF NOT DONE YET?
2324  015066  104400                        SCOPE                   ;SCOPE THIS TEST
2325
2326
2327                                  ;************************** TEST 26 **************************
2328                                  ;*UNIBUS REGISTER BYTE DUAL ADDRESSING TEST
2329                                  ;*LOAD ALL REGISTERS WITH INCREMENTING PATTERN
2330                                  ;*READ BACK ALL REGISTERS TO VERIFY CORRECT ADDRESSING
2331                                  ;;**********************************************************
2332
2333                                  ;  TEST 26
2334                                  ;--------------
2335  015070  012737  000026  001226  TST26:  MOV     #26,TSTNO
2336  015076  012737  015220  001216        MOV     #TST27,NEXT
2337  015104  012737  015120  001220        MOV     #1$,LOCK
2338                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2339  015112  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
2340  015114  012700  000001              MOV     #1,R0           ;START PATTERN AT 1
2341  015120  105011              1$:       CLRB    (R1)            ;CLEAR REGISTER
2342  015122  110005                        MOVB    R0,R5           ;PUT DATA IN "EXPECTED"
2343  015124  110011                        MOVB    R0,(R1)         ;WRITE DMC REGISTER WITH PATTERN
2344  015126  111104                        MOVB    (R1),R4         ;READ DMC REGISTER INTO "FOUND"
2345  015130  020504                        CMP     R5,R4           ;IS DATA CORRECT
2346  015132  001401                        BEQ     2$              ;BR IF YES
2347  015134  104002                        HLT     2               ;DATA ERROR
2348  015136  104401              2$:       SCOP1                   ;SW09=1?
2349  015140  105721                        TSTB    (R1)+           ;NEXT REGISTER
2350  015142  005200                        INC     R0              ;INCREMENT DATA PATTERN
2351  015144  022700  000011              CMP     #11,R0          ;LAST REGISTER?
2352  015150  001363                        BNE     1$              ;BR IF NO
```

```
 2353  015152  013701  001404                    MOV     DMCSR,R1        ;BASE M8200-YC  ADDRESS TO R1
 2354  015156  012700  000001                    MOV     #1,R0           ;RESTART PATTERN AT 1
 2355  015162  012737  015170  001220            MOV     #3$,LOCK        ;NEW SCOP1
 2356  015170  110005                    3$:     MOVB    R0,R5           ;PUT DATA IN "EXPECTED"
 2357  015172  111104                            MOVB    (R1),R4         ;READ DMC REGISTER INTO "FOUND"
 2358  015174  020504                            CMP     R5,R4           ;IS DATA CORRECT
 2359  015176  001401                            BEQ     4$              ;BR IF YES
 2360  015200  104002                            HLT     2               ;DUAL ADDRESSING ERROR
 2361  015202  104401                    4$:     SCOP1                   ;SW09=1?
 2362  015204  105721                            TSTB    (R1)+           ;NEXT REGISTER
 2363  015206  005200                            INC     R0              ;INCREMENT PATTERN
 2364  015210  022700  000011                    CMP     #11,R0          ;LAST REGISTER?
 2365  015214  001365                            BNE     3$              ;BR IF NO
 2366  015216  104400                            SCOPE                   ;SCOPE THIS TEST
 2367
 2368
 2369                                            ;*************************** TEST 27 ****************************
 2370                                            ;*MAINTENANCE INSTRUCTION REGISTER TEST
 2371                                            ;*VERIFY THAT THE MAINT IR CAN BE WRITTEN TO ALL ZEROS'
 2372                                            ;*AND ALL ONES'. VERIFY THAT IT IS CLEARED ON A BUS RESET.
 2373                                            ;:************************************************************
 2374
 2375                                            ;  TEST 27
 2376                                            ;--------------
 2377  015220  012737  000027  001226    TST27:  MOV     #27,TSTNO
 2378  015226  012737  015360  001216            MOV     #TST30,NEXT
 2379  015234  012737  015252  001220            MOV     #1$,LOCK
 2380                                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
 2381  015242  104412                            MSTCLR                  ;MASTER CLEAR M8200-YC
 2382  015244  012711  003000                    MOV     #BIT9!BIT10,(R1) ;SEL6 IS NOW THE IR
 2383  015250  005005                            CLR     R5              ;PUT "EXPECTED" IN R5
 2384  015252  010561  000006            1$:     MOV     R5,6(R1)        ;CLEAR THE IR
 2385  015256  016104  000006                    MOV     6(R1),R4        ;READ THE IR
 2386  015262  020504                            CMP     R5,R4           ;IS IT CLEARED?
 2387  015264  001401                            BEQ     2$              ;BR IF YES
 2388  015266  104023                            HLT     23              ;ERROR IR IS NOT CLEAR
 2389  015270  104401                    2$:     SCOP1                   ;LOOP TO 1$ IF SW09=1
 2390  015272  012737  015304  001220            MOV     #3$,LOCK        ;NEW SCOP1
 2391  015300  012705  177777                    MOV     #-1,R5          ;PUT "EXPECTED" IN R5
 2392  015304  010561  000006            3$:     MOV     R5,6(R1)        ;WRITE ALL ONES TO THE IR
 2393  015310  016104  000006                    MOV     6(R1),R4        ;READ THE IR
 2394  015314  020504                            CMP     R5,R4           ;IS IT ALL ONES?
 2395  015316  001401                            BEQ     4$              ;BR IF YES
 2396  015320  104023                            HLT     23              ;ERROR IR IS NOT = ALL ONES
 2397  015322  104401                    4$:     SCOP1                   ;LOOP TO 3$ IF SW09=1
 2398  015324  012737  015334  001220            MOV     #5$,LOCK        ;NEW SCOP1
 2399  015332  005005                            CLR     R5              ;PUT "EXPECTED" IN R5
 2400  015334  000005                    5$:     RESET                   ;BUS RESET
 2401  015336  012711  003000                    MOV     #BIT9!BIT10,(R1) ;SEL6 IS IR
 2402  015342  016104  000006                    MOV     6(R1),R4        ;READ THE IR
 2403  015346  020504                            CMP     R5,R4           ;IS IT CLEARED?
 2404  015350  001401                            BEQ     6$              ;BR IF YES
 2405  015352  104023                            HLT     23              ;ERROR, IR IS NOT CLEARED
 2406  015354  104401                    6$:     SCOP1                   ;LOOP TO 5$ IF SW09=1
```

```
2407  015356  104400                          SCOPE                   ;SCOPE THIS TEST
2408
2409
2410                                          ;************************** TEST 30 **************************
2411                                          ;*MAINTENANCE INSTRUCTION REGISTER TEST
2412                                          ;*VERIFY THAT THE MAINT IR CAN BE WRITTEN TO ALL ZEROS'
2413                                          ;*AND ALL ONES'. VERIFY THAT IT IS CLEARED ON A MASTER RESET.
2414                                          ;:************************************************************
2415
2416                                          ;  TEST 30
2417                                          ;--------------
2418  015360  012737  000030  001226  TST30:  MOV     #30,TSTNO
2419  015366  012737  015522  001216          MOV     #TST31,NEXT
2420  015374  012737  015412  001220          MOV     #1$,LOCK
2421                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2422  015402  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
2423  015404  012711  003000                 MOV     #BIT9!BIT10,(R1) ;SEL6 IS NOW THE IR
2424  015410  005005                         CLR     R5              ;PUT "EXPECTED" IN R5
2425  015412  010561  000006          1$:    MOV     R5,6(R1)        ;CLEAR THE IR
2426  015416  016104  000006                 MOV     6(R1),R4        ;READ THE IR
2427  015422  020504                         CMP     R5,R4           ;IS IT CLEARED?
2428  015424  001401                         BEQ     2$              ;BR IF YES
2429  015426  104023                         HLT     23              ;ERROR IR IS NOT CLEAR
2430  015430  104401                  2$:    SCOP1                   ;LOOP TO 1$ IF SW09=1
2431  015432  012737  015444  001220         MOV     #3$,LOCK        ;NEW SCOP1
2432  015440  012705  177777                 MOV     #-1,R5          ;PUT "EXPECTED" IN R5
2433  015444  010561  000006          3$:    MOV     R5,6(R1)        ;WRITE ALL ONES TO THE IR
2434  015450  016104  000006                 MOV     6(R1),R4        ;READ THE IR
2435  015454  020504                         CMP     R5,R4           ;IS IT ALL ONES?
2436  015456  001401                         BEQ     4$              ;BR IF YES
2437  015460  104023                         HLT     23              ;ERROR IR IS NOT = ALL ONES
2438  015462  104401                  4$:    SCOP1                   ;LOOP TO 3$ IF SW09=1
2439  015464  012737  015474  001220         MOV     #5$,LOCK        ;NEW SCOP1
2440  015472  005005                         CLR     R5              ;PUT "EXPECTED" IN R5
2441  015474  052711  040000          5$:    BIS     #BIT14,(R1)     ;MASTER CLEAR
2442  015500  012711  003000                 MOV     #BIT9!BIT10,(R1) ;SEL6 IS IR
2443  015504  016104  000006                 MOV     6(R1),R4        ;READ THE IR
2444  015510  020504                         CMP     R5,R4           ;IS IT CLEARED?
2445  015512  001401                         BEQ     6$              ;BR IF YES
2446  015514  104023                         HLT     23              ;ERROR, IR IS NOT CLEARED
2447  015516  104401                  6$:    SCOP1                   ;LOOP TO 5$ IF SW09=1
2448  015520  104400                         SCOPE                   ;SCOPE THIS TEST
2449
2450
2451                                          ;************************** TEST 31 **************************
2452                                          ;*MICRO PROCESSOR TEST
2453                                          ;*LOAD DMP06 WITH A MICRO-PROCESSOR INSTRUCTION, CLOCK IT
2454                                          ;*VERIFY INSTRUCTION EXECUTED PROPERLY
2455                                          ;*INSTRUCTION SHOULD MOVE IBUS*4 TO IBUS*5, IBUS*4 IS ALL 1'S
2456                                          ;*AND IBUS*5 IS ALL 0'S. RESULT SHOULD BE ALL 1'S IN SEL4
2457                                          ;:************************************************************
2458
2459                                          ;  TEST 31
2460                                          ;--------------
```

```
2461  015522  012737  000031  001226  TST31:  MOV     #31,TSTNO
2462  015530  012737  015606  001216          MOV     #TST32,NEXT
2463                                          ;R1 CONTAINS BASE M8200-YC ADDRESS
2464  015536  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
2465  015540  012761  000377  000004        MOV     #377,4(R1)      ;PORT4 HI-BYTE=0'S LO-BYTE=1'S
2466  015546  012711  001000                MOV     #BIT9,(R1)      ;SET ROMI
2467  015552  012761  121105  000006        MOV     #121105,6(R1)   ;INSTRUCTION TO PORT6
2468  015560  052711  001400                BIS     #BIT8!BIT9,(R1) ;CLK INTSRUCTION, MOVE IBUS*4 TO IBUS*5
2469  015564  000240                        NOP
2470  015566  012705  177777                MOV     #-1,R5          ;PUT "EXPECTED" IN R5
2471  015572  016104  000004                MOV     4(R1),R4        ;PUT "FOUND" INTO R4
2472  015576  020504                        CMP     R5,R4           ;IS DATA CORRECT
2473  015600  001401                        BEQ     1$              ;BR IF YES
2474  015602  104003                        HLT     3               ;ERROR
2475  015604  104400          1$:           SCOPE                   ;SCOPE THIS TEST
2476
2477
2478                                        ;************************** TEST 32 **************************
2479                                        ;*MICRO PROCESSOR IBUS* REGISTER WRITE/READ TEST
2480                                        ;*FLOAT A 1 THROUGH IBUS* REGISTER 0
2481                                        ;*FLOAT A 0 THROUGH IBUS* REGISTER 0
2482                                        ;;**********************************************************
2483
2484                                        ;  TEST 32
2485                                        ;--------------
2486  015606  012737  000032  001226  TST32:  MOV     #32,TSTNO
2487  015614  012737  016006  001216          MOV     #TST33,NEXT
2488  015622  012737  015642  001220          MOV     #64$,LOCK
2489                                          ;R1 CONTAINS BASE M8200-YC ADDRESS
2490  015630  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
2491  015632  012702  000000                MOV     #0,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2492  015636  012700  000001                MOV     #1,R0           ;START WITH BIT 0
2493  015642                          64$:
2494  015642  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2495  015646  042761  000030  000004        BIC     #30,4(R1)       ;CLEAR UNWANTED BITS
2496  015654  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2497  015656  121100                        121100!0                ;MOV DATA TO IBUS* REGISTER 0
2498  015660  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2499  015662  121005                        121005!<0*20>           ;READ FROM IBUS* REGISTER 0
2500  015664  010005                        MOV     R0,R5           ;PUT EXPECTED IN R5
2501  015666  042705  000030                BIC     #30,R5          ;CLEAR UNWANTED BITS
2502  015672  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2503  015676  120504                        CMPB    R5,R4           ;DATA CORRECT?
2504  015700  001401                        BEQ     65$             ;BR IF YES
2505  015702  104004                        HLT     4               ;ERROR
2506  015704  104401          65$:          SCOP1                   ;SW09=1?
2507  015706  000241                        CLC                     ;CLEAR CARRY
2508  015710  106100                        ROLB    R0              ;SHIFT BIT IN R0
2509  015712  001353                        BNE     64$             ;IF R0=0 THEN DONE
2510  015714  012737  015730  001220        MOV     #67$,LOCK       ;NEW SCOP1
2511  015722  012700  000001                MOV     #1,R0           ;START WITH BIT 0
2512  015726  005100                  69$:  COM     R0              ;CHANGE TO FLOATING ZERO
2513  015730                          67$:
2514  015730  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
```

```
2515  015734  042761  000030  000004          BIC     #30,4(R1)       ;CLEAR UNWANTED BITS
2516  015742  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2517  015744  121100                          121100!0                ;MOV DATA TO IBUS* REGISTER 0
2518  015746  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2519  015750  121005                          121005!<0*20>           ;READ FROM IBUS* REGISTER 0
2520  015752  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2521  015754  042705  000030                  BIC     #30,R5          ;CLEAR UNWANTED BITS
2522  015760  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2523  015764  120504                          CMPB    R5,R4           ;DATA CORRECT?
2524  015766  001401                          BEQ     68$             ;BR IF YES
2525  015770  104004                          HLT     4               ;ERROR
2526  015772  104401                  68$:    SCOP1                   ;SW09=1?
2527  015774  005100                          COM     R0              ;CHANGE TO FLOATING 1
2528  015776  000241                          CLC                     ;CLEAR CARRY
2529  016000  106100                          ROLB    R0              ;SHIFT BIT IN R0
2530  016002  001351                          BNE     69$             ;IF R0=0 THEN DONE
2531  016004  104400                          SCOPE                   ;SCOPE THIS TEST
2532
2533
2534                                          ;************************** TEST 33 **************************
2535                                          ;*MICRO PROCESSOR IBUS* REGISTER WRITE/READ TEST
2536                                          ;*FLOAT A 1 THROUGH IBUS* REGISTER 2
2537                                          ;*FLOAT A 0 THROUGH IBUS* REGISTER 2
2538                                          ;*************************************************************
2539
2540                                          ;  TEST 33
2541                                          ;--------------
2542  016006  012737  000033  001226  TST33:  MOV     #33,TSTNO
2543  016014  012737  016206  001216          MOV     #TST34,NEXT
2544  016022  012737  016042  001220          MOV     #64$,LOCK
2545                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2546  016030  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2547  016032  012702  000002                  MOV     #2,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2548  016036  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2549  016042                          64$:
2550  016042  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2551  016046  042761  000070  000004          BIC     #70,4(R1)       ;CLEAR UNWANTED BITS
2552  016054  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2553  016056  121102                          121100!2                ;MOV DATA TO IBUS* REGISTER 2
2554  016060  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2555  016062  121045                          121005!<2*20>           ;READ FROM IBUS* REGISTER 2
2556  016064  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2557  016066  042705  000070                  BIC     #70,R5          ;CLEAR UNWANTED BITS
2558  016072  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2559  016076  120504                          CMPB    R5,R4           ;DATA CORRECT?
2560  016100  001401                          BEQ     65$             ;BR IF YES
2561  016102  104004                          HLT     4               ;ERROR
2562  016104  104401                  65$:    SCOP1                   ;SW09=1?
2563  016106  000241                          CLC                     ;CLEAR CARRY
2564  016110  106100                          ROLB    R0              ;SHIFT BIT IN R0
2565  016112  001353                          BNE     64$             ;IF R0=0 THEN DONE
2566  016114  012737  016130  001220          MOV     #67$,LOCK       ;NEW SCOP1
2567  016122  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2568  016126  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
```

```
2569  016130                          67$:
2570  016130  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2571  016134  042761  000070  000004        BIC     #70,4(R1)       ;CLEAR UNWANTED BITS
2572  016142  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2573  016144  121102                        121100!2                ;MOV DATA TO IBUS* REGISTER 2
2574  016146  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2575  016150  121045                        121005!<2*20>           ;READ FROM IBUS* REGISTER 2
2576  016152  010005                        MOV     R0,R5           ;PUT EXPECTED IN R5
2577  016154  042705  000070                BIC     #70,R5          ;CLEAR UNWANTED BITS
2578  016160  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2579  016164  120504                        CMPB    R5,R4           ;DATA CORRECT?
2580  016166  001401                        BEQ     68$             ;BR IF YES
2581  016170  104004                        HLT     4               ;ERROR
2582  016172  104401                  68$:  SCOP1                   ;SW09=1?
2583  016174  005100                        COM     R0              ;CHANGE TO FLOATING 1
2584  016176  000241                        CLC                     ;CLEAR CARRY
2585  016200  106100                        ROLB    R0              ;SHIFT BIT IN R0
2586  016202  001351                        BNE     69$             ;IF R0=0 THEN DONE
2587  016204  104400                        SCOPE                   ;SCOPE THIS TEST
2588
2589
2590                                  ;************************** TEST 34 **************************
2591                                  ;*MICRO PROCESSOR IBUS* REGISTER WRITE/READ TEST
2592                                  ;*FLOAT A 1 THROUGH IBUS* REGISTER 4
2593                                  ;*FLOAT A 0 THROUGH IBUS* REGISTER 4
2594                                  ;*************************************************************
2595
2596                                  ;  TEST 34
2597                                  ;-------------
2598  016206  012737  000034  001226  TST34:  MOV     #34,TSTNO
2599  016214  012737  016362  001216          MOV     #TST35,NEXT
2600  016222  012737  016242  001220          MOV     #64$,LOCK
2601                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2602  016230  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
2603  016232  012702  000004                MOV     #4,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2604  016236  012700  000001                MOV     #1,R0           ;START WITH BIT 0
2605  016242                          64$:
2606  016242  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2607  016246  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2608  016250  121104                        121100!4                ;MOV DATA TO IBUS* REGISTER 4
2609  016252  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2610  016254  121105                        121005!<4*20>           ;READ FROM IBUS* REGISTER 4
2611  016256  010005                        MOV     R0,R5           ;PUT EXPECTED IN R5
2612  016260  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2613  016264  120504                        CMPB    R5,R4           ;DATA CORRECT?
2614  016266  001401                        BEQ     65$             ;BR IF YES
2615  016270  104004                        HLT     4               ;ERROR
2616  016272  104401                  65$:  SCOP1                   ;SW09=1?
2617  016274  000241                        CLC                     ;CLEAR CARRY
2618  016276  106100                        ROLB    R0              ;SHIFT BIT IN R0
2619  016300  001360                        BNE     64$             ;IF R0=0 THEN DONe
2620  016302  012737  016316  001220        MOV     #67$,LOCK       ;NEW SCOP1
2621  016310  012700  000001                MOV     #1,R0           ;START WITH BIT 0
2622  016314  005100                  69$:  COM     R0              ;CHANGE TO FLOATING ZERO
```

```
2623   016316                          67$:
2624   016316  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2625   016322  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2626   016324  121104                          121100!4                ;MOV DATA TO IBUS* REGISTER 4
2627   016326  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2628   016330  121105                          121005!<4*20>           ;READ FROM IBUS* REGISTER 4
2629   016332  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2630   016334  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2631   016340  120504                          CMPB    R5,R4           ;DATA CORRECT?
2632   016342  001401                          BEQ     68$             ;BR IF YES
2633   016344  104004                          HLT     4               ;ERROR
2634   016346  104401                  68$:    SCOP1                   ;SW09=1?
2635   016350  005100                          COM     R0              ;CHANGE TO FLOATING 1
2636   016352  000241                          CLC                     ;CLEAR CARRY
2637   016354  106100                          ROLB    R0              ;SHIFT BIT IN R0
2638   016356  001356                          BNE     69$             ;IF R0=0 THEN DONE
2639   016360  104400                          SCOPE                   ;SCOPE THIS TEST
2640
2641
2642                                          ;*************************** TEST 35 ****************************
2643                                          ;*MICRO PROCESSOR IBUS* REGISTER WRITE/READ TEST
2644                                          ;*FLOAT A 1 THROUGH IBUS* REGISTER 5
2645                                          ;*FLOAT A 0 THROUGH IBUS* REGISTER 5
2646                                          ;;*************************************************************************
2647
2648                                          ;  TEST 35
2649                                          ;--------------
2650   016362  012737  000035  001226  TST35:  MOV     #35,TSTNO
2651   016370  012737  016536  001216          MOV     #TST36,NEXT
2652   016376  012737  016416  001220          MOV     #64$,LOCK
2653                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2654   016404  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2655   016406  012702  000005                  MOV     #5,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2656   016412  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2657   016416                          64$:
2658   016416  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2659   016422  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2660   016424  121105                          121100!5                ;MOV DATA TO IBUS* REGISTER 5
2661   016426  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2662   016430  121125                          121005!<5*20>           ;READ FROM IBUS* REGISTER 5
2663   016432  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2664   016434  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2665   016440  120504                          CMPB    R5,R4           ;DATA CORRECT?
2666   016442  001401                          BEQ     65$             ;BR IF YES
2667   016444  104004                          HLT     4               ;ERROR
2668   016446  104401                  65$:    SCOP1                   ;SW09=1?
2669   016450  000241                          CLC                     ;CLEAR CARRY
2670   016452  106100                          ROLB    R0              ;SHIFT BIT IN R0
2671   016454  001360                          BNE     64$             ;IF R0=0 THEN DONe
2672   016456  012737  016472  001220          MOV     #67$,LOCK       ;NEW SCOP1
2673   016464  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2674   016470  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
2675   016472                          67$:
2676   016472  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
```

```
2677  016476  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2678  016500  121105                          121100!5                ;MOV DATA TO IBUS* REGISTER 5
2679  016502  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2680  016504  121125                          121005!<5*20>           ;READ FROM IBUS* REGISTER 5
2681  016506  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2682  016510  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2683  016514  120504                          CMPB    R5,R4           ;DATA CORRECT?
2684  016516  001401                          BEQ     68$             ;BR IF YES
2685  016520  104004                          HLT     4               ;ERROR
2686  016522  104401                  68$:    SCOP1                   ;SW09=1?
2687  016524  005100                          COM     R0              ;CHANGE TO FLOATING 1
2688  016526  000241                          CLC                     ;CLEAR CARRY
2689  016530  106100                          ROLB    R0              ;SHIFT BIT IN R0
2690  016532  001356                          BNE     69$             ;IF R0=0 THEN DONE
2691  016534  104400                          SCOPE                   ;SCOPE THIS TEST
2692
2693                                          ;************************** TEST 36 **************************
2694                                          ;*MICRO PROCESSOR IBUS* REGISTER WRITE/READ TEST
2695                                          ;*FLOAT A 1 THROUGH IBUS* REGISTER 10
2696                                          ;*FLOAT A 0 THROUGH IBUS* REGISTER 10
2697                                          ;*THE NPR RQ BIT (BIT 0) IS MASKED DURING THIS TEST
2698                                          ;;*********************************************************
2699
2700                                          ;  TEST 36
2701                                          ;--------------
2702
2703  016536  012737  000036  001226  TST36:  MOV     #36,TSTNO
2704  016544  012737  016736  001216          MOV     #TST37,NEXT
2705  016552  012737  016572  001220          MOV     #64$,LOCK
2706                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2707  016560  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2708  016562  012702  000010                  MOV     #10,R2          ;SAVE REGISTER ADDRESS FOR TYPEOUT
2709  016566  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2710  016572                          64$:
2711  016572  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2712  016576  042761  000141  000004          BIC     #141,4(R1)      ;CLEAR UNWANTED BITS
2713  016604  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2714  016606  121110                          121100!10               ;MOV DATA TO IBUS* REGISTER 10
2715  016610  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2716  016612  121205                          121005!<10*20>          ;READ FROM IBUS* REGISTER 10
2717  016614  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2718  016616  042705  000141                  BIC     #141,R5         ;CLEAR UNWANTED BITS
2719  016622  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2720  016626  120504                          CMPB    R5,R4           ;DATA CORRECT?
2721  016630  001401                          BEQ     65$             ;BR IF YES
2722  016632  104004                          HLT     4               ;ERROR
2723  016634  104401                  65$:    SCOP1                   ;SW09=1?
2724  016636  000241                          CLC                     ;CLEAR CARRY
2725  016640  106100                          ROLB    R0              ;SHIFT BIT IN R0
2726  016642  001353                          BNE     64$             ;IF R0=0 THEN DONe
2727  016644  012737  016660  001220          MOV     #67$,LOCK       ;NEW SCOP1
2728  016652  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2729  016656  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
2730  016660                          67$:
```

```
2731  016660  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2732  016664  042761  000141  000004          BIC     #141,4(R1)      ;CLEAR UNWANTED BITS
2733  016672  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2734  016674  121110                          121100!10               ;MOV DATA TO IBUS* REGISTER 10
2735  016676  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2736  016700  121205                          121005!<10*20>          ;READ FROM IBUS* REGISTER 10
2737  016702  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2738  016704  042705  000141                  BIC     #141,R5         ;CLEAR UNWANTED BITS
2739  016710  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2740  016714  120504                          CMPB    R5,R4           ;DATA CORRECT?
2741  016716  001401                          BEQ     68$             ;BR IF YES
2742  016720  104004                          HLT     4               ;ERROR
2743  016722  104401                  68$:    SCOP1                   ;SW09=1?
2744  016724  005100                          COM     R0              ;CHANGE TO FLOATING 1
2745  016726  000241                          CLC                     ;CLEAR CARRY
2746  016730  106100                          ROLB    R0              ;SHIFT BIT IN R0
2747  016732  001351                          BNE     69$             ;IF R0=0 THEN DONE
2748  016734  104400                          SCOPE                   ;SCOPE THIS TEST
2749
2750
2751                                          ;*************************** TEST 37 ****************************
2752                                          ;*MICRO PROCESSOR IBUS* REGISTER WRITE/READ TEST
2753                                          ;*FLOAT A 1 THROUGH IBUS* REGISTER 11
2754                                          ;*FLOAT A 0 THROUGH IBUS* REGISTER 11
2755                                          ;*THE BR RQ BIT, PGM CLOCK BIT, FORCE POWER FAIL BIT
2756                                          ;*(BITS 7,4,1) ARE ALL MASKED DURING THIS TEST
2757                                          ;;************************************************************
2758
2759                                          ;  TEST 37
2760                                          ;--------------
2761  016736  012737  000037  001226  TST37:  MOV     #37,TSTNO
2762  016744  012737  017156  001216          MOV     #TST40,NEXT
2763  016752  012737  016772  001220          MOV     #64$,LOCK
2764                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2765  016760  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2766  016762  012702  000011                  MOV     #11,R2          ;SAVE REGISTER ADDRESS FOR TYPEOUT
2767  016766  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2768  016772                          64$:
2769  016772  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2770  016776  042761  000262  000004          BIC     #262,4(R1)      ;CLEAR UNWANTED BITS
2771  017004  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2772  017006  121111                          121100!11               ;MOV DATA TO IBUS* REGISTER 11
2773  017010  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2774  017012  121225                          121005!<11*20>          ;READ FROM IBUS* REGISTER 11
2775  017014  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2776  017016  042705  000262                  BIC     #262,R5         ;CLEAR UNWANTED BITS
2777  017022  052705  000020                  BIS     #20,R5          ;ADD THESE BITS
2778  017026  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2779  017032  052704  000020                  BIS     #20,R4          ;ADD THIS BIT
2780  017036  120504                          CMPB    R5,R4           ;DATA CORRECT?
2781  017040  001401                          BEQ     65$             ;BR IF YES
2782  017042  104004                          HLT     4               ;ERROR
2783  017044  104401                  65$:    SCOP1                   ;SW09=1?
2784  017046  000241                          CLC                     ;CLEAR CARRY
```

