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IDENTIFICATION

PRODUCT CODE: AC-T365A-MC  
PRODUCT NAME: CZUABAO FUNCTIONAL DIAG  
PRODUCT DATE: JANUARY 1983  
MAINTAINER: DISTRIBUTED SYSTEMS DIAGNOST. ENGINEERING  
AUTHOR: BRUCE A. HALE

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## 1.0 GENERAL INFORMATION

### 1.1 PROGRAM ABSTRACT

THIS PRODUCT IS THE PDP-11 FUNCTIONAL TESTING DIAGNOSTIC FOR THE DEUNA. A CONFIGURATION OF UP TO EIGHT DEUNA UNITS WILL BE ACCEPTED FOR TEST.

THIS DIAGNOSTIC WILL ONLY OPERATE IN A STAND ALONE, OFFLINE ENVIRONMENT USING THE DEUNA OPERATIONAL MICROCODE. FAILURE IDENTIFICATION WILL GENERALLY BE TO THE FAILING DEUNA FUNCTION.

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

### 1.2 SYSTEM REQUIREMENTS

THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE DEUNA FUNCTIONAL TESTING DIAGNOSTIC:

PDP-11 CPU  
16K MEMORY  
CONSOLE TERMINAL  
DEUNA WITH EXTERNAL LOOPBACK CONNECTOR OR TRANSCEIVER CABLE CONNECTED TO COAXIAL CABLE.

### 1.3 RELATED DOCUMENTS AND STANDARDS

XXDP+ USER'S MANUAL - CHQUS

### 1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

THE TESTS INCLUDED IN THIS DEUNA FUNCTIONAL TESTING DIAGNOSTIC ARE ARRANGED IN A TEST HIERARCHY. TESTS SHOULD BE EXECUTED IN CONSECUTIVE ORDER FOR MAXIMUM FAULT ISOLATION.

### 1.5 ASSUMPTIONS

## 2.0 OPERATING INSTRUCTIONS

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

### 2.1 COMMANDS

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

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

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

## 2.2 SWITCHES

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

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

EXAMPLE OF SWITCH USAGE:

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

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

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

TESTS	PASS	FLAGS	EOP	UNITS
-------	------	-------	-----	-------

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```

-----
START      X      X      X      X      X
RESTART    X      X      X      X      X
CONTINUE   X      X      X      X
PROCEED    X
DROP
ADD
PRINT
DISPLAY    X
FLAGS
ZFLAGS
EXIT
  
```

### 2.3 FLAGS

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

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

\*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

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

/FLAGS:LOE:IER:BOE

## 2.4 HARDWARE QUESTIONS

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

WHAT IS THE PCSRO ADDRESS ?

THIS IS THE ADDRESS AT WHICH PCSRO RESIDES ON THE UNIBUS.  
THE ALLOWABLE RANGE IS 160000 - 177776 OCTAL.

WHAT IS THE VECTOR ADDRESS ?

THIS IS THE INTERRUPT VECTOR ADDRESS FOR THIS DEVICE.  
THE ALLOWABLE RANGE IS 000 - 776 OCTAL.

SAMPLE DIALOGUE:

UNIT 0  
WHAT IS THE PCSRC ADDRESS? (0) ? 170000  
WHAT IS THE VECTOR ADDRESS? (0) ? 700

## 2.5 SOFTWARE QUESTIONS

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

THE FOLLOWING IS THE ONLY SOFTWARE QUESTION FOR THIS DEVICE:

RUN TEST 20 IN EXTERNAL LOOPBACK MODE ?

THE DEFAULT IS N (NO).  
NO, RUNS TEST 20 IN INTERNAL LOOPBACK MODE.  
YES, DOES NOT SET INTERNAL LOOPBACK MODE AND THEREFORE  
THE PACKET WILL BE LOOPED EXTERNAL.

SAMPLE DIALOGUE:

RUN TEST 20 IN EXTERNAL LOOPBACK MODE ? (L) N ? Y

## 2.6 EXTENDED P-TABLE DIALOGUE

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

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DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF THE ANSWERS ARE REPETITIOUS.

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

# UNITS (D) ? 8<CR>

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

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

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

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

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

UNIT 6  
 CSR ADDRESS (O) ? 160000<CR>  
 SUB-DEVICE # (O) ? 5<CR>  
 Q-FACTOR (O) 0 ? <CR>

UNIT 7  
 CSR ADDRESS (O) ? 160000<CR>  
 SUB-DEVICE # (O) ? 6<CR>  
 Q-FACTOR (O) 0 ? 1<CR>

UNIT 8  
 CSR ADDRESS (O) 160000<CR>  
 SUB-DEVICE # (O) ? 7<CR>  
 Q-FACTOR (O) 1 ? <CR>

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

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

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

```
# UNITS (D) ? 8<CR>

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

UNIT 3
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 2-5<CR>
Q-FACTOR (0) 0 ? 0<CR>

UNIT 7
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 6,7<CR>
Q-FACTOR (0) 0 ? 1<CR>
```

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

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