```
2785  012050  106100                        ROLB    R0              ;SHIFT BIT IN R0
2786  012052  001347                        BNE     64$             ;IF R0=0 THEN DONE
2787  012054  012737  017070  001220        MOV     #67$,LOCK       ;NEW SCOP1
2788  012062  012700  000001                MOV     #1,R0           ;START WITH BIT 0
2789  012066  005100                69$:    COM     R0              ;CHANGE TO FLOATING ZERO
2790  012070                         67$:
2791  012070  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2792  012074  042761  000262  000004        BIC     #262,4(R1)      ;CLEAR UNWANTED BITS
2793  012102  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2794  012104  121111                        121100!11               ;MOV DATA TO IBUS* REGISTER 11
2795  012106  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2796  012110  121225                        121005!<11*20>          ;READ FROM IBUS* REGISTER 11
2797  012112  010005                        MOV     R0,R5           ;PUT EXPECTED IN R5
2798  012114  042705  000262                BIC     #262,R5         ;CLEAR UNWANTED BITS
2799  012120  052705  000020                BIS     #20,R5          ;ADD THESE BITS
2800  012124  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2801  012130  052704  000020                BIS     #20,R4          ;ADD THIS BIT
2802  012134  120504                        CMPB    R5,R4           ;DATA CORRECT?
2803  012136  001401                        BEQ     68$             ;BR IF YES
2804  012140  104004                        HLT     4               ;ERROR
2805  012142  104401                68$:    SCOP1                   ;SW09=1?
2806  012144  005100                        COM     R0              ;CHANGE TO FLOATING 1
2807  012146  000241                        CLC                     ;CLEAR CARRY
2808  012150  106100                        ROLB    R0              ;SHIFT BIT IN R0
2809  012152  001345                        BNE     69$             ;IF R0=0 THEN DONE
2810  012154  104400                        SCOPE                   ;SCOPE THIS TEST
2811
2812
2813                                 ;*************************** TEST 40 ****************************
2814                                 ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
2815                                 ;*FLOAT A 1 THROUGH IBUS REGISTER 0
2816                                 ;*FLOAT A 0 THROUGH IBUS REGISTER 0
2817                                 ;:************************************************************
2818
2819                                 ;  TEST 40
2820                                 ;--------------
2821  017156  012737  000040  001226 TST40:  MOV     #40,TSTNO
2822  017164  012737  017332  001216         MOV     #TST41,NEXT
2823  017172  012737  017212  001220         MOV     #64$,LOCK
2824                                                         ;R1 CONTAINS BASE M8200-YC ADDRESS
2825  017200  104412                        MSTCLR          ;MASTER CLEAR M8200-YC
2826  017202  012702  000000                MOV     #0,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2827  017206  012700  000001                MOV     #1,R0           ;START WITH BIT 0
2828  017212                         64$:
2829  017212  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2830  017216  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2831  017220  122100                        122100!0                ;MOV DATA TO IBUS REGISTER 0
2832  017222  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2833  017224  021005                        21005!<0*20>            ;READ FROM IBUS REGISTER 0
2834  017226  010005                        MOV     R0,R5           ;PUT EXPECTED IN R5
2835  017230  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2836  017234  120504                        CMPB    R5,R4           ;DATA CORRECT?
2837  017236  001401                        BEQ     65$             ;BR IF YES
2838  017240  104005                        HLT     5               ;ERROR
```

```
2839   017242   104401                    65$:    SCOP1                   ;SW09=1?
2840   017244   000241                            CLC                     ;CLEAR CARRY
2841   017246   106100                            ROLB    R0              ;SHIFT BIT IN R0
2842   017250   001360                            BNE     64$             ;IF R0=0 THEN DONe
2843   017252   012737   017266   001220          MOV     #67$,LOCK       ;NEW SCOP1
2844   017260   012700   000001                    MOV     #1,R0           ;START WITH BIT 0
2845   017264   005100                      69$:    COM     R0              ;CHANGE TO FLOATING ZERO
2846   017266                             67$:
2847   017266   010061   000004                    MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2848   017272   104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2849   017274   122100                            122100!0                ;MOV DATA TO IBUS REGISTER 0
2850   017276   104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2851   017300   021005                            21005!<0*20>            ;READ FROM IBUS REGISTER 0
2852   017302   010005                            MOV     R0,R5           ;PUT EXPECTED IN R5
2853   017304   116104   000005                    MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2854   017310   120504                            CMPB    R5,R4           ;DATA CORRECT?
2855   017312   001401                            BEQ     68$             ;BR IF YES
2856   017314   104005                            HLT     5               ;ERROR
2857   017316   104401                      68$:    SCOP1                   ;SW09=1?
2858   017320   005100                            COM     R0              ;CHANGE TO FLOATING 1
2859   017322   000241                            CLC                     ;CLEAR CARRY
2860   017324   106100                            ROLB    R0              ;SHIFT BIT IN R0
2861   017326   001356                            BNE     69$             ;IF R0=0 THEN DONE
2862   017330   104400                            SCOPE                   ;SCOPE THIS TEST
2863
2864
2865                                              ;*************************** TEST 41 ****************************
2866                                              ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
2867                                              ;*FLOAT A 1 THROUGH IBUS REGISTER 1
2868                                              ;*FLOAT A 0 THROUGH IBUS REGISTER 1
2869                                              ;;*************************************************************
2870
2871                                              ;  TEST 41
2872                                              ;--------------
2873   017332   012737   000041   001226  TST41:  MOV     #41,TSTNO
2874   017340   012737   017506   001216          MOV     #TST42,NEXT
2875   017346   012737   017366   001220          MOV     #64$,LOCK
2876                                                                       ;R1 CONTAINS BASE M8200-YC ADDRESS
2877   017354   104412                            MSTCLR                  ;MASTER CLEAR M8200-YC
2878   017356   012702   000001                    MOV     #1,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2879   017362   012700   000001                    MOV     #1,R0           ;START WITH BIT 0
2880   017366                             64$:
2881   017366   010061   000004                    MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2882   017372   104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2883   017374   122101                            122100!1                ;MOV DATA TO IBUS REGISTER 1
2884   017376   104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2885   017400   021025                            21005!<1*20>            ;READ FROM IBUS REGISTER 1
2886   017402   010005                            MOV     R0,R5           ;PUT EXPECTED IN R5
2887   017404   116104   000005                    MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2888   017410   120504                            CMPB    R5,R4           ;DATA CORRECT?
2889   017412   001401                            BEQ     65$             ;BR IF YES
2890   017414   104005                            HLT     5               ;ERROR
2891   017416   104401                      65$:    SCOP1                   ;SW09=1?
2892   017420   000241                            CLC                     ;CLEAR CARRY
```

```
2893  017422  106100                          ROLB    R0              ;SHIFT BIT IN R0
2894  017424  001360                          BNE     64$             ;IF R0=0 THEN DONE
2895  017426  012737  017442  001220          MOV     #67$,LOCK       ;NEW SCOP1
2896  017434  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2897  017440  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
2898  017442                          67$:
2899  017442  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2900  017446  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2901  017450  122101                          122100!1                ;MOV DATA TO IBUS REGISTER 1
2902  017452  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2903  017454  021025                          21005!<1*20>            ;READ FROM IBUS REGISTER 1
2904  017456  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2905  017460  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2906  017464  120504                          CMPB    R5,R4           ;DATA CORRECT?
2907  017466  001401                          BEQ     68$             ;BR IF YES
2908  017470  104005                          HLT     5               ;ERROR
2909  017472  104401                  68$:    SCOP1                   ;SW09=1?
2910  017474  005100                          COM     R0              ;CHANGE TO FLOATING 1
2911  017476  000241                          CLC                     ;CLEAR CARRY
2912  017500  106100                          ROLB    R0              ;SHIFT BIT IN R0
2913  017502  001356                          BNE     69$             ;IF R0=0 THEN DONe
2914  017504  104400                          SCOPE                   ;SCOPE THIS TESt
2915
2916
2917                                          ;*************************** TEST 42 ****************************
2918                                          ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TESt
2919                                          ;*FLOAT A 1 THROUGH IBUS REGISTER 2
2920                                          ;*FLOAT A 0 THROUGH IBUS REGISTER 2
2921                                          ;*****************************************************************
2922
2923                                          ;  TESt 42
2924                                          ;--------------
2925  017506  012737  000042  001226  TST42:  MOV     #42,TSTNO
2926  017514  012737  017662  001216          MOV     #TST43,NEXT
2927  017522  012737  017542  001220          MOV     #64$,LOCK
2928                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2929  017530  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2930  017532  012702  000002                  MOV     #2,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2931  017536  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2932  017542                          64$:
2933  017542  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2934  017546  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2935  017550  122102                          122100!2                ;MOV DATA TO iBUS REGISTER 2
2936  017552  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2937  017554  021045                          21005!<2*20>            ;READ FROM IBUS REGISTER 2
2938  017556  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2939  017560  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2940  017564  120504                          CMPB    R5,R4           ;DATA CORRECT?
2941  017566  001401                          BEQ     65$             ;BR IF YES
2942  017570  104005                          HLT     5               ;ERROR
2943  017572  104401                  65$:    SCOP1                   ;SW09=1?
2944  017574  000241                          CLC                     ;CLEAR CARRY
2945  017576  106100                          ROLB    R0              ;SHIFT BIT IN R0
2946  017600  001360                          BNE     64$             ;IF R0=0 THEN DONE
```

```
2947  017602  012737  017616  001220          MOV     #67$,LOCK       ;NEW SCOP1
2948  017610  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2949  017614  005100                  69$:     COM     R0              ;CHANGE TO FLOATING ZERO
2950  017616                           67$:
2951  017616  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2952  017622  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2953  017624  122102                          122100!2                ;MOV DATA TO IBUS REGISTER 2
2954  017626  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2955  017630  021045                          21005!<2*20>            ;READ FROM IBUS REGISTER 2
2956  017632  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2957  017634  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2958  017640  120504                          CMPB    R5,R4           ;DATA CORRECT?
2959  017642  001401                          BEQ     68$             ;BR IF YES
2960  017644  104005                          HLT     5               ;ERROR
2961  017646  104401                  68$:    SCOP1                   ;SW09=1?
2962  017650  005100                          COM     R0              ;CHANGE TO FLOATING 1
2963  017652  000241                          CLC                     ;CLEAR CARRY
2964  017654  106100                          ROLB    R0              ;SHIFT BIT IN R0
2965  017656  001356                          BNE     69$             ;IF R0=0 THEN DONE
2966  017660  104400                          SCOPE                   ;SCOPE THIS TEST
2967
2968
2969                                          ;*************************** TEST 43 ****************************
2970                                          ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
2971                                          ;*FLOAT A 1 THROUGH IBUS REGISTER 3
2972                                          ;*FLOAT A 0 THROUGH IBUS REGISTER 3
2973                                          ;;************************************************************************
2974
2975                                          ;  TEST 43
2976                                          ;--------------
2977  017662  012737  000043  001226  TST43:  MOV     #43,TSTNO
2978  017670  012737  020036  001216          MOV     #TST44,NEXT
2979  017676  012737  017716  001220          MOV     #64$,LOCK
2980                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
2981  017704  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
2982  017706  012702  000003                  MOV     #3,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
2983  017712  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
2984  017716                           64$:
2985  017716  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
2986  017722  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2987  017724  122103                          122100!3                ;MOV DATA TO IBUS REGISTER 3
2988  017726  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
2989  017730  021065                          21005!<3*20>            ;READ FROM IBUS REGISTER 3
2990  017732  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
2991  017734  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
2992  017740  120504                          CMPB    R5,R4           ;DATA CORRECT?
2993  017742  001401                          BEQ     65$             ;BR IF YES
2994  017744  104005                          HLT     5               ;ERROR
2995  017746  104401                  65$:    SCOP1                   ;SW09=1?
2996  017750  000241                          CLC                     ;CLEAR CARRY
2997  017752  106100                          ROLB    R0              ;SHIFT BIT IN R0
2998  017754  001360                          BNE     64$             ;IF R0=0 THEN DONE
2999  017756  012737  017772  001220          MOV     #67$,LOCK       ;NEW SCOP1
3000  017764  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
```

```
3001   017770  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
3002   017772                          67$:
3003   017772  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
3004   017776  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3005   020000  122103                          122100!3                ;MOV DATA TO IBUS REGISTER 3
3006   020002  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3007   020004  021065                          21005!<3*20>            ;READ FROM IBUS REGISTER 3
3008   020006  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
3009   020010  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
3010   020014  120504                          CMPB    R5,R4           ;DATA CORRECT?
3011   020016  001401                          BEQ     68$             ;BR IF YES
3012   020020  104005                          HLT     5               ;ERROR
3013   020022  104401                  68$:    SCOP1                   ;SW09=1?
3014   020024  005100                          COM     R0              ;CHANGE TO FLOATING 1
3015   020026  000241                          CLC                     ;CLEAR CARRY
3016   020030  106100                          ROLB    R0              ;SHIFT BIT IN R0
3017   020032  001356                          BNE     69$             ;IF R0=0 THEN DONE
3018   020034  104400                          SCOPE                   ;SCOPE THIS TEST
3019
3020
3021                                    ;*************************** TEST 44 ***************************
3022                                    ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
3023                                    ;*FLOAT A 1 THROUGH IBUS REGISTER 4
3024                                    ;*FLOAT A 0 THROUGH IBUS REGISTER 4
3025                                    ;:***********************************************************************
3026
3027                                    ;  TEST 44
3028                                    ;--------------
3029   020036  012737  000044  001226  TST44:  MOV     #44,TSTNO
3030   020044  012737  020212  001216          MOV     #TST45,NEXT
3031   020052  012737  020072  001220          MOV     #64$,LOCK
3032                                                                   ;R1 CONTAINS BASE M8200-YC ADDRESS
3033   020060  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3034   020062  012702  000004                  MOV     #4,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
3035   020066  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
3036   020072                          64$:
3037   020072  010061  000004                  MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
3038   020076  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3039   020100  122104                          122100!4                ;MOV DATA TO IBUS REGISTER 4
3040   020102  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3041   020104  021105                          21005!<4*20>            ;READ FROM IBUS REGISTER 4
3042   020106  010005                          MOV     R0,R5           ;PUT EXPECTED IN R5
3043   020110  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
3044   020114  120504                          CMPB    R5,R4           ;DATA CORRECT?
3045   020116  001401                          BEQ     65$             ;BR IF YES
3046   020120  104005                          HLT     5               ;ERROR
3047   020122  104401                  65$:    SCOP1                   ;SW09=1?
3048   020124  000241                          CLC                     ;CLEAR CARRY
3049   020126  106100                          ROLB    R0              ;SHIFT BIT IN R0
3050   020130  001360                          BNE     64$             ;IF R0=0 THEN DONe
3051   020132  012737  020146  001220          MOV     #67$,LOCK       ;NEW SCOP1
3052   020140  012700  000001                  MOV     #1,R0           ;START WITH BIT 0
3053   020144  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
3054   020146                          67$:
```

```
3055  020146  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
3056  020152  104414                       ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3057  020154  122104                       122100!4                ;MOV DATA TO IBUS REGISTER 4
3058  020156  104414                       ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3059  020160  021105                       21005!<4*20>            ;READ FROM IBUS REGISTER 4
3060  020162  010005                       MOV     R0,R5           ;PUT EXPECTED IN R5
3061  020164  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
3062  020170  120504                       CMPB    R5,R4           ;DATA CORRECT?
3063  020172  001401                       BEQ     68$             ;BR IF YES
3064  020174  104005                       HLT     5               ;ERROR
3065  020176  104401              68$:     SCOP1                   ;SW09=1?
3066  020200  005100                       COM     R0              ;CHANGE TO FLOATING 1
3067  020202  000241                       CLC                     ;CLEAR CARRY
3068  020204  106100                       ROLB    R0              ;SHIFT BIT IN R0
3069  020206  001356                       BNE     69$             ;IF R0=0 THEN DONE
3070  020210  104400                       SCOPE                   ;SCOPE THIS TEST
3071
3072
3073                                       ;*************************** TEST 45 ****************************
3074                                       ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
3075                                       ;*FLOAT A 1 THROUGH IBUS REGISTER 5
3076                                       ;*FLOAT A 0 THROUGH IBUS REGISTER 5
3077                                       ;:************************************************************************
3078
3079                                       ;  TEST 45
3080                                       ;--------------
3081  020212  012737  000045  001226  TST45:  MOV     #45,TSTNO
3082  020220  012737  020366  001216          MOV     #TST46,NEXT
3083  020226  012737  020246  001220          MOV     #64$,LOCK
3084                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
3085  020234  104412                       MSTCLR                  ;MASTER CLEAR M8200-YC
3086  020236  012702  000005                MOV     #5,R2           ;SAVE REGISTER ADDRESS FOR TYPEOUT
3087  020242  012700  000001                MOV     #1,R0           ;START WITH BIT 0
3088  020246                          64$:
3089  020246  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
3090  020252  104414                       ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3091  020254  122105                       122100!5                ;MOV DATA TO IBUS REGISTER 5
3092  020256  104414                       ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3093  020260  021125                       21005!<5*20>            ;READ FROM IBUS REGISTER 5
3094  020262  010005                       MOV     R0,R5           ;PUT EXPECTED IN R5
3095  020264  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
3096  020270  120504                       CMPB    R5,R4           ;DATA CORRECT?
3097  020272  001401                       BEQ     65$             ;BR IF YES
3098  020274  104005                       HLT     5               ;ERROR
3099  020276  104401              65$:     SCOP1                   ;SW09=1?
3100  020300  000241                       CLC                     ;CLEAR CARRY
3101  020302  106100                       ROLB    R0              ;SHIFT BIT IN R0
3102  020304  001360                       BNE     64$             ;IF R0=0 THEN DONE
3103  020306  012737  020322  001220        MOV     #67$,LOCK       ;NEW SCOP1
3104  020314  012700  000001                MOV     #1,R0           ;START WITH BIT 0
3105  020320  005100                  69$:  COM     R0              ;CHANGE TO FLOATING ZERO
3106  020322                          67$:
3107  020322  010061  000004                MOV     R0,4(R1)        ;PUT PATTERN INTO PORT4
3108  020326  104414                       ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

```
3109  020330  122105                        122100!5          ;MOV DATA TO IBUS REGISTER 5
3110  020332  104414                        ROMCLK            ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3111  020334  021125                        21005!<5*20>      ;READ FROM IBUS REGISTER 5
3112  020336  010005                        MOV     R0,R5     ;PUT EXPECTED IN R5
3113  020340  116104  000005                MOVB    5(R1),R4  ;PUT "FOUND" INTO R4
3114  020344  120504                        CMPB    R5,R4     ;DATA CORRECT?
3115  020346  001401                        BEQ     68$       ;BR IF YES
3116  020350  104005                        HLT     5         ;ERROR
3117  020352  104401              68$:      SCOP1             ;SW09=1?
3118  020354  005100                        COM     R0        ;CHANGE TO FLOATING 1
3119  020356  000241                        CLC               ;CLEAR CARRY
3120  020360  106100                        ROLB    R0        ;SHIFT BIT IN R0
3121  020362  001356                        BNE     69$       ;IF R0=0 THEN DONE
3122  020364  104400                        SCOPE             ;SCOPE THIS TEST
3123
3124
3125                                        ;*************************** TEST 46 ****************************
3126                                        ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
3127                                        ;*FLOAT A 1 THROUGH IBUS REGISTER 6
3128                                        ;*FLOAT A 0 THROUGH IBUS REGISTER 6
3129                                        ;;************************************************************
3130
3131                                        ;  TEST 46
3132                                        ;--------------
3133  020366  012737  000046  001226  TST46:  MOV     #46,TSTNO
3134  020374  012737  020542  001216          MOV     #TST47,NEXT
3135  020402  012737  020422  001220          MOV     #64$,LOCK
3136                                                            ;R1 CONTAINS BASE M8200-YC ADDRESS
3137  020410  104412                        MSTCLR            ;MASTER CLEAR M8200-YC
3138  020412  012702  000006                MOV     #6,R2     ;SAVE REGISTER ADDRESS FOR TYPEOUT
3139  020416  012700  000001                MOV     #1,R0     ;START WITH BIT 0
3140  020422                        64$:
3141  020422  010061  000004                MOV     R0,4(R1)  ;PUT PATTERN INTO PORT4
3142  020426  104414                        ROMCLK            ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3143  020430  122106                        122100!6          ;MOV DATA TO IBUS REGISTER 6
3144  020432  104414                        ROMCLK            ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3145  020434  021145                        21005!<6*20>      ;READ FROM IBUS REGISTER 6
3146  020436  010005                        MOV     R0,R5     ;PUT EXPECTED IN R5
3147  020440  116104  000005                MOVB    5(R1),R4  ;PUT "FOUND" INTO R4
3148  020444  120504                        CMPB    R5,R4     ;DATA CORRECT?
3149  020446  001401                        BEQ     65$       ;BR IF YES
3150  020450  104005                        HLT     5         ;ERROR
3151  020452  104401              65$:      SCOP1             ;SW09=1?
3152  020454  000241                        CLC               ;CLEAR CARRY
3153  020456  106100                        ROLB    R0        ;SHIFT BIT IN R0
3154  020460  001360                        BNE     64$       ;IF R0=0 THEN DONE
3155  020462  012737  020476  001220        MOV     #67$,LOCK ;NEW SCOP1
3156  020470  012700  000001                MOV     #1,R0     ;START WITH BIT 0
3157  020474  005100                69$:    COM     R0        ;CHANGE TO FLOATING ZERO
3158  020476                        67$:
3159  020476  010061  000004                MOV     R0,4(R1)  ;PUT PATTERN INTO PORT4
3160  020502  104414                        ROMCLK            ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3161  020504  122106                        122100!6          ;MOV DATA TO IBUS REGISTER 6
3162  020506  104414                        ROMCLK            ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

```
3163  020510  021145                        21005!<6*20>          ;READ FROM IBUS REGISTER 6
3164  020512  010005                        MOV     R0,R5         ;PUT EXPECTED IN R5
3165  020514  116104  000005                MOVB    5(R1),R4      ;PUT "FOUND" INTO R4
3166  020520  120504                        CMPB    R5,R4         ;DATA CORRECT?
3167  020522  001401                        BEQ     68$           ;BR IF YES
3168  020524  104005                        HLT     5             ;ERROR
3169  020526  104401              68$:      SCOP1                 ;SW09=1?
3170  020530  005100                        COM     R0            ;CHANGE TO FLOATING 1
3171  020532  000241                        CLC                   ;CLEAR CARRY
3172  020534  106100                        ROLB    R0            ;SHIFT BIT IN R0
3173  020536  001356                        BNE     69$           ;IF R0=0 THEN DONE
3174  020540  104400                        SCOPE                 ;SCOPE THIS TEST
3175
3176
3177                                        ;*************************** TEST 47 ****************************
3178                                        ;*MICRO PROCESSOR IBUS REGISTER WRITE/READ TEST
3179                                        ;*FLOAT A 1 THROUGH IBUS REGISTER 7
3180                                        ;*FLOAT A 0 THROUGH IBUS REGISTER 7
3181                                        ;:************************************************************
3182
3183                                        ;  TEST 47
3184                                        ;--------------
3185  020542  012737  000047  001226  TST47: MOV     #47,$TSTNO
3186  020550  012737  020716  001216        MOV     #TST50,NEXT
3187  020556  012737  020576  001220        MOV     #64$,LOCK
3188                                                              ;R1 CONTAINS BASE M8200-YC ADDRESS
3189  020564  104412                        MSTCLR                ;MASTER CLEAR M8200-YC
3190  020566  012702  000007                MOV     #7,R2         ;SAVE REGISTER ADDRESS FOR TYPEOUT
3191  020572  012700  000001                MOV     #1,R0         ;START WITH BIT 0
3192  020576                        64$:
3193  020576  010061  000004                MOV     R0,4(R1)      ;PUT PATTERN INTO PORT4
3194  020602  104414                        ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3195  020604  122107                        122100!7              ;MOV DATA TO IBUS REGISTER 7
3196  020606  104414                        ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3197  020610  021165                        21005!<7*20>          ;READ FROM IBUS REGISTER 7
3198  020612  010005                        MOV     R0,R5         ;PUT EXPECTED IN R5
3199  020614  116104  000005                MOVB    5(R1),R4      ;PUT "FOUND" INTO R4
3200  020620  120504                        CMPB    R5,R4         ;DATA CORRECT?
3201  020622  001401                        BEQ     65$           ;BR IF YES
3202  020624  104005                        HLT     5             ;ERROR
3203  020626  104401              65$:      SCOP1                 ;SW09=1?
3204  020630  000241                        CLC                   ;CLEAR CARRY
3205  020632  106100                        ROLB    R0            ;SHIFT BIT IN R0
3206  020634  001360                        BNE     64$           ;IF R0=0 THEN DONE
3207  020636  012737  020652  001220        MOV     #67$,LOCK     ;NEW SCOP1
3208  020644  012700  000001                MOV     #1,R0         ;START WITH BIT 0
3209  020650  005100                  69$:  COM     R0            ;CHANGE TO FLOATING ZERO
3210  020652                        67$:
3211  020652  010061  000004                MOV     R0,4(R1)      ;PUT PATTERN INTO PORT4
3212  020656  104414                        ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3213  020660  122107                        122100!7              ;MOV DATA TO IBUS REGISTER 7
3214  020662  104414                        ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3215  020664  021165                        21005!<7*20>          ;READ FROM IBUS REGISTER 7
3216  020666  010005                        MOV     R0,R5         ;PUT EXPECTED IN R5
```

```
3217  020670  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" INTO R4
3218  020674  120504                          CMPB    R5,R4           ;DATA CORRECT?
3219  020676  001401                          BEQ     68$             ;BR IF YES
3220  020700  104005                          HLT     5               ;ERROR
3221  020702  104401                  68$:    SCOP1                   ;SW09=1?
3222  020704  005100                          COM     R0              ;CHANGE TO FLOATING 1
3223  020706  000241                          CLC                     ;CLEAR CARRY
3224  020710  106100                          ROLB    R0              ;SHIFT BIT IN R0
3225  020712  001356                          BNE     69$             ;IF R0=0 THEN DONE
3226  020714  104400                          SCOPE                   ;SCOPE THIS TEST
3227
3228
3229                                          ;*************************** TEST 50 ****************************
3230                                          ;*MICRO PROCESSOR IBUS DUAL ADDRESS TEST
3231                                          ;*WRITE ALL IBUS REGISTERS WITH INCREMENTING PATTERN
3232                                          ;*READ ALL IBUS REGISTERS TO VERIFY CORRECT ADDRESSING
3233                                          ;*****************************************************************
3234
3235                                          ;  TEST 50
3236                                          ;--------------
3237  020716  012737  000050  001226  TST50:  MOV     #50,TSTNO
3238  020724  012737  021144  001216          MOV     #TST51,NEXT
3239  020732  012737  020750  001220          MOV     #1$,LOCK
3240                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
3241  020740  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3242  020742  012700  000001                  MOV     #1,R0           ;START WITH A ONE
3243  020746  005002                          CLR     R2              ;R2 CONTAINS ADDRESS OF REGISTER
3244  020750  010203                  1$:     MOV     R2,R3           ;R3=REGISTER ADDRESS
3245  020752  010061  000004                  MOV     R0,4(R1)        ;WRITE DATA TO PORT4
3246  020756  042737  000017  020772          BIC     #17,5$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
3247  020764  050337  020772                  BIS     R3,5$           ;ADD ADDRESS TO INSTRUCTION
3248  020770  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3249  020772  122100                  5$:     122100                  ;MOVE DATA TO IBUS REGISTER
3250  020774  006303                          ASL     R3              ;SHIFT ADDRESS
3251  020776  006303                          ASL     R3              ;4 TIMES TO GET
3252  021000  006303                          ASL     R3              ;IT TO BITS 4-7
3253  021002  006303                          ASL     R3              ;OF NEXT INSTRUCTION
3254  021004  042737  000360  021020          BIC     #360,6$         ;CLEAR ADDRESS FIELD
3255  021012  050337  021020                  BIS     R3,6$           ;ADD ADDRESS TO INSTRUCTION
3256  021016  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3257  021020  021005                  6$:     21005                   ;READ FROM IBUS REGISTER
3258  021022  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
3259  021024  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R4
3260  021030  120504                          CMPB    R5,R4           ;IS DATA CORRECT?
3261  021032  001401                          BEQ     2$              ;BR IF YES
3262  021034  104005                          HLT     5               ;DATA ERROR
3263  021036  104401                  2$:     SCOP1                   ;SW09=1?
3264  021040  005200                          INC     R0              ;INCREMENT PATTERN
3265  021042  005202                          INC     R2              ;INCREMENT REGISTER ADDRESS
3266  021044  022702  000010                  CMP     #7+1,R2 ;LAST ADDRESS DONE?
3267  021050  001337                          BNE     1$              ;BR IF NO
3268  021052  012737  021070  001220          MOV     #3$,LOCK        ;NEW SCOP1
3269  021060  012700  000001                  MOV     #1,R0           ;RESTART PATTERN TO 1
3270  021064  005002                          CLR     R2              ;RESTART AT ADDRESS 0
```

```
3271  021066  005003                          CLR     R3              ;RESTART AT ADDRESS 0
3272  021070  042737  000360  021104  3$:     BIC     #360,7$         ;CLEAR ADDRESS FIELD OF INSTRUCTION
3273  021076  050337  021104                  BIS     R3,7$           ;ADD ADDRESS TO INSTRUCTION
3274  021102  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3275  021104  021005                  7$:     21005                   ;READ FROM IBUS REGISTER
3276  021106  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
3277  021110  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R5
3278  021114  120504                          CMPB    R5,R4           ;DATA CORRECT?
3279  021116  001401                          BEQ     4$              ;BR IF YES
3280  021120  104005                          HLT     5               ;DUAL ADDRESSING ERROR
3281  021122  104401                  4$:     SCOP1                   ;SW09=1?
3282  021124  005200                          INC     R0              ;INCREMENT PATTERN
3283  021126  005202                          INC     R2              ;NEXT ADDRESS
3284  021130  062703  000020                  ADD     #20,R3          ;ADD 1 TO ADDRESS IN R3(SHIFTED 4 TIMES)
3285  021134  022702  000010                  CMP     #7+1,R2 ;LAST ADDRESS DONE?
3286  021140  001353                          BNE     3$              ;BR IF NO
3287  021142  104400                          SCOPE                   ;SCOPE THIS TEST
3288
3289
3290                                          ;*************************** TEST 51 ****************************
3291                                          ;*MICRO PROCESSOR BR REGISTER TEST
3292                                          ;*FLOAT A 1 THROUGH THE BR
3293                                          ;*FLOAT A 0 THROUGH THE BR
3294                                          ;:************************************************************
3295
3296                                          ;  TEST 51
3297                                          ;--------------
3298  021144  012737  000051  001226  TST51:  MOV     #51,TSTNO
3299  021152  012737  021314  001216          MOV     #TST52,NEXT
3300  021160  012737  021174  001220          MOV     #64$,LOCK
3301                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
3302  021166  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3303  021170  012700  000001                  MOV     #1,R0           ;START PATTERN WITH BIT0
3304  021174                          64$:
3305  021174  010061  000004                  MOV     R0,4(R1)        ;WRITE PATTERN IN PORT4
3306  021200  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3307  021202  120500                          120500                  ;MOVE DATA TO THE BR REGISTER
3308  021204  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3309  021206  061225                          061225                  ;MOVE BR TO PORT 5
3310  021210  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
3311  021212  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R4
3312  021216  120504                          CMPB    R5,R4           ;DATA CORRECT?
3313  021220  001401                          BEQ     65$             ;BR IF YES
3314  021222  104006                          HLT     6               ;DATA ERROR
3315  021224  104401                  65$:    SCOP1
3316  021226  000241                          CLC                     ;CLEAR CARRY
3317  021230  106100                          ROLB    R0              ;SHIFT BIT IN R0
3318  021232  001360                          BNE     64$             ;DONE IF R0=0
3319  021234  012737  021250  001220          MOV     #67$,LOCK       ;NEW SCOP1
3320  021242  012700  000001                  MOV     #1,R0           ;START PATTERN WITH BIT0
3321  021246  005100                  69$:    COM     R0              ;CHANGE TO FLOATING ZERO
3322  021250                          67$:
3323  021250  010061  000004                  MOV     R0,4(R1)        ;WRITE PATTERN IN PORT4
3324  021254  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

```
 3325  021256  120500                          120500                  ;MOVE DATA TO THE BR REGISTER
 3326  021260  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3327  021262  061225                          061225                  ;MOVE BR TO PORT 5
 3328  021264  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
 3329  021266  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R4
 3330  021272  120504                          CMPB    R5,R4           ;DATA CORRECT?
 3331  021274  001401                          BEQ     68$             ;BR IF YES
 3332  021276  104006                          HLT     6               ;DATA ERROR
 3333  021300  104401                  68$:    SCOP1
 3334  021302  005100                          COM     R0              ;CHANGE BACK TO A ONE
 3335  021304  000241                          CLC                     ;CLEAR CARRY
 3336  021306  106100                          ROLB    R0              ;SHIFT BIT IN R0
 3337  021310  001356                          BNE     69$             ;DONE IF R0=0
 3338  021312  104400                          SCOPE                   ;SCOPE THIS TEST
 3339
 3340
 3341                                          ;*************************** TEST 52 ****************************
 3342                                          ;*SCRATCH PAD TEST
 3343                                          ;*FLOAT A 1 THROUGH EACH SCRATCH PAD LOCATION
 3344                                          ;*FLOAT A 0 THROUGH EACH SCRATCH PAD LOCATION
 3345                                          ;*****************************************************************
 3346
 3347                                          ;   TEST 52
 3348                                          ;--------------
 3349  021314  012737  000052  001226  TST52:  MOV     #52,TSTNO
 3350  021322  012737  021562  001216          MOV     #TST53,NEXT
 3351  021330  012737  021346  001220          MOV     #64$,LOCK
 3352                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
 3353  021336  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 3354  021340  005002                          CLR     R2              ;START AT ADDRESS ZERO
 3355  021342  012700  000001                  MOV     #1,R0           ;START WITH BIT0
 3356  021346  042737  000017  021366  64$:    BIC     #17,65$         ;CLEAR ADDRESS FIELD OF INSTRUCTION
 3357  021354  050237  021366                  BIS     R2,65$          ;ADD ADDRESS TO INSTRUCTION
 3358  021360  010061  000004                  MOV     R0,4(R1)        ;WRITE PATTERN TO PORT4
 3359  021364  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3360  021366  123100                  65$:    123100                  ;WRITE SCRATCH PAD(ADDRESS IN R2)
 3361  021370  042737  000017  021404          BIC     #17,66$         ;CLEAR ADDRESS FIELD OF INSTRUCTION
 3362  021376  050237  021404                  BIS     R2,66$          ;ADD ADDRESS TO INSTRUCTION
 3363  021402  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3364  021404  040600                  66$:    040600                  ;MOV SP TO BR
 3365  021406  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3366  021410  061225                          061225                  ;MOVE BR TO pORT5
 3367  021412  010005                          MOV     R0,R5           ;PUT "EXPECTED" IN R5
 3368  021414  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R4
 3369  021420  120504                          CMPB    R5,R4           ;DATA CORRECT
 3370  021422  001401                          BEQ     67$             ;BR IF YES
 3371  021424  104007                          HLT     7               ;DATA ERROR
 3372  021426  104401                  67$:    SCOP1                   ;SW09=1?
 3373  021430  000241                          CLC                     ;CLEAR CARRY
 3374  021432  106100                          ROLB    R0              ;SHIFT BIT IN R0
 3375  021434  001344                          BNE     64$             ;DONE IF R0=0
 3376  021436  012737  021452  001220          MOV     #69$,LOCK       ;NEW SCOP1
 3377  021444  012700  000001                  MOV     #1,R0           ;START WITH BIT0
 3378  021450  005100                  73$:    COM     R0              ;CHANGE TO FLOATING ZERO
```

```
3379  021452  042737  000017  021472  69$:    BIC     #17,70$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
3380  021460  050237  021472                  BIS     R2,70$           ;ADD ADDRESS TO INSTRUCTION
3381  021464  010061  000004                  MOV     R0,4(R1)         ;WRITE PATTERN TO PORT4
3382  021470  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3383  021472  123100                  70$:    123100                   ;WRITE SCRATCH PAD(ADDRESS IN R2)
3384  021474  042737  000017  021510          BIC     #17,71$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
3385  021502  050237  021510                  BIS     R2,71$           ;ADD ADDRESS TO INSTRUCTION
3386  021506  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3387  021510  040600                  71$:    040600                   ;MOV SP TO BR
3388  021512  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3389  021514  061225                          061225                   ;MOVE BR TO PORT5
3390  021516  010005                          MOV     R0,R5            ;PUT "EXPECTED" IN R5
3391  021520  116104  000005                  MOVB    5(R1),R4         ;PUT "FOUND" IN R4
3392  021524  120504                          CMPB    R5,R4            ;DATA CORRECT
3393  021526  001401                          BEQ     72$              ;BR IF YES
3394  021530  104007                          HLT     7                ;DATA ERROR
3395  021532  104401                  72$:    SCOP1                    ;SW09=1?
3396  021534  005100                          COM     R0               ;CHANGE BACK TO A ONE
3397  021536  000241                          CLC                      ;CLEAR CARRY
3398  021540  106100                          ROLB    R0               ;SHIFT BIT IN R0
3399  021542  001342                          BNE     73$              ;DONE IF R0=0
3400  021544  012700  000001                  MOV     #1,R0            ;RESTART AT BIT 0
3401  021550  005202                          INC     R2               ;NEXT SP ADDRESS
3402  021552  022702  000020                  CMP     #20,R2  ;LAST ADDRESS?
3403  021556  001273                          BNE     64$              ;BR IF NO
3404  021560  104400                          SCOPE                    ;SCOPE THIS TEST
3405
3406
3407                                          ;*************************** TEST 53 ****************************
3408                                          ;*SCRATCH PAD DUAL ADDRESSING TEST
3409                                          ;*WRITE AN INCREMENTING PATTERN IN ALL SP LOCATIONS
3410                                          ;*READ ALL SP LOCATIONS TO VERIFY CORRECT ADDRESSING
3411                                          ;:************************************************************
3412
3413                                          ;  TEST 53
3414                                          ;--------------
3415  021562  012737  000053  001226  TST53:  MOV     #53,TSTNO
3416  021570  012737  022004  001216          MOV     #TST54,NEXT
3417  021576  012737  021614  001220          MOV     #1$,LOCK
3418
3419  021604  104412                          MSTCLR                   ;MASTER CLEAR M8200-YC
3420  021606  012700  000001                  MOV     #1,R0            ;START WITH A 1
3421  021612  005003                          CLR     R3               ;ADDRESS 0
3422  021614  010302                  1$:     MOV     R3,R2            ;MOVE ADDRESS TO R2
3423  021616  042737  000017  021636          BIC     #17,2$           ;CLEAR ADDRESS FIELD
3424  021624  050237  021636                  BIS     R2,2$            ;ADD ADDRESS TO INSTRUCTION
3425  021630  010061  000004                  MOV     R0,4(R1)         ;WRITE PATTERN TO PORT4
3426  021634  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3427  021636  123100                  2$:     123100                   ;WRITE SP(ADDRESS IN R2)
3428  021640  042737  000017  021654          BIC     #17,3$           ;CLEAR ADDRESS FIELD OF INSTRUCTION
3429  021646  050237  021654                  BIS     R2,3$            ;ADD ADDRESS TO INSTRUCTION
3430  021652  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3431  021654  060600                  3$:     60600                    ;MOV SP TO BR
3432  021656  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

```
                                                61225                   ;MOV BR TO PORTS
                                                MOV     R0,R5           ;PUT "EXPECTED" IN R5
                                                MOVB    5(R1),R4        ;PUT "FOUND" IN R4
                                                CMPB    R5,R4           ;DATA CORRECT?
                                                BEQ     4$              ;BR IF YES
                                                HLT     7               ;DATA ERROR
                                        4$:     SCOP1                   ;SW09=0
                                                INC     R0              ;INCREMENT PATTERN
                                                INC     R3              ;NEXT ADDRESS
                                                CMP     #20,R3          ;LAST ADDRESS DONE?
                                                BNE     1$              ;BR IF NO
                                                MOV     #5$,LOCK        ;NEW SCOP1
                                                MOV     #1,R0           ;RESTART PATTERN AT 1
                                                CLR     R3              ;RESTART AT ADDRESS ZERO
                                        5$:     MOV     R3,R2           ;PUT ADDRESS IN R2
                                                BIC     #17,6$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
                                                BIS     R2,6$           ;ADD ADDRESS TO INSTRUCTION
                                                ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
                                        6$:     60600                   ;MOV SP TO BR
                                                ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
                                                61225                   ;MOV BR TO PORTS
                                                MOV     R0,R5           ;PUT "EXPECTED" IN R5
                                                MOVB    5(R1),R4        ;PUT "FOUND" IN R4
                                                CMPB    R5,R4           ;DATA CORRECT?
                                                BEQ     7$              ;BR IF YES
                                                HLT     7               ;SP ADDRESSING ERROR
                                        7$:     SCOP1                   ;SW09=1?
                                                INC     R0              ;INCREMENT PATTERN
                                                INC     R3              ;NEXT ADDRESS
                                                CMP     #20,R3  ;LAST ADDRESS DONE?
                                                BNE     5$              ;BR IF NO
                                                SCOPE                   ;SCOPE THIS TEST

                                        ;************************** TEST 54 **************************
                                        ;*INTERRUPT TEST
                                        ;*TEST THAT DEVICE CAN INTERRUPT TO VECTOR A
                                        ;:**********************************************************

                                        ;  TEST 54
                                        ;--------------
                                        TST54:  MOV     #54,TSTNO
                                                MOV     #TST55,NEXT
                                                                        ;R1 CONTAINS BASE M8200-YC ADDRESS
                                                RESET                   ;BUS RESET
                                                CLR     (R1)            ;CLEAR RUN
                                                JSR     R5,SETVEC       ;SET UP VECTORS
                                                3$                      ;XX0
                                                2$                      ;XX4
                                                .BYTE   340,340         ;LEVEL 7
                                        1$:     MOV     #340,PS         ;PS = LEVEL 7
                                                MOV     #200,4(R1)      ;WRITE PORT4
                                                ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
                                                121111                  ;SET BR RQ IN IBUS* REG 11
```

```
3487  022056  005037  177776                    CLR     PS              ;ALLOW INTERRUPT
3488  022062  000240                            NOP
3489  022064  104010                            HLT     10              ;NO INTERRUPT
3490  022066  000403                            BR      4$
3491  022070  104011                    2$:     HLT     11              ;WRONG VECTOR
3492  022072  012706  001200            3$:     MOV     #STACK,SP       ;RESET STACK
3493  022076  104400                    4$:     SCOPE                   ;SCOPE THIS TEST
3494
3495
3496                                            ;*************************** TEST 55 ****************************
3497                                            ;*INTERRUPT TEST
3498                                            ;*TEST THAT DEVICE CAN INTERRUPT TO VECTOR B
3499                                            ;:************************************************************
3500
3501                                            ;  TEST 55
3502                                            ;--------------
3503  022100  012737  000055  001226    TST55:  MOV     #55,TSTNO
3504  022106  012737  022172  001216            MOV     #TST56,NEXT
3505                                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
3506  022114  104412                            MSTCLR                  ;MASTER CLEAR M8200-YC
3507  022116  004537  034652                    JSR     R5,SETVEC       ;SET UP VECTORS
3508  022122  022162                            2$                      ;XXO
3509  022124  022164                            3$                      ;XX4
3510  022126      340      340                   .BYTE   340,340         ;LEVEL 7
3511  022130  012737  000340  177776    1$:     MOV     #340,PS         ;PS = LEVEL 7
3512  022136  012761  000300  000004            MOV     #300,4(R1)      ;WRITE PORT4
3513  022144  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3514  022146  121111                            121111                  ;SET BR RQ IN IBUS* REG 11
3515  022150  005037  177776                    CLR     PS              ;ALLOW INTERRUPT
3516  022154  000240                            NOP
3517  022156  104010                            HLT     10              ;NO INTERRUPT
3518  022160  000403                            BR      4$
3519  022162  104011                    2$:     HLT     11              ;WRONG VECTOR
3520  022164  012706  001200            3$:     MOV     #STACK,SP       ;RESET STACK
3521  022170  104400                    4$:     SCOPE                   ;SCOPE THIS TEST
3522
3523
3524                                            ;*************************** TEST 56 ****************************
3525                                            ;*PRIORITY INTERRUPT TESTS
3526                                            ;*SET PS TO ALL BR LEVELS EQUAL OR GREATER THAN
3527                                            ;*THE M8200-YC LEVEL,VERIFY THAT M8200-YC DOES NOT INTERRUPT
3528                                            ;:************************************************************
3529
3530                                            ;  TEST 56
3531                                            ;--------------
3532  022172  012737  000056  001226    TST56:  MOV     #56,TSTNO
3533  022200  012737  022312  001216            MOV     #TST57,NEXT
3534                                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
3535  022206  104412                            MSTCLR                  ;MASTER CLEAR M8200-YC
3536  022210  012702  000340                    MOV     #340,R2         ;PUT LEVEL 7 IN R2
3537  022214  010237  177776                    MOV     R2,PS           ;SET PRIORITY TO 7
3538  022220  013700  001366                    MOV     STAT1,R0        ;GET BR LEVEL OF M8200-YC
3539  022224  006200                            ASR     R0              ;SHIFT R0 4 TIMES
3540  022226  006200                            ASR     R0              ;TO GET PROPER LEVEL
```

```
3541  022230  006200                          ASR     R0
3542  022232  006200                          ASR     R0
3543  022234  042700  177437                  BIC     #177437,R0      ;CLEAR UNWANTED BITS
3544  022240  004537  034652                  JSR     R5,SETVEC       ;SET UP VECTORS
3545  022244  022306                          2$                      ;A VECTOR
3546  022246  022306                          2$                      ;B VECTOR
3547  022250     340     340                  .BYTE   340,340         ;PRIORITY 7
3548  022252  012761  000200  000004  4$:     MOV     #200,4(R1)      ;LOAD PORT4
3549  022260  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3550  022262  121111                          121111                  ;SET BR REQUEST
3551  022264  010237  177776          5$:     MOV     R2,PS           ;PUT LEVEL IN R2 IN PS
3552  022270  000240                          NOP
3553  022272  020002                          CMP     R0,R2           ;IS PRESENT PS LEVEL = TO DMC LEVEL
3554  022274  001403                          BEQ     1$              ;BR IF YES
3555  022276  162702  000040                  SUB     #40,R2          ;NO GET NEXT LOWER LEVEL IN R2
3556  022302  000770                          BR      5$              ;AND CONTINUE WITH TEST
3557  022304  104400                  1$:     SCOPE                   ;SCOPE THIS TEST
3558  022306  104020                  2$:     HLT     20              ;ERROR UNEXPECTED INTERRUPT
3559  022310  000002                          RTI
3560
3561
3562                                          ;************************** TEST 57 **************************
3563                                          ;*PRIORITY INTERRUPT TESTS
3564                                          ;*SET PS TO ALL BR LEVELS LESS THAN THE M8200-YC LEVEL
3565                                          ;*VERIFY THAT THE M8200-YC WILL INTERRUPT
3566                                          ;;*********************************************************
3567
3568                                          ;  TEST 57
3569                                          ;-------------
3570  022312  012737  000057  001226  TST57:  MOV     #57,TSTNO
3571  022320  012737  022456  001216          MOV     #TST60,NEXT
3572                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
3573  022326  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3574  022330  012702  000340                  MOV     #340,R2         ;PUT LEVEL 7 IN R2
3575  022334  010237  177776                  MOV     R2,PS           ;SET PRIORITY TO 7
3576  022340  013700  001366                  MOV     STAT1,R0        ;GET BR LEVEL OF M8200-YC
3577  022344  006200                          ASR     R0              ;SHIFT R0 4 TIMES
3578  022346  006200                          ASR     R0              ;TO GET PROPER LEVEL
3579  022350  006200                          ASR     R0
3580  022352  006200                          ASR     R0
3581  022354  042700  177437                  BIC     #177437,R0      ;CLEAR UNWANTED BITS
3582  022360  010002                          MOV     R0,R2           ;PUT DMC LEVEL IN R2
3583  022362  162702  000040                  SUB     #40,R2          ;GET NEXT LOWER LEVEL IN R2
3584  022366  004537  034652                  JSR     R5,SETVEC       ;SET UP VECTORS
3585  022372  022440                          2$                      ;A VECTOR
3586  022374  022446                          3$                      ;B VECTOR
3587  022376     340     340                  .BYTE   340,340         ;PRIORITY 7
3588  022400  012761  000200  000004  4$:     MOV     #200,4(R1)      ;LOAD PORT4
3589  022406  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3590  022410  121111                          121111                  ;SET BR REQUEST
3591  022412  010237  177776          5$:     MOV     R2,PS           ;PUT LEVEL IN R2 IN PS
3592  022416  000240                          NOP
3593  022420  104010                          HLT     10              ;ERROR, NO INTERRUPT
3594  022422  022702  000140          6$:     CMP     #140,R2         ;IS IT DOWN TO LEVEL 3 YET?
```

```
3595  022426  001403                        BEQ     1$              ;YES,DMC DID NOT INTERUPT, ERROR
3596  022430  162702  000040                SUB     #40,R2          ;PUT NEXT LOWER LEVEL IN R2
3597  022434  000761                        BR      4$              ;CONTINUE TEST
3598  022436  104400                1$:     SCOPE                   ;SCOPE THIS TEST
3599  022440  012716  022422        2$:     MOV     #6$,(SP)        ;SET UP FOR RTI
3600  022444  000002                        RTI
3601  022446  104011                3$:     HLT     11              ;ERROR, WRONG VECTOR
3602  022450  012716  022422                MOV     #6$,(SP)        ;SET UP FOR RTI
3603  022454  000002                        RTI
3604
3605
3606                                        ;************************** TEST 60 **************************
3607                                        ;*NPR TEST
3608                                        ;*TEST OF DATO, 1 WORD FROM UPROC TO 11 MEMORY
3609                                        ;:**********************************************************
3610
3611                                        ;  TEST 60
3612                                        ;--------------
3613  022456  012737  000060  001226  TST60: MOV     #60,TSTNO
3614  022464  012737  022562  001216        MOV     #TST61,NEXT
3615                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
3616  022472  000005                        RESET                   ;BUS RESET
3617  022474  005011                        CLR     (R1)            ;CLEAR RUN
3618  022476  005061  000004                CLR     4(R1)           ;CLR PORT4
3619  022502  004537  034674                JSR     R5,NPRSET       ;SET UP IBUS REG 0-7
3620  022506  000000                        0                       ;IN DATA
3621  022510  177777                        -1                      ;OUT DATA
3622  022512  022560                        3$                      ;IN BA
3623  022514  022556                        2$                      ;OUT BA
3624  022516  005037  022556                CLR     2$              ;CLEAR 2$
3625  022522  012761  000021  000004        MOV     #21,4(R1)       ;WRITE PORT4
3626  022530  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3627  022532  121110                        121110                  ;SET NPR BITS IN IBUS* REG 11
3628  022534  000240                        NOP
3629  022536  012705  177777                MOV     #-1,R5          ;PUT "EXPECTED" IN R5
3630  022542  013704  022556                MOV     2$,R4           ;PUT "FOUND" IN R4
3631  022546  020504                        CMP     R5,R4           ;DATA CORRECT?
3632  022550  001401                        BEQ     4$              ;BR IF YES
3633  022552  104012                        HLT     12              ;ERROR NPR FAILED
3634  022554  104400                4$:     SCOPE                   ;SCOPE THIS TEST
3635  022556  000000                2$:     0                       ;OUT BA
3636  022560  000000                3$:     0                       ;IN BA
3637
3638
3639                                        ;************************** TEST 61 **************************
3640                                        ;*NPR TEST
3641                                        ;*TEST OF DATI, 1 WORD FROM 11 MEMORY TO UPROC
3642                                        ;:**********************************************************
3643
3644                                        ;  TEST 61
3645                                        ;--------------
3646  022562  012737  000061  001226  TST61: MOV     #61,TSTNO
3647  022570  012737  022676  001216        MOV     #TST62,NEXT
3648                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
```

```
3649  022576  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3650  022600  005061  000004                  CLR     4(R1)           ;CLR PORT4
3651  022604  004537  034674                  JSR     R5,NPRSET       ;SET UP IBUS REG 0-7
3652  022610  000000                          0                       ;IN DATA
3653  022612  177777                          -1                      ;OUT DATA
3654  022614  022674                          3$                      ;IN BA
3655  022616  022672                          2$                      ;OUT BA
3656  022620  012737  177777  022674          MOV     #-1,3$          ;PUT DATA IN 3$
3657  022626  012761  000001  000004          MOV     #1,4(R1)        ;WRITE PORT4
3658  022634  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3659  022636  121110                          121110                  ;SET NPR BITS IN IBUS* REG 11
3660  022640  000240                          NOP
3661  022642  012705  177777                  MOV     #-1,R5          ;PUT "EXPECTED" IN R5
3662  022646  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3663  022650  021004                          021004                  ;MOVE IN DATA LOW BYTE TO PORT4
3664  022652  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3665  022654  021025                          021025                  ;MOVE IN DATA HIGH BYTE TO PORT5
3666  022656  016104  000004                  MOV     4(R1),R4        ;PUT "FOUND" IN R4
3667  022662  020504                          CMP     R5,R4           ;DATA CORRECT?
3668  022664  001401                          BEQ     4$              ;BR IF YES
3669  022666  104012                          HLT     12              ;ERROR NPR FAILED
3670  022670  104400              4$:         SCOPE                   ;SCOPE THIS TEST
3671  022672  000000              2$:         0                       ;OUT BA
3672  022674  000000              3$:         0                       ;IN BA
3673
3674
3675                                          ;*************************** TEST 62 ****************************
3676                                          ;*NPR TEST
3677                                          ;*TEST OF DATOB, 1 BYTE FROM UPROC TO 11 MEMORY
3678                                          ;:************************************************************
3679
3680                                          ;  TEST 62
3681                                          ;--------------
3682  022676  012737  000062  001226  TST62:  MOV     #62,TSTNO
3683  022704  012737  023000  001216          MOV     #TST63,NEXT
3684                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
3685  022712  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3686  022714  005061  000004                  CLR     4(R1)           ;CLR PORT4
3687  022720  004537  034674                  JSR     R5,NPRSET       ;SET UP IBUS REG 0-7
3688  022724  000000                          0                       ;IN DATA
3689  022726  177777                          -1                      ;OUT DATA
3690  022730  022776                          3$                      ;IN BA
3691  022732  022775                          2$+1                    ;OUT BA
3692  022734  005037  022774                  CLR     2$              ;CLEAR 2$
3693  022740  012761  000221  000004          MOV     #221,4(R1)      ;WRITE PORT4
3694  022746  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3695  022750  121110                          121110                  ;SET NPR BITS IN IBUS* REG 11
3696  022752  000240                          NOP
3697  022754  012705  177400                  MOV     #177400,R5              ;PUT "EXPECTED" IN R5
3698  022760  013704  022774                  MOV     2$,R4           ;PUT "FOUND" IN R4
3699  022764  020504                          CMP     R5,R4           ;DATA CORRECT?
3700  022766  001401                          BEQ     4$              ;BR IF YES
3701  022770  104012                          HLT     12              ;ERROR NPR FAILED
3702  022772  104400              4$:         SCOPE                   ;SCOPE THIS TEST
```

```
3703  022774  000000                    2$:     0                       ;OUT BA
3704  022776  000000                    3$:     0                       ;IN BA
3705
3706
3707                                              ;*************************** TEST 63 ****************************
3708                                              ;*TEST OF EA BITS 16 AND 17
3709                                              ;*DO A DATO TO AN ADDRESS USING OUT BA BITS 16 AND 17
3710                                              ;*VERIFY CORRECT RESULTS
3711                                              ;:************************************************************
3712
3713                                              ;  TEST 63
3714                                              ;--------------
3715  023000  012737  000063  001226  TST63:  MOV     #63,TSTNO
3716  023006  012737  023136  001216          MOV     #TST64,NEXT
3717                                                                      ;R1 CONTAINS BASE M8200-YC ADDRESS
3718  023014  104412                          MSTCLR                     ;MASTER CLEAR M8200-YC
3719  023016  013737  001412  023044          MOV     DMP04,1$           ;USE SEL4 FOR ADDRESS
3720  023024  013737  001412  023042          MOV     DMP04,2$           ;USE SEL4 FOR ADDRESS
3721  023032  004537  034674                  JSR     R5,NPRSET          ;LOAD BA AND DATA
3722  023036  000000                          0                          ;IN DATA
3723  023040  125252                          125252                     ;OUT DATA
3724  023042  000000                  2$:     0                          ;IN BA
3725  023044  000000                  1$:     0                          ;OUT BA
3726  023046  012761  000014  000004          MOV     #14,4(R1)          ;LOAD SEL 4 WITH OUT BA16 AND 17
3727  023054  104414                          ROMCLK                     ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3728  023056  121111                          121111                     ;SET OUTBA 16 AND 17
3729  023060  012761  000021  000004          MOV     #21,4(R1)          ;LOAD SEL4
3730  023066  012761  121110  000006          MOV     #121110,6(R1)      ;PUT INSTRUCTION IN SEL6
3731  023074  012711  003000                  MOV     #BIT9!BIT10,(R1)   ;SET CROMI AND CROMO!!
3732  023100  052711  000400                  BIS     #BIT8,(R1)         ;CLOCK IT!
3733  023104  000240                          NOP                        ;WAIT FOR NPR
3734  023106  012705  121110                  MOV     #121110,R5         ;PUT "EXPECTED" IN R5
3735  023112  104414                          ROMCLK                     ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3736  023114  021044                          021044                     ;MOVE OUT DATA LB TO SEL4
3737  023116  104414                          ROMCLK                     ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3738  023120  021065                          021065                     ;MOVE OUT DATA HB TO SEL5
3739  023122  016104  000004                  MOV     4(R1),R4           ;PUT "FOUND" IN R4
3740  023126  020504                          CMP     R5,R4              ;CORRECT RESULTS ?
3741  023130  001401                          BEQ     3$                 ;BR IF YES
3742  023132  104012                          HLT     12                 ;ERROR BA 16 AND 17 FAILED
3743  023134  104400                  3$:     SCOPE                      ;SCOPE THIS TEST
3744
3745
3746                                              ;*************************** TEST 64 ****************************
3747                                              ;*TEST OF EA BITS 16 AND 17
3748                                              ;*DO A DATI USING IN BA BITS 16 AND 17
3749                                              ;*VERIFY CORRECT RESULTS
3750                                              ;:************************************************************
3751
3752                                              ;  TEST 64
3753                                              ;--------------
3754  023136  012737  000064  001226  TST64:  MOV     #64,TSTNO
3755  023144  012737  023262  001216          MOV     #TST65,NEXT
3756                                                                      ;R1 CONTAINS BASE M8200-YC ADDRESS
```