```
# UNITS (D) ? 8<CR>

UNIT 1
CSR ADDRESS (0) ? 160000<CR>
SUB-DEVICE # (0) ? 0-7<CR>
Q-FACTOR (0) 0 ? 0,1,0,,,,1,1<CR>
```

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

2.7 QUICK START-UP PROCEDURE (XXDP+)

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#### TO START-UP THIS PROGRAM:

1. BOOT XXDP+
2. GIVE THE DATE AND ANSWER ANY QUESTIONS
3. TYPE 'R NAME', WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
4. TYPE 'START'
5. ANSWER THE 'CHANGE HW' QUESTION WITH 'Y'
6. ANSWER ALL THE HARDWARE QUESTIONS
7. ANSWER THE 'CHANGE SW' QUESTION WITH 'N'

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

### 3.0 ERROR INFORMATION

#### 3.1 TYPES OF ERROR MESSAGES

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

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

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

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

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

#### 3.2 SPECIFIC ERROR MESSAGES

ALL ERROR REPORTS FOR THIS DIAGNOSTIC ARE SELF-EXPLANATORY AND WHENEVER POSSIBLE CALLS OUT THE FAILING DEUNA FUNCTION.

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WHENEVER A DATA COMPARE ERROR IS REPORTED THE "SHOULD BE" AND "WAS" DATA WILL ALSO BE REPORTED.

THE FOLLOWING IS A LIST OF ALL THE POSSIBLE ERRORS:

REGISTER ACCESS ERROR  
 DATA COMPARE ERROR IN PCSR2  
 DATA COMPARE ERROR IN PCSR3  
 DNI BIT FAILED TO SET AFTER DEVICE RESET  
 SELF TEST FAILURE  
 WRITING ONE TO CLEAR DNI BIT FAILED  
 NO DNI INTERRUPT OCCURED AFTER GET PCBB PORT COMMAND  
 DNI BIT FAILED TO SET AFTER NOP PORT COMMAND  
 DNI BIT FAILED TO SET AFTER GET PCBB PORT COMMAND  
 DNI BIT FAILED TO SET AFTER GET CMD PORT COMMAND  
 DATA COMPARE ERROR IN MODE REGISTER  
 DNI BIT FAILED TO SET AFTER START PORT COMMAND  
 TXI BIT FAILED TO SET  
 WRITING ONE TO CLEAR TXI BIT FAILED  
 RXI BIT FAILED TO SET  
 WRITING ONE TO CLEAR RXI BIT FAILED  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF RDRB  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF TDRB  
 DNI BIT FAILED TO SET AFTER STOP PORT COMMAND  
 DATA COMPARE ERROR IN TRANSMIT DESCRIPTOR RING  
 DATA COMPARE ERROR IN RECEIVE DESCRIPTOR RING  
 TRANSMIT-RECEIVE DATA COMPARE ERROR  
 CRC COMPARE ERROR  
 INTERNAL ROM CRC COMPARE ERROR  
 RCBI BIT FAILED TO SET  
 WRITING ONE TO CLEAR RCBI BIT FAILED  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF FIRST TDRB  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF SECOND TDRB  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF THIRD TDRB  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF FIRST RDRB  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF SECOND RDRB  
 TIMEOUT ERROR - DENUA FAILED TO RELINQUISH OWNERSHIP OF THIRD RDRB  
 DATA COMPARE ERROR IN FIRST TRANSMIT DESCRIPTOR RING  
 DATA COMPARE ERROR IN SECOND TRANSMIT DESCRIPTOR RING  
 DATA COMPARE ERROR IN THIRD TRANSMIT DESCRIPTOR RING  
 DATA COMPARE ERROR IN FIRST RECEIVE DESCRIPTOR RING  
 DATA COMPARE ERROR IN SECOND RECEIVE DESCRIPTOR RING  
 DATA COMPARE ERROR IN THIRD RECEIVE DESCRIPTOR RING  
 ERROR - LOOPBACK SUCCESSFUL WITH INVALID DESTINATION ADDRESS  
 BUFL BIT FAILED TO SET WHEN ATTEMPTING TO TRANSMIT A RUNT PACKET  
 PAD RUNT PACKET FAILURE  
 WCS MEMORY DATA COMPARE ERROR  
 LINK MEMORY DATA COMPARE ERROR  
 DNI BIT FAILED TO SET AFTER READ COUNTERS PORT COMMAND  
 DNI BIT FAILED TO SET AFTER SELF TEST PORT COMMAND  
 ERROR - LOOPBACK SUCCESSFUL WITH HALF DUPLEX MODE SET  
 ERROR - DIAGNOSTIC TYPE PACKET RECEIVED FROM ANOTHER NODE

#### 4.0 PERFORMANCE AND PROGRESS REPORTS

AT THE END OF EACH PASS, THE PASS COUNT IS GIVEN ALONG WITH THE TOTAL NUMBER OF ERRORS REPORTED SINCE THE DIAGNOSTIC WAS STARTED.

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THE "EOP" SWITCH CAN BE USED TO CONTROL HOW OFTEN THE END OF PASS MESSAGE IS PRINTED. SECTION 2.2 DESCRIBES SWITCHES.

#### 5.0 DEVICE INFORMATION TABLES

AT THE COMPLETION OF THE FIRST PASS FOR EACH DEVICE BEING TESTED DEVICE INFORMATION FOR THAT DEVICE IS PRINTED. THIS PRINTOUT CONTAINS THE ETHERNET DEFAULT ADDRESS, THE ROM MICROCODE VERSION, AND THE SWITCH PACK SETTINGS FOR SELF TEST LOOP AND REMOTE BOOT.

#### EXAMPLE PRINTOUT:

ETHERNET DEFAULT ADDRESS (HEX): AA-00-03-00-00-02

ROM MICROCODE VERSION (DECIMAL): 1

SWITCH PACK SET FOR :

SELF TEST LOOP DISABLED

REMOTE BOOT ENABLED

NOTE: THIS INFORMATION MAY BE PRINTED WITHOUT RUNNING THE ENTIRE DIAGNOSTIC IF TEST 28 IS RUN SEPARATELY VIA THE /TESTS:28 SUPERVISOR SWITCH.

#### 6.0 TEST SUMMARIES

TEST 1: PCSRO READ ACCESS TEST

THIS TEST VERIFIES THAT A DEVICE IS PRESENT AT THE PCSRO UNIBUS ADDRESS SPECIFIED.

TEST SEQUENCE:

1. READ PCSRO

TEST 2: PCSR1 READ ACCESS TEST

THIS TEST VERIFIES THAT A DEVICE IS PRESENT AT THE PCSR1 UNIBUS ADDRESS SPECIFIED.

TEST SEQUENCE:

1. READ PCSR1

TEST 3: PCSR2 READ ACCESS TEST

THIS TEST VERIFIES THAT A DEVICE IS PRESENT AT THE PCSR2 UNIBUS ADDRESS SPECIFIED.

TEST SEQUENCE:

1. READ PCSR2

TEST 4: PCSR3 READ ACCESS TEST

THIS TEST VERIFIES THAT A DEVICE IS PRESENT AT THE PCSR3 UNIBUS ADDRESS SPECIFIED.

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TEST SEQUENCE:

1. READ PCSR3

TEST 5: PCSR2 STATIC BIT TEST

THIS TEST CHECKS PCSR2 FOR ALL SA0 AND SA1 ERRORS.  
THE HOST WRITES PATTERNS TO PCSR2 AND READS THEM  
BACK TO VERIFY.

NOTE: PCSR2 BIT00 SHOULD ALWAYS BE A ZERO.  
THIS BIT IS MASKED BEFORE DOING THE COMPARE.

TEST SEQUENCE:

1. WRITE PATTERN TO PCSR2
2. COMPARE MASKED PATTERN WITH PCSR2 CONTENTS
3. REPEAT STEPS 1 AND 2 FOR ALL PATTERNS

TEST 6: PCSR3 STATIC BIT TEST

THIS TEST CHECKS PCSR3 FOR ALL SA0 AND SA1 ERRORS.  
THE HOST WRITES PATTERNS TO PCSR3 AND READS THEM  
BACK TO VERIFY.

NOTE: PCSR3 BIT02 THRU BIT15 SHOULD ALWAYS BE A ZERO.  
THESE BITS ARE MASKED BEFORE DOING THE COMPARE.

TEST SEQUENCE:

1. WRITE PATTERN TO PCSR3
2. COMPARE MASKED PATTERN WITH PCSR3 CONTENTS
3. REPEAT STEPS 1 AND 2 FOR ALL PATTERNS

TEST 7: SELF TEST

THIS TEST VERIFIES THAT THE ROM BASED SELF TEST  
CAN BE RUN SUCCESSFULLY WHEN INVOKED VIA  
THE SELF TEST PORT COMMAND.

TEST SEQUENCE:

1. ISSUE THE SELF TEST PORT COMMAND
2. WAIT FOR DNI
3. CHECK LITE BITE REGISTER FOR SUCCESSFUL SELF TEST
4. WRITE ONE TO CLEAR DNI

TEST 8: PORT COMMAND TEST

THIS TEST VERIFIES THAT NO ERRORS OCCUR WHEN  
A DEUNA PORT COMMAND IS ISSUED.

TEST SEQUENCE:

1. ISSUE A NOP PORT COMMAND
2. WAIT FOR DNI
3. WRITE ONE TO CLEAR DNI
4. MOVE NOP FUNCTION INTO PCBB
5. ISSUE A GETPCBB PORT COMMAND

6. WAIT FOR DNI
7. WRITE ONE TO CLEAR DNI
8. ISSUE A GETCMD PORT COMMAND
9. WAIT FOR DNI
10. WRITE ONE TO CLEAR DNI

#### TEST 9: INTERRUPT LOGIC TEST

THIS TEST VERIFIES THAT A DEUNA INTERRUPT CAN BE GENERATED.  
TEST SEQUENCE:

1. SET UP THE INTERRUPT VECTOR
2. ISSUE A GET PCBB PORT COMMAND
3. WAIT FOR A DNI INTERRUPT
4. WRITE ONE TO CLEAR DNI

#### TEST 10: READ INTERNAL ROM TEST

THIS TEST READS AND VERIFIES THE INTERNAL ROM.  
THE DUMP INTERNAL MEMORY FUNCTION IS USED TO READ THE ROM.  
A CRC IS GENERATED FROM THE ROM DATA READ.  
A CRC VALUE OF ZERO SHOULD BE GENERATED FROM THE ROM  
DATA READ WHICH INCLUDES THE STORED ROM CRC VALUE.  
TEST SEQUENCE:

1. CLEAR RBUF
2. READ 1K OF ROM INTO RBUF
3. CALCULATE CRC ON RBUF
4. REPEAT STEPS 1-3 FOR EACH 1K BLOCK OF ROM (8 TIMES)
5. VERIFY CRC GENERATED = 0

#### TEST 11: READ/WRITE INTERNAL WCS TEST

THIS TEST READS AND WRITES THE INTERNAL WCS MEMORY.  
THE DUMP/LOAD INTERNAL MEMORY FUNCTIONS ARE USED TO  
READ/WRITE THE RESERVED DOWNLINE LOAD PORTION OF THE WCS MEMORY.  
THE TOP 1K OF WCS.  
TEST SEQUENCE:

1. LOAD TBUF WITH DATA = ADDRESS
2. LOAD TOP 1K OF INTERNAL WCS MEMORY WITH TBUF
3. RESETUP TBUF FOR DATA COMPARE
4. CLEAR RBUF
5. DUMP INTERNAL WCS MEMORY -> RBUF
6. COMPARE RBUF WITH TBUF
7. REPEAT STEPS 1 THRU 6 WITH COMPLIMENT DATA

#### TEST 12: READ/WRITE MODE FUNCTION TEST

THIS TEST VERIFIES THE READ/WRITE MODE FUNCTIONS.  
TEST SEQUENCE:

1. WRITE MODE REGISTER WITH ALL ONES
2. READ AND COMPARE MODE REGISTER
3. WRITE MODE REGISTER WITH ALL ZEROS

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#### 4. READ AND COMPARE MODE REGISTER

##### TEST 13: READ/WRITE LINK MEMORY TEST

THIS TEST READS AND WRITES THE INTERNAL LINK MEMORY. THE DUMP/LOAD INTERNAL MEMORY FUNCTIONS ARE USED TO READ/WRITE THE ENTIRE 16K LINK MEMORY.  
 TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK MODE TO REMOVE LINK MEMORY FROM THE WIRE
2. LOAD TBUF WITH DATA = ADDRESS
3. LOAD 1K OF INTERNAL LINK MEMORY WITH TBUF
4. REPEAT STEPS 1 AND 2 FOR EACH 1K BLOCK OF LINK MEMORY (16 TIMES)
5. RESETUP TBUF FOR DATA COMPARE
6. CLEAR RBUF
7. DUMP INTERNAL LINK MEMORY -> RBUF
8. COMPARE RBUF WITH TBUF
9. REPEAT STEPS 4,5,6 AND 7 FOR EACH 1K BLOCK
10. REPEAT STEPS 1 THRU 8 WITH COMPLIMENT DATA

##### TEST 14: INTERNAL LOOPBACK TEST

PART 1 OF THIS TEST VERIFIES THAT AN INTERNAL LOOPBACK OPERATION CAN BE PERFORMED SUCCESSFULLY.  
 PART 2 OF THIS TEST VERIFIES THAT THE HEARTBEAT DETECTION CIRCUITRY IS OPERATING CORRECTLY.

##### TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
5. ISSUE START
6. CHECK FOR ERRORS
7. ISSUE STOP
8. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM MODE, ENABLE COLLISION TEST CIRCUITRY
9. SET UP RINGS AND BUFFERS
10. ISSUE START
11. CHECK FOR ERRORS
12. ISSUE STOP
13. ISSUE READ PORT STATUS
14. VERIFY 'CERR' BIT SET IN PORT CONTROL WORD 2

##### TEST 15: CRC CHECKING TEST

THIS TEST VERIFIES THAT CRC CHECKING MODE IS OPERATIONAL. AN INTERNAL LOOPBACK IS PERFORMED WHILE IN THE DISABLE TRANSMIT CRC MODE. WITH A GOOD CRC VALUE APPENDED TO THE TRANSMIT BUFFER AN ERROR FREE LOOPBACK IS EXPECTED.  
 TEST SEQUENCE:

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1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM,  
AND DISABLE TRANSMIT CRC MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
5. APPEND GOOD CRC VALUE TO TRANSMIT BUFFER
6. ISSUE START
7. CHECK FOR ERRORS
8. ISSUE STOP

#### TEST 16: FORCE CRC ERROR TEST

THIS TEST VERIFIES THAT A CRC ERROR CAN BE DETECTED.  
 AN INTERNAL LOOPBACK IS PERFORMED WHILE IN  
 THE DISABLE TRANSMIT CRC MODE.  
 WITH A BAD CRC VALUE APPENDED TO THE TRANSMIT BUFFER  
 A CRC ERROR IS EXPECTED IN THE RECEIVE DESCRIPTOR RING.

##### TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM,  
AND DISABLE TRANSMIT CRC MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
5. APPEND BAD CRC VALUE TO TRANSMIT BUFFER
6. ISSUE START
7. CHECK FOR CRC ERROR IN RDRB+4
8. ISSJE STOP

#### TEST 17: DISABLE RECEIVE CHAINING TEST

THIS TEST VERIFIES DISABLE DATA CHAINING MODE.  
 AN INTERNAL LOOPBACK IS PERFORMED WITH RECEIVE BUFFERS CHAINED  
 WHILE IN DISABLE DATA CHAINING MODE.  
 A NCHN ERROR IS EXPECTED IN THE RECEIVE DESCRIPTOR RING.

##### TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM,  
AND DISABLE DATA CHAINING MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS FOR RECEIVE DATA CHAINING
5. ISSUE START
6. CHECK FOR NCHN ERROR IN RDRB+6
7. ISSUE STOP

#### TEST 18: TRANSMIT CHAINING ERROR TEST

THIS TEST VERIFIES THAT A TRANSMIT BUFL ERROR CAN BE GENERATED.  
 AN INTERNAL LOOPBACK IS ATTEMPTED WITH TRANSMIT BUFFERS CHAINED  
 AND SUCCESSIVE OWNED RINGS HAVING STP SET.  
 A BUFL ERROR IS EXPECTED IN THE TRANSMIT DESCRIPTOR RING.

##### TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
2. WRITE RING FORMAT

3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
TRANSMIT RING = CHAINED WITH SUCCESSIVE STPS
5. ISSUE START
6. CHECK FOR BUFL ERROR IN TDRB+6
7. ISSUE STOP

#### TEST 19: NO RECEIVE BUFFER TEST

THIS TEST VERIFIES THAT A RCBI ERROR CAN BE DETECTED.  
AN INTERNAL LOOPBACK IS ATTEMPTED WITH  
NO RECEIVE BUFFERS OWNED BY THE DEUNA.  
A RCBI (RECEIVE BUFFER UNAVAILABLE) ERROR IS EXPECTED IN PCRRO.  
TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
2. WRITE RING FORMAT (16 TRANSMIT ENTRIES)
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
WITH 16 TRANSMIT PACKETS  
AND NO RECEIVE BUFFERS OWNED BY THE DEUNA
5. ISSUE START
6. CHECK FOR RCBI ERROR IN PCSRO
7. ISSUE STOP

#### TEST 20: DATA CHAINING TEST

THIS TEST VERIFIES TRANSMIT AND RECEIVE DATA CHAINING.  
AN INTERNAL OR EXTERNAL LOOPBACK IS PERFORMED  
WITH THREE TRANSMIT AND THREE RECEIVE BUFFERS CHAINED.  
INTERNAL LOOPBACK IS DEFAULT WITH EXTERNAL LOOPBACK BEING  
SELECTED VIA A SOFTWARE QUESTION.

TEST SEQUENCE:

1. WRITE MODE REGISTER = PROM MODE AND EITHER  
INTERNAL (D) OR EXTERNAL LOOPBACK MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
THREE TRANSMIT AND RECEIVE BUFFERS
5. ISSUE START
6. CHECK FOR ERRORS
7. ISSUE STOP

#### TEST 21: PHYSICAL ADDRESS TEST

THIS TEST VERIFIES THAT PHYSICAL ADDRESS DETECTION  
IS OPERATIONAL.  
A WRITE PHYSICAL ADDRESS FUNCTION IS USED TO SET  
THE DEUNA'S PHYSICAL ADDRESS.  
INTERNAL LOOPBACKS ARE THEN PERFORMED WITH A  
CURRENTLY ENABLED AND THEN A CURRENTLY DISABLED  
DESTINATION ADDRESS.  
THE PHYSICAL ADDRESS IS THEN COMPLEMENTED AND THE  
TEST IS REPEATED.

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## TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS = PHYSICAL ADDRESS
5. ISSUE START
6. CHECK FOR ERRORS
7. ISSUE STOP
8. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS NOT = PHYSICAL ADDRESS
9. ISSUE START
10. CHECK FOR NO RXI
11. ISSUE STOP
12. WRITE PHYSICAL ADDRESS WITH COMPLEMENTED VAULE
13. REPEAT STEPS 4 - 11

## TEST 22: MULTICAST ADDRESS TEST

THIS TEST VERIFIES THAT MULTICAST ADDRESSING IS OPERATIONAL.

A WRITE MULTICAST ADDRESS LIST FUNCTION IS USED TO SET THE DEUNA'S MULTICAST ADDRESS LIST.

INTERNAL LOOPBACKS ARE THEN PERFORMED WITH CURRENTLY ENABLED AND THEN CURRENTLY DISABLED MULTICAST DESTINATION ADDRESSES.

THE MULTICAST ADDRESS LIST IS THEN COMPLEMENTED AND THE TEST IS REPEATED.

## TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. WRITE MULTICAST ADDRESS LIST
5. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS = MULTICAST ADDRESS
6. ISSUE START
7. CHECK FOR ERRORS
8. ISSUE STOP
9. REPEAT STEPS 5 - 8 FOR ALL TEN LIST ENTRIES
10. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS = COMPLIMENTED MULTICAST ADDRESS
11. ISSUE START
12. CHECK FOR NO RXI
13. ISSUE STOP
14. REPEAT STEPS 10 - 13 FOR ALL TEN ENTRIES
15. WRITE MULTICAST ADDRESS LIST WITH COMPLEMENTED VAULES
16. REPEAT STEPS 5 - 14

## TEST 23: PROMISCUOUS ADDRESS MODE TEST

THIS TEST VERIFIES THAT PROMISCUOUS ADDRESSING MODE IS OPERATIONAL.

A WRITE PHYSICAL ADDRESS FUNCTION IS USED TO SET THE DEUNA'S PHYSICAL ADDRESS.

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A WRITE MULTICAST ADDRESS LIST FUNCTION IS USED TO SET THE DEUNA'S MULTICAST ADDRESS LIST. INTERNAL LOOPBACKS ARE THEN PERFORMED WITH CURRENTLY ENABLED AND THEN CURRENTLY DISABLED PHYSICAL AND MULTICAST DESTINATION ADDRESSES. TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. WRITE MULTICAST ADDRESS LIST
5. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS = PHYSICAL ADDRESS
6. ISSUE START
7. CHECK FOR ERRORS
8. ISSUE STOP
9. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS NOT = PHYSICAL ADDRESS
10. ISSUE START
11. CHECK FOR ERRORS
12. ISSUE STOP
13. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS = MULTICAST ADDRESS
14. ISSUE START
15. CHECK FOR ERRORS
16. ISSUE STOP
17. REPEAT STEPS 13 - 16 FOR ALL TEN LIST ENTRIES
18. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS NOT = MULTICAST ADDRESS
19. ISSUE START
20. CHECK FOR ERRORS
21. ISSUE STOP
22. REPEAT STEPS 18 - 21 FOR ALL TEN ENTRIES

#### TEST 24: ENABLE ALL MULTICAST MODE TEST

THIS TEST VERIFIES THAT ENABLE ALL MULTICAST MODE IS OPERATIONAL.

A WRITE MULTICAST ADDRESS LIST FUNCTION IS USED TO SET THE DEUNA'S MULTICAST ADDRESS LIST. INTERNAL LOOPBACKS ARE THEN PERFORMED WITH CURRENTLY ENABLED AND THEN CURRENTLY DISABLED MULTICAST DESTINATION ADDRESSES.

ALL LOOPBACKS ARE VERIFIED FOR SUCCESSFUL RECEPTION.

TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK  
AND ENABLE ALL MULTICAST MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. WRITE MULTICAST ADDRESS LIST
5. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS = MULTICAST ADDRESS
6. ISSUE START
7. CHECK FOR ERRORS
8. ISSUE STOP
9. REPEAT STEPS 5 - 8 FOR ALL TEN LIST ENTRIES

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10. SET UP RINGS AND BUFFERS  
 WITH DESTINATION ADDRESS = COMPLIMENTED MULTICAST ADDRESS
11. ISSUE START
12. CHECK FOR ERRORS
13. ISSUE STOP
14. REPEAT STEPS 10 - 13 FOR ALL TEN ENTRIES

#### TEST 25: PAD RUNT PACKETS TEST

THIS TEST VERIFIES THAT PAD RUNT PACKET MODE IS OPERATIONAL.

THIS TEST WILL

FIRST, ATTEMPT TO TRANSMIT A RUNT PACKET  
 WHEN NOT IN PAD RUNT PACKET MODE AND VERIFY THAT A  
 BUFL ERROR IN TDRB+6 OCCURS.

SECOND, TRANSMIT A RUNT PACKET  
 WHEN IN PAD RUNT PACKET MODE AND VERIFY  
 SUCCESSFUL TRANSMISSION AS WELL AS PADDING OCCURS.

TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
 WITH THE TRANSMIT BUFFER = RUNT PACKET
5. ISSUE START
6. CHECK FOR BUFL ERROR IN TDRB+6
7. ISSUE STOP
8. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM  
 AND PAD RUNT PACKET MODE
9. SET UP RINGS AND BUFFERS  
 WITH THE TRANSMIT BUFFER = RUNT PACKET
10. ISSUE START
11. CHECK FOR ERRORS
12. VERIFY PACKET HAS BEEN PADDED
13. ISSUE STOP

#### TEST 26: HALF DUPLEX TEST

THIS TEST VERIFIES THAT HALF DUPLEX MODE IS OPERATIONAL.

WHILE IN HALF DUPLEX MODE,

A WRITE PHYSICAL ADDRESS FUNCTION IS USED TO SET  
 THE DEUNA'S PHYSICAL ADDRESS.

INTERNAL LOOPBACKS ARE THEN PERFORMED WITH A  
 CURRENTLY ENABLED AND THEN A CURRENTLY DISABLED  
 DESTINATION ADDRESS.

TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK AND  
 HALF DUPLEX MODES
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
 WITH DESTINATION ADDRESS = PHYSICAL ADDRESS
5. ISSUE START
6. CHECK FOR ERRORS (MATCH BIT SHOULD BE SET)
7. CHECK FOR NO RXI

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8. ISSUE STOP
9. SET UP RINGS AND BUFFERS  
WITH DESTINATION ADDRESS NOT = PHYSICAL ADDRESS
10. ISSUE START
11. CHECK FOR ERRORS (MATCH BIT SHOULD NOT BE SET)
12. CHECK FOR NO RXI
13. ISSUE STOP

#### TEST 27: SIMULTANEOUS OPERATIONS TEST

THIS TEST VERIFIES THAT SIMULTANEOUS OPERATIONS CAN BE PERFORMED.  
A CHAINED INTERNAL LOOPBACK WILL BE PERFORMED SIMULTANEOUSLY  
WITH A READ COUNTERS PORT FUNCTION.

##### TEST SEQUENCE:

1. WRITE MODE REGISTER = PROM AND INTERNAL LOOPBACK MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS  
THREE TRANSMIT AND RECEIVE BUFFERS
5. SET UP READ COUNTERS FUNCTION
6. ISSUE START
7. ISSUE GET COMMAND PORT COMMAND
8. CHECK FOR ERRORS
9. ISSUE STOP

#### TEST 28: PRINT DEVICE PARAMETERS TEST

THIS TEST PRINTS THE DEFAULT PHYSICAL ADDRESS, THE MICROCODE  
REVISION AND THE SWITCH PACK SETTINGS.

##### TEST SEQUENCE:

1. READ DEFAULT PHYSICAL ADDRESS
2. READ MICROCODE REVISION
3. READ SWITCH PACK SETTINGS
4. PRINT

PROGRAM HEADER AND TABLES  
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```

1066 .TITLE PROGRAM HEADER AND TABLES
1067 .SBTTL PROGRAM HEADER
1068
1069 : .ENABL ABS,AMA
1070 : .ENABL AMA
1071 : = 2000
1072
1073 000000' BGNMOD
1074
1075 :++
1076 : THE PROGRAM HEADER IS THE INTERFACE BETWEEN
1077 : THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
1078 :--
1079
1080 000000' POINTER BGNRPT,BGNSW,BGNSFT,BGNAU,BGNDU,ERRTBL
1081
1082
1083 000000' HEADER UNAFUNC,A,0,0,0,340
1084 000000'
1085 000000' 125
1086 000001' 116
1087 000002' 101
1088 000003' 106
1089 000004' 125
1090 000005' 116
1091 000006' 103
1092 000007' 000
1093 000010'
1094 000010' 101
1095 000011'
1096 000011' 060
1097 000012'
1098 000012' 000000
1099 000014'
1100 000014' 000000
1101 000016'
1102 000016' 070774'
1103 000020'
1104 000020' 071106'
1105 000022'
1106 000022' 000216'
1107 000024'
1108 000024' 000224'
1109 000026'
1110 000026' 071210'
1111 000030'
1112 000030' 000000
1113 000032'
1114 000032' 000000
1115 000034'
1116 000034' 000000
1117 000036'
1118 000036' 000000
1119 000040'
1120 000040' 000124'
1121 000042'

```

```

LSNAME::
        .ASCII /U/
        .ASCII /N/
        .ASCII /A/
        .ASCII /F/
        .ASCII /U/
        .ASCII /N/
        .ASCII /C/
        .BYTE 0
LSREV::
        .ASCII /A/
LSDEPO::
        .ASCII /0/
LSUNIT::
        .WORD 0
LSTIML::
        .WORD 0
LSHPCP::
        .WORD LSHARD
LSSPCP::
        .WORD LSSOFT
LSHPTP::
        .WORD LSHW
LSSPTP::
        .WORD LSSW
LSLADP::
        .WORD LSLAST
LSSSTA::
        .WORD 0
LSCO::
        .WORD 0
LSDTYP::
        .WORD 0
LSAPT::
        .WORD 0
LSDTP::
        .WORD 0
LSPRIO::
        .WORD LSDISPATCH

```

PROGRAM HEADER AND TABLES  
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PROGRAM HEADER

1122 000042' 000340  
 1123 000044'  
 1124 000044' 000000  
 1125 000046'  
 1126 000046' 000000  
 1127 000050'  
 1128 000050' 003  
 1129 000051' 003  
 1130 000052'  
 1131 000052' 000000  
 1132 000054' 000000  
 1133 000056'  
 1134 000056' 000000  
 1135 000060'  
 1136 000060' 013236'  
 1137 000062'  
 1138 000062' 025402'  
 1139 000064'  
 1140 000064' 000000  
 1141 000066'  
 1142 000066' 000000  
 1143 000070'  
 1144 000070' 025634'  
 1145 000072'  
 1146 000072' 025626'  
 1147 000074'  
 1148 000074' 000000  
 1149 000076'  
 1150 000076' 013244'  
 1151 000100'  
 1152 000100' 104035  
 1153 000102'  
 1154 000102' 013226'  
 1155 000104'  
 1156 000104' 025416'  
 1157 000106'  
 1158 000106' 025620'  
 1159 000110'  
 1160 000110' 025616'  
 1161 000112'  
 1162 000112' 025410'  
 1163 000114'  
 1164 000114' 000000  
 1165 000116'  
 1166 000116' 000000  
 1167 000120'  
 1168 000120' 000000  
 1169