```
3757  023152  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3758  023154  013737  001412  023202          MOV     DMP04,1$        ;USE SEL4 FOR ADDRESS
3759  023162  013737  001412  023200          MOV     DMP04,2$        ;USE SEL4 FOR ADDRESS
3760  023170  004537  034674                  JSR     R5,NPRSET       ;LOAD BA AND DATA
3761  023174  000000                          0                       ;IN DATA
3762  023176  125252                          125252                  ;OUT DATA
3763  023200  000000                  2$:     0                       ;IN BA
3764  023202  000000                  1$:     0                       ;OUT BA
3765  023204  012761  000015  000004          MOV     #15,4(R1)       ;LOAD SEL4
3766  023212  012761  121110  000006          MOV     #121110,6(R1)   ;PUT INSTRUCTION IN SEL6
3767  023220  012711  003000                  MOV     #BIT9!BIT10,(R1);SET CROMI AND CROMO!!
3768  023224  052711  000400                  BIS     #BIT8,(R1)      ;CLOCK IT!
3769  023230  000240                          NOP                     ;WAIT FOR NPR
3770  023232  012705  121110                  MOV     #121110,R5      ;PUT "EXPECTED" IN R5
3771  023236  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3772  023240  021004                          021004                  ;MOVE IN DATA LB TO SEL4
3773  023242  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3774  023244  021025                          021025                  ;MOVE IN DATA HB TO SEL5
3775  023246  016104  000004                  MOV     4(R1),R4        ;PUT "FOUND" IN R4
3776  023252  020504                          CMP     R5,R4           ;CORRECT RESULTS ?
3777  023254  001401                          BEQ     3$              ;BR IF YES
3778  023256  104012                          HLT     12              ;ERROR BA 16 AND 17 FAILED
3779  023260  104400                  3$:     SCOPE                   ;SCOPE THIS TEST
3780
3781
3782                                          ;*************************** TEST 65 ****************************
3783                                          ;*NPR NON-EXISTENT MEMORY TEST
3784                                          ;*DO A DATO TO A NON-EXISTENT ADDRESS
3785                                          ;*VERIFY THAT THE NON-EXISTENT BIT SET IN IBUS REG 11
3786                                          ;;************************************************************
3787
3788                                          ;  TEST 65
3789                                          ;--------------
3790  023262  012737  000065  001226  TST65:  MOV     #65,TSTNO
3791  023270  012737  023372  001216          MOV     #TST66,NEXT
3792
3793  023276  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3794  023300  004537  034674                  JSR     R5,NPRSET       ;LOAD IBUS REGISTERS 0-7
3795  023304  000000                          0                       ;IN DATA
3796  023306  000000                          0                       ;OUT DATA
3797  023310  177320                          177320                  ;IN BA
3798  023312  177320                          177320                  ;OUT BA
3799  023314  012761  000014  000004          MOV     #14,4(R1)       ;SET OUT BA BITS 16+17 IN PORT4
3800  023322  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3801  023324  121111                          121111                  ;SET OUTBA 16 AND 17
3802  023326  012761  000021  000004          MOV     #21,4(R1)       ;SET NPR REQUEST BITS IN PORT4
3803  023334  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3804  023336  121110                          121110                  ;MOV IBUS* 4 TO IBUS* 10
3805  023340  000240                          NOP
3806  023342  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3807  023344  121225                          121225                  ;MOV IBUS*11 TO IBUS*5
3808  023346  012705  000001                  MOV     #1,R5           ;PUT "EXPECTED" IN R5
3809  023352  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R4
3810  023356  042704  177776                  BIC     #177776,R4      ;CLEAR UNWANTED BITS
```

```
3811   023362  020504                          CMP     R5,R4           ;DATA CORRECT?
3812   023364  001401                          BEQ     1$              ;BR IF YES
3813   023366  104012                          HLT     12              ;ERROR NON-EXISTENT MEM BIT FAILED TO SET
3814   023370  104400                  1$:     SCOPE                   ;SCOPE THIS TEST
3815
3816
3817                                           ;*************************** TEST 66 ****************************
3818                                           ;*NPR NON-EXISTENT MEMORY TEST
3819                                           ;*DO A DATI FROM A NON-EXISTENT ADDRESS
3820                                           ;*VERIFY THAT THE NON-EXISTENT BIT SET IN IBUS REG 11
3821                                           ;:************************************************************
3822
3823                                           ;  TEST 66
3824                                           ;--------------
3825   023372  012737  000066  001226  TST66:  MOV     #66,TSTNO
3826   023400  012737  023500  001216          MOV     #TST67,NEXT
3827                                                                   ;R1 CONTAINS BASE M8200-YC ADDRESS
3828   023406  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
3829   023410  004537  034674                  JSR     R5,NPRSET       ;LOAD IBUS REGISTERS 0-7
3830   023414  000000                          0                       ;IN DATA
3831   023416  000000                          0                       ;OUT DATA
3832   023420  177320                          177320                  ;IN BA
3833   023422  177320                          177320                  ;OUT BA
3834   023424  005061  000004                  CLR     4(R1)
3835   023430  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3836   023432  121111                          121111                  ;CLEAR NON-EXISTENT BIT
3837   023434  012761  000015  000004          MOV     #15,4(R1)       ;SET NPR REQUEST BITS IN PORT4
3838   023442  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3839   023444  121110                          121110                  ;MOV IBUS* 4 TO IBUS* 10
3840   023446  000240                          NOP
3841   023450  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
3842   023452  121225                          121225                  ;MOV IBUS*11 TO IBUS*5
3843   023454  012705  000001                  MOV     #1,R5           ;PUT "EXPECTED" IN R5
3844   023460  116104  000005                  MOVB    5(R1),R4        ;PUT "FOUND" IN R4
3845   023464  042704  177776                  BIC     #177776,R4      ;CLEAR UNWANTED BITS
3846   023470  020504                          CMP     R5,R4           ;DATA CORRECT?
3847   023472  001401                          BEQ     1$              ;BR IF YES
3848   023474  104012                          HLT     12              ;ERROR NON-EXISTENT MEM BIT FAILED TO SET
3849   023476  104400                  1$:     SCOPE                   ;SCOPE THIS TEST
3850
3851
3852                                           ;*************************** TEST 67 ****************************
3853                                           ;*NPR TEST
3854                                           ;*USING DATO, NPR A BINARY COUNT (0-377 )
3855                                           ;*FROM MICRO-PROCESSOR TO ALL AVAILABLE MEMORY
3856                                           ;:************************************************************
3857
3858                                           ;  TEST 67
3859                                           ;--------------
3860   023500  012737  000067  001226  TST67:  MOV     #67,TSTNO
3861   023506  012737  000003  001222          MOV     #3,ICOUNT
3862   023514  012737  023676  001216          MOV     #TST70,NEXT
3863                                                                   ;R1 CONTAINS BASE M8200-YC ADDRESS
3864   023522  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
```

```
3865  023524  005037  023674                        CLR     5$              ;START FLAG AT 0
3866  023530  005000                                CLR     R0              ;DATA
3867  023532  012702  037000                        MOV     #CORMAX,R2      ;ADDRESS
3868  023536                            1$:
3869  023536  010037  023566                        MOV     R0,2$           ;LOAD DATA
3870  023542  010237  023572                        MOV     R2,4$           ;LOAD BA
3871  023546  032702  000001                        BIT     #BIT0,R2        ;IS BA ODD?
3872  023552  001402                                BEQ     .+6             ;BR IF NO
3873  023554  000337  023566                        SWAB    2$              ;IF ODD PUT DATA IN HI-BYTE
3874  023560  004537  034674                        JSR     R5,NPRSET       ;LOAD NPR REGISTERS
3875  023564  000000                                0                       ;IN DATA
3876  023566  000000                            2$: 0                       ;OUT DATA
3877  023570  000000                                0                       ;IN BA
3878  023572  000000                            4$: 0                       ;OUT BA
3879  023574  105012                                CLRB    (R2)            ;CLEAR MEMORY LOCATION
3880  023576  012761  000221  000004                MOV     #221,4(R1)      ;LOAD PORT4
3881  023604  104414                                ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=53
3882  023606  121110                                121110                  ;DO THE NPR
3883  023610  000240                                NOP
3884  023612  010005                                MOV     R0,R5           ;PUT "EXPECTED" IN R5
3885  023614  111204                                MOVB    (R2),R4         ;PUT "FOUND" IN R4
3886  023616  120504                                CMPB    R5,R4           ;IS DATA CORRECT?
3887  023620  001401                                BEQ     3$              ;BR IF YES
3888  023622  104021                                HLT     21              ;ERROR, DATA INCORRECT
3889  023624  104401                            3$: SCOP1
3890  023626  005200                                INC     R0              ;NEXT CHARACTER
3891  023630  042700  177400                        BIC     #177400,R0      ;USE ONLY LOW BYTE
3892  023634  005737  023674                        TST     5$              ;HAS MAX MEMORY BEEN REACHED YET?
3893  023640  001402                                BEQ     6$              ;BR IF NO
3894  023642  005700                                TST     R0              ;DONE PATTERN?
3895  023644  001412                                BEQ     7$              ;BR IF YES
3896  023646  005202                            6$: INC     R2              ;INC BA
3897  023650  023702  001304                        CMP     MEMLIM,R2       ;REACHED MEMORY LIMIT YET?
3898  023654  001330                                BNE     1$              ;BR IF NOT
3899  023656  012702  037000                        MOV     #CORMAX,R2      ;RESTART BA AT FIRST ADDRESS
3900  023662  012737  177777  023674                MOV     #-1,5$          ;SET FLAG TO END TEST AT END OF DATA PATTERN
3901  023670  000722                                BR 1$                   ;CONTINUE
3902  023672  104400                            7$: SCOPE                   ;SCOPE THIS TEST
3903  023674  000000                            5$: 0                       ;THIS LOCATION IS A FLAG,  IT STARTS AT 0,
3904                                                                        ;AND IS SET TO -1 WHEN LAST MEMORY ADDRESS
3905                                                                        ;IS USED, TEST IS THEN ENDED WHEN PATTERN IS FINISHED
3906
3907
3908                                        ;*************************** TEST 70 ****************************
3909                                        ;*MAIN MEMORY TEST
3910                                        ;*FLOAT A 1 THROUGH ALL MAIN MEMORY LOCATIONS
3911                                        ;:************************************************************
3912
3913                                        ;  TEST 70
3914                                        ;--------------
3915  023676  012737  000070  001226  TST70: MOV     #70,TSTNO
3916  023704  012737  024024  001216        MOV     #TST71,NEXT
3917  023712  012737  023730  001220        MOV     #65$,LOCK
3918                                                                        ;R1 CONTAINS BASE M8200-YC ADDRESS
```

```
 3919  023720  104412                          MSTCLR          ;MASTER CLEAR M8200-YC
 3920  023722  005002                          CLR     R2      ;START WITH ADDRESS 0
 3921  023724  012700  000001          1$:     MOV     #1,R0   ;START WITH BIT 0
 3922  023730  042737  000377  023744  65$:    BIC     #377,66$
                                                        ;CLEAR ADDRESS FIELD OF INSTRUCTION
 3923  023736  050237  023744                  BIS     R2,66$  ;ADD ADDRESS TO INSTRUCTION
 3924  023742  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3925  023744  010000                  66$:    010000          ;LOAD MAR WITH ADDRESS IN R2
 3926  023746  010061  000004                  MOV     R0,4(R1) ;WRITE PATTERN IN PORT4
 3927  023752  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3928  023754  122500                          122500          ;MOVE PORT4 TO MEMORY
 3929  023756  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3930  023760  040620                          040620          ;MOVE MEMORY TO BR
 3931  023762  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3932  023764  061225                          61225           ;MOVE BR TO PORT5
 3933  023766  010005                          MOV     R0,R5   ;PUT "EXPECTED" IN R5
 3934  023770  116104  000005                  MOVB    5(R1),R4 ;PUT "FOUND" IN R4
 3935  023774  120504                          CMPB    R5,R4   ;DATA CORRECT?
 3936  023776  001401                          BEQ     67$     ;BR IF YES
 3937  024000  104013                          HLT     13      ;DATA ERROR
 3938  024002  104401                  67$:    SCOP1           ;SW09=1?
 3939  024004  000241                          CLC             ;CLEAR CARRY
 3940  024006  106100                          ROLB    R0      ;SHIFT BIT IN R0
 3941  024010  001347                          BNE     65$     ;DONE IF R0=0
 3942  024012  005202                          INC     R2      ;NEXT ADDRESS
 3943  024014  022702  000400                  CMP     #400,R2 ;LAST ADDRESS
 3944  024020  001341                          BNE     1$      ;BR IF NO
 3945  024022  104400                          SCOPE           ;SCOPE THIS TEST
 3946
 3947
 3948                                          ;************************** TEST 71 **************************
 3949                                          ;*MAIN MEMORY TEST
 3950                                          ;*FLOAT A 0 THROUGH ALL MAIN MEMORY LOCATIONS
 3951                                          ;;**********************************************************
 3952
 3953                                          ;  TEST 71
 3954                                          ;--------------
 3955  024024  012737  000071  001226  TST71:  MOV     #71,TSTNO
 3956  024032  012737  024156  001216          MOV     #TST72,NEXT
 3957  024040  012737  024060  001220          MOV     #65$,LOCK
 3958
 3959  024046  104412                          MSTCLR          ;MASTER CLEAR M8200-YC
 3960  024050  005002                          CLR     R2      ;START WITH ADDRESS 0
 3961  024052  012700  000001          1$:     MOV     #1,R0   ;START WITH BIT 0
 3962  024056  005100                  64$:    COM     R0      ;CHANGE TO FLOATING 0
 3963  024060  042737  000377  024074  65$:    BIC     #377,66$
                                                        ;CLEAR ADDRESS FIELD OF INSTRUCTION
 3964  024066  050237  024074                  BIS     R2,66$  ;ADD ADDRESS TO INSTRUCTION
 3965  024072  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3966  024074  010000                  66$:    010000          ;LOAD MAR WITH ADDRESS IN R2
 3967  024076  010061  000004                  MOV     R0,4(R1) ;WRITE PATTERN IN PORT4
 3968  024102  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3969  024104  122500                          122500          ;MOVE PORT4 TO MEMORY
 3970  024106  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 3971  024110  040620                          040620          ;MOVE MEMORY TO BR
 3972  024112  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

```
3973  024114  061225                          61225                ;MOVE BR TO PORT5
3974  024116  010005                          MOV     R0,R5        ;PUT "EXPECTED" IN R5
3975  024120  116104  000005                  MOVB    5(R1),R4     ;PUT "FOUND" IN R4
3976  024124  120504                          CMPB    R5,R4        ;DATA CORRECT?
3977  024126  001401                          BEQ     67$          ;BR IF YES
3978  024130  104013                          HLT     13           ;DATA ERROR
3979  024132  104401                 67$:     SCOP1                ;SW09=1?
3980  024134  005100                          COM     R0           ;CHANGE TO FLOATING 1
3981  024136  000241                          CLC                  ;CLEAR CARRY
3982  024140  106100                          ROLB    R0           ;SHIFT BIT IN R0
3983  024142  001345                          BNE     64$          ;DONE IF R0=0
3984  024144  005202                          INC     R2           ;NEXT ADDRESS
3985  024146  022702  000400                  CMP     #400,R2      ;LAST ADDRESS
3986  024152  001337                          BNE     1$           ;BR IF NO
3987  024154  104400                          SCOPE                ;SCOPE THIS TEST
3988
3989                                          ;************************** TEST 72 **************************
3990                                          ;*MAIN MEMORY DUAL ADDRESSING TEST
3991                                          ;*LOAD EACH MEMORY LOCATION WITH ITS OWN ADDRESS
3992                                          ;*READ BACK EACH LOCATION TO VERIFY CORRECT ADDRESSING
3993                                          ;*************************************************************
3994
3995                                          ;  TEST 72
3996                                          ;--------------
3997
3998  024156  012737  000072  001226  TST72:  MOV     #72,TSTNO
3999  024164  012737  024356  001216          MOV     #TST73,NEXT
4000  024172  012737  024204  001220          MOV     #1$,LOCK
4001                                                               ;R1 CONTAINS BASE M8200-YC ADDRESS
4002  024200  104412                          MSTCLR               ;MASTER CLEAR M8200-YC
4003  024202  005002                          CLR     R2           ;START AT ADDRESS 0
4004  024204  042737  000377  024220  1$:     BIC     #377,2$      ;CLEAR ADDRESS FIELD OF INSTRUCTION
4005  024212  050237  024220                  BIS     R2,2$        ;ADD ADDRESS TO INSTRUCTION
4006  024216  104414                          ROMCLK               ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4007  024220  010000                 2$:      010000               ;LOAD MAR
4008  024222  010261  000004                  MOV     R2,4(R1)
4009  024226  104414                          ROMCLK               ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4010  024230  122500                          122500               ;MOVE PORT4 TO MEMORY
4011  024232  104414                          ROMCLK               ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4012  024234  040620                          040620               ;MOVE MEMORY TO THE BR
4013  024236  104414                          ROMCLK               ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4014  024240  061225                          61225                ;MOV BR TO PORT5
4015  024242  010205                          MOV     R2,R5        ;PUT "EXPECTED" IN R5
4016  024244  116104  000005                  MOVB    5(R1),R4     ;PUT "FOUND" IN R4
4017  024250  120504                          CMPB    R5,R4        ;DATA CORRECT?
4018  024252  001401                          BEQ     3$           ;BR IF YES
4019  024254  104013                          HLT     13           ;DATA ERROR
4020  024256  104401                 3$:      SCOP1                ;SW09=1?
4021  024260  005202                          INC     R2           ;NEXT ADDRESS
4022  024262  022702  000400                  CMP     #400,R2      ;LAST ADDRESS
4023  024266  001346                          BNE     1$           ;BR IF NO
4024  024270  012737  024300  001220          MOV     #4$,LOCK     ;NEW SCOPE 1
4025  024276  005002                          CLR     R2           ;RESTART AT ADDRESS 0
4026  024300  042737  000377  024314  4$:     BIC     #377,5$      ;CLEAR ADDRESS FIELD OF INSTRUCTION
```

```
 4027  024306  050237  024314                BIS     R2,5$           ;ADD ADDRESS TO INSTRUCTION
 4028  024312  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4029  024314  010000              5$:       010000                  ;LOAD THE MAR
 4030  024316  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4031  024320  040620                        040620                  ;MOVE MEMORY TO THE BR
 4032  024322  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4033  024324  061225                        61225                   ;MOV BR TO PORT5
 4034  024326  010205                        MOV     R2,R5           ;PUT "EXPECTED" IN R5
 4035  024330  116104  000005                MOVB    5(R1),R4        ;PUT "FOUND" IN R4
 4036  024334  120504                        CMPB    R5,R4           ;DATA CORRECT?
 4037  024336  001401                        BEQ     6$              ;BR IF YES
 4038  024340  104013                        HLT     13              ;ADDRESSING ERROR
 4039  024342  104401              6$:       SCOP1                   ;SW09=1?
 4040  024344  005202                        INC     R2              ;NEXT ADDRESS
 4041  024346  022702  000400                CMP     #400,R2         ;IS IT THE LAST
 4042  024352  001352                        BNE     4$              ;BR IF NO
 4043  024354  104400                        SCOPE                   ;SCOPE THIS TEST
 4044
 4045
 4046                                        ;************************** TEST 73 **************************
 4047                                        ;*MAR TEST
 4048                                        ;*PERFORM DUAL ADDRESSING TEST
 4049                                        ;*USING MAR AUTO-INC FEATURE
 4050                                        ;;**********************************************************
 4051
 4052                                        ;  TEST 73
 4053                                        ;-------------
 4054  024356  012737  000073  001226  TST73: MOV     #73,TSTNO
 4055  024364  012737  024512  001216        MOV     #TST74,NEXT
 4056                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
 4057  024372  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
 4058  024374  005002                        CLR     R2              ;START WITH A ZERO
 4059  024376  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4060  024400  010000                        010000                  ;LOAD MAR
 4061  024402  032737  100000  001366        BIT     #BIT15,STAT1    ;DMC?
 4062  024410  001402                        BEQ     .+6             ;BR IF YES
 4063  024412  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4064  024414  004000                        4000                    ;MAR HI ← 0 (KMC ONLY)
 4065  024416  010261  000004        1$:     MOV     R2,4(R1)        ;WRITE DATA TO PORT4
 4066  024422  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4067  024424  136500                        136500                  ;LOAD MEM AUTO-INC MAR
 4068  024426  005202                        INC     R2              ;INCREMENT DATA
 4069  024430  022702  000400                CMP     #400,R2         ;DONE YET?
 4070  024434  001370                        BNE     1$              ;BR IF NO
 4071  024436  005002                        CLR     R2              ;RESTART WITH A ZERO
 4072  024440  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4073  024442  010000                        010000                  ;LOAD MAR
 4074  024444  032737  100000  001366        BIT     #BIT15,STAT1    ;DMC?
 4075  024452  001402                        BEQ     .+6             ;BR IF YES
 4076  024454  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4077  024456  004000                        4000                    ;MAR HI ← 0 (KMC ONLY)
 4078  024460                        2$:
 4079  024460  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4080  024462  055224                        055224                  ;MOVE MEM TO PORT4
```

```
 4081  024464  010205                        MOV     R2,R5           ;PUT "EXPECTED" IN R5
 4082  024466  016104  000004                MOV     4(R1),R4        ;PUT "FOUND" IN R4
 4083  024472  120504                        CMPB    R5,R4           ;DATA CORRECT?
 4084  024474  001401                        BEQ     3$              ;BR IF YES
 4085  024476  104014                        HLT     14              ;MAR ERROR
 4086  024500  005202              3$:       INC     R2              ;NEXT ADDRESS
 4087  024502  022702  000400                CMP     #400,R2         ;DONE YET?
 4088  024506  001364                        BNE     2$              ;BR IF NO
 4089  024510  104400                        SCOPE                   ;SCOPE THIS TEST
 4090
 4091
 4092                                        ;*************************** TEST 74 ****************************
 4093                                        ;*ALU C BIT TEST
 4094                                        ;*TEST THAT AN ADD OF 377 AND 377 WILL SET THE C BIT
 4095                                        ;:************************************************************
 4096
 4097                                        ;  TEST 74
 4098                                        ;--------------
 4099  024512  012737  000074  001226  TST74: MOV     #74,TSTNO
 4100  024520  012737  024624  001216        MOV     #TST75,NEXT
 4101  024526  012737  024552  001220        MOV     #1$,LOCK
 4102                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
 4103  024534  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
 4104  024536  004737  034736                JSR     PC,MEMLD        ;LOAD MAINMEM DATA
 4105  024542  024614                        TDATA                   ;POINTER TO DATA
 4106  024544  004737  034772                JSR     PC,SPLD         ;LOAD SP DATA
 4107  024550  024614                        TDATA                   ;POINTER TO DATA
 4108  024552              1$:
 4109  024552  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4110  024554  010000                        010000                  ;MAR<-0
 4111  024556  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4112  024560  054400                        054400!<0*20>           ;ADD 377 AND 377, TO SET C BIT
 4113  024562  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4114  024564  040421                        040401!<1*20>           ;ADD 0 AND 0 AND THE C BIT
 4115  024566  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4116  024570  061224                        61224                   ;PUT RESULTS IN PORT4
 4117  024572  012705  000001                MOV     #1,R5           ;PUT "EXPECTED" IN R5
 4118  024576  016104  000004                MOV     4(R1),R4        ;PUT "FOUND" IN R4
 4119  024602  120504                        CMPB    R5,R4           ;DATA CORRECT?
 4120  024604  001401                        BEQ     2$              ;BR IF YES
 4121  024606  104015                        HLT     15              ;ERROR C BIT NOT SET
 4122  024610  104401              2$:       SCOP1                   ;SW09=1?
 4123  024612  104400                        SCOPE                   ;SCOPE THIS TEST
 4124  024614     377     000     000  TDATA: .BYTE   -1,0,0,0,0,0,0,0
 4125  024617     000     000     000
 4126  024622     000     000
 4127                                        .EVEN
 4128
 4129
 4130                                        ;*************************** TEST 75 ****************************
 4131                                        ;*ALU TEST
 4132                                        ;*TEST OF ALU FUNCTION SEL B WITH C BIT CLEARED
 4133                                        ;*ALU FUNCTION (B)    CODE=11
 4134                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
```

```
                                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                                ;:*****************************************************************
                                                
                                                ;  TEST 75
                                                ;--------------
024624  012737  000075  001226  TST75:  MOV     #75,TSTNO
024632  012737  025000  001216         MOV     #TST76,NEXT
024640  012737  024672  001220         MOV     #1$,LOCK
                                                
                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
024646  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
024650  005000                        CLR     R0              ;MEM + SP ADDRESS
024652  012702  024770                MOV     #5$,R2          ;POINTER TO CORRECT DATA
024656  004737  034736                JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
024662  035062                        MEMDAT                  ;POINTER TO DATA
024664  004737  034772                JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
024670  035072                        SPDAT                   ;POINTER TO DATA
024672  004737  035036          1$:   JSR     PC,CLRC         ;CLEAR C BIT!
024676  042737  000017  024712        BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
024704  050037  024712                BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
024710  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
024712  010000                  2$:   010000                  ;LOAD MAR
024714  042737  000017  024730        BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
024722  050037  024730                BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
024726  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
024730  040620                  3$:   040400!<11*20>          ;BR + SEL B
024732  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
024734  061224                        61224                   ;MOVE BR TO PORT4
024736  111205                        MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
024740  116104  000004                MOVB    4(R1),R4        ;PUT "FOUND" IN R4
024744  120504                        CMPB    R5,R4           ;DATA CORRECT?
024746  001401                        BEQ     4$              ;BR IF YES
024750  104015                        HLT     15              ;ALU ERROR
024752  104401                  4$:   SCOP1                   ;SW09=1?
024754  005202                        INC     R2              ;NEXT DATA
024756  005200                        INC     R0              ;NEXT ADDRESS
024760  022700  000010                CMP     #10,R0          ;DONE YET?
024764  001342                        BNE     1$              ;BR IF NO
024766  104400                        SCOPE                   ;SCOPE THIS TEST
024770      000     377     000  5$:  .BYTE   0,-1,0,-1,125,252,125,252
024773      377     125     252
024776      125     252
                                        .EVEN
                                                
                                                ;*************************** TEST 76 ****************************
                                                ;*ALU TEST
                                                ;*TEST OF ALU FUNCTION SEL A WITH C BIT CLEARED
                                                ;*ALU FUNCTION (A)     CODE=10
                                                ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                                ;:*****************************************************************
                                                
                                                ;  TEST 76
                                                ;--------------
```

```
4189  025000  012737  000076  001226  TST76:  MOV     #76,TSTNO
4190  025006  012737  025154  001216          MOV     #TST77,NEXT
4191  025014  012737  025046  001220          MOV     #1$,LOCK
4192                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
4193  025022  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
4194  025024  005000                          CLR     R0              ;MEM + SP ADDRESS
4195  025026  012702  025144                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
4196  025032  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4197  025036  035062                          MEMDAT                  ;POINTER TO DATA
4198  025040  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4199  025044  035072                          SPDAT                   ;POINTER TO DATA
4200  025046  004737  035036          1$:     JSR     PC,CLRC         ;CLEAR C BIT!
4201  025052  042737  000017  025066          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4202  025060  050037  025066                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4203  025064  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4204  025066  010000                  2$:     010000                  ;LOAD MAR
4205  025070  042737  000017  025104          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4206  025076  050037  025104                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4207  025102  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4208  025104  040600                  3$:     040400!<10*20>          ;BR + SEL A
4209  025106  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4210  025110  061224                          61224                   ;MOVE BR TO PORT4
4211  025112  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4212  025114  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4213  025120  120504                          CMPB    R5,R4           ;DATA CORRECT?
4214  025122  001401                          BEQ     4$              ;BR IF YES
4215  025124  104015                          HLT     15              ;ALU ERROR
4216  025126  104401                  4$:     SCOP1                   ;SW09=1?
4217  025130  005202                          INC     R2              ;NEXT DATA
4218  025132  005200                          INC     R0              ;NEXT ADDRESS
4219  025134  022700  000010                  CMP     #10,R0          ;DONE YET?
4220  025140  001342                          BNE     1$              ;BR IF NO
4221  025142  104400                          SCOPE                   ;SCOPE THIS TEST
4222  025144     000     000     377  5$:     .BYTE   0,0,-1,-1,125,125,252,252
4223  025147     377     125     125
4224  025152     252     252
4225                                  .EVEN
4226
4227
4228                                            ;*************************** TEST 77 ****************************
4229                                            ;*ALU TEST
4230                                            ;*TEST OF ALU FUNCTION A OR NOTB WITH C BIT CLEARED
4231                                            ;*ALU FUNCTION (A OR NOTB)    CODE=12
4232                                            ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4233                                            ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4234                                            ;:************************************************************************
4235
4236                                            ;  TEST 77
4237                                            ;--------------
4238  025154  012737  000077  001226  TST77:  MOV     #77,TSTNO
4239  025162  012737  025330  001216          MOV     #TST100,NEXT
4240  025170  012737  025222  001220          MOV     #1$,LOCK
4241                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
4242  025176  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
```

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4243  025200  005000                        CLR     R0              ;MEM + SP ADDRESS
4244  025202  012702  025320                MOV     #5$,R2          ;POINTER TO CORRECT DATA
4245  025206  004737  034736                JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4246  025212  035062                        MEMDAT                  ;POINTER TO DATA
4247  025214  004737  034772                JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4248  025220  035072                        SPDAT                   ;POINTER TO DATA
4249  025222  004737  035036        1$:     JSR     PC,CLRC         ;CLEAR C BIT!
4250  025226  042737  000017  025242        BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4251  025234  050037  025242                BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4252  025240  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4253  025242  010000                2$:     010000                  ;LOAD MAR
4254  025244  042737  000017  025260        BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4255  025252  050037  025260                BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4256  025256  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4257  025260  040640                3$:     040400!<12*20>          ;BR = A OR NOTB
4258  025262  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4259  025264  061224                        61224                   ;MOVE BR TO PORT4
4260  025266  111205                        MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4261  025270  116104  000004                MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4262  025274  120504                        CMPB    R5,R4           ;DATA CORRECT?
4263  025276  001401                        BEQ     4$              ;BR IF YES
4264  025300  104015                        HLT     15              ;ALU ERROR
4265  025302  104401                4$:     SCOP1                   ;SW09=1?
4266  025304  005202                        INC     R2              ;NEXT DATA
4267  025306  005200                        INC     R0              ;NEXT ADDRESS
4268  025310  022700  000010                CMP     #10,R0          ;DONE YET?
4269  025314  001342                        BNE     1$              ;BR IF NO
4270  025316  104400                        SCOPE                   ;SCOPE THIS TEST
4271  025320     377     000     377  5$:     .BYTE   -1,0,-1,-1,-1,125,252,-1
4272  025323     377     377     125
4273  025326     252     377
4274                                .EVEN
4275
4276
4277                                        ;*************************** TEST 100 ****************************
4278                                        ;*ALU TEST
4279                                        ;*TEST OF ALU FUNCTION A AND B WITH C BIT CLEARED
4280                                        ;*ALU FUNCTION (A AND B)    CODE=13
4281                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4282                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4283                                        ;*****************************************************************
4284
4285                                        ;  TEST 100
4286                                        ;--------------
4287  025330  012737  000100  001226  TST100: MOV     #100,TSTNO
4288  025336  012737  025504  001216        MOV     #TST101,NEXT
4289  025344  012737  025376  001220        MOV     #1$,LOCK
4290                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
4291  025352  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
4292  025354  005000                        CLR     R0              ;MEM + SP ADDRESS
4293  025356  012702  025474                MOV     #5$,R2          ;POINTER TO CORRECT DATA
4294  025362  004737  034736                JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4295  025366  035062                        MEMDAT                  ;POINTER TO DATA
4296  025370  004737  034772                JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
```

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4297   025374   035072                          SPDAT                   ;POINTER TO DATA
4298   025376   004737   035036          1$:    JSR     PC,CLRC         ;CLEAR C BIT!
4299   025402   042737   000017  025416          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4300   025410   050037   025416                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4301   025414   104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4302   025416   010000                  2$:     010000                  ;LOAD MAR
4303   025420   042737   000017  025434          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4304   025426   050037   025434                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4305   025432   104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4306   025434   040660                  3$:     040400!<13*20>          ;BR ← A AND B
4307   025436   104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4308   025440   061224                          61224                   ;MOVE BR TO pORT4
4309   025442   111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4310   025444   116104   000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4311   025450   120504                          CMPB    R5,R4           ;DATA CORRECT?
4312   025452   001401                          BEQ     4$              ;BR IF YES
4313   025454   104015                          HLT     15              ;ALU ERROR
4314   025456   104401                  4$:     SCOP1                   ;SW09=1?
4315   025460   005202                          INC     R2              ;NEXT DATA
4316   025462   005200                          INC     R0              ;NEXT ADDRESS
4317   025464   022700   000010                 CMP     #10,R0          ;DONE YET?
4318   025470   001342                          BNE     1$              ;BR IF NO
4319   025472   104400                          SCOPE                   ;SCOPE THIS TEST
4320   025474      000      000      000  5$:     .BYTE   0,0,0,-1,125,0,0,252
4321   025477      377      125      000
4322   025502      000      252
4323                                   .EVEN
4324
4325
4326                                           ;************************** TEST 101 **************************
4327                                           ;*ALU TEST
4328                                           ;*TEST OF ALU FUNCTION A OR B WITH C BIT CLEARED
4329                                           ;*ALU FUNCTION (A OR B)     CODE=14
4330                                           ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4331                                           ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4332                                           ;:*************************************************************
4333
4334                                           ;  TEST 101
4335                                           ;--------------
4336   025504   012737   000101  001226  TST101: MOV     #101,TSTNO
4337   025512   012737   025660  001216          MOV     #TST102,NEXT
4338   025520   012737   025552  001220          MOV     #1$,LOCK
4339                                                                   ;R1 CONTAINS BASE M8200-YC ADDRESS
4340   025526   104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
4341   025530   005000                          CLR     R0              ;MEM + SP ADDRESS
4342   025532   012702   025650                 MOV     #5$,R2          ;POINTER TO CORRECT DATA
4343   025536   004737   034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4344   025542   035062                          MEMDAT                  ;POINTER TO DATA
4345   025544   004737   034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4346   025550   035072                          SPDAT                   ;POINTER TO DATA
4347   025552   004737   035036          1$:     JSR     PC,CLRC         ;CLEAR C BIT!
4348   025556   042737   000017  025572          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4349   025564   050037   025572                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4350   025570   104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

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4351  025572  010000                        2$:     010000                  ;LOAD MAR
4352  025574  042737  000017  025610                BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4353  025602  050037  025610                        BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4354  025606  104414                                ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4355  025610  040700                        3$:     040400!<14*20>          ;BR ← A OR B
4356  025612  104414                                ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4357  025614  061224                                61224                   ;MOVE BR TO PORT4
4358  025616  111205                                MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4359  025620  116104  000004                        MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4360  025624  120504                                CMPB    R5,R4           ;DATA CORRECT?
4361  025626  001401                                BEQ     4$              ;BR IF YES
4362  025630  104015                                HLT     15              ;ALU ERROR
4363  025632  104401                        4$:     SCOP1                   ;SWD9=1?
4364  025634  005202                                INC     R2              ;NEXT DATA
4365  025636  005200                                INC     R0              ;NEXT ADDRESS
4366  025640  022700  000010                        CMP     #10,R0          ;DONE YET?
4367  025644  001342                                BNE     1$              ;BR IF NO
4368  025646  104400                                SCOPE                   ;SCOPE THIS TEST
4369  025650     000     377     377  5$:     .BYTE   0,-1,-1,-1,125,-1,-1,252
4370  025653     377     125     377
4371  025656     377     252
4372                                        .EVEN
4373
4374
4375                                        ;************************** TEST 102 **************************
4376                                        ;*ALU TEST
4377                                        ;*TEST OF ALU FUNCTION A XOR B WITH C BIT CLEARED
4378                                        ;*ALU FUNCTION (A XOR B)     CODE=15
4379                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4380                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4381                                        ;;*********************************************************************
4382
4383                                        ;  TEST 102
4384                                        ;--------------
4385  025660  012737  000102  001226  TST102: MOV     #102,TSTNO
4386  025666  012737  026034  001216          MOV     #TST103,NEXT
4387  025674  012737  025726  001220          MOV     #1$,LOCK
4388                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
4389  025702  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
4390  025704  005000                         CLR     R0              ;MEM + SP ADDRESS
4391  025706  012702  026024                 MOV     #5$,R2          ;POINTER TO CORRECT DATA
4392  025712  004737  034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4393  025716  035062                         MEMDAT                  ;POINTER TO DATA
4394  025720  004737  034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4395  025724  035072                         SPDAT                   ;POINTER TO DATA
4396  025726  004737  035036          1$:    JSR     PC,CLRC         ;CLEAR C BIT!
4397  025732  042737  000017  025746         BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4398  025740  050037  025746                 BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4399  025744  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4400  025746  010000                  2$:    010000                  ;LOAD MAR
4401  025750  042737  000017  025764         BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4402  025756  050037  025764                 BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4403  025762  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4404  025764  040720                  3$:    040400!<15*20>          ;BR ← A XOR B
```

```
 4405  025766  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4406  025770  061224                          61224                   ;MOVE BR TO PORT4
 4407  025772  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 4408  025774  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 4409  026000  120504                          CMPB    R5,R4           ;DATA CORRECT?
 4410  026002  001401                          BEQ     4$              ;BR IF YES
 4411  026004  104015                          HLT     15              ;ALU ERROR
 4412  026006  104401                  4$:     SCOP1                   ;SW09=1?
 4413  026010  005202                          INC     R2              ;NEXT DATA
 4414  026012  005200                          INC     R0              ;NEXT ADDRESS
 4415  026014  022700  000010                  CMP     #10,R0          ;DONE YET?
 4416  026020  001342                          BNE     1$              ;BR IF NO
 4417  026022  104400                          SCOPE                   ;SCOPE THIS TEST
 4418  026024     000     377     377  5$:     .BYTE   0,-1,-1,0,0,-1,-1,0
 4419  026027     000     000     377
 4420  026032     377     000
 4421                                  .EVEN
 4422
 4423                                  ;*************************** TEST 103 ****************************
 4424                                  ;*ALU TEST
 4425                                  ;*TEST OF ALU FUNCTION ADD WITH C BIT CLEARED
 4426                                  ;*ALU FUNCTION (A PLUS B)     CODE=00
 4427                                  ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 4428                                  ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 4429                                  ;:*************************************************************
 4430
 4431                                  ;  TEST 103
 4432                                  ;--------------
 4433
 4434  026034  012737  000103  001226  TST103: MOV     #103,TSTNO
 4435  026042  012737  026210  001216          MOV     #TST104,NEXT
 4436  026050  012737  026102  001220          MOV     #1$,LOCK
 4437                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
 4438  026056  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 4439  026060  005000                          CLR     R0              ;MEM + SP ADDRESS
 4440  026062  012702  026200                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
 4441  026066  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 4442  026072  035062                          MEMDAT                  ;POINTER TO DATA
 4443  026074  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 4444  026100  035072                          SPDAT                   ;POINTER TO DATA
 4445  026102  004737  035036          1$:     JSR     PC,CLRC         ;CLEAR C BIT!
 4446  026106  042737  000017  026122          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 4447  026114  050037  026122                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 4448  026120  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4449  026122  010000                  2$:     010000                  ;LOAD MAR
 4450  026124  042737  000017  026140          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 4451  026132  050037  026140                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 4452  026136  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4453  026140  040400                  3$:     040400!<00*20>          ;BR + ADD
 4454  026142  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4455  026144  061224                          61224                   ;MOVE BR TO PORT4
 4456  026146  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 4457  026150  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 4458  026154  120504                          CMPB    R5,R4           ;DATA CORRECT?
```

```
4459  026156  001401                          BEQ     4$              ;BR IF YES
4460  026160  104015                          HLT     15              ;ALU ERROR
4461  026162  104401                  4$:     SCOP1                   ;SW09=1?
4462  026164  005202                          INC     R2              ;NEXT DATA
4463  026166  005200                          INC     R0              ;NEXT ADDRESS
4464  026170  022700  000010                  CMP     #10,R0          ;DONE YET?
4465  026174  001342                          BNE     1$              ;BR IF NO
4466  026176  104400                          SCOPE                   ;SCOPE THIS TEST
4467  026200     000     377     377  5$:     .BYTE   0,-1,-1,376,252,-1,-1,124
4468  026203     376     252     377
4469  026206     377     124
4470                                  .EVEN
4471
4472
4473                                  ;************************** TEST 104 **************************
4474                                  ;*ALU TEST
4475                                  ;*TEST OF ALU FUNCTION 2A W/C WITH C BIT CLEARED
4476                                  ;*ALU FUNCTION (A PLUS A PLUS C)     CODE=6
4477                                  ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4478                                  ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4479                                  ;;**********************************************************************
4480
4481                                  ;  TEST 104
4482                                  ;--------------
4483  026210  012737  000104  001226  TST104: MOV     #104,TSTNO
4484  026216  012737  026364  001216          MOV     #TST105,NEXT
4485  026224  012737  026256  001220          MOV     #1$,LOCK
4486                                                          ;R1 CONTAINS BASE M8200-YC ADDRESS
4487  026232  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
4488  026234  005000                          CLR     R0              ;MEM + SP ADDRESS
4489  026236  012702  026354                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
4490  026242  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4491  026246  035062                          MEMDAT                  ;POINTER TO DATA
4492  026250  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4493  026254  035072                          SPDAT                   ;POINTER TO DATA
4494  026256  004737  035036          1$:     JSR     PC,CLRC         ;CLEAR C BIT!
4495  026262  042737  000017  026276          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4496  026270  050037  026276                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4497  026274  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4498  026276  010000                  2$:     010000                  ;LOAD MAR
4499  026300  042737  000017  026314          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4500  026306  050037  026314                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4501  026312  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4502  026314  040540                  3$:     040400!<6*20>           ;BR + 2A W/C
4503  026316  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4504  026320  061224                          61224                   ;MOVE BR TO PORT4
4505  026322  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4506  026324  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4507  026330  120504                          CMPB    R5,R4           ;DATA CORRECT?
4508  026332  001401                          BEQ     4$              ;BR IF YES
4509  026334  104015                          HLT     15              ;ALU ERROR
4510  026336  104401                  4$:     SCOP1                   ;SW09=1?
4511  026340  005202                          INC     R2              ;NEXT DATA
4512  026342  005200                          INC     R0              ;NEXT ADDRESS
```

```
 4513  026344  022700  000010                    CMP     #10,R0          ;DONE YET?
 4514  026350  001342                            BNE     1$              ;BR IF NO
 4515  026352  104400                            SCOPE                   ;SCOPE THIS TEST
 4516  026354     000     000     376  5$:       .BYTE   0,0,376,376,252,252,124,124
 4517  026357     376     252     252
 4518  026362     124     124
 4519                                  .EVEN
 4520
 4521                                  ;*************************** TEST 105 ****************************
 4522                                  ;*ALU TEST
 4523                                  ;*TEST OF ALU FUNCTION SUB WITH C BIT CLEARED
 4524                                  ;*ALU FUNCTION (A-B)    CODE=16
 4525                                  ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 4526                                  ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 4527                                  ;*****************************************************************
 4528
 4529                                  ;  TEST 105
 4530                                  ;-------------
 4531
 4532  026364  012737  000105  001226  TST105: MOV     #105,TSTNO
 4533  026372  012737  026540  001216          MOV     #TST106,NEXT
 4534  026400  012737  026432  001220          MOV     #1$,LOCK
 4535                                                          ;R1 CONTAINS BASE M8200-YC ADDRESS
 4536  026406  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
 4537  026410  005000                         CLR     R0              ;MEM + SP ADDRESS
 4538  026412  012702  026530                 MOV     #5$,R2          ;POINTER TO CORRECT DATA
 4539  026416  004737  034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 4540  026422  035062                         MEMDAT                  ;POINTER TO DATA
 4541  026424  004737  034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 4542  026430  035072                         SPDAT                   ;POINTER TO DATA
 4543  026432  004737  035036          1$:    JSR     PC,CLRC         ;CLEAR C BIT!
 4544  026436  042737  000017  026452         BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 4545  026444  050037  026452                 BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 4546  026450  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4547  026452  010000                  2$:    010000                  ;LOAD MAR
 4548  026454  042737  000017  026470         BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 4549  026462  050037  026470                 BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 4550  026466  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4551  026470  040740                  3$:    040400!<16*20>          ;BR + SUB
 4552  026472  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4553  026474  061224                         61224                   ;MOVE BR TO PORT4
 4554  026476  111205                         MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 4555  026500  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 4556  026504  120504                         CMPB    R5,R4           ;DATA CORRECT?
 4557  026506  001401                         BEQ     4$              ;BR IF YES
 4558  026510  104015                         HLT     15              ;ALU ERROR
 4559  026512  104401                  4$:    SCOP1                   ;SW09=1?
 4560  026514  005202                         INC     R2              ;NEXT DATA
 4561  026516  005200                         INC     R0              ;NEXT ADDRESS
 4562  026520  022700  000010                 CMP     #10,R0          ;DONE YET?
 4563  026524  001342                         BNE     1$              ;BR IF NO
 4564  026526  104400                         SCOPE                   ;SCOPE THIS TEST
 4565  026530     000     001     377  5$:       .BYTE   0,1,-1,0,0,253,125,0
 4566  026533     000     000     253
```

```
4567  026536      125      000
4568                                .EVEN
4569
4570
4571                                ;*************************** TEST 106 ****************************
4572                                ;*ALU TEST
4573                                ;*TEST OF ALU FUNCTION ADD W/C WITH C BIT CLEARED
4574                                ;*ALU FUNCTION (A PLUS B PLUS C)     CODE=01
4575                                ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4576                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4577                                ;:************************************************************
4578
4579                                ;  TEST 106
4580                                ;--------------
4581  026540  012737  000106  001226  TST106: MOV     #106,TSTNO
4582  026546  012737  026714  001216          MOV     #TST107,NEXT
4583  026554  012737  026606  001220          MOV     #1$,LOCK
4584                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
4585  026562  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
4586  026564  005000                         CLR     R0              ;MEM + SP ADDRESS
4587  026566  012702  026704                 MOV     #5$,R2          ;POINTER TO CORRECT DATA
4588  026572  004737  034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4589  026576  035062                         MEMDAT                  ;POINTER TO DATA
4590  026600  004737  034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4591  026604  035072                         SPDAT                   ;POINTER TO DATA
4592  026606  004737  035036          1$:    JSR     PC,CLRC         ;CLEAR C BIT!
4593  026612  042737  000017  026626         BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4594  026620  050037  026626                 BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4595  026624  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4596  026626  010000          2$:            010000                  ;LOAD MAR
4597  026630  042737  000017  026644         BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4598  026636  050037  026644                 BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4599  026642  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4600  026644  040420          3$:            040400!<01*20>          ;BR + ADD W/C
4601  026646  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4602  026650  061224                         61224                   ;MOVE BR TO PORT4
4603  026652  111205                         MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4604  026654  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4605  026660  120504                         CMPB    R5,R4           ;DATA CORRECT?
4606  026662  001401                         BEQ     4$              ;BR IF YES
4607  026664  104015                         HLT     15              ;ALU ERROR
4608  026666  104401          4$:            SCOP1                   ;SW09=1?
4609  026670  005202                         INC     R2              ;NEXT DATA
4610  026672  005200                         INC     R0              ;NEXT ADDRESS
4611  026674  022700  000010                 CMP     #10,R0          ;DONE YET?
4612  026700  001342                         BNE     1$              ;BR IF NO
4613  026702  104400                         SCOPE                   ;SCOPE THIS TEST
4614  026704      000      377      377  5$:    .BYTE   0,-1,-1,376,252,-1,-1,124
4615  026707      376      252      377
4616  026712      377      124
4617                                .EVEN
4618
4619
4620                                ;*************************** TEST 107 ****************************
```

```
                                        ;*ALU TEST
                                        ;*TEST OF ALU FUNCTION SUB W/C WITH C BIT CLEARED
                                        ;*ALU FUNCTION (A-B-C)     CODE=2
                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                        ;:*****************************************************************

                                        ;  TEST 107
                                        ;--------------
026714  012737  000107  001226  TST107: MOV     #107,TSTNO
026722  012737  027070  001216         MOV     #TST110,NEXT
026730  012737  026762  001220         MOV     #1$,LOCK

                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
026736  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
026740  005000                        CLR     R0              ;MEM + SP ADDRESS
026742  012702  027060                MOV     #5$,R2          ;POINTER TO CORRECT DATA
026746  004737  034736                JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
026752  035062                        MEMDAT                  ;POINTER TO DATA
026754  004737  034772                JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
026760  035072                        SPDAT                   ;POINTER TO DATA
026762  004737  035036         1$:    JSR     PC,CLRC         ;CLEAR C BIT!
026766  042737  000017  027002        BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
026774  050037  027002                BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
027000  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
027002  010000                 2$:    010000                  ;LOAD MAR
027004  042737  000017  027020        BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
027012  050037  027020                BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
027016  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
027020  040440                 3$:    040400!<2*20>           ;BR ← SUB W/C
027022  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
027024  061224                        61224                   ;MOVE BR TO pORT4
027026  111205                        MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
027030  116104  000004                MOVB    4(R1),R4        ;PUT "FOUND" IN R4
027034  120504                        CMPB    R5,R4           ;DATA CORRECT?
027036  001401                        BEQ     4$              ;BR IF YES
027040  104015                        HLT     15              ;ALU ERROR
027042  104401                 4$:    SCOP1                   ;SW09=1?
027044  005202                        INC     R2              ;NEXT DATA
027046  005200                        INC     R0              ;NEXT ADDRESS
027050  022700  000010                CMP     #10,R0          ;DONE YET?
027054  001342                        BNE     1$              ;BR IF NO
027056  104400                        SCOPE                   ;SCOPE THIS TEST
027060     377     000     376  5$:    .BYTE   -1,0,376,-1,-1,252,124,-1
027063     377     377     252
027066     124     377
                                 .EVEN


                                        ;*************************** TEST 110 ****************************
                                        ;*ALU TEST
                                        ;*TEST OF ALU FUNCTION INC A WITH C BIT CLEARED
                                        ;*ALU FUNCTION (A PLUS 1)     CODE=3
                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
```

```
                                        ;:*****************************************************************
                                        ;
                                        ;  TEST 110
                                        ;--------------
027070  012737  000110  001226  TST110: MOV     #110,TSTNO
027076  012737  027244  001216         MOV     #TST111,NEXT
027104  012737  027136  001220         MOV     #1$,LOCK
                                                        ;R1 CONTAINS BASE M8200-YC ADDRESS
027112  104412                         MSTCLR          ;MASTER CLEAR M8200-YC
027114  005000                         CLR     R0      ;MEM + SP ADDRESS
027116  012702  027234                 MOV     #5$,R2  ;POINTER TO CORRECT DATA
027122  004737  034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
027126  035062                         MEMDAT          ;POINTER TO DATA
027130  004737  034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
027134  035072                         SPDAT           ;POINTER TO DATA
027136  004737  035036         1$:     JSR     PC,CLRC         ;CLEAR C BIT!
027142  042737  000017  027156         BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
027150  050037  027156                 BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
027154  104414                         ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
027156  010000                 2$:     010000          ;LOAD MAR
027160  042737  000017  027174         BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
027166  050037  027174                 BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
027172  104414                         ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
027174  040460                 3$:     040400!<3*20>   ;BR + INC A
027176  104414                         ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
027200  061224                         61224           ;MOVE BR TO PORT4
027202  111205                         MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
027204  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
027210  120504                         CMPB    R5,R4           ;DATA CORRECT?
027212  001401                         BEQ     4$              ;BR IF YES
027214  104015                         HLT     15              ;ALU ERROR
027216  104401                 4$:     SCOP1           ;SW09=1?
027220  005202                         INC     R2              ;NEXT DATA
027222  005200                         INC     R0              ;NEXT ADDRESS
027224  022700  000010                 CMP     #10,R0          ;DONE YET?
027230  001342                         BNE     1$              ;BR IF NO
027232  104400                         SCOPE           ;SCOPE THIS TEST
027234     001     001     000  5$:     .BYTE   1,1,0,0,126,126,253,253
027237     000     126     126
027242     253     253
                                 .EVEN
                                        ;
                                        ;
                                        ;*************************** TEST 111 ****************************
                                        ;*ALU TEST
                                        ;*TEST OF ALU FUNCTION 2A WITH C BIT CLEARED
                                        ;*ALU FUNCTION (A PLUS A)     CODE=5
                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                        ;:*************************************************************
                                        ;
                                        ;  TEST 111
                                        ;--------------
027244  012737  000111  001226  TST111: MOV     #111,TSTNO
```

```
4729  027252  012737  027420  001216          MOV     #TST112,NEXT
4730  027260  012737  027312  001220          MOV     #1$,LOCK
4731                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
4732  027266  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
4733  027270  005000                          CLR     R0              ;MEM + SP ADDRESS
4734  027272  012702  027410                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
4735  027276  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4736  027302  035062                          MEMDAT                  ;POINTER TO DATA
4737  027304  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4738  027310  035072                          SPDAT                   ;POINTER TO DATA
4739  027312  004737  035036          1$:     JSR     PC,CLRC         ;CLEAR C BIT!
4740  027316  042737  000017  027332          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4741  027324  050037  027332                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4742  027330  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4743  027332  010000                  2$:     010000                  ;LOAD MAR
4744  027334  042737  000017  027350          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4745  027342  050037  027350                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4746  027346  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4747  027350  040520                  3$:     040400!<5*20>           ;BR + 2A
4748  027352  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4749  027354  061224                          61224                   ;MOVE BR TO PORT4
4750  027356  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4751  027360  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4752  027364  120504                          CMPB    R5,R4           ;DATA CORRECT?
4753  027366  001401                          BEQ     4$              ;BR IF YES
4754  027370  104015                          HLT     15              ;ALU ERROR
4755  027372  104401                  4$:     SCOP1                   ;SW09=1?
4756  027374  005202                          INC     R2              ;NEXT DATA
4757  027376  005200                          INC     R0              ;NEXT ADDRESS
4758  027400  022700  000010                  CMP     #10,R0          ;DONE YET?
4759  027404  001342                          BNE     1$              ;BR IF NO
4760  027406  104400                          SCOPE                   ;SCOPE THIS TEST
4761  027410     000     000     376  5$:     .BYTE   0,0,376,376,252,252,124,124
4762  027413     376     252     252
4763  027416     124     124
4764                                  .EVEN
4765
4766
4767                                          ;*************************** TEST 112 ****************************
4768                                          ;*ALU TEST
4769                                          ;*TEST OF ALU FUNCTION A PLUS C WITH C BIT CLEARED
4770                                          ;*ALU FUNCTION (A PLUS C)     CODE=4
4771                                          ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4772                                          ;*PERFORM THE FUNcTION, VERIFY THE RESULTS
4773                                          ;:*************************************************************
4774
4775                                          ;  TEST 112
4776                                          ;--------------
4777  027420  012737  000112  001226  TST112: MOV     #112,TSTNO
4778  027426  012737  027574  001216          MOV     #TST113,NEXT
4779  027434  012737  027466  001220          MOV     #1$,LOCK
4780                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
4781  027442  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
4782  027444  005000                          CLR     R0              ;MEM + SP ADDRESS
```

```
 4783  027446  012702  027564                      MOV     #5$,R2          ;POINTER TO CORRECT DATA
 4784  027452  004737  034736                      JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 4785  027456  035062                              MEMDAT                  ;POINTER TO DATA
 4786  027460  004737  034772                      JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 4787  027464  035072                              SPDAT                   ;POINTER TO DATA
 4788  027466  004737  035036              1$:     JSR     PC,CLRC         ;CLEAR C BIT!
 4789  027472  042737  000017  027506              BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 4790  027500  050037  027506                      BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 4791  027504  104414                              ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4792  027506  010000                      2$:     010000                  ;LOAD MAR
 4793  027510  042737  000017  027524              BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 4794  027516  050037  027524                      BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 4795  027522  104414                              ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4796  027524  040500                      3$:     040400!<4*20>           ;BR ← A PLUS C
 4797  027526  104414                              ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4798  027530  061224                              61224                   ;MOVE BR TO PORT4
 4799  027532  111205                              MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 4800  027534  116104  000004                      MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 4801  027540  120504                              CMPB    R5,R4           ;DATA CORRECT?
 4802  027542  001401                              BEQ     4$              ;BR IF YES
 4803  027544  104015                              HLT     15              ;ALU ERROR
 4804  027546  104401                      4$:     SCOP1                   ;SW09=1?
 4805  027550  005202                              INC     R2              ;NEXT DATA
 4806  027552  005200                              INC     R0              ;NEXT ADDRESS
 4807  027554  022700  000010                      CMP     #10,R0          ;DONE YET?
 4808  027560  001342                              BNE     1$              ;BR IF NO
 4809  027562  104400                              SCOPE                   ;SCOPE THIS TEST
 4810  027564     000     000     377  5$:         .BYTE   0,0,-1,-1,125,125,252,252
 4811  027567     377     125     125
 4812  027572     252     252
 4813                                      .EVEN
 4814
 4815
 4816                                      ;*************************** TEST 113 ****************************
 4817                                      ;*ALU TEST
 4818                                      ;*TEST OF ALU FUNCTION 2'S COMP SUB WITH C BIT CLEARED
 4819                                      ;*ALU FUNCTION (A-B-1)    CODE=17
 4820                                      ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 4821                                      ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 4822                                      ;:*************************************************************
 4823
 4824                                      ;  TEST 113
 4825                                      ;--------------
 4826  027574  012737  000113  001226  TST113: MOV     #113,TSTNO
 4827  027602  012737  027750  001216          MOV     #TST114,NEXT
 4828  027610  012737  027642  001220          MOV     #1$,LOCK
 4829                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
 4830  027616  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 4831  027620  005000                          CLR     R0              ;MEM + SP ADDRESS
 4832  027622  012702  027740                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
 4833  027626  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 4834  027632  035062                          MEMDAT                  ;POINTER TO DATA
 4835  027634  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 4836  027640  035072                          SPDAT                   ;POINTER TO DATA
```

```
 4837  027642  004737  035036            1$:   JSR     PC,CLRC          ;CLEAR C BIT!
 4838  027646  042737  000017  027662          BIC     #17,2$           ;CLEAR ADDRESS FIELD OF INSTRUCTION
 4839  027654  050037  027662                  BIS     R0,2$            ;ADD ADDRESS TO INSTRUCTION
 4840  027660  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4841  027662  010000                  2$:     010000                   ;LOAD MAR
 4842  027664  042737  000017  027700          BIC     #17,3$           ;CLEAR ADDRESS OF INSTRUCTION
 4843  027672  050037  027700                  BIS     R0,3$            ;ADD ADDRESS TO INSTRUCTION
 4844  027676  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4845  027700  040760                  3$:     040400!<17*20>           ;BR = 2'S COMP SUB
 4846  027702  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4847  027704  061224                          61224                    ;MOVE BR TO PORT4
 4848  027706  111205                          MOVB    (R2),R5          ;PUT "EXPECTED" IN R5
 4849  027710  116104  000004                  MOVB    4(R1),R4         ;PUT "FOUND" IN R4
 4850  027714  120504                          CMPB    R5,R4            ;DATA CORRECT?
 4851  027716  001401                          BEQ     4$               ;BR IF YES
 4852  027720  104015                          HLT     15               ;ALU ERROR
 4853  027722  104401                  4$:     SCOP1                    ;SW09=1?
 4854  027724  005202                          INC     R2               ;NEXT DATA
 4855  027726  005200                          INC     R0               ;NEXT ADDRESS
 4856  027730  022700  000010                  CMP     #10,R0           ;DONE YET?
 4857  027734  001342                          BNE     1$               ;BR IF NO
 4858  027736  104400                          SCOPE                    ;SCOPE THIS TEST
 4859  027740     377     000     376  5$:     .BYTE   -1,0,376,-1,-1,252,124,-1
 4860  027743     377     377     252
 4861  027746     124     377
 4862                                  .EVEN
 4863
 4864
 4865                                  ;*************************** TEST 114 ****************************
 4866                                  ;*ALU TEST
 4867                                  ;*TEST OF ALU FUNCTION DEC A WITH C BIT CLEARED
 4868                                  ;*ALU FUNCTION (A-1)     CODE=7
 4869                                  ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 4870                                  ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 4871                                  ;*****************************************************************
 4872
 4873                                  ;  TEST 114
 4874                                  ;--------------
 4875  027750  012737  000114  001226  TST114: MOV     #114,TSTNO
 4876  027756  012737  030124  001216          MOV     #TST115,NEXT
 4877  027764  012737  030016  001220          MOV     #1$,LOCK
 4878                                                                   ;R1 CONTAINS BASE M8200-YC ADDRESS
 4879  027772  104412                          MSTCLR                   ;MASTER CLEAR M8200-YC
 4880  027774  005000                          CLR     R0               ;MEM + SP ADDRESS
 4881  027776  012702  030114                  MOV     #5$,R2           ;POINTER TO CORRECT DATA
 4882  030002  004737  034736                  JSR     PC,MEMLD         ;LOAD 8 WORDS OF MAIN MEMORY
 4883  030006  035062                          MEMDAT                   ;POINTER TO DATA
 4884  030010  004737  034772                  JSR     PC,SPLD          ;LOAD 8 WORDS OF SP
 4885  030014  035072                          SPDAT                    ;POINTER TO DATA
 4886  030016  004737  035036          1$:     JSR     PC,CLRC          ;CLEAR C BIT!
 4887  030022  042737  000017  030036          BIC     #17,2$           ;CLEAR ADDRESS FIELD OF INSTRUCTION
 4888  030030  050037  030036                  BIS     R0,2$            ;ADD ADDRESS TO INSTRUCTION
 4889  030034  104414                          ROMCLK                   ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4890  030036  010000                  2$:     010000                   ;LOAD MAR
```

```
 4891  030040  042737  000017  030054          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 4892  030046  050037  030054                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 4893  030052  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4894  030054  040560                  3$:     040400!<7*20>           ;BR ← DEC A
 4895  030056  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4896  030060  061224                          61224                   ;MOVE BR TO PORT4
 4897  030062  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 4898  030064  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 4899  030070  120504                          CMPB    R5,R4           ;DATA CORRECT?
 4900  030072  001401                          BEQ     4$              ;BR IF YES
 4901  030074  104015                          HLT     15              ;ALU ERROR
 4902  030076  104401                  4$:     SCOP1                   ;SW09=1?
 4903  030100  005202                          INC     R2              ;NEXT DATA
 4904  030102  005200                          INC     R0              ;NEXT ADDRESS
 4905  030104  022700  000010                  CMP     #10,R0          ;DONE YET?
 4906  030110  001342                          BNE     1$              ;BR IF NO
 4907  030112  104400                          SCOPE                   ;SCOPE THIS TEST
 4908  030114     377     377     376  5$:     .BYTE   -1,-1,376,376,124,124,251,251
 4909  030117     376     124     124
 4910  030122     251     251
 4911                                  .EVEN
 4912
 4913
 4914                                          ;*************************** TEST 115 ****************************
 4915                                          ;*ALU TEST
 4916                                          ;*TEST OF ALU FUNCTION SEL B WITH C BIT SET
 4917                                          ;*ALU FUNCTION (B)    CODE=11
 4918                                          ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 4919                                          ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 4920                                          ;;*************************************************************
 4921
 4922                                          ;  TEST 115
 4923                                          ;--------------
 4924  030124  012737  000115  001226  TST115: MOV     #115,TSTNO
 4925  030132  012737  030300  001216          MOV     #TST116,NEXT
 4926  030140  012737  030172  001220          MOV     #1$,LOCK
 4927
 4928  030146  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 4929  030150  005000                          CLR     R0              ;MEM + SP ADDRESS
 4930  030152  012702  030270                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
 4931  030156  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 4932  030162  035062                          MEMDAT                  ;POINTER TO DATA
 4933  030164  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 4934  030170  035072                          SPDAT                   ;POINTER TO DATA
 4935  030172  004737  035050          1$:     JSR     PC,SETC         ;SET C BIT!
 4936  030176  042737  000017  030212          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 4937  030204  050037  030212                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 4938  030210  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4939  030212  010000                  2$:     010000                  ;LOAD MAR
 4940  030214  042737  000017  030230          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 4941  030222  050037  030230                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 4942  030226  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 4943  030230  040620                  3$:     040400!<11*20>          ;BR ← SEL B
 4944  030232  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
```

```
4945  030234  061224                          61224                   ;MOVE BR TO PORT4
4946  030236  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4947  030240  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4948  030244  120504                          CMPB    R5,R4           ;DATA CORRECT?
4949  030246  001401                          BEQ     4$              ;BR IF YES
4950  030250  104015                          HLT     15              ;ALU ERROR
4951  030252  104401                  4$:     SCOP1                   ;SW09=1?
4952  030254  005202                          INC     R2              ;NEXT DATA
4953  030256  005200                          INC     R0              ;NEXT ADDRESS
4954  030260  022700  000010                  CMP     #10,R0          ;DONE YET?
4955  030264  001342                          BNE     1$              ;BR IF NO
4956  030266  104400                          SCOPE                   ;SCOPE THIS TEST
4957  030270     000     377     000  5$:     .BYTE   0,-1,0,-1,125,252,125,252
4958  030273     377     125     252
4959  030276     125     252
4960                                  .EVEN
4961
4962
4963                                          ;************************** TEST 116 **************************
4964                                          ;*ALU TEST
4965                                          ;*TEST OF ALU FUNCTION SEL A WITH C BIT SET
4966                                          ;*ALU FUNCTION (A)    CODE=10
4967                                          ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
4968                                          ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
4969                                          ;;*************************************************************
4970
4971                                          ;  TEST 116
4972                                          ;--------------
4973  030300  012737  000116  001226  TST116: MOV     #116,TSTNO
4974  030306  012737  030454  001216          MOV     #TST117,NEXT
4975  030314  012737  030346  001220          MOV     #1$,LOCK
4976                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
4977  030322  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
4978  030324  005000                          CLR     R0              ;MEM + SP ADDRESS
4979  030326  012702  030444                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
4980  030332  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
4981  030336  035062                          MEMDAT                  ;POINTER TO DATA
4982  030340  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
4983  030344  035072                          SPDAT                   ;POINTER TO DATA
4984  030346  004737  035050          1$:     JSR     PC,SETC         ;SET C BIT!
4985  030352  042737  000017  030366          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
4986  030360  050037  030366                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
4987  030364  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4988  030366  010000                  2$:     010000                  ;LOAD MAR
4989  030370  042737  000017  030404          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
4990  030376  050037  030404                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
4991  030402  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4992  030404  040600                  3$:     040400!<10*20>          ;BR ← SEL A
4993  030406  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
4994  030410  061224                          61224                   ;MOVE BR TO PORT4
4995  030412  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
4996  030414  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
4997  030420  120504                          CMPB    R5,R4           ;DATA CORRECT?
4998  030422  001401                          BEQ     4$              ;BR IF YES
```

```
 4999  030424  104015                        HLT     15              ;ALU ERROR
 5000  030426  104401                4$:     SCOP1                   ;SW09=1?
 5001  030430  005202                        INC     R2              ;NEXT DATA
 5002  030432  005200                        INC     R0              ;NEXT ADDRESS
 5003  030434  022700  000010                CMP     #10,R0          ;DONE YET?
 5004  030440  001342                        BNE     1$              ;BR IF NO
 5005  030442  104400                        SCOPE                   ;SCOPE THIS TEST
 5006  030444     000     000     377  5$:   .BYTE   0,0,-1,-1,125,125,252,252
 5007  030447     377     125     125
 5008  030452     252     252
 5009                                .EVEN
 5010
 5011
 5012                                ;*************************** TEST 117 ****************************
 5013                                ;*ALU TEST
 5014                                ;*TEST OF ALU FUNCTION A OR NOTB WITH C BIT SET
 5015                                ;*ALU FUNCTION (A OR NOTB)    CODE=12
 5016                                ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 5017                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 5018                                ;:*************************************************************
 5019
 5020                                ;  TEST 117
 5021                                ;--------------
 5022  030454  012737  000117  001226  TST117: MOV     #117,TSTNO
 5023  030462  012737  030630  001216          MOV     #TST120,NEXT
 5024  030470  012737  030522  001220          MOV     #1$,LOCK
 5025                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
 5026  030476  104412                        MSTCLR                  ;MASTER CLEAR M8200-YC
 5027  030500  005000                        CLR     R0              ;MEM + SP ADDRESS
 5028  030502  012702  030620                MOV     #5$,R2          ;POINTER TO CORRECT DATA
 5029  030506  004737  034736                JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 5030  030512  035062                        MEMDAT                  ;POINTER TO DATA
 5031  030514  004737  034772                JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 5032  030520  035072                        SPDAT                   ;POINTER TO dATA
 5033  030522  004737  035050          1$:   JSR     PC,SETC         ;SET C BIT!
 5034  030526  042737  000017  030542        BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 5035  030534  050037  030542                BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 5036  030540  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5037  030542  010000                  2$:   010000                  ;LOAD MAR
 5038  030544  042737  000017  030560        BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 5039  030552  050037  030560                BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 5040  030556  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5041  030560  040640                  3$:   040400!<12*20>          ;BR ← A OR NOTB
 5042  030562  104414                        ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5043  030564  061224                        61224                   ;MOVE BR TO PORT4
 5044  030566  111205                        MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 5045  030570  116104  000004                MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 5046  030574  120504                        CMPB    R5,R4           ;DATA CORRECT?
 5047  030576  001401                        BEQ     4$              ;BR IF YES
 5048  030600  104015                        HLT     15              ;ALU ERROR
 5049  030602  104401                4$:     SCOP1                   ;SW09=1?
 5050  030604  005202                        INC     R2              ;NEXT DATA
 5051  030606  005200                        INC     R0              ;NEXT ADDRESS
 5052  030610  022700  000010                CMP     #10,R0          ;DONE YET?
```

```
5053  030614  001342                          BNE     1$              ;BR IF NO
5054  030616  104400                          SCOPE                   ;SCOPE THIS TEST
5055  030620    377     000     377   5$:     .BYTE   -1,0,-1,-1,-1,125,252,-1
5056  030623    377     377     125
5057  030626    252     377
5058                                  .EVEN
5059
5060
5061                                  ;*************************** TEST 120 ****************************
5062                                  ;*ALU TEST
5063                                  ;*TEST OF ALU FUNCTION A AND B WITH C BIT SET
5064                                  ;*ALU FUNCTION (A AND B)    CODE=13
5065                                  ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5066                                  ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5067                                  ;*****************************************************************
5068
5069                                  ;  TEST 120
5070                                  ;--------------
5071  030630  012737  000120  001226  TST120: MOV     #120,TSTNO
5072  030636  012737  031004  001216          MOV     #TST121,NEXT
5073  030644  012737  030676  001220          MOV     #1$,LOCK
5074                                                          ;R1 CONTAINS BASE M8200-YC ADDRESS
5075  030652  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
5076  030654  005000                          CLR     R0              ;MEM + SP ADDRESS
5077  030656  012702  030774                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
5078  030662  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5079  030666  035062                          MEMDAT                  ;POINTER TO DATA
5080  030670  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5081  030674  035072                          SPDAT                   ;POINTER TO DATA
5082  030676  004737  035050          1$:     JSR     PC,SETC         ;SET C BIT!
5083  030702  042737  000017  030716          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5084  030710  050037  030716                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
5085  030714  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5086  030716  010000                  2$:     010000                  ;LOAD MAR
5087  030720  042737  000017  030734          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
5088  030726  050037  030734                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
5089  030732  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5090  030734  040660                  3$:     040400!<13*20>          ;BR ← A AND B
5091  030736  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5092  030740  061224                          61224                   ;MOVE BR TO pORT4
5093  030742  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5094  030744  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5095  030750  120504                          CMPB    R5,R4           ;DATA CORRECT?
5096  030752  001401                          BEQ     4$              ;BR IF YES
5097  030754  104015                          HLT     15              ;ALU ERROR
5098  030756  104401                  4$:     SCOP1                   ;SW09=1?
5099  030760  005202                          INC     R2              ;NEXT DATA
5100  030762  005200                          INC     R0              ;NEXT ADDRESS
5101  030764  022700  000010                  CMP     #10,R0          ;DONE YET?
5102  030770  001342                          BNE     1$              ;BR IF NO
5103  030772  104400                          SCOPE                   ;SCOPE THIS TEST
5104  030774    000     000     000   5$:     .BYTE   0,0,0,-1.125,0,0,252
5105  030777    377     125     000
5106  031002    000     252
```

```
                                        .EVEN

                                ;*************************** TEST 121 ****************************
                                ;*ALU TEST
                                ;*TEST OF ALU FUNCTION A OR B WITH C BIT SET
                                ;*ALU FUNCTION (A OR B)    CODE=14
                                ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                ;*****************************************************************

                                ;  TEST 121
                                ;--------------
031004  012737  000121  001226  TST121: MOV     #121,TSTNO
031012  012737  031160  001216          MOV     #TST122,NEXT
031020  012737  031052  001220          MOV     #1$,LOCK

                                                        ;R1 CONTAINS BASE M8200-YC ADDRESS
031026  104412                          MSTCLR          ;MASTER CLEAR M8200-YC
031030  005000                          CLR     R0      ;MEM + SP ADDRESS
031032  012702  031150                  MOV     #5$,R2  ;POINTER TO CORRECT DATA
031036  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
031042  035062                          MEMDAT          ;POINTER TO DATA
031044  004737  034772                  JSR     PC,SPLD ;LOAD 8 WORDS OF SP
031050  035072                          SPDAT           ;POINTER TO DATA
031052  004737  035050          1$:     JSR     PC,SETC ;SET C BIT!
031056  042737  000017  031072          BIC     #17,2$  ;CLEAR ADDRESS FIELD OF INSTRUCTION
031064  050037  031072                  BIS     R0,2$   ;ADD ADDRESS TO INSTRUCTION
031070  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
031072  010000                  2$:     010000          ;LOAD MAR
031074  042737  000017  031110          BIC     #17,3$  ;CLEAR ADDRESS OF INSTRUCTION
031102  050037  031110                  BIS     R0,3$   ;ADD ADDRESS TO INSTRUCTION
031106  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
031110  040700                  3$:     040400!<14*20>  ;BR ← A OR B
031112  104414                          ROMCLK          ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
031114  061224                          61224           ;MOVE BR TO PORT4
031116  111205                          MOVB    (R2),R5 ;PUT "EXPECTED" IN R5
031120  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
031124  120504                          CMPB    R5,R4   ;DATA CORRECT?
031126  001401                          BEQ     4$      ;BR IF YES
031130  104015                          HLT     15      ;ALU ERROR
031132  104401                  4$:     SCOP1           ;SW09=1?
031134  005202                          INC     R2      ;NEXT DATA
031136  005200                          INC     R0      ;NEXT ADDRESS
031140  022700  000010                  CMP     #10,R0  ;DONE YET?
031144  001342                          BNE     1$      ;BR IF NO
031146  104400                          SCOPE           ;SCOPE THIS TEST
031150      000     377     377 5$:     .BYTE   0,-1,-1,-1,125,-1,-1,252
031153      377     125     377
031156      377     252
                                        .EVEN

                                ;*************************** TEST 122 ****************************
                                ;*ALU TEST
```

```
                                        ;*TEST OF ALU FUNCTION A XOR B WITH C BIT SET
                                        ;*ALU FUNCTION (A XOR B)    CODE=15
                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                        ;:*****************************************************************

                                        ;  TEST 122
                                        ;--------------
031160  012737  000122  001226  TST122: MOV     #122,TSTNO
031166  012737  031334  001216         MOV     #TST123,NEXT
031174  012737  031226  001220         MOV     #1$,LOCK

                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
031202  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
031204  005000                         CLR     R0              ;MEM + SP ADDRESS
031206  012702  031324                 MOV     #5$,R2          ;POINTER TO CORRECT DATA
031212  004737  034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
031216  035062                         MEMDAT                  ;POINTER TO DATA
031220  004737  034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
031224  035072                         SPDAT                   ;POINTER TO DATA
031226  004737  035050         1$:     JSR     PC,SETC         ;SET C BIT!
031232  042737  000017  031246         BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
031240  050037  031246                 BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
031244  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
031246  010000                 2$:     010000                  ;LOAD MAR
031250  042737  000017  031264         BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
031256  050037  031264                 BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
031262  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
031264  040720                 3$:     040400!<15*20>          ;BR ← A XOR B
031266  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
031270  061224                         61224                   ;MOVE BR TO PORT4
031272  111205                         MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
031274  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
031300  120504                         CMPB    R5,R4           ;DATA CORRECT?
031302  001401                         BEQ     4$              ;BR IF YES
031304  104015                         HLT     15              ;ALU ERROR
031306  104401                 4$:     SCOP1                   ;SW09=1?
031310  005202                         INC     R2              ;NEXT DATA
031312  005200                         INC     R0              ;NEXT ADDRESS
031314  022700  000010                 CMP     #10,R0          ;DONE YET?
031320  001342                         BNE     1$              ;BR IF NO
031322  104400                         SCOPE                   ;SCOPE THIS TEST
031324      000     377     377  5$:     .BYTE   0,-1,-1,0,0,-1,-1,0
031327      000     000     377
031332      377     000
                                        .EVEN


                                        ;*************************** TEST 123 ****************************
                                        ;*ALU TEST
                                        ;*TEST OF ALU FUNCTION ADD WITH C BIT SET
                                        ;*ALU FUNCTION (A PLUS B)    CODE=00
                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
                                        ;:*****************************************************************
```

```
5215
5216                                        ;  TEST 123
5217                                        ;--------------
5218  031334  012737  000123  001226  TST123: MOV     #123,TSTNO
5219  031342  012737  031510  001216          MOV     #TST124,NEXT
5220  031350  012737  031402  001220          MOV     #1$,LOCK
5221                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
5222  031356  104412                          MSTCLR                ;MASTER CLEAR M8200-YC
5223  031360  005000                          CLR     R0            ;MEM + SP ADDRESS
5224  031362  012702  031500                  MOV     #5$,R2        ;POINTER TO CORRECT DATA
5225  031366  004737  034736                  JSR     PC,MEMLD      ;LOAD 8 WORDS OF MAIN MEMORY
5226  031372  035062                          MEMDAT                ;POINTER TO DATA
5227  031374  004737  034772                  JSR     PC,SPLD       ;LOAD 8 WORDS OF SP
5228  031400  035072                          SPDAT                 ;POINTER TO DATA
5229  031402  004737  035050          1$:     JSR     PC,SETC       ;SET C BIT!
5230  031406  042737  000017  031422          BIC     #17,2$        ;CLEAR ADDRESS FIELD OF INSTRUCTION
5231  031414  050037  031422                  BIS     R0,2$         ;ADD ADDRESS TO INSTRUCTION
5232  031420  104414                          ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5233  031422  010000          2$:             010000                ;LOAD MAR
5234  031424  042737  000017  031440          BIC     #17,3$        ;CLEAR ADDRESS OF INSTRUCTION
5235  031432  050037  031440                  BIS     R0,3$         ;ADD ADDRESS TO INSTRUCTION
5236  031436  104414                          ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5237  031440  040400          3$:             040400!<00*20>        ;BR + ADD
5238  031442  104414                          ROMCLK                ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5239  031444  061224                          61224                 ;MOVE BR TO PORT4
5240  031446  111205                          MOVB    (R2),R5       ;PUT "EXPECTED" IN R5
5241  031450  116104  000004                  MOVB    4(R1),R4      ;PUT "FOUND" IN R4
5242  031454  120504                          CMPB    R5,R4         ;DATA CORRECT?
5243  031456  001401                          BEQ     4$            ;BR IF YES
5244  031460  104015                          HLT     15            ;ALU ERROR
5245  031462  104401          4$:             SCOP1                 ;SW09=1?
5246  031464  005202                          INC     R2            ;NEXT DATA
5247  031466  005200                          INC     R0            ;NEXT ADDRESS
5248  031470  022700  000010                  CMP     #10,R0        ;DONE YET?
5249  031474  001342                          BNE     1$            ;BR IF NO
5250  031476  104400                          SCOPE                 ;SCOPE THIS TEST
5251  031500     000     377     377  5$:     .BYTE   0,-1,-1,376,252,-1,-1,124
5252  031503     376     252     377
5253  031506     377     124
5254                                  .EVEN
5255
5256
5257                                        ;*************************** TEST 124 ****************************
5258                                        ;*ALU TEST
5259                                        ;*TEST OF ALU FUNCTION 2A W/C WITH C BIT SET
5260                                        ;*ALU FUNCTION (A PLUS A PLUS C)     CODE=6
5261                                        ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5262                                        ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5263                                        ;*****************************************************************
5264
5265                                        ;  TEST 124
5266                                        ;--------------
5267  031510  012737  000124  001226  TST124: MOV     #124,TSTNO
5268  031516  012737  031664  001216          MOV     #TST125,NEXT
```

```
5269   031524   012737   031556   001220          MOV     #1$,LOCK
5270                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
5271   031532   104412                  MSTCLR      ;MASTER CLEAR M8200-YC
5272   031534   005000                  CLR     R0  ;MEM + SP ADDRESS
5273   031536   012702   031654         MOV     #5$,R2  ;POINTER TO CORRECT DATA
5274   031542   004737   034736         JSR     PC,MEMLD    ;LOAD 8 WORDS OF MAIN MEMORY
5275   031546   035062                  MEMDAT      ;POINTER TO DATA
5276   031550   004737   034772         JSR     PC,SPLD     ;LOAD 8 WORDS OF SP
5277   031554   035072                  SPDAT       ;POINTER TO DATA
5278   031556   004737   035050   1$:    JSR     PC,SETC     ;SET C BIT!
5279   031562   042737   000017   031576     BIC     #17,2$  ;CLEAR ADDRESS FIELD OF INSTRUCTION
5280   031570   050037   031576         BIS     R0,2$       ;ADD ADDRESS TO INSTRUCTION
5281   031574   104414                  ROMCLK      ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5282   031576   010000   2$:            010000      ;LOAD MAR
5283   031600   042737   000017   031614     BIC     #17,3$  ;CLEAR ADDRESS OF INSTRUCTION
5284   031606   050037   031614         BIS     R0,3$       ;ADD ADDRESS TO INSTRUCTION
5285   031612   104414                  ROMCLK      ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5286   031614   040540   3$:            040400!<6*20>   ;BR + 2A W/C
5287   031616   104414                  ROMCLK      ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5288   031620   061224                  61224       ;MOVE BR TO PORT4
5289   031622   111205                  MOVB    (R2),R5     ;PUT "EXPECTED" IN R5
5290   031624   116104   000004         MOVB    4(R1),R4    ;PUT "FOUND" IN R4
5291   031630   120504                  CMPB    R5,R4       ;DATA CORRECT?
5292   031632   001401                  BEQ     4$          ;BR IF YES
5293   031634   104015                  HLT     15          ;ALU ERROR
5294   031636   104401   4$:            SCOP1       ;SW09=1?
5295   031640   005202                  INC     R2          ;NEXT DATA
5296   031642   005200                  INC     R0          ;NEXT ADDRESS
5297   031644   022700   000010         CMP     #10,R0      ;DONE YET?
5298   031650   001342                  BNE     1$          ;BR IF NO
5299   031652   104400                  SCOPE               ;SCOPE THIS TEST
5300   031654      001      001      377   5$:    .BYTE   1,1,-1,-1,253,253,125,125
5301   031657      377      253      253
5302   031662      125      125
5303                                   .EVEN
5304
5305                                                ;*************************** TEST 125 ****************************
5306                                                ;*ALU TEST
5307                                                ;*TEST OF ALU FUNCTION SUB WITH C BIT SET
5308                                                ;*ALU FUNCTION (A-B)    CODE=16
5309                                                ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5310                                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5311                                                ;*****************************************************************
5312
5313                                                ;  TEST 125
5314                                                ;--------------
5315
5316   031664   012737   000125   001226   TST125: MOV     #125,TSTNO
5317   031672   012737   032040   001216           MOV     #TST126,NEXT
5318   031700   012737   031732   001220           MOV     #1$,LOCK
5319                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
5320   031706   104412                  MSTCLR      ;MASTER CLEAR M8200-YC
5321   031710   005000                  CLR     R0  ;MEM + SP ADDRESS
5322   031712   012702   032030         MOV     #5$,R2      ;POINTER TO CORRECT DATA
```

```
5323  031716  004737  034736                    JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5324  031722  035062                            MEMDAT                  ;POINTER TO DATA
5325  031724  004737  034772                    JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5326  031730  035072                            SPDAT                   ;POINTER TO DATA
5327  031732  004737  035050            1$:     JSR     PC,SETC         ;SET C BIT!
5328  031736  042737  000017  031752            BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5329  031744  050037  031752                    BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
5330  031750  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5331  031752  010000                    2$:     010000                  ;LOAD MAR
5332  031754  042737  000017  031770            BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
5333  031762  050037  031770                    BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
5334  031766  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5335  031770  040740                    3$:     040400!<16*20>          ;BR + SUB
5336  031772  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5337  031774  061224                            61224                   ;MOVE BR TO PORT4
5338  031776  111205                            MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5339  032000  116104  000004                    MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5340  032004  120504                            CMPB    R5,R4           ;DATA CORRECT?
5341  032006  001401                            BEQ     4$              ;BR IF YES
5342  032010  104015                            HLT     15              ;ALU ERROR
5343  032012  104401                    4$:     SCOP1                   ;SW09=1?
5344  032014  005202                            INC     R2              ;NEXT DATA
5345  032016  005200                            INC     R0              ;NEXT ADDRESS
5346  032020  022700  000010                    CMP     #10,R0          ;DONE YET?
5347  032024  001342                            BNE     1$              ;BR IF NO
5348  032026  104400                            SCOPE                   ;SCOPE THIS TEST
5349  032030     000     001     377    5$:     .BYTE   0,1,-1,0,0,253,125,0
5350  032033     000     000     253
5351  032036     125     000
5352                                    .EVEN
5353
5354
5355                                            ;*************************** TEST 126 ****************************
5356                                            ;*ALU TEST
5357                                            ;*TEST OF ALU FUNCTION ADD W/C WITH C BIT SET
5358                                            ;*ALU FUNCTION (A PLUS B PLUS C)     CODE=01
5359                                            ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5360                                            ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5361                                            ;:*************************************************************
5362
5363                                            ;  TEST 126
5364                                            ;--------------
5365  032040  012737  000126  001226  TST126:  MOV     #126,TSTNO
5366  032046  012737  032214  001216            MOV     #TST127,NEXT
5367  032054  012737  032106  001220            MOV     #1$,LOCK
5368                                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
5369  032062  104412                            MSTCLR                  ;MASTER CLEAR M8200-YC
5370  032064  005000                            CLR     R0              ;MEM + SP ADDRESS
5371  032066  012702  032204                    MOV     #5$,R2          ;POINTER TO CORRECT DATA
5372  032072  004737  034736                    JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5373  032076  035062                            MEMDAT                  ;POINTER TO DATA
5374  032100  004737  034772                    JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5375  032104  035072                            SPDAT                   ;POINTER TO DATA
5376  032106  004737  035050            1$:     JSR     PC,SETC         ;SET C BIT!
```

```
 5377  032112  042737  000017  032126          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 5378  032120  050037  032126                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 5379  032124  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5380  032126  010000                  2$:     010000                  ;LOAD MAR
 5381  032130  042737  000017  032144          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
 5382  032136  050037  032144                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
 5383  032142  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5384  032144  040420                  3$:     040400!<01*20>          ;BR + ADD W/C
 5385  032146  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5386  032150  061224                          61224                   ;MOVE BR TO PORT4
 5387  032152  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
 5388  032154  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
 5389  032160  120504                          CMPB    R5,R4           ;DATA CORRECT?
 5390  032162  001401                          BEQ     4$              ;BR IF YES
 5391  032164  104015                          HLT     15              ;ALU ERROR
 5392  032166  104401                  4$:     SCOP1                   ;SW09=1?
 5393  032170  005202                          INC     R2              ;NEXT DATA
 5394  032172  005200                          INC     R0              ;NEXT ADDRESS
 5395  032174  022700  000010                  CMP     #10,R0          ;DONE YET?
 5396  032200  001342                          BNE     1$              ;BR IF NO
 5397  032202  104400                          SCOPE                   ;SCOPE THIS TEST
 5398  032204     001     000     000  5$:     .BYTE   1,0,0,-1,253,0,0,125
 5399  032207     377     253     000
 5400  032212     000     125
 5401                                  .EVEN
 5402
 5403
 5404                                  ;*************************** TEST 127 ****************************
 5405                                  ;*ALU TEST
 5406                                  ;*TEST OF ALU FUNCTION SUB W/C WITH C BIT SET
 5407                                  ;*ALU FUNCTION (A-B-C)     CODE=2
 5408                                  ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
 5409                                  ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
 5410                                  ;;*************************************************************
 5411
 5412                                  ;  TEST 127
 5413                                  ;--------------
 5414  032214  012737  000127  001226  TST127: MOV     #127,TSTNO
 5415  032222  012737  032370  001216          MOV     #TST130,NEXT
 5416  032230  012737  032262  001220          MOV     #1$,LOCK
 5417                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
 5418  032236  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
 5419  032240  005000                          CLR     R0              ;MEM + SP ADDRESS
 5420  032242  012702  032360                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
 5421  032246  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
 5422  032252  035062                          MEMDAT                  ;POINTER TO DATA
 5423  032254  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
 5424  032260  035072                          SPDAT                   ;POINTER TO DATA
 5425  032262  004737  035050          1$:     JSR     PC,SETC         ;SET C BIT!
 5426  032266  042737  000017  032302          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
 5427  032274  050037  032302                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
 5428  032300  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5429  032302  010000                  2$:     010000                  ;LOAD MAR
 5430  032304  042737  000017  032320          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
```

```
5431   032312  050037  032320                  BIS     R0,3$           ;ADD ADDRESS TO iNSTRUCTION
5432   032316  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5433   032320  040440                  3$:     040400!<2*20>           ;BR ← SUB W/C
5434   032322  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5435   032324  061224                          61224                   ;MOVE BR TO PORT4
5436   032326  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5437   032330  116104  000004                  MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5438   032334  120504                          CMPB    R5,R4           ;DATA CORRECT?
5439   032336  001401                          BEQ     4$              ;BR IF YES
5440   032340  104015                          HLT     15              ;ALU ERROR
5441   032342  104401                  4$:     SCOP1                   ;SW09=1?
5442   032344  005202                          INC     R2              ;NEXT DATA
5443   032346  005200                          INC     R0              ;NEXT ADDRESS
5444   032350  022700  000010                  CMP     #10,R0          ;DONE YET?
5445   032354  001342                          BNE     1$              ;BR IF NO
5446   032356  104400                          SCOPE                   ;SCOPE THIS TEST
5447   032360     000     001     377  5$:     .BYTE   0,1,-1,0,0,253,125,0
5448   032363     000     000     253
5449   032366     125     000
5450                                   .EVEN
5451
5452
5453                                   ;*************************** TEST 130 ****************************
5454                                   ;*ALU TEST
5455                                   ;*TEST OF ALU FUNCTION INC A WITH C BIT SET
5456                                   ;*ALU FUNCTION (A PLUS 1)     CODE=3
5457                                   ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5458                                   ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5459                                   ;*****************************************************************
5460
5461                                   ;  TEST 130
5462                                   ;--------------
5463   032370  012737  000130  001226  TST130: MOV     #130,TSTNO
5464   032376  012737  032544  001216          MOV     #TST131,NEXT
5465   032404  012737  032436  001220          MOV     #1$,LOCK
5466                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
5467   032412  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
5468   032414  005000                          CLR     R0              ;MEM ↔ SP ADDRESS
5469   032416  012702  032534                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
5470   032422  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5471   032426  035062                          MEMDAT                  ;POINTER TO DATA
5472   032430  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5473   032434  035072                          SPDAT                   ;POINTER TO DATA
5474   032436  004737  035050          1$:     JSR     PC,SETC         ;SET C BIT!
5475   032442  042737  000017  032456          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5476   032450  050037  032456                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
5477   032454  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5478   032456  010000                  2$:     010000                  ;LOAD MAR
5479   032460  042737  000017  032474          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
5480   032466  050037  032474                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
5481   032472  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5482   032474  040460                  3$:     040400!<3*20>           ;BR ← INC A
5483   032476  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5484   032500  061224                          61224                   ;MOVE BR TO pORT4
```

```
5485  032502  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5486  032504  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5487  032510  120504                          CMPB    R5,R4           ;DATA CORRECT?
5488  032512  001401                          BEQ     4$              ;BR IF YES
5489  032514  104015                          HLT     15              ;ALU ERROR
5490  032516  104401                  4$:     SCOP1                   ;SW09=1?
5491  032520  005202                          INC     R2              ;NEXT DATA
5492  032522  005200                          INC     R0              ;NEXT ADDRESS
5493  032524  022700  000010                 CMP     #10,R0          ;DONE YET?
5494  032530  001342                          BNE     1$              ;BR IF NO
5495  032532  104400                          SCOPE                   ;SCOPE THIS TEST
5496  032534     001     001     000  5$:     .BYTE   1,1,0,0,126,126,253,253
5497  032537     000     126     126
5498  032542     253     253
5499                                  .EVEN
5500
5501
5502                                          ;*************************** TEST 131 ****************************
5503                                          ;*ALU TEST
5504                                          ;*TEST OF ALU FUNCTION 2A WITH C BIT SET
5505                                          ;*ALU FUNCTION (A PLUS A)     CODE=5
5506                                          ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5507                                          ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5508                                          ;:*************************************************************
5509
5510                                          ;  TEST 131
5511                                          ;--------------
5512  032544  012737  000131  001226  TST131: MOV     #131,TSTNO
5513  032552  012737  032720  001216          MOV     #TST132,NEXT
5514  032560  012737  032612  001220          MOV     #1$,LOCK
5515                                                                  ;R1 CONTAINS BASE M8200-YC ADDRESS
5516  032566  104412                          MSTCLR                  ;MASTER CLEAR M8200-YC
5517  032570  005000                          CLR     R0              ;MEM + SP ADDRESS
5518  032572  012702  032710                  MOV     #5$,R2          ;POINTER TO CORRECT DATA
5519  032576  004737  034736                  JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5520  032602  035062                          MEMDAT                  ;POINTER TO DATA
5521  032604  004737  034772                  JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5522  032610  035072                          SPDAT                   ;POINTER TO DATA
5523  032612  004737  035050          1$:     JSR     PC,SETC         ;SET C BIT!
5524  032616  042737  000017  032632          BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5525  032624  050037  032632                  BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
5526  032630  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5527  032632  010000                  2$:     010000                  ;LOAD MAR
5528  032634  042737  000017  032650          BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
5529  032642  050037  032650                  BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
5530  032646  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5531  032650  040520                  3$:     040400!<5*20>           ;BR ← 2A
5532  032652  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5533  032654  061224                          61224                   ;MOVE BR TO PORT4
5534  032656  111205                          MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5535  032660  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5536  032664  120504                          CMPB    R5,R4           ;DATA CORRECT?
5537  032666  001401                          BEQ     4$              ;BR IF YES
5538  032670  104015                          HLT     15              ;ALU ERROR
```

```
5539  032672  104401                    4$:     SCOP1                   ;SW09=1?
5540  032674  005202                            INC     R2              ;NEXT DATA
5541  032676  005200                            INC     R0              ;NEXT ADDRESS
5542  032700  022700  000010                    CMP     #10,R0          ;DONE YET?
5543  032704  001342                            BNE     1$              ;BR IF NO
5544  032706  104400                            SCOPE                   ;SCOPE THIS TEST
5545  032710     000     000     376  5$:       .BYTE   0,0,376,376,252,252,124,124
5546  032713     376     252     252
5547  032716     124     124
5548                                    .EVEN
5549
5550
5551                                    ;*************************** TEST 132 ****************************
5552                                    ;*ALU TEST
5553                                    ;*TEST OF ALU FUNCTION A PLUS C WITH C BIT SET
5554                                    ;*ALU FUNCTION (A PLUS C)     CODE=4
5555                                    ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5556                                    ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5557                                    ;;*************************************************************************
5558
5559                                    ;   TEST 132
5560                                    ;--------------
5561  032720  012737  000132  001226    TST132: MOV     #132,TSTNO
5562  032726  012737  033074  001216            MOV     #TST133,NEXT
5563  032734  012737  032766  001220            MOV     #1$,LOCK
5564                                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
5565  032742  104412                            MSTCLR                  ;MASTER CLEAR M8200-YC
5566  032744  005000                            CLR     R0              ;MEM + SP ADDRESS
5567  032746  012702  033064                    MOV     #5$,R2          ;POINTER TO CORRECT DATA
5568  032752  004737  034736                    JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5569  032756  035062                            MEMDAT                  ;POINTER TO DATA
5570  032760  004737  034772                    JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5571  032764  035072                            SPDAT                   ;POINTER TO DATA
5572  032766  004737  035050            1$:     JSR     PC,SETC         ;SET C BIT!
5573  032772  042737  000017  033006            BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5574  033000  050037  033006                    BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
5575  033004  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5576  033006  010000                    2$:     010000                  ;LOAD MAR
5577  033010  042737  000017  033024            BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
5578  033016  050037  033024                    BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
5579  033022  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5580  033024  040500                    3$:     040400!<4*20>           ;BR ← A PLUS C
5581  033026  104414                            ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5582  033030  061224                            61224                   ;MOVE BR TO PORT4
5583  033032  111205                            MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5584  033034  116104  000004                    MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5585  033040  120504                            CMPB    R5,R4           ;DATA CORRECT?
5586  033042  001401                            BEQ     4$              ;BR IF YES
5587  033044  104015                            HLT     15              ;ALU ERROR
5588  033046  104401                    4$:     SCOP1                   ;SW09=1?
5589  033050  005202                            INC     R2              ;NEXT DATA
5590  033052  005200                            INC     R0              ;NEXT ADDRESS
5591  033054  022700  000010                    CMP     #10,R0          ;DONE YET?
5592  033060  001342                            BNE     1$              ;BR IF NO
```

```
5593  033062  104400                    SCOPE                   ;SCOPE THIS TEST
5594  033064     001      001     000   5$:     .BYTE   1,1,0,0,126,126,253,253
5595  033067     000      126     126
5596  033072     253      253
5597                                .EVEN
5598
5599
5600                                ;*************************** TEST 133 ****************************
5601                                ;*ALU TEST
5602                                ;*TEST OF ALU FUNCTION 2'S COMP SUB WITH C BIT SET
5603                                ;*ALU FUNCTION (A-B-1)     CODE=17
5604                                ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5605                                ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5606                                ;;*************************************************************
5607
5608                                ;  TEST 133
5609                                ;--------------
5610  033074  012737  000133  001226  TST133: MOV     #133,TSTNO
5611  033102  012737  033250  001216          MOV     #TST134,NEXT
5612  033110  012737  033142  001220          MOV     #1$,LOCK
5613                                                          ;R1 CONTAINS BASE M8200-YC ADDRESS
5614  033116  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
5615  033120  005000                         CLR     R0              ;MEM + SP ADDRESS
5616  033122  012702  033240                 MOV     #5$,R2          ;POINTER TO CORRECT DATA
5617  033126  004737  034736                 JSR     PC,MEMLD        ;LOAD 8 WORDS OF MAIN MEMORY
5618  033132  035062                         MEMDAT                  ;POINTER TO DATA
5619  033134  004737  034772                 JSR     PC,SPLD         ;LOAD 8 WORDS OF SP
5620  033140  035072                         SPDAT                   ;POINTER TO DATA
5621  033142  004737  035050          1$:    JSR     PC,SETC         ;SET C BIT!
5622  033146  042737  000017  033162         BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5623  033154  050037  033162                 BIS     R0,2$           ;ADD ADDRESS TO INSTRUCTION
5624  033160  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5625  033162  010000                  2$:    010000                  ;LOAD MAR
5626  033164  042737  000017  033200         BIC     #17,3$          ;CLEAR ADDRESS OF INSTRUCTION
5627  033172  050037  033200                 BIS     R0,3$           ;ADD ADDRESS TO INSTRUCTION
5628  033176  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5629  033200  040760                  3$:    040400!<17*20>          ;BR = 2'S COMP SUB
5630  033202  104414                         ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5631  033204  061224                         61224                   ;MOVE BR TO PORT4
5632  033206  111205                         MOVB    (R2),R5         ;PUT "EXPECTED" IN R5
5633  033210  116104  000004                 MOVB    4(R1),R4        ;PUT "FOUND" IN R4
5634  033214  120504                         CMPB    R5,R4           ;DATA CORRECT?
5635  033216  001401                         BEQ     4$              ;BR IF YES
5636  033220  104015                         HLT     15              ;ALU ERROR
5637  033222  104401                  4$:    SCOP1                   ;SW09=1?
5638  033224  005202                         INC     R2              ;NEXT DATA
5639  033226  005200                         INC     R0              ;NEXT ADDRESS
5640  033230  022700  000010                 CMP     #10,R0          ;DONE YET?
5641  033234  001342                         BNE     1$              ;BR IF NO
5642  033236  104400                         SCOPE                   ;SCOPE THIS TEST
5643  033240     377      000     376   5$:     .BYTE   -1,0,376,-1,-1,252,124,-1
5644  033243     377      377     252
5645  033246     124      377
5646                                .EVEN
```

```
5647
5648
5649                                    ;*************************** TEST 134 ****************************
5650                                    ;*ALU TEST
5651                                    ;*TEST OF ALU FUNCTION DEC A WITH C BIT SET
5652                                    ;*ALU FUNCTION (A-1)    CODE=7
5653                                    ;*LOAD MAIN MEM AND SP WITH 8 WORDS OF DATA
5654                                    ;*PERFORM THE FUNCTION, VERIFY THE RESULTS
5655                                    ;:*************************************************************
5656
5657                                    ;  TEST 134
5658                                    ;--------------
5659  033250  012737  000134  001226  TST134: MOV     #134,TSTNO
5660  033256  012737  033424  001216         MOV     #TST135,NEXT
5661  033264  012737  033316  001220         MOV     #1$,LOCK
5662                                                                ;R1 CONTAINS BASE M8200-YC ADDRESS
5663  033272  104412                        MSTCLR                 ;MASTER CLEAR M8200-YC
5664  033274  005000                        CLR     R0             ;MEM + SP ADDRESS
5665  033276  012702  033414                MOV     #5$,R2         ;POINTER TO CORRECT DATA
5666  033302  004737  034736                JSR     PC,MEMLD       ;LOAD 8 WORDS OF MAIN MEMORY
5667  033306  035062                        MEMDAT                 ;POINTER TO DATA
5668  033310  004737  034772                JSR     PC,SPLD        ;LOAD 8 WORDS OF SP
5669  033314  035072                        SPDAT                  ;POINTER TO DATA
5670  033316  004737  035050         1$:    JSR     PC,SETC        ;SET C BIT!
5671  033322  042737  000017  033336        BIC     #17,2$         ;CLEAR ADDRESS FIELD OF INSTRUCTION
5672  033330  050037  033336                BIS     R0,2$          ;ADD ADDRESS TO INSTRUCTION
5673  033334  104414                        ROMCLK                 ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5674  033336  010000                 2$:    010000                 ;LOAD MAR
5675  033340  042737  000017  033354        BIC     #17,3$         ;CLEAR ADDRESS OF INSTRUCTION
5676  033346  050037  033354                BIS     R0,3$          ;ADD ADDRESS TO INSTRUCTION
5677  033352  104414                        ROMCLK                 ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5678  033354  040560                 3$:    040400!<7*20>          ;BR ← DEC A
5679  033356  104414                        ROMCLK                 ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5680  033360  061224                        61224                  ;MOVE BR TO PORT4
5681  033362  111205                        MOVB    (R2),R5        ;PUT "EXPECTED" IN R5
5682  033364  116104  000004                MOVB    4(R1),R4       ;PUT "FOUND" IN R4
5683  033370  120504                        CMPB    R5,R4          ;DATA CORRECT?
5684  033372  001401                        BEQ     4$             ;BR IF YES
5685  033374  104015                        HLT     15             ;ALU ERROR
5686  033376  104401                 4$:    SCOP1                  ;SW09=1?
5687  033400  005202                        INC     R2             ;NEXT DATA
5688  033402  005200                        INC     R0             ;NEXT ADDRESS
5689  033404  022700  000010                CMP     #10,R0         ;DONE YET?
5690  033410  001342                        BNE     1$             ;BR IF NO
5691  033412  104400                        SCOPE                  ;SCOPE THIS TEST
5692  033414     377     377     376  5$:    .BYTE   -1,-1,376,376,124,124,251,251
5693  033417     376     124     124
5694  033422     251     251
5695                                 .EVEN
5696
5697
5698                                    ;*************************** TEST 135 ****************************
5699                                    ;*TEST OF PROGRAM CLOCK BIT
5700                                    ;*DO A MASTER CLEAR, VERIFY THAT PROGRAM CLOCK IS SET
```

```
5701                                            ;*WRITE PROGRAM CLOCK BIT TO A ONE, VERIFY THAT IT CLEARS,
5702                                            ;*AND THEN SETS SOME TIME LATER
5703                                            ;:*****************************************************************
5704
5705                                            ;  TEST 135
5706                                            ;--------------
5707  033424  012737  000135  001226  TST135:  MOV     #135,TSTNO
5708  033432  012737  033604  001216            MOV     #TST136,NEXT
5709                                                                    ;R1 CONTAINS BASE M8200-YC ADDRESS
5710  033440  104412                           MSTCLR                  ;MASTER CLEAR M8200-YC
5711  033442  005037  001416                   CLR     TEMP            ;PREPARE FOR
5712  033446  005037  001246                   CLR     TEMP1           ;DELAY
5713  033452  012702  000011                   MOV     #11,R2          ;SAVE FOR TYPEOUT
5714  033456  012761  000020  000004  1$:      MOV     #20,4(R1)       ;LOAD PORT 4
5715  033464  152761  000002  000001            BISB    #BIT1,1(R1)     ;SET ROMI
5716  033472  012761  121111  000006            MOV     #121111,6(R1)   ;SEL6 ← INSTRUCTION
5717  033500  152761  000003  000001            BISB    #BIT1!BIT0,1(R1);SET CLOCK BIT
5718  033506  012761  121224  000006            MOV     #121224,6(R1)   ;LOAD NEXT INSTRUCTION
5719  033514  152761  000003  000001            BISB    #BIT1!BIT0,1(R1);READ CLOCK BIT
5720  033522  142761  000003  000001            BICB    #BIT1!BIT0,1(R1);CLEAR MAINT BITS
5721  033530  016104  000004                   MOV     4(R1),R4        ;PUT "FOUND" IN R4
5722  033534  005005                           CLR     R5              ;PUT "EXPECTED" IN R5
5723  033536  120504                           CMPB    R5,R4           ;IS PGM CLOCK CLEAR?
5724  033540  001401                           BEQ     2$
5725  033542  104016                           HLT     16              ;ERROR, PGM CLOCK IS NOT CLEAR
5726  033544                          2$:
5727  033544  104414                           ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5728  033546  121224                           121224                  ;PORT4←LU11
5729  033550  122761  000020  000004            CMPB    #20,4(R1)       ;IS PGM CLOCK SET?
5730  033556  001411                           BEQ     3$              ;BR IF YES
5731  033560  005237  001416                   INC     TEMP            ;INCREMENT DELAY
5732  033564  005537  001246                   ADC     TEMP1           ;INCREMENT DELAY
5733  033570  022737  000006  001246           CMP     #6,TEMP1        ;IS DELAY DONE
5734  033576  001362                           BNE     2$              ;BR IF NO
5735  033600  104016                           HLT     16              ;ERROR PGM CLOCK NOT SET
5736  033602  104400                  3$:      SCOPE                   ;SCOPE THIS TEST
5737
5738
5739                                            ;***************************** TEST 136 *****************************
5740                                            ;*FORCE POWER FAIL TEST
5741                                            ;*SET FORCE POWER FAIL BIT VERIFY THAT PROCESSOR TRAPS TO 24
5742                                            ;*GOING DOWn AND COMING UP. VERIFY ALSO THAT BUS INIT WAS
5743                                            ;*BLOCKED FROM GETTING TO THE DMC DURING THE POWER FAIL
5744                                            ;*THIS TEST MAY HANG ON SOME PROCESSORS IF AN M9301 IS PRESENT.
5745                                            ;*TO AVOID HANGING SW02 (POWER ON REBOOT ENABLE) ON THE M9301
5746                                            ;*MUST BE IN THE OFF POSITION. THIS TEST WILL ALSO FAIL IF THE
5747                                            ;*CPU POWER FAIL VECTOR IS SET TO ANY LOCATION OTHER THAN 24.
5748                                            ;*IF THIS TEST HANGS OR FAILS DUE TO EITHER REASON ABOVE THE
5749                                            ;*FOLLOWING PATCH MAY BE INSTALLED TO SKIP THIS TEST:
5750                                            ;*
5751                                            ;*      LOC 33430      WAS 33600      SB 33772
5752                                            ;:*************************************************************
5753
5754                                            ;  TEST 136
```

```
5755                                        ;---------------
5756  033604  012737  000136  001226  TST136: MOV     #136,TSTNO
5757  033612  012737  033776  001216          MOV     #TST137,NEXT
5758                                                            ;R1 CONTAINS BASE M8200-YC ADDRESS
5759  033620  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
5760  033622  005037  001416                 CLR     TEMP            ;PREPARE FOR DELAY
5761  033626  013746  000024                 MOV     @#24,-(SP)      ;STORE POWER FAIL ADDRESS
5762  033632  012737  033676  000024         MOV     #1$,@#24        ;SET UP FOR FORCE POWER FAIL
5763  033640  012761  000002  000004         MOV     #2,4(R1)        ;LOAD PORT4
5764  033646  012711  001000                 MOV     #BIT9,(R1)      ;SET ROMI
5765  033652  012761  121111  000006         MOV     #121111,6(R1)   ;LOAD INSTRUCTION
5766  033660  012711  001400                 MOV     #BIT9!BIT8,(R1) ;CLOCK INSTRUCTION
5767  033664  005237  001416          5$:    INC     TEMP            ;WAIT FOR POWER FAIL
5768  033670  001375                         BNE     5$              ;BR IF DELAY NOT DONE
5769  033672  104017                         HLT     17              ;ERROR, NO POWER FAIL
5770  033674  000426                         BR      4$
5771  033676  012737  033714  000024  1$:    MOV     #3$,@#24        ;POWER UP ADDRESS
5772  033704  010637  033712                 MOV     SP,2$           ;STORE STACK
5773  033710  000000                         HALT                    ;WAIT FOR POWER UP SEQUENCE
5774  033712  000000                  2$:    0
5775  033714  013706  033712          3$:    MOV     2$,SP           ;RESTORE STACK
5776  033720  022626                         POP2SP                  ;POP STACK TWICE
5777  033722  012637  000024                 MOV     (SP)+,@#24      ;RESTORE TRUE POWER FAIL ADDRESS
5778  033726  022737  005346  000024         CMP     #.PFAIL,@#24    ;IS IT CORRECT?
5779  033734  001406                         BEQ     4$              ;BR IF YES
5780  033736  104017                         HLT     17              ;ERROR, STACK IS INCORRECT
5781  033740  012737  005346  000024         MOV     #.PFAIL,@#24    ;RESTORE TRUE POWER FAIL ADDRESS
5782  033746  012706  001200                 MOV     #STACK,SP       ;RESTORE STACK
5783  033752  012711  003000          4$:    MOV     #BIT9!BIT10,(R1);SEL6 = MAINT IR
5784  033756  012705  121111                 MOV     #121111,R5      ;R5 = EXPECTED
5785  033762  016104  000004                 MOV     4(R1),R4        ;R4 = FOUND
5786  033766  020504                         CMP     R5,R4           ;MAINT IR SHOULD = 12111
5787  033770  001401                         BEQ     .+4             ;BR IF OK
5788  033772  104025                         HLT     25              ;IF = 0 THEN BUS INIT WAS
5789                                                                  ;NOT BLOCKED FROM CLEARING
5790                                                                  ;THE DMC-11
5791  033774  104400                         SCOPE                   ;SCOPE THIS TEST
5792
5793
5794                                        ;*************************** TEST 137 ****************************
5795                                        ;*MICRO-PROCESSOR NOISE TEST
5796                                        ;*WRITE ALL ZERO'S THEN ALL ONE'S THEN A DATA PATTERN
5797                                        ;*TO THE IBUS* AND IBUS REGISTERS AND TO THE SP AND MAIN MEM
5798                                        ;*THEN GO BACK AND READ THE DATA PATERNS  TO VERIFY THAT
5799                                        ;*READING AND WRITING OF OTHER LOCATIONS AND REGISTERS
5800                                        ;*DID NOT CHANGE THE DATA.
5801                                        ;*****************************************************************
5802
5803                                        ;  TEST 137
5804                                        ;---------------
5805  033776  012737  000137  001226  TST137: MOV     #137,TSTNO
5806  034004  012737  003374  001216          MOV     #.EOP,NEXT
5807                                                            ;R1 CONTAINS BASE M8200-YC ADDRESS
5808  034012  104412                         MSTCLR                  ;MASTER CLEAR M8200-YC
```

```
 5809  034014  005002                          CLR     R2              ;R2 IS INDEX REGISTER
 5810  034016  042737  000017  034042  1$:     BIC     #17,2$          ;CLEAR ADDRESS FIELD
 5811  034024  156237  034636  034042          BISB    30$(R2),2$      ;ADD IBUS* REG ADDRESS TO INSTRUCTION
 5812  034032  116261  034644  000004          MOVB    31$(R2),4(R1)   ;LOAD PORT4
 5813  034040  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5814  034042  121100                  2$:     122100                  ;WRITE IBUS* REGISTER
 5815  034044  005202                          INC     R2              ;INC INDEX REGISTER
 5816  034046  022702  000005                  CMP     #5,R2           ;DONE YET?
 5817  034052  001361                          BNE     1$              ;BR IF NO
 5818  034054  005002                          CLR     R2              ;R2 IS IBUS REGISTER ADDRESS
 5819  034056  042737  000017  034122  3$:     BIC     #17,4$          ;CLEAR ADDRESS FIELD OF INSTRUCTIONS
 5820  034064  042737  000017  034134          BIC     #17,5$
 5821  034072  042737  000017  034144          BIC     #17,6$
 5822  034100  050237  034122                  BIS     R2,4$           ;ADD IBUS REG ADDRESS TO INSTRUCTION
 5823  034104  050237  034134                  BIS     R2,5$
 5824  034110  050237  034144                  BIS     R2,6$
 5825  034114  105061  000004                  CLRB    4(R1)           ;CLEAR PORT4
 5826  034120  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5827  034122  122100                  4$:     122100                  ;WRITE 0 TO IBUS REG
 5828  034124  112761  000377  000004          MOVB    #377,4(R1)      ;LOAD PORT4
 5829  034132  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5830  034134  122100                  5$:     122100                  ;WRITE ALL ONES TO IBUS REG
 5831  034136  110261  000004                  MOVB    R2,4(R1)        ;LOAD PORT4
 5832  034142  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5833  034144  122100                  6$:     122100                  ;WRITE ITS OWN ADDRESS TO IBUS REG
 5834  034146  005202                          INC     R2              ;NEXT ADDRESS
 5835  034150  022702  000010                  CMP     #10,R2          ;DONE YET?
 5836  034154  001340                          BNE     3$              ;BR IF NO
 5837  034156  005002                          CLR     R2              ;START AT SP ADDRESS 0
 5838  034160  042737  000017  034224  7$:     BIC     #17,8$          ;CLEAR ADDRESS FIELD
 5839  034166  042737  000017  034236          BIC     #17,9$
 5840  034174  042737  000017  034246          BIC     #17,10$
 5841  034202  050237  034224                  BIS     R2,8$           ;ADD ADDRESS TO INSTRUCTION
 5842  034206  050237  034236                  BIS     R2,9$
 5843  034212  050237  034246                  BIS     R2,10$
 5844  034216  105061  000004                  CLRB    4(R1)           ;CLEAR PORT4
 5845  034222  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5846  034224  123100                  8$:     123100                  ;WRITE ZERO TO SP
 5847  034226  112761  000377  000004          MOVB    #377,4(R1)      ;LOAD PORT4
 5848  034234  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5849  034236  123100                  9$:     123100                  ;WRITE ALL ONES TO SP
 5850  034240  110261  000004                  MOVB    R2,4(R1)        ;LOAD PORT4
 5851  034244  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5852  034246  123100                  10$:    123100                  ;WRITE SP ADDRESS TO ITSELF
 5853  034250  005202                          INC     R2              ;NEXT SP ADDRESS
 5854  034252  022702  000020                  CMP     #20,R2          ;DONE YET?
 5855  034256  001340                          BNE     7$              ;BR IF NO
 5856  034260  005002                          CLR     R2              ;R2 = MAIN MEM ADDRESS
 5857  034262  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5858  034264  010000                          010000                  ;MAR ← 0
 5859  034266  105061  000004          11$:    CLRB    4(R1)           ;CLEAR PORT4
 5860  034272  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
 5861  034274  122500                          122500                  ;WRITE ZEROS TO MEM
 5862  034276  112761  000377  000004          MOVB    #377,4(R1)      ;LOAD PORT4
```