L\$ENVI:: .WORD 340  
 L\$EXP1:: .WORD 0  
 L\$MREV:: .WORD 0  
 .BYTE C\$REVISION  
 .BYTE C\$EDIT  
 L\$EF::  
 .WORD 0  
 .WORD 0  
 L\$SPC:: .WORD 0  
 L\$DEVP:: .WORD L\$DVTYP  
 L\$REPP:: .WORD L\$RPT  
 L\$EXP4:: .WORD 0  
 L\$EXPS:: .WORD 0  
 L\$AUT:: .WORD L\$AU  
 L\$DUT:: .WORD L\$DU  
 L\$SLUN:: .WORD 0  
 L\$DESP:: .WORD L\$DESC  
 L\$LOAD:: EMT E\$LOAD  
 L\$ETP:: .WORD L\$ERRTBL  
 L\$ICP:: .WORD L\$INIT  
 L\$CCP:: .WORD L\$CLEAN  
 L\$ACP:: .WORD L\$AUTO  
 L\$PRT:: .WORD L\$PROT  
 L\$TEST:: .WORD 0  
 L\$DLY:: .WORD 0  
 L\$HIME:: .WORD 0

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DISPATCH TABLE

1170  
1171  
1172  
1173  
1174  
1175  
1176  
1177  
1178  
1179  
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1181  
1182  
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1190  
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1195  
1196  
1197  
1198  
1199  
1200  
1201  
1202  
1203  
1204  
1205  
1206  
1207  
1208

.SBTTL DISPATCH TABLE

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

DISPATCH 28

000122'  
000122' 000034  
000124'  
000124' 025700'  
000126' 025776'  
000130' 026076'  
000132' 026176'  
000134' 026276'  
000136' 026352'  
000140' 026426'  
000142' 032206'  
000144' 032502'  
000146' 032766'  
000150' 033316'  
000152' 034272'  
000154' 035036'  
000156' 036244'  
000160' 040142'  
000162' 041254'  
000164' 042366'  
000166' 043474'  
000170' 044472'  
000172' 045364'  
000174' 047160'  
000176' 052042'  
000200' 055116'  
000202' 060516'  
000204' 062554'  
000206' 064274'  
000210' 065606'  
000212' 067336'

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



PROGRAM HEADER AND TABLES  
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SOFTWARE P-TABLE

G  
C

1227  
1228  
1229  
1230  
1231  
1232  
1233  
1234  
1235  
1236  
1237  
1238  
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1247

.SBTTL SOFTWARE P-TABLE

:++  
: THE SOFTWARE TABLE CONTAINS VARIOUS DATA USED BY THE  
: PROGRAM AS OPERATIONAL PARAMETERS. THESE PARAMETERS ARE  
: SET UP AT ASSEMBLY TIME AND MAY BE VARIED BY THE OPERATOR  
: AT RUN TIME.  
:--

000222'  
000222' 000001  
000224'  
000224'

BGNSW SFPTBL

.WORD L10001-L\$SW/2  
L\$SW::  
SFPTBL::

000224' 000000

EXLOOP: .WORD 0 ; TEST20 EXTERNAL LOOPBACK FLAG

000226'  
000226'

.EVEN  
ENDSW

L10001:

GLOBAL AREAS MACY11 30(1046) 11-JAN-83 12:03 PAGE 27  
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G  
C

1248 .TITLE GLOBAL AREAS  
1249 .SBTTL GLOBAL EQUATES SECTION  
1250  
1251  
1252  
1253

1254  
1255 - - :++  
1256 : THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT  
1257 : ARE USED IN MORE THAN ONE TEST.  
1258 :--  
1259

1260 000226' . EQUALS  
1261

1262 : BIT DEFINITIONS  
1263

1264 100000 BIT15== 100000  
1265 040000 BIT14== 40000  
1266 020000 BIT13== 20000  
1267 010000 BIT12== 10000  
1268 004000 BIT11== 4000  
1269 002000 BIT10== 2000  
1270 001000 BIT09== 1000  
1271 000400 BIT08== 400  
1272 000200 BIT07== 200  
1273 000100 BIT06== 100  
1274 000040 BIT05== 40  
1275 000020 BIT04== 20  
1276 000010 BIT03== 10  
1277 000004 BIT02== 4  
1278 000002 BIT01== 2  
1279 000001 BIT00== 1

1280 .  
1281 001000 BIT9== BIT09  
1282 000400 BIT8== BIT08  
1283 000200 BIT7== BIT07  
1284 000100 BIT6== BIT06  
1285 000040 BIT5== BIT05  
1286 000020 BIT4== BIT04  
1287 000010 BIT3== BIT03  
1288 000004 BIT2== BIT02  
1289 000002 BIT1== BIT01  
1290 000001 BIT0== BIT00

1291 :  
1292 : EVENT FLAG DEFINITIONS  
1293 : EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION  
1294

1295 000040 EF.START== 32. ; START COMMAND WAS ISSUED  
1296 000037 EF.RESTART== 31. ; RESTART COMMAND WAS ISSUED  
1297 000036 EF.CONTINUE== 30. ; CONTINUE COMMAND WAS ISSUED  
1298 000035 EF.NEW== 29. ; A NEW PASS HAS BEEN STARTED  
1299 000034 EF.PWR== 23. ; A POWER-FAIL/POWER-UP OCCURRED

1300 :  
1301 :  
1302 : PRIORITY LEVEL DEFINITIONS  
1303 :

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 CZUABA.MAC 10-JAN-83 12:46 GLOBAL EQUATES SECTION

```

1304      000340      PRI07== 340
1305      000300      PRI06== 300
1306      000240      PRI05== 240
1307      000200      PRI04== 200
1308      000140      PRI03== 140
1309      000100      PRI02== 100
1310      000040      PRI01== 40
1311      000000      PRI00== 0
1312      ;
1313      ;OPERATOR FLAG BITS
1314      ;
1315      000004      EVL==      4
1316      000010      LOT==      10
1317      000020      ADR==      20
1318      000040      IDU==      40
1319      000100      ISR==     100
1320      000200      UAM==     200
1321      000400      BOE==     400
1322      001000      PNT==    1000
1323      002000      PRI==    2000
1324      004000      IXE==    4000
1325      010000      IBE==   10000
1326      020000      IER==   20000
1327      040000      LOE==   40000
1328      100000      HOE==  100000
1329      ;
1330      ; PCSRO - PORT CONTROL AND STATUS REGISTER 0
1331      100000      SERI ==     BIT15      ; STATUS ERROR INTERRUPT
1332      040000      PLEI ==     BIT14      ; PORT COMMAND ERROR INTERRUPT
1333      020000      RXI  ==     BIT13      ; RECEIVE RING INTERRUPT
1334      010000      TXI  ==     BIT12      ; TRANSMIT RING INTERRUPT
1335      004000      DNI  ==     BIT11      ; DONE INTERRUPT
1336      002000      RCBI ==     BIT10      ; RECEIVE BUFFER UNAVAILABLE
1337      ;
1338      000400      FATI ==     BIT08      ; FATAL ERROR INTERERUPT
1339      000200      INTR ==     BIT07      ; INTERRUPT SUMMARY <15:08>
1340      000100      INTE ==     BIT06      ; INTERRUPT ENABLE
1341      000040      RSET ==     BIT05      ; UNA RESET
1342      ;
1343      ;PORT COMMANDS <03:00>
1344      000001      GETPCB ==     BIT00
1345      000002      GETCMD ==     BIT01
1346      000003      SLFT  ==     BIT00!BIT01
1347      000004      START ==     BIT02
1348      000006      PNOP  ==     BIT01!BIT02
1349      000010      PDMD  ==     BIT03
1350      000017      STOP  ==     BIT03!BIT02!BIT01!BIT00
1351      ;
1352      ;PCSR1 - PORT CONTROL AND STATUS REGISTER 1
1353      100000      XPWR  ==     BIT15      ; TRANSCIEVER POWER OK
1354      040000      ICAB  ==     BIT14      ; PORT/LINK CABLING OK
1355      ;
1356      ;SELF TEST ERROR CODE <13:08>
1357      140377      STMASK ==    140377      ; SELF TEST MASK
1358      ;
1359      000200      PCTO  ==     BIT07      ; PORT COMMAND TIMEOUT
    
```

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL EQUATES SECTION

```

1360
1361      000010      ;RMTC      ==      BIT03      ; REMOTE CONSOLE RESERVED
1362
1363      ;PORT STATE <G2.00>
1364      177770      SMASK      ==      177770      ; STATE MASK
1365
1366      000000      RESET      ==      0
1367      000001      PRILD      ==      BIT00      ; PRIMARY LOAD STATE
1368      000002      READY      ==      BIT01
1369      000003      RUN        ==      BIT00:BIT01
1370      000005      UNIHLT     ==      BIT00!BIT02
1371      000006      NIHLT      ==      BIT01!BIT02
1372      000007      NIUNI      ==      BIT00!BIT01!BIT02
1373
1374      ;DESCRIPTOR RING DEFINITIONS
1375      100000      OWN         ==      BIT15
1376      040000      ERRS        ==      BIT14
1377      001000      STP         ==      BIT09
1378      000400      ENP         ==      BIT08
1379
1380      100000      BUFL         ==      BIT15
1381      ;GLOBAL EQUATES
1382      000000      ZERO        ==      0
1383      177777      ONES        ==      177777
1384      177400      TIMASK      ==      177400      ; UPPER BYTE = ONES
1385      000000      GOODST      ==      0          ; SUCCESSFUL SELF TEST CODE
1386      175015      CMODE1      ==      175015     ; ALL SETABLE MODE BITS = ONES
1387      007777      TDRMSK      ==      7777      ; TDR MASK
1388      002540      DTYPE       ==      2540      ; DIAGNOSTIC TYPE FIELD
1389
1390      000000      INITH       ==      0          ; INITIAL CRC VALUE
1391      120001      POLYH       ==      120001     ; CRC POLYNOMIAL
1392
1393      020000      SIZ4K       ==      20000     ; 4K WORDS
1394      040000      SIZ8K       ==      SIZ4K*2   ; 8K WORDS

```







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```
1563 011374' 005072'      .WORD  RBUF      : SEGB = RBUF
1564 011376' 000000      .WORD  0         : OWN = PORT DRIVER
1565 011400' 000000      .WORD  0
1566
1567 011402' 000200      ; RDRB1B::      .WORD  128.     : SLEN = 128 BYTES
1568 011404' 005072'      .WORD  RBUF     : SEGB = RBUF
1569 011406' 000000      .WORD  0         : OWN = PORT DRIVER
1570 011410' 000000      .WORD  0
1571
1572 011412' 000200      ;              .WORD  128.     : SLEN = 128 BYTES
1573 011414' 005072'      .WORD  RBUF     : SEGB = RBUF
1574 011416' 000000      .WORD  0         : OWN = PORT DRIVER
1575 011420' 000000      .WORD  0
1576
1577 011422' 000200      ;              .WORD  128.     : SLEN = 128 BYTES
1578 011424' 005072'      .WORD  RBUF     : SEGB = RBUF
1579 011426' 000000      .WORD  0         : OWN = PORT DRIVER
1580 011430' 000000      .WORD  0
1581
1582 011432' 000200      ;              .WORD  128.     : SLEN = 128 BYTES
1583 011434' 005072'      .WORD  RBUF     : SEGB = RBUF
1584 011436' 000000      .WORD  0         : OWN = PORT DRIVER
1585 011440' 000000      .WORD  0
1586
1587 011442' 000100      ; RDRB2A::      .WORD  64.      : SLEN = 64 BYTES
1588 011444' 005072'      .WORD  RBUF     : SEGB = RBUF
1589 011446' 100000      .WORD  100000   : OWN = UNA
1590 011450' 000000      .WORD  0
1591
1592 011452' 000100      ;              .WORD  64.      : SLEN = 64 BYTES
1593 011454' 005472'      .WORD  RBUF2    : SEGB = RBUF2
1594 011456' 100000      .WORD  100000   : OWN = UNA
1595 011460' 000000      .WORD  0
1596
1597 011462' 000200      ;              .WORD  128.     : SLEN = 128 BYTES
1598 011464' 005072'      .WORD  RBUF     : SEGB = RBUF
1599 011466' 000000      .WORD  0         : OWN = PORT DRIVER
1600 011470' 000000      .WORD  0
1601
1602 011472' 000200      ;              .WORD  128.     : SLEN = 128 BYTES
1603 011474' 005072'      .WORD  RBUF     : SEGB = RBUF
1604 011476' 000000      .WORD  0         : OWN = PORT DRIVER
1605 011500' 000000      .WORD  0
1606
1607 011502' 000400      ; RDRB3A::      .WORD  256.     : SLEN = 256 BYTES
1608 011504' 005072'      .WORD  RBUF     : SEGB = RBUF
1609 011506' 100000      .WORD  100000   : OWN = UNA
1610 011510' 000000      .WORD  0
1611
1612 011512' 000400      ;              .WORD  256.     : SLEN = 256 BYTES
1613 011514' 005472'      .WORD  RBUF2    : SEGB = RBUF2
1614 011516' 100000      .WORD  100000   : OWN = UNA
1615 011520' 000000      .WORD  0
1616
1617 011522' 000400      ;              .WORD  256.     : SLEN = 256 BYTES
1618 011524' 006072'      .WORD  RBUF3    : SEGB = RBUF3
```







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```

1787 012140' 000000          .WORD 0
1788
1789 012142' 000174          .WORD 124.      ; SLEN = 124 BYTES
1790 012144' 001072'        .WORD TBUF      ; SEGB = TBUF
1791 012146' 101400          .WORD 101400   ; OWN = UNA ;STP ;ENP
1792 012150' 000000          .WORD 0
1793
1794 012152' 000174          .WORD 124.      ; SLEN = 124 BYTES
1795 012154' 001072'        .WORD TBUF      ; SEGB = TBUF
1796 012156' 101400          .WORD 101400   ; OWN = UNA ;STP ;ENP
1797 012160' 000000          .WORD 0
1798
1799 012162' 000174          .WORD 124.      ; SLEN = 124 BYTES
1800 012164' 001072'        .WORD TBUF      ; SEGB = TBUF
1801 012166' 101400          .WORD 101400   ; OWN = UNA ;STP ;ENP
1802 012170' 000000          .WORD 0
1803
1804 012172' 000174          .WORD 124.      ; SLEN = 124 BYTES
1805 012174' 001072'        .WORD TBUF      ; SEGB = TBUF
1806 012176' 101400          .WORD 101400   ; OWN = UNA ;STP ;ENP
1807 012200' 000000          .WORD 0
1808
1809      ;DEFAULT DATA FOR TEST10
1810 012202' 000000          CRCH::          .WORD 0          ; CRC STORAGE
1811      ;DEFAULT UDBB FOR TEST10
1812 012204' 004000          UDB10A::       .WORD 4000      ; FLEN = 1024 WORDS
1813 012206' 005072'        .WORD RBUF      ; HDBB = RBUF
1814 012210' 000000          .WORD 0
1815 012212' 000000          .WORD 0
1816      ;ROM ADDRESS TABLE FOR TEST10
1817 012214' 040000          MEM10A::       .WORD 40000     ; ADDRESS OF ROM FIRST 1K
1818 012216' 044000          .WORD 44000     ; SECOND 1K
1819 012220' 050000          .WORD 50000     ; ETC
1820 012222' 054000          .WORD 54000
1821 012224' 060000          .WORD 60000
1822 012226' 064000          .WORD 64000
1823 012230' 070000          .WORD 70000
1824 012232' 074000          .WORD 74000
1825      ;DEFAULT UDBB FOR TEST11 AND TST12
1826 012234' 004000          UDB11A::       .WORD 4000      ; FLEN = 1024. WORDS
1827 012236' 000000          .WORD 0          ; HDBB = RBUF OR TBUF (LOADED BY TEST)
1828 012240' 000000          .WORD 0
1829 012242' 000000          .WORD 0          ; IDBB (LOADED BY TEST)
1830      ;WCS DOWNLINE LOAD ADDRESS TABLE FOR TEST11
1831 012244' 014000          MEM11A::       .WORD 14000     ; TOP 1K SECTION OF WCS
1832      ;LINK MEMORY ADDRESS TABLE FOR TEST13
1833 012246' 100000          MEM13A::       .WORD 100000    ; FIRST 1K BLOCK OF LINK MEMORY
1834 012250' 104000          .WORD 104000
1835 012252' 110000          .WORD 110000
1836 012254' 114000          .WORD 114000
1837 012256' 120000          .WORD 120000
1838 012260' 124000          .WORD 124000
1839 012262' 130000          .WORD 130000
1840 012264' 134000          .WORD 134000
1841 012266' 140000          .WORD 140000
1842 012270' 144000          .WORD 144000