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5863  034304  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5864  034306  122500                          122500                  ;WRITE ONES TO MEM
5865  034310  110261  000004                  MOVB    R2,4(R1)        ;LOAD PORT4
5866  034314  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5867  034316  136500                          136500                  ;WRITE TO MEM IT OWN ADDRESS
5868  034320  005202                          INC     R2              ;NEXT MEM ADDRESS
5869  034322  022702  000400                  CMP     #400,R2         ;DONE YET?
5870  034326  001357                          BNE     11$             ;BR IF NO
5871
5872                                          ;NOW GO BACK AND READ EVERYTHING
5873
5874  034330  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5875  034332  010000                          010000                  ;MAR←0
5876  034334  032737  100000  001366          BIT     #BIT15,STAT1    ;DMC?
5877  034342  001402                          BEQ     .+6             ;BR IF YES
5878  034344  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5879  034346  004000                          4000                    ;MAR HI ← 0 (KMC ONLY)
5880  034350  005000                          CLR     R0              ;R0 IS INDEX REGISTER
5881  034352  042737  000360  034410  12$:   BIC     #360,13$        ;CLEAR ADDRESS FIELD
5882  034360  116002  034636                  MOVB    30$(R0),R2      ;R2 = IBUS* ADDRESS
5883  034364  010203                          MOV     R2,R3           ;PUT IBUS* ADDRESS IN R3
5884  034366  006303                          ASL     R3              ;SHIFT ADDRESS TO BITS 4-7
5885  034370  006303                          ASL     R3
5886  034372  006303                          ASL     R3
5887  034374  006303                          ASL     R3
5888  034376  050337  034410                  BIS     R3,13$          ;ADD ADDRESS TO INSTRUCTION
5889  034402  116005  034644                  MOVB    31$(R0),R5      ;R5 = "EXPECTED"
5890  034406  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5891  034410  121004                  13$:    121004                  ;PORT4 ← IBUS* REGISTER
5892  034412  016104  000004                  MOV     4(R1),R4        ;R4 = "FOUND"
5893  034416  120504                          CMPB    R5,R4           ;IBUS* CONTENTS OK?
5894  034420  001401                          BEQ     .+4             ;BR IF YES
5895  034422  104004                          HLT     4               ;IBUS* DATA ERROR
5896  034424  005200                          INC     R0              ;INC COUNTER
5897  034426  022700  000005                  CMP     #5,R0           ;DONE YET?
5898  034432  001347                          BNE     12$             ;BR IF NO
5899  034434  005002                          CLR     R2              ;R2 = IBUS REG ADDRESS
5900  034436  042737  000360  034466  14$:   BIC     #360,15$        ;CLEAR ADDRESS FIELD OF INSTRUCTION
5901  034444  010203                          MOV     R2,R3           ;R3 = IBUS ADDRESS
5902  034446  006303                          ASL     R3              ;SHIFT ADDRESS TO BITS 4-7
5903  034450  006303                          ASL     R3
5904  034452  006303                          ASL     R3
5905  034454  006303                          ASL     R3
5906  034456  050337  034466                  BIS     R3,15$          ;ADD ADDRESS TO INSTUCTION
5907  034462  010205                          MOV     R2,R5           ;R5 = "EXPECTED"
5908  034464  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5909  034466  021004                  15$:    021004                  ;PORT4 ← IBUS REG
5910  034470  016104  000004                  MOV     4(R1),R4        ;R4 = "FOUND"
5911  034474  120504                          CMPB    R5,R4           ;IBUS CONTENTS OK?
5912  034476  001401                          BEQ     .+4             ;BR IF YES
5913  034500  104005                          HLT     5               ;IBUS DATA ERROR
5914  034502  005202                          INC     R2              ;NEXT IBUS REGISTER
5915  034504  022702  000010                  CMP     #10,R2          ;DONE YET?
5916  034510  001352                          BNE     14$             ;BR IF NO
```