```











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```

2096      .SBTTL GLOBAL TEXT SECTION
2097
2098      :++
2099      : THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
2100      : MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
2101      : MORE THAN ONE TEST.
2102      :--
2103
2104      :
2105      : NAMES OF DEVICES SUPPORTED BY PROGRAM
2106      :
2107      :     DEVTYP <DEUNA>
2108
2109      :
2110      :     LSDVTYP::
2111      :             .ASCIZ /DEUNA/
2112      :             .EVEN
2113
2114      :
2115      : TEST DESCRIPTION
2116      :
2117      :     DESCRIPT      <DEUNA - PDP11 FUNCTIONAL DIAGNOSTIC BASE LEVEL 5.1>
2118      :
2119      :     LSDDESC::
2120      :             .ASCIZ /DEUNA - PDP11 F
2121
2122      :
2123      :
2124      :
2125      :
2126      :
2127      :     .EVEN
2128
2129
2130      :
2131      : FORMAT STATEMENTS USED IN PRINT CALLS
2132      :
2133      :
2134      :
2135      :
2136      :
2137      : FRM001::      .ASCIZ /%N%APCSR%D1% DOES NOT EXIST/
2138
2139      :
2140      :
2141      :
2142      : FRM002::      .ASCIZ /%N% EXPECTED DATA = %06%N% A TUAL DATA = %06/
2143
2144      :
2145      :
2146      :
2147      :
2148      :
2149      :
2150      :
2151      : FRM003::      .ASCIZ /%N% PCSRO = %06%N% PCSR1 = %06/

```





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CZUABA.MAC 10-JAN-83 12:46 GLOBAL TEXT SECTION

2264	014666'	051117	020124	052123			
2265	014674'	052101	051525	053440			
2266	014702'	051117	020104	035061			
2267	014710'	022440	033117	000			
2268	014715'	045	022516	020101	FRM019::	.ASCIZ /%NZA	WORD 2: %06/
2269	014722'	020040	020040	020040			
2270	014730'	020040	020040	053440			
2271	014736'	051117	020104	035062			
2272	014744'	022440	033117	000			
2273	014751'	045	022516	020101	FRM020::	.ASCIZ /%NZA	WORD 3: %06/
2274	014756'	020040	020040	020040			
2275	014764'	020040	020040	053440			
2276	014772'	051117	020104	035063			
2277	015000'	022440	033117	000			
2278	015005'	045	022516	020101	FRM021::	.ASCIZ /%NZA	WORD 4: %06/
2279	015012'	020040	020040	020040			
2280	015020'	020040	020040	053440			
2281	015026'	051117	020104	035064			
2282	015034'	022440	033117	000			
2283		015042'			.EVEN		



























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2996  
2997  
2998  
2999  
3000  
3001  
3002  
3003  
3004  
3005  
3006  
3007  
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3010  
3011  
3012  
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3020  
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3027

022634  
022634  
022636  
022640  
022642  
022644  
022646  
022650  
022652  
022654  
022656  
022650  
022662  
022664  
010346  
010446  
010503  
012304  
012304  
012304  
100002  
000261  
000401  
000241  
012604  
012603  
000207

```
*****
SUBROUTINE - CHKOWN
THIS ROUTINE CHECKS FOR THE OWNERSHIP BIT IN
BOTH TRANSMIT AND RECEIVE DESCRIPTOR RINGS.
INPUTS:      R5 = ADDRESS OF DESCRIPTOR RING
OUTPUTS:     IF OWN BIT = 0 (PORT DRIVER)
              THEN CARRY = 0
              IF OWN BIT = 1 (UNA)
              THEN CARRY = 1
*****
```

```
CHKOWN::
      MOV R3,-(SP)      ; SAVE R3
      MOV R4,-(SP)      ; SAVE R4
      MOV R5,R3        ; R3 POINTS TO DESCRIPTOR RING
      MOV (R3)+,R4     ; INDEX TO THIRD RING ENTRY
      MOV (R3)+,R4
      MOV (R3)+,R4
      BPL 10$          ; OWN = 0 ?
                      ; YES
                      ; NO, SET CARRY = 1
      BR 20$
10$:  CLC              ; CLEAR CARRY
20$:  MOV (SP)+,R4     ; RESTORE R4
      MOV (SP)+,R3     ; RESTORE R3
      RTS PC          ; AND RETURN
```



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3076  
3077  
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3128  
3129  
3130  
3131

022754'  
 022754' 010046  
 022756' 010346  
 022760' 010446  
 022762' 012700 000003  
 022766' 012703 013142'  
 022772' 010504  
 022774' 022423  
  
 022776' 001010  
 023000' 005300  
 023002' 001374  
 023004' 011400  
 023006' 042700 007777  
 023012' 020013  
 023014' 001001  
 023016' 000411  
 023020' 012703 013132'  
 023024' 010504  
 023026' 012423  
 023030' 012423  
 023032' 012423  
 023034' 012423  
 023036' 000261  
 023040' 000401

```
*****
SUBROUTINE - CHKRDR

THIS SUBROUTINE COMPARES A RECEIVE DESCRIPTOR RING ENTRY
WITH EXPECTED DATA.

INPUTS:          R5 = ADDRESS OF RDRB TO BE COMPARED.

INPLICIT INPUTS: XRDRB0 = TABLE WITH EXPECTED DATA

OUTPUTS:          IF COMPARE IS SUCCESSFUL
                   THEN CARRY = 0

                   IF COMPARE IS UNSUCCESSFUL
                   THEN CARRY = 1
                   EXPECTED RDRB+0 = XRDRB0
                   EXPECTED RDRB+2 = XRDRB2
                   EXPECTED RDRB+4 = XRDRB4
                   EXPECTED RDRB+6 = XRDRB6
                   ACTUAL RDRB+0 -> ERDRB0
                   ACTUAL RDRB+2 -> ERDRB2
                   ACTUAL RDRB+4 -> ERDRB4
                   ACTUAL RDRB+6 -> ERDRB6

CALLING SEQUENCE:
                    JSR      PC,CHKRDR
*****
```

```
CHKRDR::
        MOV      R0,-(SP)          ; SAVE R0
        MOV      R3,-(SP)          ; SAVE R3
        MOV      R4,-(SP)          ; SAVE R4
        MOV      #3,R0             ; DO THREE COMPARES
        MOV      #XRDRB0,R3        ; R3 POINTS TO EXPECTED DATA
        MOV      R5,R4             ; R4 POINTS TO ACTUAL RDRB
10$:    CMP      (R4)+,(R3)+       ; COMPARE RDRB TO EXPECTED DATA
        ; ERROR ?
        BNE     20$               ; YES
        DEC     R0                 ; NO, DONE COMPARING ?
        BNE     10$               ; NO, KEEP ON COMPARING
        MOV     (R4),R0            ; RDRB+6 -> R0
        RLC     #TDRMSK,R0        ; MASK OUT TDR VALUE
        CMP     R0,(R3)            ; COMPARE ERROR ?
        BNE     20$               ; YES
        BR      30$
20$:    MOV      #ERDRB0,R3        ; R3 POINTS TO ACTUAL TABLE
        MOV      R5,R4             ; R4 POINTS TO ACTUAL RDRB
        MOV     (R4)+,(R3)+       ; LOAD ACTUAL TABLE
        MOV     (R4)+,(R3)+
        MOV     (R4)+,(R3)+
        MOV     (R4)+,(R3)+
        SEC
        BR      40$               ; SET CARRY
```

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3132	023042'	000241	30\$:	CLC		:	CLEAR CARRY
3133	023044'	012604	40\$:	MOV	(SP)+,R4	:	RESTORE R4
3134	023046'	012603		MOV	(SP)+,R3	:	RESTORE R3
3135	023050'	012600		MOV	(SP)+,R0	:	RESTORE R0
3136	023052'	000207		RTS	PC	:	AND RETURN

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3137  
3138  
3139  
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3141  
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023054'  
023054' 010046  
023056' 010146  
023060' 010446  
  
023062' 012701 000003  
023066' 005000  
023070' 017704 155132  
023074' 032704 020000  
023100' 001013  
023102' 005300  
023104' 001371  
023106' 005301  
023110' 001367  
  
023112' 010437 013126'  
023116' 017737 155106 013130'  
023124' 000261  
023126' 000401  
023130' 000241  
023132' 012604  
023134' 012601  
023136' 012600  
023140' 000207

```
*****
SUBROUTINE - CHKRXI
THIS ROUTINE WAITS FOR RXI TO SET.
INPUTS:      NONE
OUTPUTS:     IF RXI SETS
              THEN CARRY = 0
              IF RXI FAILS TO SET
              THEN CARRY = 1
              PCSRO -> EPSCRO
              PCSR1 -> EPCSR1
CALLING SEQUENCE:
              JSR      PC,CHKRXI
*****
```

```
CHKRXI::
      MOV      R0,-(SP)      ; SAVE R0
      MOV      R1,-(SP)      ; SAVE R1
      MOV      R4,-(SP)      ; SAVE R4
;
; LOOP FOR APPROX 2 SEC
10$:  MOV      #3,R1          ; INIT OUTER LOOP
      CLR      R0            ; INNER LOOP
20$:  MOV      @PCSRO,R4     ; PCSRO -> R4
      BIT      #RXI,R4      ; RXI SET ?
      BNE     30$           ; YES
      DEC     R0            ; INNER LOOP EXHAUSTED ?
      BNE     20$           ; NO, CHECK FOR RXI AGAIN
      DEC     R1            ; OUTER LOOP EXHAUSTED ?
      BNE     20$           ; NO, KEEP CHECKING FOR RXI
;
; LOOP EXHAUSTED AND NO RXI
      MOV     R4,EPCSR0     ; PCSRO -> EPCSR0
      MOV     @PCSR1,EPCSR1 ; PCSR1 -> EPCSR1
      SEC
      BR      40$          ; SET CARRY
30$:  CLC                    ; RXI SET SO CLEAR CARRY
40$:  MOV     (SP)+,R4      ; RESTORE R4
      MOV     (SP)+,R1      ; RESTORE R1
      MOV     (SP)+,R0      ; RESTORE R0
      RTS      PC          ; AND RETURN
```

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION

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023142' 010046  
023144' 010446  
023146' 017704 155056  
023152' 042704 140377  
023156' 022704 000000  
023162' 001412  
023164' 012700 000010  
023170' 006204  
023172' 005300  
023174' 001375  
023176' 005104  
023200' 010437 013206'  
023204' 000261  
023206' 000401  
023210' 000241  
023212' 012604  
023214' 012600  
023216' 000207

```
*****
SUBROUTINE - CHKSTR
THIS TEST CHECKS THE SELF TEST RESULTS.
INPUTS:      NONE
OUTPUTS:     IF SELF TEST SUCCESSFUL
              THEN CARRY = 0
              IF SELF TEST FAILED
              THEN CARRY = 1
              SELF TEST CODE SHIFTED RIGHT -> ECODE
CALLING SEQUENCE:
              JSR      PC,CHKSTR
*****
```

```
CHKSTR::
MOV      R0,-(SP)      ; SAVE R0
MOV      R4,-(SP)      ; SAVE R4
MOV      @PCSR1,R4     ; PCSR1 -> R4
BIC      #STMASK,R4    ; MASK SELF TEST CODE BITS
CMP      #GOODST,R4    ; SELF TEST SUCCESSFUL ?
BEQ      10$           ; YES
;
; SELF TEST FAILED
; SHIFT CODE RIGHT
5$:      MOV      #8.,R0
ASR      R4
DEC      R0
BNE      5$
COM      R4             ; MATCH THE LED'S
MOV      R4,ECODE     ; SHIFTED CODE -> ECODE
SEC      ; SET CARRY
BR       20$
10$:     CLC           ; SELF TEST PASSED CLEAR CARRY
20$:     MOV      (SP)+,R4 ; RESTORE R4
MOV      (SP)+,R0     ; RESTORE R0
RTS      PC           ; AND RETURN
```

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025220'  
023220' 010046  
023222' 010346  
023224' 010446  
023226' 012700 000004  
023232' 012703 013162'  
023236' 010504  
023240' 022423  
  
023242' 001003  
023244' 005300  
023246' 001374  
023250' 000411  
023252' 012703 013152'  
023256' 010504  
023260' 012423  
023262' 012423  
023264' 012423  
023266' 012423  
023270' 000261  
023272' 000401  
023274' 000241  
023276' 012604  
023300' 012603  
023302' 012600

```
*****
SUBROUTINE - CHKTDR

THIS SUBROUTINE COMPARES A TRANSMIT DESCRIPTOR RING ENTRY
WITH EXPECTED DATA.

INPUTS:          R5 = ADDRESS OF TDRB TO BE COMPARED

IMPLICIT INPUTS: XTDRB0 = TABLE WITH EXPECTED DATA

OUTPUTS:         IF COMPARE IS SUCCESSFUL
                  THEN CARRY = 0

                  IF COMPARE IS UNSUCCESSFUL
                  THEN CARRY = 1
                  EXPECTED TDRB+0 = XTDRB0
                  EXPECTED TDRB+2 = XTDRB2
                  EXPECTED TDRB+4 = XTDRB4
                  EXPECTED TDRB+6 = XTDRB6
                  ACTUAL TDRB+0 -> ETDRB0
                  ACTUAL TDRB+2 -> ETDRB2
                  ACTUAL TDRB+4 -> ETDRB4
                  ACTUAL TDRB+6 -> ETDRB6

CALLING SEQUENCE:
                  JSR      PC,CHKTDR
*****
```

```
CHKTDR::
      MOV      R0,-(SP)          ; SAVE R0
      MOV      R3,-(SP)          ; SAVE R3
      MOV      R4,-(SP)          ; SAVE R4
      MOV      #4,R0             ; DO FOUR COMPARES
      MOV      #XTDRB0,R3        ; R3 POINTS TO EXPECTED DATA
      MOV      R5,R4             ; R4 POINTS TO ACTUAL TDRB
10$:   CMP      (R4)+,(R3)+      ; COMPARE TDRB TO EXPECTED DATA
      ; ERROR ?
      BNE      20$              ; YES
      DEC      R0                ; NO, DONE COMPARING ?
      BNE      10$              ; NO, KEEP ON COMPARING
      BR       30$
20$:   MOV      #ETDRB0,R3        ; R3 POINTS TO ACTUAL TABLE
      MOV      R5,R4             ; R4 POINTS TO ACTUAL TDRB
      MOV      (R4)+,(R3)+      ; LOAD ACTUAL TABLE
      MOV      (R4)+,(R3)+
      MOV      (R4)+,(R3)+
      SEC                          ; SET CARRY
      BR       40$
30$:   CLC                          ; CLEAR CARRY
40$:   MOV      (SP)+,R4          ; RESTORE R4
      MOV      (SP)+,R3          ; RESTORE R3
      MOV      (SP)+,R0          ; RESTORE R0
```

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION  
3283 023304' 000207 RTS PC ; AND RETURN

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION

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023306' 010046  
023306' 010146  
023312' 010446  
  
023314' 012701 000003  
023320' 005000  
023322' 017704 154700  
023326' 032704 010000  
023332' 001013  
023334' 005300  
023336' 001371  
023340' 005301  
023342' 001367  
  
023344' 010437 013126'  
023350' 017737 154654 013130'  
023356' 000261  
023360' 000401  
023362' 000241  
023364' 012604  
023366' 012601  
023370' 012600  
023372' 000207

```
*****
SUBROUTINE - CHKTXI
THIS ROUTINE WAITS FOR TXI TO SET.
INPUTS:      NONE
OUTPUTS:     IF TXI SETS
              THEN CARRY = 0
              IF TXI FAILS TO SET
              THEN CARRY = 1
              PCSRO -> EPCSR0
              PCSR1 -> EPCSR1
CALLING SEQUENCE:
              JSR      PC,CHKTXI
*****
```

```
CHKTXI::
MOV      R0,-(SP)      ; SAVE R0
MOV      R1,-(SP)      ; SAVE R1
MOV      R4,-(SP)      ; SAVE R4
;
; LOOP FOR APPROX 2 SEC
MOV      #3,R1          ; INIT OUTER LOOP
10$:    CLR      R0      ; INNER LOOP
20$:    MOV      @PCSRO,R4 ; PCSRO -> R4
        BIT      #TXI,R4 ; TXI SET ?
        BNE     30$     ; YES
        DEC     R0      ; INNER LOOP EXHAUSTED ?
        BNE     20$     ; NO, CHECK FOR TXI AGAIN
        DEC     R1      ; OUTER LOOP EXHAUSTED ?
        BNE     20$     ; NO, KEEP CHECKING FOR TXI
;
; LOOP EXHAUSTED AND NO TXI
MOV      R4,EPCSR0     ; PCSRO -> EPCSR0
MOV      @PCSR1,EPCSR1 ; PCSR1 -> EPCSR1
SEC      ; SET CARRY
BR      40$
30$:    CLC      ; TXI SET SO CLEAR CARRY
40$:    MOV      (SP)+,R4 ; RESTORE R4
        MOV      (SP)+,R1 ; RESTORE R1
        MOV      (SP)+,R0 ; RESTORE R0
        RTS      PC      ; AND RETURN
```

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION

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```

*****
SUBROUTINE - CHKSER
THIS ROUTINE CHECKS FOR THE SERI BIT IN PCSRO.
INPUTS: NONE
OUTPUTS:      IF SERI BIT SET THEN CARRY = 0
               IF SERI BIT NOT SET THEN CARRY = 1
               PCSRO -> EPCSR0
               PCSR1 -> EPCSR1
CALLING SEQUENCE:
                JSR      PC,CHKSER
*****

```

```

023374' 010446
023376' 017704 154624
023402' 032704 100000
023406' 001007
023410' 010437 013126'
023414' 017737 154610 013130'
023422' 000261
023424' 000401
023426' 000241
023430' 012604
023432' 000207

```

```

CHKSER::MOV      R4,-(SP)          ;SAVE R4
          MOV      @PCSRO,R4      ;GET PCSRO CONTENTS
          BIT      #SERI,R4       ;IS SERI BIT SET?
          BNE     10$             ;YES
          MOV      R4,EPCSR0      ;NO, SAVE PCSRO CONTENTS
          MOV      @PCSR1,EPCSR1  ;GET PCSR1 CONTENTS TOO
          SEC      ;INDICATE NO SERI BIT
          BR      20$             ;LEAVE
10$:     CLC      ;INDICATE SERI BIT SET
20$:     MOV      (SP)+,R4        ;RESTORE R4
          RTS      PC

```

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION

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023434' 010446  
023434' 012777 004000 154562  
023444' 017704 154556  
023450' 032704 004000  
023454' 001407  
023456' 010437 013126'  
023462' 017737 154542 013130'  
023470' 000261  
023472' 000401  
023474' 000241  
023476' 012604  
023500' 000207

```
*****
SUBROUTINE - CLRDNI
THIS SUBROUTINE PERFORMS A WRITE ONE TO CLEAR OPERATION ON
THE DNI BIT AND VERIFIES ITS SUCCESS.

INPUTS: NONE

OUTPUTS:      IF SUCCESSFUL ( DNI = 0 )
                THEN CARRY = 0

                IF UNSUCCESSFUL ( DNI = 1 )
                THEN CARRY = 1
                PCSRO -> EPCSRO
                PCSR1 -> EPCSR1

CALLING SEQUENCE:
                JSR      PC,CLRDNI
*****
```

```
CLRDNI::
MOV      R4,-(SP)           ; SAVE R4
MOV      #DNI,@PCSRO       ; WRITE ONE TO CLEAR DNI BIT
MOV      @PCSRO,R4         ; PCSRO -> R4
BIT      #DNI,R4           ; DNI = 0 ?
BEQ      10$               ; YES
MOV      R4,EPCSRO        ; NO, PCSRO -> EPCSRO
MOV      @PCSR1,EPCSR1    ; PCSR1 -> EPCSR1
SEC                        ; SET CARRY
BR       20$
10$:    CLC                ; CLEAR CARRY
20$:    MOV      (SP)+,R4   ; RESTORE R4
RTS     PC                 ; AND RETURN
```

GLOBAL AREAS  
CZUABA.MAC

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GLOBAL SUBROUTINES SECTION

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023502' 010446  
023502' 012777 002000 154514  
023512' 017704 154510  
023516' 032704 002000  
023522' 001407  
023524' 010437 013126'  
023530' 017737 154474 013130'  
023536' 000261  
023540' 000401  
023542' 000241  
023544' 012604  
023546' 000207

```
*****
SUBROUTINE - CLRRCE

THIS SUBROUTINE PERFORMS A WRITE ONE TO CLEAR OPERATION ON
THE RCBI BIT AND VERIFIES ITS SUCCESS.

INPUTS: NONE

OUTPUTS:      IF SUCCESSFUL ( RCBI = 0 )
                THEN CARRY = 0

                IF UNSUCCESSFUL ( RCBI = 1 )
                THEN CARRY = 1
                PCSRO -> EPCSRO
                PCSR1 -> EPCSR1

CALLING SEQUENCE:
                JSR      PC,CLRRCE
*****
```

```
CLRRCE::
MOV      R4,-(SP)           ; SAVE R4
MOV      #RCBI,@PCSRO     ; WRITE ONE TO CLEAR RCBI BIT
MOV      @PCSRO,R4        ; PCSRO -> R4
BIT      #RCBI,R4         ; RCBI = 0 ?
BEQ      10$              ; YES
MOV      R4,EPCSRO        ; NO, PCSRO -> EPCSRO
MOV      @PCSR1,EPCSR1    ; PCSR1 -> EPCSR1
SEC                      ; SET CARRY
BR       20$

10$:    CLC                ; CLEAR CARRY
20$:    MOV      (SP)+,R4   ; RESTORE R4
RTS     PC                 ; AND RETURN
```

GLOBAL AREAS  
CZUABA.MAC

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GLOBAL SUBROUTINES SECTION

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023550'  
023550' 010446  
023552' 012777 020000 154446  
023560' 017704 154442  
023564' 032704 020000  
023570' 001407  
023572' 010437 013126'  
023576' 017737 154426 013130'  
023604' 000261  
023606' 000401  
023610' 000241 10\$:  
023612' 012604 20\$:  
023614' 000207

\*\*\*\*\*  
SUBROUTINE - CLRRXI  
  
THIS SUBROUTINE PERFORMS A WRITE ONE TO CLEAR OPERATION ON  
THE RXI BIT AND VERIFIES ITS SUCCESS.  
  
INPUTS: NONE  
  
OUTPUTS: IF SUCCESSFUL ( RXI = 0 )  
          THEN CARRY = 0  
  
          IF UNSUCCESSFUL ( RXI = 1 )  
          THEN CARRY = 1  
          PCSR0 -> EPCSR0  
          PCSR1 -> EPCSR1  
  
CALLING SEQUENCE:  
          JSR PC,CLRRXI  
\*\*\*\*\*

CLRRXI::  
MOV R4,-(SP) ; SAVE R4  
MOV #RXI,@PCSR0 ; WRITE ONE TO CLEAR RXI BIT  
MOV @PCSR0,R4 ; PCSRO -> R4  
BIT #RXI,R4 ; RXI = 0 ?  
BEQ 10\$ ; YES  
MOV R4,EPCSR0 ; NO, PCSRO -> EPCSR0  
MOV @PCSR1,EPCSR1 ; PCSR1 -> EPCSR1  
SEL ; SET CARRY  
BR 20\$  
10\$: CLC ; CLEAR CARRY  
20\$: MOV (SP)+,R4 ; RESTORE R4  
RTS PC ; AND RETURN

GLOBAL AREAS  
CZUABA.MAC

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GLOBAL SUBROUTINES SECTION

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023616'  
02361E' 010446  
023620' 012777 010000 154400  
023626' 017704 154374  
023632' 032704 010000  
023636' 001407  
023640' 010437 01312E'  
023644' 017737 154360 013130'  
023652' 000261  
023654' 000401  
023656' 000241 10\$:  
023660' 012604 20\$:  
023662' 000207

\*\*\*\*\*  
SUBROUTINE - CLRTXI  
  
THIS SUBROUTINE PERFORMS A WRITE ONE TO CLEAR OPERATION ON  
THE TXI BIT AND VERIFIES ITS SUCCESS.  
  
INPUTS: NONE  
  
OUTPUTS: IF SUCCESSFUL , TXI = 0 ,  
          THEN CARRY = 0  
  
          IF UNSUCCESSFUL ( TXI = 1 )  
                          THEN CARRY = 1  
                          PCSR0 -> EPCSR0  
                          PCSR1 -> EPCSR1  
  
CALLING SEQUENCE:  
          JSR     PC,CLRTXI  
\*\*\*\*\*

CLRTXI::  
MOV     R4,-(SP)           ; SAVE R4  
MOV     #TXI,@PCSR0       ; WRITE ONE TO CLEAR TXI BIT  
MOV     @PCSR0,R4         ; PCSRO -> R4  
BIT     #TXI,R4           ; TXI = 0 ?  
BEQ     10\$               ; YES  
MOV     R4,EPCSR0         ; NO, PCSRO -> EPCSR0  
MOV     @PCSR1,EPCSR1     ; PCSR1 -> EPCSR1  
SEC                       ; SET CARRY  
BR     20\$  
10\$:   CLC                 ; CLEAR CARRY  
20\$:   MOV     (SP)+,R4     ; RESTORE R4  
RTS     PC                ; AND RETURN

GLOBAL AREAS  
CZUABA.MAC

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GLOBAL SUBROUTINES SECTION

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023664'  
023664' 010446  
023666' 012777 100000 154332  
023674' 017704 154326  
023700' 032704 100000  
023704' 001407  
023706' 010437 013126'  
023712' 017737 154312 013130'  
023720' 000261  
023722' 000401  
023724' 000241 10\$:  
023726' 012604 20\$:  
023730' 000207

```
*****
SUBROUTINE - CLRSER

THIS SUBROUTINE PERFORMS A WRITE ONE TO CLEAR OPERATION ON
THE SERI BIT AND VERIFIES ITS SUCCESS.

INPUTS: NONE

OUTPUTS:      IF SUCCESSFUL ( SERI = 0 )
                THEN CARRY = 0

                IF UNSUCCESSFUL ( SERI = 1 )
                THEN CARRY = 1
                PCSRO -> EPCSRO
                PCSR1 -> EPCSR1

CALLING SEQUENCE:
                JSR      PC,CLRSER
*****
```

```
CLRSER::
MOV      R4,-(SP)           ; SAVE R4
MOV      #SERI,@PCSRO      ; WRITE ONE TO CLEAR SERI BIT
MOV      @PCSRO,R4         ; PCSRO -> R4
BIT      #SERI,R4          ; SERI = 0 ?
BEQ      10$               ; YES
MOV      R4,EPCSRO         ; NO, PCSRO -> EPCSRO
MOV      @PCSR1,EPCSR1     ; PCSR1 -> EPCSR1
SEC                      ; SET CARRY
BR       20$
10$:    CLC                 ; CLEAR CARRY
20$:    MOV      (SP)+,R4   ; RESTORE R4
RTS      PC                 ; AND RETURN
```

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023732'  
023732' 010046  
023734' 010346  
023736' 010446  
023740' 010500  
023742' 012703 001106'  
023746' 012704 005106'  
023752' 022324  
023754' 001003  
023756' 005300  
023760' 001374  
023762' 000406  
023764' 014337 013174'  
023770' 014437 013172'  
023774' 000261  
023776' 000401  
024000' 000241  
024002' 012604  
024004' 012603  
024006' 012600  
024010' 000207

```
*****
SUBROUTINE - CMPDAT
THIS SUBROUTINE COMPARES THE RECEIVE BUFFER (RBUF) DATA FIELD
WITH THE TRANSMIT BUFFER (TBUF) DATA FIELD.
INPUTS:      R5 = NUMBER OF WORDS TO COMPARE
OUTPUTS:     IF SUCCESSFUL DATA COMPARE
              THEN CARRY = 0
              IF UNSUCCESSFUL DATA COMPARE
              THEN CARRY = 1
              EXPECTED DATA -> XDAT
              ACTUAL DATA  -> EDAT
CALLING SEQUENCE:
              JSR      PC,CMPDAT
*****
```

```
CMPDAT::
MOV      R0,-(SP)      ; SAVE R0
MOV      R3,-(SP)      ; SAVE R3
MOV      R4,-(SP)      ; SAVE R4
MOV      R5,R0         ; R0 = NUMBER OF WORDS TO COMPARE
MOV      #TBUF+12.,R3  ; R3 POINTS TO EXPECTED DATA
MOV      #RBUF+12.,R4  ; R4 POINTS TO ACTUAL DATA
10$:     CMP      (R3)+,(R4)+ ; DATA COMPARE ?
        BNE      20$      ; NO
        DEC      R0       ; YES, DONE ?
        BNC      10$      ; NO
        BR      30$      ; YES
20$:     MOV      -(R3),XDAT ; SAVE EXPECTED DATA
        MOV      -(R4),EDAT ; SAVE ACTUAL ERROR DATA
        SEC                ; SET CARRY
        BR      40$
30$:     CLC                ; CLEAR CARRY
40$:     MOV      (SP)+,R4   ; RESTORE R4
        MOV      (SP)+,R3   ; RESTORE R3
        MOV      (SP)+,R0   ; RESTORE R0
        RTS      PC        ; AND RETURN
```

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024012\* 010346  
024014\* 010446  
024016\* 012703 013202\*  
024022\* 010504  
024024\* 022324  
024026\* 001004  
024030\* 022324  
024032\* 001002  
024034\* 000241  
024036\* 000406  
024040\* 012703 013176\*  
024044\* 010504  
024046\* 012423  
024050\* 012423  
024052\* 000261  
024054\* 012604  
024056\* 012603  
024060\* 000207

\*\*\*\*\*  
SUBROUTINE - CMPCRC  
THIS SUBROUTINE COMPARES A CRC VALUE WITH  
AN EXPECTED CRC VALUE.  
INPUTS: R5 = ADDRESS OF ACTUAL CRC VALUE TO BE COMPARED.  
INPLICIT INPUTS:  
XCRC = EXPECTED CRC VALUE  
OUTPUTS: IF SUCCESSFUL CRC COMPARE  
THEN CARRY = 0  
IF UNSUCCESSFUL CRC COMPARE  
THEN CARRY = 1  
EXPECTED CRC = XCRC  
ACTUAL CRC -> ECRC  
CALLING SEQUENCE:  
JSR PC,CMPCRC  
\*\*\*\*\*

CMPCRC: :  
MOV R3,-(SP) ; SAVE R3  
MOV R4,-(SP) ; SAVE R4  
MOV #XCRC,R3 ; R3 POINTS TO EXPECTED CRC  
MOV R5,R4 ; R4 POINTS TO ACTUAL CRC  
CMP (R3)+,(R4)+ ; FIRST CRC WORD COMPARE ?  
BNE 10\$ ; NO  
CMP (R3)+,(R4)+ ; SECOND CRC WORD COMPARE ?  
BNE 10\$ ; NO  
CLC ; YES, CLEAR CARRY  
BR 20\$  
10\$: MOV #ECRC,R3 ; POINT TO ERROR TABLE  
MOV R5,R4 ; POINT TO ACTUAL DATA  
MOV (R4)+,(R3)+ ; LOAD ECRC TABLE  
MOV (R4)+,(R3)+  
SEC ; AND SET CARRY  
20\$: MOV (SP)+,R4 ; RESTORE R4  
MOV (SP)+,R3 ; RESTORE R3  
RTS PC ; AND RETURN

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024062\*  
024062\* 010046  
024064\* 010346  
024066\* 010446  
024070\* 010500  
024072\* 012703 001072\*  
024076\* 012704 005072\*  
024102\* 022324  
024104\* 001003  
024106\* 005300  
024110\* 001374  
024112\* 000406  
024114\* 014337 013174\*  
024120\* 014437 013172\*  
024124\* 000261  
024126\* 000401  
024130\* 000241  
024132\* 012604  
024134\* 012603  
024136\* 012600  
024140\* 000207

```
*****
SUBROUTINE - CMPMEM

THIS SUBROUTINE COMPARES THE READ MEMORY BUFFER (RBUF)
WITH THE WRITE MEMORY BUFFER (TBUF).

INPUTS:          R5 = NUMBER OF WORDS TO COMPARE

OUTPUTS:         IF SUCCESSFUL DATA COMPARE
                  THEN CARRY = 0

                  IF UNSUCCESSFUL DATA COMPARE
                  THEN CARRY = 1
                  EXPECTED DATA -> XDAT
                  ACTUAL DATA  -> EDAT

CALLING SEQUENCE:
                  JSR    PC,CMPMEM
*****
```

```
CMPMEM:
MOV    R0,-(SP)          ; SAVE R0
MOV    R3,-(SP)          ; SAVE R3
MOV    R4,-(SP)          ; SAVE R4
MOV    R5,R0             ; R0 = NUMBER OF WORDS TO COMPARE
MOV    #TBUF,R3          ; R3 POINTS TO EXPECTED DATA
MOV    #RBUF,R4          ; R4 POINTS TO ACTUAL DATA
10$:  CMP    (R3)+,(R4)+  ; DATA COMPARE ?
      BNE    20$         ; NO
      DEC    R0          ; YES, DONE ?
      BNE    10$        ; NO
      BR    30$         ; YES
20$:  MOV    -(R3),XDAT  ; SAVE EXPECTED DATA
      MOV    -(R4),EDAT ; SAVE ACTUAL ERROR DATA
      SEC                     ; SET CARRY
      BR    40$
30$:  CLC                     ; CLEAR CARRY
40$:  MOV    (SP)+,R4      ; RESTORE R4
      MOV    (SP)+,R3      ; RESTORE R3
      MOV    (SP)+,R0      ; RESTORE R0
      RTS    PC           ; AND RETURN
```

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024142' 010046  
024142' 010346  
024144' 010446  
024146' 010500  
024150' 012703 000000  
024152' 012704 005164'  
024156' 020324  
024162' 001003  
024164' 005300  
024166' 001374  
024170' 000406  
024172' 010337 013174'  
024174' 014437 013172'  
024200' 000261  
024204' 000401  
024206' 000241  
024210' 012604  
024212' 012603  
024214' 012600  
024216' 000207

```
*****
SUBROUTINE - CMPRNT

THIS SUBROUTINE COMPARES THE RECEIVE BUFFER (RBUF) DATA FIELD
TO VERIFY ZERO PADDING HAS OCCURED.

INPUTS:      R5 = NUMBER OF WORDS TO COMPARE

OUTPUTS:     IF SUCCESSFUL DATA COMPARE
              THEN CARRY = 0

              IF UNSUCCESSFUL DATA COMPARE
              THEN CARRY = 1
              EXPECTED DATA -> XDAT
              ACTUAL DATA  -> EDAT

CALLING SEQUENCE:
                JSR      PC,CMPRNT
*****
```

```
CMPRNT::
MOV      R0,-(SP)      ; SAVE R0
MOV      R3,-(SP)      ; SAVE R3
MOV      R4,-(SP)      ; SAVE R4
MOV      R5,R0         ; R0 = NUMBER OF WORDS TO COMPARE
MOV      #ZERO,R3      ; R3 IS EXPECTED DATA (ZERO'S)
MOV      #RBUF+58.,R4  ; R4 POINTS TO ACTUAL DATA
10$:    CMP      R3,(R4)+ ; DATA = ZERO'S ?
        BNE     20$    ; NO
        DEC     R0     ; YES, DONE ?
        BNE     10$    ; NO
        BR     30$    ; YES
20$:    MOV      R3,XDAT ; SAVE EXPECTED DATA
        MOV      -(R4),EDAT ; SAVE ACTUAL ERROR DATA
        SEC     ; SET CARRY
        BR     40$
30$:    CLC     ; CLEAR CARRY
40$:    MOV      (SP)+,R4 ; RESTORE R4
        MOV      (SP)+,R3 ; RESTORE R3
        MOV      (SP)+,R0 ; RESTORE R0
        RTS     PC      ; AND RETURN
```