```
5917  034512  005002                          CLR     R2              ;R2 = SP ADDRESS
5918  034514  042737  000017  034530  16$:    BIC     #17,17$ ;CLEAR ADRESS FIELD OF INSTRUCTION
5919  034522  050237  034530                  BIS     R2,17$          ;ADD ADDRESS TO INSTRUCTION
5920  034526  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5921  034530  040600                  17$:    040600                  ;BR ← SP
5922  034532  010205                          MOV     R2,R5           ;R5 = "EXPECTED"
5923  034534  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5924  034536  061224                          061224                  ;PORT4 ← BR
5925  034540  016104  000004                  MOV     4(R1),R4        ;R4 = "FOUND"
5926  034544  120504                          CMPB    R5,R4           ;SP CONTENTS OK?
5927  034546  001401                          BEQ     .+4             ;BR IF YES
5928  034550  104007                          HLT     7               ;SP DATA ERROR
5929  034552  005202                          INC     R2              ;NEXT SP LOCATION
5930  034554  022702  000020                  CMP     #20,R2          ;DONE YET?
5931  034560  001355                          BNE     16$             ;BR IF NO
5932  034562  005002                          CLR     R2              ;R2 = MEMORY ADDRESS
5933  034564  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5934  034566  010000                          010000                  ;MAR ← 0
5935  034570  032737  100000  001366          BIT     #BIT15,STAT1    ;DMC?
5936  034576  001402                          BEQ     .+6             ;BR IF YES
5937  034600  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5938  034602  004000                          4000                    ;MAR HI ← 0 (KMC ONLY)
5939  034604  010205                  18$:    MOV     R2,R5           ;R5 = "EXPECTED"
5940  034606  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5941  034610  055224                          055224                  ;PORT4 ← MAIN MEM
5942  034612  016104  000004                  MOV     4(R1),R4        ;R4 = "FOUND"
5943  034616  120504                          CMPB    R5,R4           ;MAIN MEM CONTENTS OK?
5944  034620  001401                          BEQ     .+4             ;BR IF YES
5945  034622  104013                          HLT     13              ;MAIN MEM DATA ERROR
5946  034624  005202                          INC     R2              ;NEXT MEM ADDRESS
5947  034626  022702  000400                  CMP     #400,R2         ;DONE YET?
5948  034632  001364                          BNE     18$             ;BR IF NO
5949  034634  104400                          SCOPE                   ;SCOPE THIS TEST
5950  034636     000     002     003  30$:    .BYTE   0,2,3,5,10
5951  034641     005     010
5952          034644                  .EVEN
5953  034644     001     003     004  31$:    .BYTE   1,3,4,6,10
5954  034647     006     010
5955          034652                  .EVEN
5956
5957
5958                                  ;SUBROUTINES
5959                                  ;-----------
5960
5961  034652                          SETVEC:
5962                                          ;THIS SUBROUTINE LOADS THE VECTORS AND VECTOR LEVELS
5963
5964  034652  012577  144516                  MOV     (R5)+,@DMRVEC   ;LOAD BASE VECTOR
5965  034656  012577  144516                  MOV     (R5)+,@DMTVEC   ;LOAD VECTOR + 2
5966  034662  112577  144510                  MOVB    (R5)+,@DMRLVL   ;LOAD VECTOR + 4
5967  034666  112577  144510                  MOVB    (R5)+,@DMTLVL   ;LOAD VECTOR + 6
5968  034672  000205                          RTS     R5              ;RETURN
5969
5970
```