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024222' 010046  
024222' 010146  
024224' 010246  
024226' 010346  
024230' 010546  
024232' 012702 005072'  
024234' 012703 004000  
024240' 013704 012202'  
024244' 012705 120001  
024254' 112200  
024256' 042700 177400  
024262' 074004  
024264' 012701 000010  
024270' 000241  
024272' 006004  
024274' 103001  
024276' 074504  
024300' 077105  
024302' 077314  
024304' 012605  
024306' 012603  
024310' 012602  
024312' 012601  
024314' 012600  
024316' 000207

```
*****
SUBROUTINE - CRCBLK

THIS SUBROUTINE CALCULATES A 16 BIT CRC
ON A BLOCK OF DATA.

IMPLICIT
INPUTS:          RBUF = ADDRESS OF DATA BLOCK
                  BYTE COUNT = 2048. WORDS*2

OUTPUTS:         R4 = CRC

CALLING SEQUENCE:
                  JSR   PC,CRCBLK
*****
```

```
CRCBLK::
MOV     R0,-(SP)      ; SAVE R0
MOV     R1,-(SP)      ; SAVE R1
MOV     R2,-(SP)      ; SAVE R2
MOV     R3,-(SP)      ; SAVE R3
MOV     R5,-(SP)      ; SAVE R5
;
MOV     #RBUF,R2      ; R2 = ADDRESS OF DATA BLOCK
MOV     #2048.,R3     ; R3 = 2048. WORDS * 2
MOV     CRCH,R4       ; INITIAL CRC
MOV     #POLYH,R5     ; CRC POLYNOMIAL
;
1$:     MOVB     (R2)+,R0 ; GET NEXT BYTE
        BIC     #^C377,R0 ; CLEAR HIGH BYTE
        XOR     R0,R4     ; MERGE BYTE WITH OLD CRC
        MOV     #8.,R1    ; LOOP COUNT
2$:     CLC      ; CLEAR CARRY
        ROR     R4        ; SHIFT RIGHT THE CRC
        BCC     3$       ; SKIP IF BIT ZERO NOT SET
        XOR     R5,R4     ; EXCLUSIVE OR IN THE POLY
        SOB     R1,2$     ; AND LOOP ON ALL 8 BITS
;
3$:     SOB     R3,1$
;
MOV     (SP)+,R5      ; RESTORE R5
MOV     (SP)+,R3      ; RESTORE R3
MOV     (SP)+,R2      ; RESTORE R2
MOV     (SP)+,R1      ; RESTORE R1
MOV     (SP)+,R0      ; RESTORE R0
RTS     PC            ; AND RETURN
```

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024320\*  
024320\* 010046  
024322\* 010346  
024324\* 010546  
  
024326\* 012700 000006  
024332\* 012703 070343\*  
024336\* 012705 070260\*  
  
024342\* 112537 070276\*  
024346\* 004737 024402\*  
024352\* 113723 070277\*  
024356\* 004737 024440\*  
024362\* 113723 070277\*  
024366\* 105723  
024370\* 077014  
  
024372\* 012605  
024374\* 012603  
024376\* 012600  
024400\* 000207

\*\*\*\*\*  
SUBROUTINE - HEXDPA  
THIS SUBROUTINE LOADS DEFADR WITH THE ASCII HEX VALUE  
FOR THE DEFAULT PHYSICAL ADDRESS DPA.  
INPUTS: NONE  
IMPLICIT  
INPUTS: DPA = DEFAULT PHYSICAL ADDRESS  
OUTPUTS: DEFADR = ASCII HEX VALUE FOR DPA  
CALLING SEQUENCE:  
JSR PC,HEXDPA  
\*\*\*\*\*

HEXDPA::  
MOV R0,-(SP) ; SAVE R0  
MOV R3,-(SP) ; SAVE R3  
MOV R5,-(SP) ; SAVE R5  
:  
MOV #6,R0 ; DO LOOP = 6 BYTES  
MOV #DEFADR,R3 ; POINT TO ASCII MESSAGE  
MOV #DPA,R5 ; POINT TO DEFAULT PHYSICAL ADDR  
:  
10\$: MOVB (R5)+,HEXDAT ; LOAD BYTE FOR CONVERSION  
JSR PC,HEXH ; CONVERT HIGH NIBBLE  
MOVB HEXVAL,(R3)+ ; LOAD INTO ASCII MESSAGE  
JSR PC,HEXL ; CONVERT LOW NIBBLE  
MOVB HEXVAL,(R3)+ ; LOAD INTO ASCII MESSAGE  
TSTB (R3)+ ; SKIP OVER HYPHEN IN MESSAGE  
SOB R0,10\$ ; LOOP TILL ALL 6 BYTES ARE DONE  
:  
MOV (SP)+,R5 ; RESTORE R5  
MOV (SP)+,R3 ; RESTORE R3  
MOV (SP)+,R0 ; RESTORE R0  
RTS PC ; AND RETURN

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024402'  
024402' 010146  
024404' 013701 070276'  
024410' 042701 177417  
024414' 006201  
024416' 006201  
024420' 006201  
024422' 006201  
024424' 062701 070367'  
024430' 111137 070277'  
024434' 012601  
024436' 000207

```
*****
SUBROUTINE - HEXH
THIS SUBROUTINE LOADS HEXVAL WITH THE ASCII HEX VALUE
FOR THE HIGH NIBBLE IN HEXDAT
INPUTS:          NONE
IMPLICIT
INPUTS:          HEXDAT = BYTE TO BE CONVERTED
OUTPUTS:         HEXVAL = ASCII HEX VALUE FOR THE HIGH NIBBLE
CALLING SEQUENCE:
                  JSR      PC,HEXH
*****
```

```
HEXH::
MOV      R1,-(SP)          ; SAVE R1
;
MOV      HEXDAT,R1        ; LOAD DATA FOR CONVERSION
BIC      #177417,R1       ; MASK HIGH NIBBLE
;
ASR      R1                ; SHIFT RIGHT
ASR      R1
ASR      R1
ASR      R1
;
ADD      #HEXTBL,R1        ; GET INDEX INTO HEXTBL
MOVB    (R1),HEXVAL       ; AND LOAD HEXVAL
;
MOV      (SP)+,R1         ; RESTORE R1
RTS     PC                 ; AND RETURN
```

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024440'  
024440' 010146  
024442' 013701 070276'  
024446' 042701 177760  
024452' 062701 070367'  
024456' 111137 070277'  
024462' 012601  
024464' 000207

```
*****
SUBROUTINE - HEXL

THIS SUBROUTINE LOADS HEXVAL WITH THE ASCII HEX VALUE
FOR THE LOW NIBBLE IN HEXDAT

INPUTS:          NONE

IMPLICIT
INPUTS:          HEXDAT = BYTE TO BE CONVERTED

OUTPUTS:         HEXVAL = ASCII HEX VALUE FOR THE LOW NIBBLE

CALLING SEQUENCE:
                  JSR      PC,HEXL
*****
```

```
HEXL::
MOV      R1,-(SP)          ; SAVE R1
;
MOV      HEXDAT,R1        ; LOAD DATA FOR CONVERSION
BIC      #177760,R1       ; MASK LOW NIBBLE
;
ADD      #HEXTBL,R1       ; GET INDEX INTO HEXTBL
MOVB    (R1),HEXVAL      ; AND LOAD HEXVAL
;
MOV      (SP)+,R1        ; RESTORE R1
RTS     PC                ; AND RETURN
```

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024466\*  
024466\* 010146  
024470\* 010346  
024472\* 010446  
024474\* 012701 002000  
024500\* 011504  
024502\* 012703 001072\*  
024506\* 010423  
024510\* 062704 000002  
024514\* 005301  
024516\* 001373  
024520\* 012604  
024522\* 012603  
024524\* 012601  
024526\* 000207

\*\*\*\*\*  
SUBROUTINE - LDBUF  
THIS SUBROUTINE LOADS TBUF WITH AN ADDRESS DATA PATTERN  
STARTING WITH THE ADDRESS POINTED TO BY R5  
INPUTS: R5 = ADDRESS OF SPECIFIED DATA ADDRESS  
OUTPUTS: TBUF = ADDRESS DATA PATTERN  
CALLING SEQUENCE:  
JSR PC,LDBUF  
\*\*\*\*\*

LDBUF::  
MOV R1,-(SP) ; SAVE R1  
MOV R3,-(SP) ; SAVE R3  
MOV R4,-(SP) ; SAVE R4  
MOV #1024,R1 ; DO 1024. WORDS  
MOV (R5),R4 ; R4 = STARTING DATA ADDRESS  
MOV #TBUF,R3 ; R3 POINTS TO TBUF  
10\$: MOV R4,(R3)+ ; LOAD TBUF  
ADD #2,R4 ; ADD 2 TO DATA  
DEC R1 ; DONE 1K BLOCK ?  
BNE 10\$ ; NO  
MOV (SP)+,R4 ; RESTORE R4  
MOV (SP)+,R3 ; RESTORE R3  
MOV (SP)+,R1 ; RESTORE R1  
RTS PC ; AND RETURN

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024530' 010146  
024530' 010246  
024532' 010346  
024534' 010446  
024536' 012701 002000  
024544' 011504  
024546' 012703 001072'  
024552' 010402  
024554' 005102  
024556' 010223  
024560' 062704 000002  
024564' 005301  
024566' 001371  
024570' 012604  
024572' 012603  
024574' 012602  
024576' 012601  
024600' 000207

```
*****
SUBROUTINE - LDBUFC
THIS SUBROUTINE LOADS TBUF WITH THE COMPLIMENT OF AN
ADDRESS DATA PATTERN STARTING WITH THE ADDRESS SPECIFIED BY R5
INPUTS:      R5 = ADDRESS OF SPECIFIED DATA ADDRESS
OUTPUTS:     TBUF = COMPLIMENTED ADDRESS DATA PATTERN
CALLING SEQUENCE:
              JSR      PC,LDBUFC
*****
```

```
LDBUFC::
MOV      R1,-(SP)      ; SAVE R1
MOV      R2,-(SP)      ; SAVE R2
MOV      R3,-(SP)      ; SAVE R3
MOV      R4,-(SP)      ; SAVE R4
MOV      #1024,R1      ; DO 1024 WORDS
MOV      (R5),R4       ; R4 = STARTING DATA ADDRESS
MOV      #TBUF,R3      ; R3 POINTS TO TBUF
10$:    MOV      R4,R2
        COM      R2      ; COMPLIMENT DATA
        MOV      R2,(R3)+ ; LOAD TBUF
        ADD      #2,R4    ; ADD 2 TO DATA
        DEC      R1      ; DONE 1K BLOCK ?
        BNE     10$      ; NO
        MOV      (SP)+,R4 ; RESTORE R4
        MOV      (SP)+,R3 ; RESTORE R3
        MOV      (SP)+,R2 ; RESTORE R2
        MOV      (SP)+,R1 ; RESTORE R1
        RTS      PC      ; AND RETURN
```

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GLOBAL SUBROUTINES SECTION

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024602'  
024602' 010346  
024604' 010446  
024606' 010504  
024610' 012703 000244'  
024614' 012423  
024616' 012423  
024620' 012423  
024622' 012604  
024624' 012603  
024626' 000207

```
*****
SUBROUTINE - LDDEST
THIS SUBROUTINE LOADS A SPECIFIED DESTINATION ADDRESS
INTO DEST:: .
INPUTS:          R5 = ADDRESS OF SPECIFIED DESTINATION ADDRESS
OUTPUTS:         DEST = SPECIFIED DESTINATION ADDRESS
CALLING SEQUENCE:
                  JSR      PC,LDDEST
*****
```

```
LDDEST::
MOV      R3,-(SP)          ; SAVE R3
MOV      R4,-(SP)          ; SAVE R4
MOV      R5,R4            ; R4 POINTS TO DESTINATION ADDRESS
MOV      #DEST,R3         ; R3 POINTS TO DEST::
MOV      (R4)+,(R3)+      ; LOAD DEST::
MOV      (R4)+,(R3)+
MOV      (R4)+,(R3)+
MOV      (SP)+,R4          ; RESTORE R4
MOV      (SP)+,R3         ; RESTORE R3
RTS      PC                ; AND RETURN
```

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GLOBAL SUBROUTINES SECTION

3971  
3972  
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3990  
3991  
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3995  
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3999

024630'  
024630' 010346  
024632' 010446  
024634' 012703 000252'  
024640' 010504  
024642' 012423  
024644' 012423  
024646' 012423  
024650' 012423  
024652' 012604  
024654' 012603  
024656' 000207

\*\*\*\*\*  
SUBROUTINE - LDPCBB  
  
THIS SUBROUTINE MOVES A SELECTED DEFAULT  
PORT CONTROL FUNCTION INTO PCBB.  
  
INPUTS: R5 = ADDRESS OF DEFAULT PORT CONTROL FUNCTION  
  
OUTPUTS: PCBB = SELECTED DEFAULT PORT FUNCTION  
  
CALLING SEQUENCE:  
JSR PC,LDPCBB  
\*\*\*\*\*

LDPCBB::  
MOV R3,-(SP) ; SAVE R3  
MOV R4,-(SP) ; SAVE R4  
MOV #PCBB,R3 ; ADDRESS OF PCBB -> R3  
MOV R5,R4 ; R4 = ADDRESS OF DEFAULT FUNCTION  
MOV (R4)+,(R3)+ ; LOAD PCBB+0  
MOV (R4)+,(R3)+ ; LOAD PCBB+2  
MOV (R4)+,(R3)+ ; LOAD PCBB+4  
MOV (R4)+,(R3)+ ; LOAD PCBB+6  
MOV (SP)+,R4 ; RESTORE R4  
MOV (SP)+,R3 ; RESTORE R3  
RTS PC ; AND RETURN

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CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION

4000  
4001  
4002  
4003  
4004  
4005  
4006  
4007  
4008  
4009  
4010  
4011  
4012  
4013  
4014  
4015  
4016  
4017  
4018  
4019  
4020

024660\*  
024660\* 012777 000252\* 153344  
024666\* 012777 000000 153340  
024674\* 000207

```
*****
SUBROUTINE - LDPCSR
THIS ROUTINE MOVES THE ADDRESS OF PCBB
INTO PCSR2 AND PCSR3.
INPUTS:          NONE
OUTPUTS:         PCSR2 AND PCSR3 = ADDRESS OF PCBB
CALLING SEQUENCE:
                  JSR      PC,LDPCSR
*****
```

```
LDPCSR::
MOV      #PCLB,@PCSR2      ; ADDRESS OF PCBB -> PCSR2
MOV      #ZERO,@PCSR3     ; CLEAR PCSR3
RTS      PC                ; AND RETURN
```

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GLOBAL SUBROUTINES SECTION

4021  
4022  
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4051

024676'  
024676' 010046  
024700' 010346  
024702' 010446  
024704' 012700 000020  
024710' 012703 000632'  
024714' 010504  
024716' 012423  
024720' 005300  
024722' 001375  
024724' 012604  
024726' 012603  
024730' 012600  
024732' 000207

```
*****
:
: SUBROUTINE - LDRDRB
:
: THIS SUBROUTINE MOVES A SELECTED DEFAULT
: RECEIVE DESCRIPTOR RING INTO RDRB.
:
: INPUTS:          R5 = ADDRESS OF DATA TO BE MOVED INTO RDRB
:
: OUTPUTS:         RDRB = SELECTED DEFAULT RECEIVE DESCRIPTOR RING
:
: CALLING SEQUENCE:
:                   JSR      PC,LDRDRB
:
:*****
```

```
LDRDRB::
      MOV      R0,-(SP)          ; SAVE R0
      MOV      R3,-(SP)          ; SAVE R3
      MOV      R4,-(SP)          ; SAVE R4
      MOV      #16,R0           ; LOAD 16 WORDS
      MOV      #RDRB,R3        ; ADDRESS OF RDRB -> R3
      MOV      R5,R4           ; R4 = ADDRESS OF DEFAULT RDRB
10$:  MOV      (R4)+,(R3)+       ; LOAD WORD INTO RDRB
      DEC      R0               ; DONE ?
      BNE     10$              ; NO, KEEP ON LOADING RDRB
      MOV      (SP)+,R4         ; YES, RESTORE R4
      MOV      (SP)+,R3         ; RESTORE R3
      MOV      (SP)+,R0         ; RESTORE R0
      RTS      PC              ; AND RETURN
```

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4081  
4082

024734'  
024734' 010046  
024736' 010346  
024740' 010446  
024742' 012700 000020  
024746' 012703 000572'  
024752' 010504  
024754' 012423  
024756' 005300  
024760' 001375  
024762' 012604  
024764' 012603  
024766' 012600  
024770' 000207

```
*****
:
: SUBROUTINE - LDTDRB
:
: THIS SUBROUTINE MOVES A SELECTED DEFAULT
: TRANSMIT DESCRIPTOR RING INTO TDRB.
:
: INPUTS:          R5 = ADDRESS OF DATA TO BE MOVED INTO TDRB
:
: OUTPUTS:         TDRB = SELECTED DEFAULT TRANSMIT DESCRIPTOR RING
:
: CALLING SEQUENCE:
:                   JSR      PC,LDTDRB
:
:*****
```

```
LDTDRB::
: MOV      R0,-(SP)          : SAVE R0
: MOV      R3,-(SP)          : SAVE R3
: MOV      R4,-(SP)          : SAVE R4
: MOV      #16,R0            : LOAD 16 WORDS
: MOV      #TDRB,R3          : ADDRESS OF TDRB -> R3
: MOV      R5,R4             : R4 = ADDRESS OF DEFAULT TDRB
10$: : MOV      (R4)+,(R3)+      : LOAD WORD INTO TDRB
: DEC      R0                 : DONE ?
: BNE     10$                 : NO, KEEP ON LOADING TDRB
: MOV      (SP)+,R4           : YES, RESTORE R4
: MOV      (SP)+,R3           : RESTORE R3
: MOV      (SP)+,R0           : RESTORE R0
: RTS      PC                 : AND RETURN
```