```
5971  034674                          NPRSET:
5972                                  ;THIS SUBROUTINE LOADS IBUS REGISTERS 0-7
5973                                  ;WITH NPR INFORMATION (INBA, OUTBA, OUT DATA)
5974
5975  034674  010246                  MOV     R2,-(SP)        ;SAVE R2
5976  034676  005002                  CLR     R2              ;START AT IBUS REG 0
5977  034700  112561  000004          1$:     MOVB    (R5)+,4(R1)     ;LOAD PORT4
5978  034704  042737  000017  034720  BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
5979  034712  050237  034720          BIS     R2,2$           ;ADD ADDRESS TO INSTRUCTION
5980  034716  104414                  ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5981  034720  122100                  2$:     122100          ;MOVE PORT4 TO IBUS REG
5982  034722  005202                  INC     R2              ;NEXT ADDRESS
5983  034724  022702  000010          CMP     #10,R2          ;ALL DONE?
5984  034730  001363                  BNE     1$              ;BR IF NO
5985  034732  012602                  MOV     (SP)+,R2        ;RESTORE R2
5986  034734  000205                  RTS     R5              ;RETURN
5987
5988
5989  034736                          MEMLD:
5990                                  ;THIS SUBROUTINE LOADS THE FIRST 8 LOCATIONS OF MAIN
5991                                  ;MEMORY WITH THIS DATA: 0,-1,,0,-1,125,252,125,252
5992
5993  034736  013605                  MOV     @(SP)+,R5       ;PUT POINTER TO DATA IN R5
5994  034740  062746  000002          ADD     #2,-(SP)        ;ADJUST STACK
5995  034744  012704  000010          MOV     #10,R4          ;DO 8 LOADS
5996  034750  104414                  ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
5997  034752  010000                  010000                  ;MAR < 0
5998  034754  112577  144432          1$:     MOVB    (R5)+,@DMP04    ;LOAD PORT4
5999  034760  104414                  ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
6000  034762  136500                  136500                  ;MOV DATA TO MEM, AUTO INC MAR
6001  034764  005304                  DEC     R4              ;DECREMENT COUNT
6002  034766  001372                  BNE     1$              ;BR IF NOT DONE
6003  034770  000207                  RTS     PC              ;RETURN
6004
6005
6006  034772                          SPLD:
6007                                  ;THIS SUBROUTINE LOADS THE FIRST 8 SCRATCH PAD
6008                                  ;LOCATIONS WITH: 0,0,-1,-1,125,125,252,252
6009
6010  034772  013605                  MOV     @(SP)+,R5       ;PUT POINTER TO DATA IN R5
6011  034774  062746  000002          ADD     #2,-(SP)        ;ADJUST STACK
6012  035000  005004                  CLR     R4              ;START AT SP ADDRESS 0
6013  035002  112577  144404          1$:     MOVB    (R5)+,@DMP04    ;LOAD PORT4 WITH DATA
6014  035006  042737  000017  035022  BIC     #17,2$          ;CLEAR ADDRESS FIELD OF INSTRUCTION
6015  035014  050437  035022          BIS     R4,2$           ;ADD ADDRESS TO INSTRUCTION
6016  035020  104414                  ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
6017  035022  123100                  2$:     123100          ;MOVE DATA TO SP
6018  035024  005204                  INC     R4              ;INCREMENT COUNT
6019  035026  022704  000010          CMP     #10,R4          ;DONE YET?
6020  035032  001363                  BNE     1$              ;BR IF NO
6021  035034  000207                  RTS     PC              ;RETURN
6022
6023
6024  035036                          CLRC:
```

```
                                        ;THIS SUBROUTINE CLEARS THE MICRO PROCESSOR C BIT
                                        ;
035036  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
035040  010000                          010000                  ;MAR←0
035042  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
035044  040400                          040400!<0*20>           ;CLEAR C BIT
035046  000207                          RTS     PC              ;RETURN
                                        ;
                                        ;
035050                          SETC:
                                        ;THIS SUBROUTINE SETS THE MICRO PROCESSOR C BIT
                                        ;
035050  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
035052  010003                          010003                  ;MAR←3
035054  104414                          ROMCLK                  ;NEXT WORD IS INSTRUCTION, ROMCLK PC=5304
035056  040403                          040403!<0*20>           ;SET C BIT
035060  000207                          RTS     PC              ;RETURN
                                        ;
                                        ;
035062    000     377     000   MEMDAT: .BYTE   0,-1,0,-1,125,252,125,252
035065    377     125     252
035070    125     252
035072    000     000     377   SPDAT:  .BYTE   0,0,-1,-1,125,125,252,252
035075    377     125     125
035100    252     252
                                .EVEN
035102  020200  020040  020040  MESWCH: .ASCII  <200>#     NOTE:#
035115    200  047506  020122          .ASCII  <200>#FOR THIS PROGRAM TO RUN PROPERLY, SWITCH#
035166  033600  020054  043117          .ASCII  <200>#7, OF THE VECTOR ADDRESS SWITCH PACK (E76),#
035242  046600  051525  020124          .ASCIZ  <200>#MUST BE ON. (M8200-YC BOARD)#<200>
035301    377  047125  041111  EM1:    .ASCIZ  <377>/UNIBUS REGISTER ADDRESSING TIME-OUT/
035346  052777  044516  052502  EM2:    .ASCIZ  <377>↑UNIBUS REGISTER WRITE/READ TEST↑
035407    377  044515  051103  EM3:    .ASCIZ  <377>/MICRO PROCESSOR TEST/
035435    377  044515  051103  EM4:    .ASCIZ  <377>↑MICRO PROCESSOR WRITE/READ TEST↑
035476  041377  020122  042522  EM5:    .ASCIZ  <377>/BR REGISTER TEST/
035520  051777  051103  052101  EM6:    .ASCIZ  <377>/SCRATCH PAD TEST/
035542  042377  053105  041511  EM7:    .ASCIZ  <377>/DEVICE FAILED TO INTERRUPT/
035576  042377  053105  041511  EM10:   .ASCIZ  <377>/DEVICE INTERRUPTED TO WRONG VECTOR/
035642  047377  051120  052040  EM11:   .ASCIZ  <377>/NPR TEST/
035654  046777  044501  020116  EM12:   .ASCIZ  <377>/MAIN MEMORY TEST/
035676  046777  051101  052040  EM13:   .ASCIZ  <377>/MAR TEST/
035710  040777  052514  052040  EM14:   .ASCIZ  <377>/ALU TEST/
035722  050377  047522  051107  EM15:   .ASCIZ  <377>/PROGRAM CLOCK TEST/
035746  043377  051117  042503  EM16:   .ASCIZ  <377>/FORCE POWER FAIL ERROR/
035776  052777  042516  050130  EM17:   .ASCIZ  <377>/UNEXPECTED INTERRUPT/
036024  046777  031070  030060  EM20:   .ASCIZ  <377>/M8200-YC CONFIGURATION ERROR/
036062  046777  044501  052116  EM21:   .ASCIZ  <377>/MAINTENANCE INSTRUCTION REGISTER TEST/
036131    377  047520  042527  EM22:   .ASCIZ  <377>/POWER FAIL INITIALIZE FAILURE/

036170  051377  043505  051511  DH1:    .ASCIZ  <377>/REGISTER                  TRAPPED FROM/
036231    377  054105  042520  DH2:    .ASCIZ  <377>/EXPECTED  FOUND            REGISTER/
036267    377  054105  042520  DH3:    .ASCIZ  <377>/EXPECTED  FOUND/
036310  042777  050130  041505  DH4:    .ASCIZ  <377>/EXPECTED  FOUND   IBUS* REGISTER/
036352  042777  050130  041505  DH5:    .ASCIZ  <377>/EXPECTED  FOUND   IBUS REGISTER/
```

```
        036413     377  054105  042520  DH6:    .ASCIZ  <377>/EXPECTED  FOUND     ADDRESS/
                                           .EVEN

        036452  000002                  DT1:    2
        036454     006      015                 .BYTE   6,15
        036456  001262                          $AVR1
        036460     006      002                 .BYTE   6,2
        036462  001264                          $AVR2
        036464  000003                  DT2:    3
        036466     006      004                 .BYTE   6,4
        036470  001272                          $AVR5
        036472     006      004                 .BYTE   6,4
        036474  001270                          $AVR4
        036476     006      002                 .BYTE   6,2
        036500  001262                          $AVR1
        036502  000002                  DT3:    2
        036504     006      004                 .BYTE   6,4
        036506  001272                          $AVR5
        036510     006      002                 .BYTE   6,2
        036512  001270                          $AVR4
        036514  000003                  DT4:    3
        036516     003      007                 .BYTE   3,7
        036520  001272                          $AVR5
        036522     003      011                 .BYTE   3,11
        036524  001270                          $AVR4
        036526     002      002                 .BYTE   2,2
        036530  001264                          $AVR2
        036532  000003                  DT5:    3
        036534     003      007                 .BYTE   3,7
        036536  001272                          $AVR5
        036540     003      007                 .BYTE   3,7
        036542  001270                          $AVR4
        036544     006      002                 .BYTE   6,2
        036546  001264                          $AVR2
        036550  000002                  DT6:    2
        036552     003      007                 .BYTE   3,7
        036554  001272                          $AVR5
        036556     003      002                 .BYTE   3,2
        036560  001270                          $AVR4
        036562  000002                  DT7:    2
        036564     006      004                 .BYTE   6,4
        036566  001262                          $AVR1
        036570     006      002                 .BYTE   6,2
        036572  001404                          DMCsR
        036574                      .ERRTAB:
        036574  000000                          0
        036576  000000                          0
        036600  000000                          0
        036602  035301                          EM1
        036604  036170                          DH1     ;HLT    1
        036606  036452                          DT1
        036610  035346                          EM2
        036612  036231                          DH2     ;HLT    2
        036614  036464                          DT2
```

```
036616  035407                          EM3
036620  036267                          DH3     ;HLT    3
036622  036502                          DT3
036624  035435                          EM4
036626  036310                          DH4     ;HLT    4
036630  036514                          DT4
036632  035435                          EM4
036634  036352                          DH5     ;HLT    5
036636  036514                          DT4
036640  035476                          EM5
036642  036267                          DH3     ;HLT    6
036644  036550                          DT6
036646  035520                          EM6
036650  036413                          DH6     ;HLT    7
036652  036532                          DT5
036654  035542                          EM7
036656  000000                          0       ;HLT    10
036660  000000                          0
036662  035576                          EM10
036664  000000                          0       ;HLT    11
036666  000000                          0
036670  035642                          EM11
036672  036267                          DH3     ;HLT    12
036674  036502                          DT3
036676  035654                          EM12
036700  036413                          DH6     ;HLT    13
036702  036532                          DT5
036704  035676                          EM13
036706  036413                          DH6     ;HLT    14
036710  036532                          DT5
036712  035710                          EM14
036714  036267                          DH3     ;HLT    15
036716  036550                          DT6
036720  035722                          EM15
036722  036310                          DH4     ;HLT    16
036724  036514                          DT4
036726  035746                          EM16
036730  000000                          0       ;HLT    17
036732  000000                          0
036734  035776                          EM17
036736  000000                          0       ;HLT    20
036740  000000                          0
036742  035642                          EM11
036744  036413                          DH6     ;HLT    21
036746  036532                          DT5
036750  036024                          EM20
036752  036267                          DH3     ;HLT    22
036754  036562                          DT7
036756  036062                          EM21
036760  036267                          DH3     ;HLT    23
036762  036502                          DT3
036764  036024                          EM20
036766  000000                          0       ;HLT    24
036770  000000                          0
```

```
036772  036131                          EM22
036774  036267                          DH3     ;HLT    25
036776  036502                          DT3

037000                          CORMAX:
        000001                  .END
```

```
ADRCNT= 004403   AUDONE  003034   AUSTRT  002456   AUTO.S  010552
BINWRD  004724   BIT0   = 000001   BIT1   = 000002   BIT10  = 002000
BIT11  = 004000   BIT12  = 010000   BIT13  = 020000   BIT14  = 040000
BIT15  = 100000   BIT2   = 000004   BIT3   = 000010   BIT4   = 000020
BIT5   = 000040   BIT6   = 000100   BIT7   = 000200   BIT8   = 000400
BIT9   = 001000   BM      007075   BRLVL   012324   BRW     003740
BRX     003742   CHRCNT  004722   CKSWR   007646   CKSWR1  007726
CKSWR2  007740   CKSWR3  007744   CKSWR4  007750   CKSWR5  010054
CLKX    001242   CLRC    035036   CNERR   007323   CNT.MA  001702
CNVRT  = 104411   CONERR  007244   CONN    007135   CONTAB  003006
CONVRT= 104410   CORMAX  037000   CRAM    006627   CREAM   001320
CSR     006531   CSRMAP  010554   CYCLE   010120   DATABP  005226
DATACL= 104415   DATAHD  005214   DELAY  = 104413   DEVADR  004400
DEVTAB  003020   DH1     036170   DH2     036231   DH3     036267
DH4     036310   DH5     036352   DH6     036413   DISPLA  001200
DISPRE  000174   DMACTV  001306   DMCM    007344   DMCr00  001500
DMCr01  001510   DMCR02  001520   DMCR03  001530   DMCR04  001540
DMCR05  001550   DMCR06  001560   DMCr07  001570   DMCR10  001600
DMCR11  001610   DMCR12  001620   DMCR13  001630   DMCR14  001640
DMCR15  001650   DMCr16  001660   DMCR17  001670   DMCSR   001404
DMCSRH  001406   DMCTL   001410   DMNUM   001310   DMP04   001412
DMP06   001414   DMRLVL  001376   DMRVEC  001374   DMS100  001502
DMS101  001512   DMS102  001522   DMS103  001532   DMS104  001542
DMS105  001552   DMS106  001562   DMS107  001572   DMS110  001602
DMS111  001612   DMS112  001622   DMS113  001632   DMS114  001642
DMS115  001652   DMS116  001662   DMS117  001672   DMS200  001504
DMS201  001514   DMS202  001524   DMS203  001534   DMS204  001544
DMS205  001554   DMS206  001564   DMS207  001574   DMS210  001604
DMS211  001614   DMS212  001624   DMS213  001634   DMS214  001644
DMS215  001654   DMS216  001664   DMS217  001674   DMS300  001506
DMS301  001516   DMS302  001526   DMS303  001536   DMS304  001546
DMS305  001556   DMS306  001566   DMS307  001576   DMS310  001606
DMS311  001616   DMS312  001626   DMS313  001636   DMS314  001646
DMS315  001656   DMS316  001666   DMS317  001676   DMTLVL  001402
DMTVEC  001400   DM.END  001700   DM.MAP  001500   DONE    003744
DT1     036452   DT2     036464   DT3     036502   DT4     036514
DT5     036532   DT6     036550   DT7     036562   EM1     035301
EM10    035576   EM11    035642   EM12    035654   EM13    035676
EM14    035710   EM15    035722   EM16    035746   EM17    035776
EM2     035346   EM20    036024   EM21    036062   EM22    036131
EM3     035407   EM4     035435   EM5     035476   EM6     035520
EM7     035542   ERCT00  001704   ERCT01  001710   ERCT02  001714
ERCT03  001720   ERCT04  001724   ERCT05  001730   ERCT06  001734
ERCT07  001740   ERCT10  001744   ERCT11  001750   ERCT12  001754
ERCT13  001760   ERCT14  001764   ERCT15  001770   ERCT16  001774
ERCT17  002000   ERR     002710   ERRCNT  001232   ERRFLG  001325
ERRMSG  005202   ERRPC   003000   ERTABO  005332   EXIT   = 000205
EXITER  005262   FLOAT   002546   FY      002576   HALTS   005232
HILIM   004376   ICOUNT  001222   INBUF   007542   INCHAR  010060
INIFLG  001324   INSTER= 104404   INSTR  = 104403   INSTR2  004176
INTTY   012340   KMCM    007361   LIMITS  004324   LINE    007037
LOBITS  004402   LOCK    001220   LOKFLG  001326   LOLIM   004374
LPCNT   001224   LSTERR  001234   MASKX   001244   MASTEK  006152
MCRLF   005702   MCSRX   006102   MDATA   007604   MEMDAT  035062
```

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MEMLD   034736          MEMLIM  001304          MEPASS  005743          MERRPC  006232
MERRX   006127          MERR2   005770          MERR3   006015          MESWCH  035102
MILK    001322          MLOCK   006053          MNEW    006154          MODU    006725
MPASSX  006116          MPFAIL  005705          MQM     005676          MR      005765
MRESET= 004000          MSTCLR= 104412          MTITLE  001000          MTSTN   006140
MTSTPC  006041          MVECX   006110          NEXT    001216          NOACT   007175
NODEV   002704          NPRSET  034674          NUM     006466          OK      002656
ONE     001302          PACT00  001702          PACT01  001706          PACT02  001712
PACT03  001716          PACT04  001722          PACT05  001726          PACT06  001732
PACT07  001736          PACT10  001742          PACT11  001746          PACT12  001752
PACT13  001756          PACT14  001762          PACT15  001766          PACT16  001772
PACT17  001776          PARAM = 104405          PARAM1  004244          PARBIT= 040000
PARERR  004320          PASCNT  001230          PC     =%000007         PERFOR= 004537
PFTAB   005440          POPRO = 012600          POP1SP= 005726          POP2SP= 022626
PRIO    006570          PS    = 177776          PUSHRO= 010046          PUSHIS= 005746
PUSH2S= 024646          QV.FLG  001327          RESREG  005230          RESTAR  005360
RESTRT  003544          RESO5 = 104407          RETURN  001214          ROMCLK= 104414
ROM1    036450          RUN     001316          R0     =%000000         R1     =%000001
R2     =%000002         R3     =%000003         R4     =%000004         R5     =%000005
SAVACT  001312          SAVNUM  001314          SAVPC   001276          SAVRO   001260
SAVR1   001262          SAVR2   001264          SAVR3   001266          SAVR4   001270
SAVR5   001272          SAVSP   001274          SAVO5 = 104406          SCOPE = 104400
SCOP1 = 104401          SETC    035050          SETVEC  034652          SKIP    002642
SOFTSW  010112          SP     =%000006         SPACNT= 004723          SPDAT   035072
SPEED   007371          SPLD    034772          STACK = 001200          STAT    001240
STAT1   001366          STAT2   001370          STAT3   001372          STRTSW  001236
SVO5    004412          SWFLG   010056          SWMES   007226          SWMES1  007236
SWR     001202          SWREG   000176          SW00  = 000001          SW01  = 000002
SW02  = 000004          SW03  = 000010          SW04  = 000020          SW05  = 000040
SW06  = 000100          SW07  = 000200          SW08  = 000400          SW09  = 001000
SW10  = 002000          SW11  = 004000          SW12  = 010000          SW13  = 020000
SW14  = 040000          SW15  = 100000          TDATA   024614          TEMP    001416
TEMp1   001246          TEMP2   001250          TEMP3   001252          TEMP4   001254
TEMP5   001256          TIMER = 104416          TKCSR   001204          TKDBR   001206
TLAST = 033776          TPCSR   001210          TPDBR   001212          TRPOK   004740
TSTNO   001226          TST1    012372          TST10   013250          TST100  025330
TST101  025504          TST102  025660          TST103  026034          TST104  026210
TST105  026364          TST106  026540          TST107  026714          TST11   013346
TST110  027070          TST111  027244          TST112  027420          TST113  027574
TST114  027750          TST115  030124          TST116  030300          TST117  030454
TST12   013444          TST120  030630          TST121  031004          TST122  031160
TST123  031334          TST124  031510          TST125  031664          TST126  032040
TST127  032214          TST13   013542          TST130  032370          TST131  032544
TST132  032720          TST133  033074          TST134  033250          TST135  033424
TST136  033604          TST137  033776          TST14   013640          TST15   013736
TST16   014034          TST17   014132          TST2    012500          TST20   014230
TST21   014326          TST22   014424          TST23   014522          TST24   014620
TST25   014744          TST26   015070          TST27   015220          TST3    012530
TST30   015360          TST31   015522          TST32   015606          TST33   016006
TST34   016206          TST35   016362          TST36   016536          TST37   016736
TST4    012660          TST40   017156          TST41   017332          TST42   017506
TST43   017662          TST44   020036          TST45   020212          TST46   020366
TST47   020542          TST5    012756          TST50   020716          TST51   021144
TST52   021314          TST53   021562          TST54   022004          TST55   022100
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I11


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TST56   022172          TST57   022312          TST6    013054          TST60   022456
TST61   022562          TST62   022676          TST63   023000          TST64   023136
TST65   023262          TST66   023372          TST67   023500          TST7    013152
TST70   023676          TST71   024024          TST72   024156          TST73   024356
TST74   024512          TST75   024624          TST76   025000          TST77   025154
TTST    003622          TWOSYN= 010000          TYPDAT  005216          TYPE  = 104402
TYPMSG  005116          VEC     006547          VECMAP  012062          WHICH   012054
WRDCNT  004720          WRKO.F  005204          XBX     005010          XCSR    003556
XERR    003600          XHEAD   006237          XLOC    003032          XPASS   003572
XSTATQ  007514          XTSTN   005340          XVEC    003564          ZERO    001300
$CRAP = 177777          $ENDAD  003532          $N    = 000137          $S    = 000141
$Y    = 000017          .BEGIN  003162          .CNVRT  004502          .CONVR  004476
.DATAC  005562          .DELAY  005446          .EOP    003374          .ERRTA  036574
.HLT    004760          .INSTE  004164          .INSTR  004060          .INST1  004100
.MSG    004102          .MSTCL  005476          .PARAM  004204          .PFAIL  005346
.RESOS  004444          .ROMCL  005514          .SAVOS  004404          .SCOPE  003606
.SCOPI  003746          .START  002002          .TIMER  005626          .TRPSR  004726
.TRPTA  001330          .TYPE   003776          .     = 037000

 ERRORS DETECTED:  0
```

```
*DRLPL,DRLPL/SOL=DRLPL.MAC,DRLPL
RUN-TIME: 20 26 0 SECONDS
CORE USED:  28K
```