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4083  
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4098  
4099

```

*****
SUBROUTINE - LDTDRX

THIS SUBROUTINE MOVES A SELECTED DEFAULT
TRANSMIT DESCRIPTOR RING INTO TDRX.

INPUTS:          R5 = ADDRESS OF DATA TO BE MOVED INTO TDRX

OUTPUTS:         TDRX = SELECTED DEFAULT TRANSMIT DESCRIPTOR RING

CALLING SEQUENCE:
                  JSR      PC,LDTDRX
*****

```

```

4100 024772'
4101 024772' 010046
4102 024774' 010346
4103 024776' 010446
4104 025000' 012700 000100
4105 025004' 012703 000672'
4106 025010' 010504
4107 025012' 012423
4108 025014' 005300
4109 025016' 001375
4110 025020' 012604
4111 025022' 012603
4112 025024' 012600
4113 025026' 000207

```

```

LDTDRX::
      MOV      R0,-(SP)          ; SAVE R0
      MOV      R3,-(SP)          ; SAVE R3
      MOV      R4,-(SP)          ; SAVE R4
      MOV      #64,R0           ; LOAD 64 WORDS
      MOV      #TDRX,R3         ; ADDRESS OF TDRX -> R3
      MOV      R5,R4           ; R4 = ADDRESS OF DEFAULT TDRB
10$:  MOV      (R4)+,(R3)+       ; LOAD WORD INTO TDRB
      DEC      R0               ; DONE ?
      BNE     10$              ; NO, KEEP ON LOADING TDRB
      MOV      (SP)+,R4         ; YES, RESTORE R4
      MOV      (SP)+,R3         ; RESTORE R3
      MOV      (SP)+,R0         ; RESTORE R0
      RTS      PC              ; AND RETURN

```

GLOBAL AREAS MACY11 30(1046) 11-JAN-83 12:03 PAGE 91  
CZUABA.MAC 10-JAN-83 12:46 GLOBAL SUBROUTINES SECTION

4114  
4115  
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4119  
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4140  
4141  
4142  
4143  
4144  
4145

025030'  
025030' 010146  
025032' 010346  
025034' 010446  
025036' 010001  
025040' 012703 000262'  
025044' 010504  
025046' 012423  
025050' 005301  
025052' 001375  
025054' 012604  
025056' 012603  
025060' 012601  
025062' 000207

```
*****
SUBROUTINE - LDUDBB

THIS ROUTINE MOVES A SELECTED DEFAULT
DATA STRUCTURE INTO UDBB.

INPUTS:      R5 = ADDRESS OF DATA TO BE MOVED INTO UDBB
              R0 = NUMBER OF WORDS TO BE MOVED

OUTPUTS:     UDBB = SELECTED DEFAULT DATA STRUCTURE

CALLING SEQUENCE:
              JSR      PC,LDUDBB
*****
```

```
LDUDBB:
MOV      R1,-(SP)      ; SAVE R1
MOV      R3,-(SP)      ; SAVE R3
MOV      R4,-(SP)      ; SAVE R4
MOV      R0,R1         ; R1= NUMBER OF WORDS TO BE MOVED
MOV      #UDBB,R3      ; ADDRESS OF UDBB -> R3
MOV      R5,R4         ; R4= ADDRESS OF DATA TO BE MOVED
10$:     MOV      (R4)+,(R3)+ ; LOAD WORD INTO UDBB
DEC      R1            ; DONE ?
BNE     10$           ; NO, KEEP ON LOADING
MOV      (SP)+,R4      ; YES, RESTORE R4
MOV      (SP)+,R3      ; RESTORE R3
MOV      (SP)+,R1      ; RESTORE R1
RTS      PC           ; AND RETURN
```

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4146  
4147  
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4166  
4167  
4168  
4169  
4170  
4171

025064'  
025064' 010346  
025066' 010446  
025070' 012704 013202'  
025074' 010503  
025076' 012324  
025100' 012324  
025102' 012604  
025104' 012603  
025106' 000207

\*\*\*\*\*  
SUBROUTINE - LDXCRC  
THIS SUBROUTINE LOADS XCRC WITH EXPECTED CRC DATA.  
INPUTS: R5 = ADDRESS OF EXPECTED DATA  
OUTPUTS: XCRC TABLE = EXPECTED CRC DATA  
CALLING SEQUENCE:  
JSR PC,LDXCRC  
\*\*\*\*\*

LDXCRC::  
MOV R3,-(SP) ; SAVE R3  
MOV R4,-(SP) ; SAVE R4  
MOV #XCRC,R4 ; R4 POINTS TO XCRC  
MOV R5,R3 ; R3 POINTS TO DATA  
MOV (R3)+,(R4)+ ; LOAD XCRC TABLE  
MOV (R3)+,(R4)+  
MOV (SP)+,R4 ; RESTORE R4  
MOV (SP)+,R3 ; RESTORE R3  
RTS PC ; AND RETURN

4172  
4173  
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4199

025110'  
025110' 010346  
025112' 010446  
025114' 012704 013142'  
025120' 010503  
025122' 012324  
025124' 012324  
025126' 012324  
025130' 012324  
025132' 012604  
025134' 012603  
025136' 000207

\*\*\*\*\*  
SUBROUTINE - LDXRDR  
THIS SUBROUTINE LOADS XRDRBO WITH EXPECTED RDRB DATA.  
INPUTS: R5 = ADDRESS OF EXPECTED DATA  
OUTPUTS: XRDRBO TABLE = EXPECTED RDRB DATA  
CALLING SEQUENCE:  
JSR PC,LDXRDR  
\*\*\*\*\*

```
LDXRDR::
MOV R3,-(SP) ; SAVE R3
MOV R4,-(SP) ; SAVE R4
MOV #XRDRBO,R4 ; R4 POINTS TO XRDRBO
MOV R5,R3 ; R3 POINTS TO DATA
MOV (R3)+,(R4)+ ; LOAD XRDRBO TABLE
MOV (R3)+,(R4)+
MOV (R3)+,(R4)+
MOV (R3)+,(R4)+
MOV (SP)+,R4 ; RESTORE R4
MOV (SP)+,R3 ; RESTORE R3
RTS PC ; AND RETURN
```

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4200  
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4202  
4203  
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4216  
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4218  
4219  
4220  
4221  
4222  
4223  
4224  
4225  
4226  
4227

025140'  
025140' 010346  
025142' 010446  
025144' 012704 013162'  
025150' 010503  
025152' 012324  
025154' 012324  
025156' 012324  
025160' 012324  
025162' 012604  
025164' 012603  
025166' 000207

\*\*\*\*\*  
: SUBROUTINE - LDXTDR  
: THIS SUBROUTINE LOADS XTDRB0 WITH EXPECTED TDRB DATA.  
: INPUTS: R5 = ADDRESS OF EXPECTED DATA  
: OUTPUTS: XTDRB0 TABLE = EXPECTED TDRB DATA  
: CALLING SEQUENCE:  
: JSR PC,LDXTDR  
\*\*\*\*\*

LDXTDR: :  
MOV R3,-(SP) ; SAVE R3  
MOV R4,-(SP) ; SAVE R4  
MOV #XTDRB0,R4 ; R4 POINTS TO XTDRB0  
MOV R5,R3 ; R3 POINTS TO DATA  
MOV (R3)+,(R4)+ ; LOAD XTDRB0 TABLE  
MOV (R3)+,(R4)+  
MOV (R3)+,(R4)+  
MOV (R3)+,(R4)+  
MOV (SP)+,R4 ; RESTORE R4  
MOV (SP)+,R3 ; RESTORE R3  
RTS PC ; AND RETURN

GLOBAL AREAS MACY11 30(1046) 11-JAN-83 12:03 PAGE 95  
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4228  
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4260  
4261

```

*****
SUBROUTINE - NORXI
THIS SUBROUTINE VERIFIES THE RXI BIT IS NOT SET.
INPUTS: NONE
OUTPUTS:      IF RXI NOT SET ( RXI = 0 )
                THEN CARRY = 0
                IF RXI IS SET ( RXI = 1 )
                THEN CARRY = 1
                PCSRO -> EPCSRO
                PCSR1 -> EPCSR1
CALLING SEQUENCE:
                JSR      PC,NORXI
*****

```

```

025170'
025170' 010446
025172' 017704 153030
025176' 032704 020000
025202' 001407
025204' 010437 013126'
025210' 017737 153014 013130'
025216' 000261
025220' 000401
025222' 000241
025224' 012604
025226' 000207

```

```

NORXI::
MOV      R4,-(SP)           ; SAVE R4
MOV      @PCSRO,R4         ; PCSRO -> R4
BIT      #RXI,R4           ; RXI = 0 ?
BEQ      10$               ; YES
MOV      R4,EPCSRO         ; NO, PCSRO -> EPCSRO
MOV      @PCSR1,EPCSR1     ; PCSR1 -> EPCSR1
SEC                     ; SET CARRY
BR       20$
10$:    CLC                 ; CLEAR CARRY
20$:    MOV      (SP)+,R4   ; RESTORE R4
RTS      PC                 ; AND RETURN

```

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025230\*  
025230\* 010046  
025232\* 010346  
025234\* 010546  
025236\* 012703 005072\*  
025242\* 012700 002000  
025246\* 005023  
025250\* 005300  
025252\* 001375  
025254\* 012705 000244\*  
025260\* 012703 001072\*  
025264\* 012523  
025266\* 012523  
025270\* 012523  
025272\* 012705 000244\*  
025276\* 012523  
025300\* 012523  
025302\* 012523  
025304\* 005023  
025306\* 012700 001771  
025312\* 012705 013216\*  
025316\* 011523  
025320\* 005300  
025322\* 001375  
025324\* 012605  
025326\* 012603  
025330\* 012600

```

*****
SUBROUTINE - SETBUF

THIS ROUTINE SETS UP THE TRANSMIT AND RECEIVE BUFFERS
FOR A 128 BYTE DATA LOOPBACK.
A. CLEAR RECEIVE BUFFER RBUF
B. LOAD TRANSMIT BUFFER TBUF

INPUTS:          NONE

IMPLICIT INPUTS:
                  DEST:: = DESTINATION ADDRESS

OUTPUTS:         RBUF IS CLEARED
                  TBUF IS SET UP FOR TRANSMIT

CALLING SEQUENCE:
                  JSR      PC,SETBUF
*****
    
```

```

SETBUF::
    MOV      R0,-(SP)          ; SAVE R0
    MOV      R3,-(SP)          ; SAVE R3
    MOV      R5,-(SP)          ; SAVE R5
;CLEAR RBUF (1024 WORDS)
    MOV      #RBUF,R3         ; POINT TO RBUF
    MOV      #1024,R0         ; COUNT 1024 WORDS
10$:      CLR      (R3)+       ; CLEAR BUFFER
          DEC      R0          ; DONE ?
          BNE     10$         ; NO
;SET UP TRANSMIT BUFFER TBUF
;LOAD DESTINATION ADDRESS
    MOV      #DEST,R5         ; POINT TO DESTINATION ADDRESS
    MOV      #TBUF,R3         ; POINT TO TBUF
    MOV      (R5)+,(R3)+      ; LOAD DESTINATION ADDRESS
    MOV      (R5)+,(R3)+
    MOV      (R5)+,(R3)+
;LOAD SOURCE ADDRESS
    MOV      #DEST,R5         ; LOAD FOR LATER COMPARISON
    MOV      (R5)+,(R3)+
    MOV      (R5)+,(R3)+
    MOV      (R5)+,(R3)+
;CLEAR TYPE FIELD
    CLR      (R3)+           ; CLEAR TYPE FIELD
;LOAD DATA FIELD (1017 WORDS)
    MOV      #1017,R0        ; COUNT 1017 WORDS
    MOV      #PATRN1,R5      ; POINT TO DATA PATTERN
20$:      MOV      (R5),(R3)+ ; LOAD DATA PATTERN
          DEC      R0          ; DONE ?
          BNE     20$         ; NO
    MOV      (SP)+,R5        ; YES, RESTORE R5
    MOV      (SP)+,R3        ; RESTORE R3
    MOV      (SP)+,R0        ; RESTORE R0
    
```

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4318 025332' 000207

RTS PC

; AND RESTORE

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CZUABA.MAC

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GLOBAL SUBROUTINES SECTION

4319  
4320  
4321  
4322  
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025334' 010446  
025336' 012777 177400 152662  
025344' 017704 152656  
025350' 001011  
025352' 017704 152652  
025356' 042704 177770  
025362' 022704 000002  
025366' 001002  
025370' 000241  
025372' 000401  
025374' 000261  
025376' 012604  
025400' 000207

\*\*\*\*\*  
SUBROUTINE - TINIT  
  
THIS SUBROUTINE IS CALLED AT THE BEGINNING OF A TEST  
TO DETERMINE IF A DEVICE RESET IS REQUIRED BEFORE  
THE REST OF THE TEST IS EXECUTED.  
  
INPUTS: NONE  
  
OUTPUTS: IF A DEVICE RESET IS NOT REQUIRED  
THEN CARRY = 0  
  
IF A DEVICE RESET IS REQUIRED  
THEN CARRY = 1  
  
CALLING SEQUENCE:  
JSR PC,TINIT  
\*\*\*\*\*

TINIT::  
MOV R4,-(SP) ; SAVE R4  
MOV #TIMASK,@PCSR0 ; ATTEMPT TO CLEAR PCSRO  
MOV @PCSR0,R4 ; PCSRO = 0 ?  
BNE 10\$ ; NO, A RESET IS REQUIRED  
MOV @PCSR1,R4 ; PCSR1 -> R4  
BIC #SMASK,R4 ; MASK DEUNA STATE  
CMP #READY,R4 ; STATE = READY ?  
BNE 10\$ ; NO, A RESET IS REQUIRED  
;  
CLC ; NO RESET REQUIRED CLEAR CARRY  
BR 20\$  
;  
10\$: SEC ; A RESET IS REQUIRED SET CARRY  
20\$: MOV (SP)+,R4 ; RESTORE R4  
RTS PC ; AND RETURN

MISCELLANEOUS SECTIONS MACY11 30(1046)  
CZUABA.MAC 10-JAN-83 12:46

11-JAN-83 12:03 PAGE 99  
GLOBAL SUBROUTINES SECTION

4358  
4359  
4360  
4361  
4362  
4363  
4364  
4365  
4366  
4367  
4368  
4369  
4370  
4371  
4372  
4373  
4374  
4375  
4376  
4377  
4378  
4379  
4380  
4381

025402\*  
025402\*  
  
025402\*  
025402\* 000167  
025404\* 000000  
  
  
025406\*  
025406\*  
025406\* 104425

.TITLE MISCELLANEOUS SECTIONS  
.SBITL REPORT CODING SECTION

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

BGNRPT

LSRPT::

EXIT RPT

.WORD JSJMP  
.WORD L10013-2-

.EVEN

ENDRPT

L10013:  
TRAP CSRPT

MISCELLANEOUS SECTIONS MACY11 30(1046) 11-JAN-83 12:03 PAGE 100  
CZUABA.MAC 10-JAN-83 12:46 PROTECTION TABLE

.SBTTL PROTECTION TABLE

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

4382			
4383			
4384			
4385			
4386			
4387			
4388			
4389	025410'	BGNPROT	
4390	025410'		L\$PROT::
4391			
4392	025410' 177777	-1	:OFFSET INTO P-TABLE FOR CSR ADDRESS
4393	025412' 177777	-1	:OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
4394	025414' 177777	-1	:OFFSET INTO P-TABLE FOR DRIVE NUMBER
4395			
4396	025416'	ENDPROT	
4397			

MISCELLANEOUS SECTIONS MACY11 30(1046) 11-JAN-83 12:03 PAGE 101  
CZUABA.MAC 10-JAN-83 12:46 INITIALIZE SECTION

.SBTTL INITIALIZE SECTION

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

```

4398
4399
4400
4401
4402
4403
4404
4405 025416'          BGNINIT
4406 025416'
4407
4408
4409
4410 025416'          READEF #EF.CONTINUE          ;WAS A CONTINUE COMMAND ENTERED?
4411 025416' 012700 000036          MOV #EF.CONTINUE,RO
4412 025422' 104447          TRAP CSREFG
4413 025424'          BCOMPLETE          30$          ;YES, LEAVE INIT CODE
4414 025424' 103473          READEF #EF.PWR          ;WAS THERE A POWER FAILURE?
4415 025426'          BCS          30$
4416 025426' 012700 000034          READEF #EF.PWR          MOV #EF.PWR,RO
4417 025432' 104447          TRAP CSREFG
4418 025434'          BCOMPLETE          30$          ;YES, LEAVE INIT CODE
4419 025434' 103467          READEF #EF.NEW          ;NEW PASS ?
4420 025436'          BCS          30$
4421 025436' 012700 000035          READEF #EF.NEW          MOV #EF.NEW,RO
4422 025442' 104447          TRAP CSREFG
4423 025444'          BNCOMPLETE          10$          ;NO
4424 025444' 103016          READEF #EF.START          ;START ?
4425 025446'          BCC          10$
4426 025446' 012700 000040          READEF #EF.START          MOV #EF.START,RO
4427 025452' 104447          TRAP CSREFG
4428 025454'          BNCOMPLETE          5$          ;NO
4429 025454' 103005          BCC          5$
4430 025456' 000005          RESET          ;CLEAR THE WORLD
4431 025460' 012737 000001 013214'  MOV #1,FRSTIM          ;SET FIRST TIME FLAG
4432 025466' 000402          BR          6$
4433 025470' 005037 013214' 5$: CLR FRSTIM          ;CLEAR FIRST TIME FLAG
4434 025474' 012737 177777 000242' 6$: MOV #-1,UNIT          ;YES, INITIALIZE UNIT NUMBER
4435 025502' 005237 000242' 10$: INC UNIT          ;SET UP FOR NEXT UNIT
4436 025506' 023737 000242' 000012' CMP UNIT,LSUNIT          ;TESTED ALL AVAILABLE UNITS?
4437 025514' 003034          BGT          20$          ;YES, LEAVE
4438 025516'          GPHARD UNIT,R1          ;GET P-TABLE POINTER FOR THIS UNIT
4439 025516' 013700 000242'          MOV UNIT,RO
4440 025522' 104442          TRAP CS$GPHRD
4441 025524' 010001          MOV RO,R1
4442 025526'          BNCOMPLETE          10$          ;THIS ONE IS NOT AVAILABLE
4443 025526' 103365          BCC          10$
4444 025530' 012137 000226'          MOV (R1)+,PCSR0          ;SAVE PCSRO
4445 025534' 012137 000236'          MOV (R1)+,INTVEC          ;SAVE VECTOR
4446
4447 025540' 013737 000226' 000230'          MOV PCSRO,PCSR1          ;SET UP PCSR1
4448 025546' 062737 000002 000230'          ADD #2,PCSR1
4449 025554' 013737 000230' 000232'          MOV PCSR1,PCSR2          ;SET UP PCSR2
4450 025562' 062737 000002 000232'          ADD #2,PCSR2
4451 025570' 013737 000232' 000234'          MOV PCSR2,PCSR3          ;SET UP PCSR3
4452 025576' 062737 000002 000234'          ADD #2,PCSR3
4453 025604' 000403          BR          30$          ;LEAVE

```

MISCELLANEOUS SECTIONS MACY11 30(1046) 11-JAN-83 12:03 PAGE 102  
CZUABA.MAC 10-JAN-83 12:46 INITIALIZE SECTION

4454 025606' 005037 013214'  
4455 025612'  
4456 025612' 104444  
4457 025614'  
4458 025614'  
4459 025614' 104411  
4460

20\$: CLR FRSTIM  
DOCLN  
30\$: ENDIN.T  
.EVEN

:CLEAR FIRST TIME FLAG  
:ABORT PASS

TRAP C\$DCLN  
L10015:  
TRAP C\$INIT

MISCELLANEOUS SECTIONS MACY11 30(1046) 11-JAN-83 12:03 PAGE 103  
CZUABA.MAC 10-JAN-83 12:46 AUTODROP SECTION

4461  
4462  
4463  
4464  
4465  
4466  
4467  
4468  
4469  
4470 025616'  
4471 025616'  
4472  
4473  
4474 025616'  
4475 025616'  
4476 025616' 104461

.SBTTL AUTODROP SECTION

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

BGNAUTO

LSAUTO::

ENDAUTO

L10016: TRAP CSAUTO

MISCELLANEOUS SECTIONS MACY11 30(1046) 11-JAN-83 12:03 PAGE 104  
CZUABA.MAC 10-JAN-83 12:46 CLEANUP CODING SECTION

4477  
4478  
4479  
4480  
4481  
4482  
4483  
4484  
4485  
4486  
4487  
4488  
4489  
4490  
4491  
4492  
4493  
4494  
4495  
4496  
4497

025620\*  
025620\*  
  
025620\*  
025620\* 104432  
025622\* 000002  
  
  
025624\*  
025624\*  
025624\* 104412

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

BGNCLN

L\$CLEAN::

EXIT CLN

TRAP C\$EXIT  
.WORD L10017-

.EVEN

ENDCLN

L10017:  
TRAP C\$CLEAN

MISCELLANEOUS SECTIONS MACY11 30(1046)  
CZUABA.MAC 10-JAN-83 12:46

11-JAN-83 12:03 PAGE 105  
DROP UNIT SECTION

H  
C

4498  
4499  
4500  
4501  
4502  
4503  
4504  
4505 025626'  
4506 025626'  
4507  
4508  
4509 025626'  
4510 025626' 000167  
4511 025630' 000000  
4512  
4513  
4514  
4515  
4516 025632'  
4517 025632'  
4518 025632' 104453

.SBTTL DROP UNIT SECTION

:++  
: THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE  
: TO NO LONGER BE TESTED.  
:--

BGNDU

L\$DU::

EXIT DU

.WORD JSJMP  
.WORD L10020-2-

.EVEN

ENDDU

L10020:  
TRAP C\$DU

MISCELLANEOUS SECTIONS MACY11 30(1J46)  
CZUABA.MAC 10-JAN-83 12:46

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ADD UNIT SECTION

4519  
4520  
4521  
4522  
4523  
4524  
4525  
4526  
4527 025634'  
4528 025634'  
4529  
4530  
4531 025634'  
4532 025634' 000167  
4533 025636' 000000  
4534  
4535  
4536  
4537  
4538 025640'  
4539 025640'  
4540 025640' 104452

.SBTTL ADD UNIT SECTION

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

BGNAU

LSAU::

EXIT AU

.WORD JSJMP  
.WORD L10021-2-

.EVEN

ENDAU

L10021:  
TRAP CSAU

GLOBAL INTERRUPT SERVICE ROUTINES  
CZUABA.MAC 10-JAN-83 12:46

MACY11 30(1046) 11-JAN-83 12:03 PAGE 107  
ADD UNIT SECTION

4541  
4542  
4543  
4544  
4545  
4546  
4547  
4548  
4549  
4550  
4551  
4552  
4553  
4554  
4555 025642'  
4556 025642'  
4557 025642' 012737 000001 013210'  
4558 025650'  
4559 025650'  
4560 025650' 000002  
4561

.TITLE GLOBAL INTERRUPT SERVICE ROUTINES  
.SBTTL ISRNXM - NON-EXISTANT MEMORY INTERRUPT SERVICE ROUTINE  
:\*\*\*\*\*  
: FUNCTIONAL DESCRIPTION:  
: THIS ROUTINE IS ASSIGNED TO VECTOR 4 BY THE ACCESS TESTS.  
: WHEN AN ACCESS IS ATTEMPTED ON NON-EXISTENT MEMORY  
: THE NEXMEM FLAG IS SET.  
:\*\*\*\*\*

BGNSRV ISRNXM  
MOV #1,NEXMEM ;SET NXM FLAG ISRNXM::  
ENDSRV L1002:  
RTI

GLOBAL INTERRUPT SERVICE ROUTINES  
CZUABA.MAC 10-JAN-83 12:46

MACY11 30(1046) 11-JAN-83 12:03 PAGE 108  
ISRNXM - NON-EXISTANT MEMORY INTERRUPT SERVICE ROUTINE

4562  
4563  
4564  
4565  
4566  
4567  
4568  
4569  
4570  
4571  
4572  
4573  
457  
4575  
4576  
4577  
4578  
4579  
4580  
4581  
4582  
4583  
4584  
4585  
4586  
4587

025652' 010446  
025652' 017704 152346  
025660' 032704 004000  
025664' 001403  
025666' 012737 000001 013212'  
025674' 012604  
025676'  
025676'  
025676' 000002

```

.SBTTL  ISRDN1 - DNI INTERRUPT SERVICE ROUTINE
:*****
:
: FUNCTIONAL DESCRIPTION:
:
:     THIS ROUTINE IS ASSIGNED TO THE DEUNA'S INTERRUPT VECTOR BY
:     TEST 9.
:     WHEN AN INTERRUPT OCCURS THE DNIFLG FLAG IS SET IF DNI IS SET.
:*****
:
: BGNSRV  ISRDN1
:
:                               ISRDN1::
:
:     MOV     R4, -(SP)           : SAVE R4
:     MOV     @PCSR0, R4         : PCSRO -> R4
:     BIT     #DNI, R4          : DNI SET?
:     BEQ     10$, EXIT         : NO, EXIT
:     MOV     #1, DNIFLG        : YES, SET DNIFLG FLAG
:     MOV     (SP)+, R4         : RESTORE R4
:
: ENDSRV
:
:                               L10023:
:                               RTI

```

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ISRDN1 - DNI INTERRUPT SERVICE ROUTINE

.TITLE HARDWARE TESTS

.SBTTL TEST 1: PCSRO READ ACCESS TEST

\*\*\*\*\*  
THIS TEST WILL VERIFY THAT A DEVICE IS PRESENT AT THE PCSRO  
UNIBUS ADDRESS SPECIFIED.

TEST SEQUENCE:  
1. READ PCSRO  
\*\*\*\*\*

4588  
4589  
4590  
4591  
4592  
4593  
4594  
4595  
4596  
4597  
4598  
4599  
4600  
4601  
4602  
4603  
4604  
4605  
4606  
4607  
4608  
4609  
4610  
4611  
4612  
4613  
4614  
4615  
4616  
4617  
4618  
4619  
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4621  
4622  
4623  
4624  
4625  
4626  
4627  
4628  
4629  
4630  
4631  
4632

025700\*  
025700\*  
025700\*  
025700\* 012746 000340  
025704\* 012746 025642\*  
025710\* 012746 000004  
025714\* 012746 000003  
025720\* 104437  
025722\* 062706 000010  
025726\* 005037 013210\*  
025732\* 005002  
025734\* 017701 152266  
025740\* 005737 013210\*  
025744\* 001410  
025746\*  
025746\* 104455  
025750\* 000001  
025752\* 015762\*  
025754\* 015042\*  
025756\*  
025756\* 013700 000242\*  
025762\* 104451  
025764\*  
025764\* 104444  
025766\*  
025766\* 012700 000004  
025772\* 104436  
025774\*  
025774\*  
025774\* 104401

BGNTST  
SETVEC #4,#ISRNXM,#PRI07 ; SET UP TIMEOUT TRAP VECTOR  
T1::  
MOV #PRI07,-(SP)  
MOV #ISRNXM,-(SP)  
MOV #4,-(SP)  
MOV #3,-(SP)  
TRAP C\$SVEC  
ADD #10,SP  
CLR NEXMEM ; CLEAR NXM TIMEOUT FLAG  
CLR R2 ; R2 = WHICH PCSR IS BEING TESTED  
MOV @PCSRO,R1 ; DOES PCSR EXIST?  
TST NEXMEM  
BEQ 10\$ ; YES  
ERRDF 001,ERR001,MSG001 ; NO, PRINT DEVICE FATAL ERROR MESSAGE  
TRAP C\$ERDF  
.WORD 1  
.WORD ERR001  
.WORD MSG001  
DODU UNIT ; DROP UNIT  
MOV UNIT,R0  
TRAP C\$DODU  
DOCLN ; AND ABORT PASS  
TRAP C\$DCLN  
10\$: CLRVEC #4  
MOV #4,R0  
TRAP C\$CVEC  
ENDTST  
L10024:  
TRAP C\$ETST

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 110  
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TEST 2: PCRS1 READ ACCESS TEST

4633  
4634  
4635  
4636  
4637  
4638  
4639  
4640  
4641  
4642  
4643  
4644  
4645  
4646  
4647  
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4649  
4650  
4651  
4652  
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4666  
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4668  
4669  
4670  
4671  
4672  
4673  
4674

.SBTTL TEST 2: PCRS1 READ ACCESS TEST

\*\*\*\*\*  
THIS TEST WILL VERIFY THAT A DEVICE IS PRESENT AT THE PCRS1  
UNIBUS ADDRESS SPECIFIED.  
TEST SEQUENCE:  
1. READ PCRS1  
\*\*\*\*\*

025776°  
025776°  
025776°  
012746 000340  
026002° 012746 025642°  
026006° 012746 000004  
026012° 012746 000003  
026016° 104437  
026020° 062706 000010  
026024° 005037 013210°  
026030° 012702 000001  
026034° 017701 152170  
026040° 005737 013210°  
026044° 001410  
026046°  
026046° 104455  
026050° 000002  
026052° 015762°  
026054° 015042°  
026056°  
026056° 013700 000242°  
026062° 104451  
026064°  
026064° 104444  
026066°  
026066° 012700 000004  
026072° 104436  
026074°  
026074° 104401

BGNTST  
SETVEC #4,#ISRNXM,#PRI07 ; SET UP TIMEOUT TRAP VECTOR  
T2::  
MOV #PRI07,-(SP)  
MOV #ISRNXM,-(SP)  
MOV #4,-(SP)  
MOV #3,-(SP)  
TRAP C\$SVEC  
ADD #10,SP  
CLR NEXMEM ; CLEAR NXM TIMEOUT FLAG  
MOV #1,R2 ; R2 = WHICH PCRS IS BEING TESTED  
MOV @PCSR1,R1 ; DOES PCRS EXIST?  
TST NEXMEM  
BEQ 10\$ ; YES  
ERRDF 002,ERR001,MSG001 ; NO, PRINT DEVICE FATAL ERROR MESSAGE  
TRAP C\$ERDF  
.WORD 2  
.WORD ERR001  
.WORD MSG001  
DODU UNIT ; DROP UNIT  
MOV UNIT,R0  
TRAP C\$DODU  
DOCLN ; AND ABORT PASS  
TRAP C\$DOCLN  
10\$: CLRVEC #4  
MOV #4,R0  
TRAP C\$CVEC  
ENDTST  
L10025:  
TRAP C\$SETST

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 111  
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TEST 3: PCSR2 READ ACCESS TEST

.SBTTL TEST 3: PCSR2 READ ACCESS TEST

```

*****
THIS TEST WILL VERIFY THAT A DEVICE IS PRESENT AT THE PCSR2
UNIBUS ADDRESS SPECIFIED.
TEST SEQUENCE:
  1. READ PCSR2
*****

```

4675  
4676  
4677  
4678  
4679  
4680  
4681  
4682  
4683  
4684  
4685  
4686  
4687  
4688  
4689  
4690  
4691  
4692  
4693  
4694  
4695  
4696  
4697  
4698  
4699  
4700  
4701  
4702  
4703  
4704  
4705  
4706  
4707  
4708  
4709  
4710  
4711  
4712  
4713  
4714  
4715  
4716

026076\*  
026076\*  
026076\* 012746 000340  
026102\* 012746 025642\*  
026106\* 012746 000004  
026112\* 012746 000003  
026116\* 104437  
026120\* 062706 000010  
026124\* 005037 013210\*  
026130\* 012702 000002  
026134\* 017701 152072  
026140\* 005737 013210\*  
026144\* 001410  
026146\* 104455  
026150\* 000003  
026152\* 015762\*  
026154\* 015042\*  
026156\*  
026156\* 013700 000242\*  
026162\* 104451  
026164\*  
026164\* 104444  
026166\*  
026166\* 012700 000004  
026172\* 104436  
026174\*  
026174\*  
026174\* 104401

```

BGNTST
SETVEC #4,#ISRNXM,#PRI07 ; SET UP TIMEOUT TRAP VECTOR
                                T3::
                                MOV #PRI07,-(SP)
                                MOV #ISRNXM,-(SP)
                                MOV #4,-(SP)
                                MOV #3,-(SP)
                                TRAP C$SVEC
                                ADD #10,SP
CLR NEXMEM ; CLEAR NXM TIMEOUT FLAG
MOV #2,R2 ; R2 = WHICH PCSR IS BEING TESTED
MOV @PCSR2,R1 ; DOES PCSR EXIST?
TST NEXMEM
BEQ 10$ ; YES
ERRDF 003,ERR001,MSG001 ; NO, PRINT DEVICE FATAL ERROR MESSAGE
                                TRAP C$ERDF
                                .WORD 3
                                .WORD ERR001
                                .WORD MSG001
DODU UNIT ; DROP UNIT
                                MOV UNIT,R0
                                TRAP C$DODU
DOCLN ; AND ABORT PASS
                                TRAP C$DCLN
10$: CLRVEC #4
                                MOV #4,R0
                                TRAP C$CVEC
ENDTST
                                L10026:
                                TRAP C$SETST

```

HARDWARE TESTS MACY11 30(1046)  
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TEST 4: PCSR3 READ ACCESS TEST

.SBTTL TEST 4: PCSR3 READ ACCESS TEST

\*\*\*\*\*  
THIS TEST WILL VERIFY THAT A DEVICE IS PRESENT AT THE PCSR3  
UNIBUS ADDRESS SPECIFIED.

TEST SEQUENCE:  
1. READ PCSR3  
\*\*\*\*\*

4717  
4718  
4719  
4720  
4721  
4722  
4723  
4724  
4725  
4726  
4727  
4728 026176'  
4729 026176'  
4730 026176'  
4731 026176' 012746 000340  
4732 026202' 012746 025642'  
4733 026206' 012746 000004  
4734 026212' 012746 000003  
4735 026216' 104437  
4736 026220' 062706 000010  
4737 026224' 005037 013210'  
4738 026230' 012702 000003  
4739 026234' 017701 151774  
4740 026240' 005737 013210'  
4741 026244' 01410  
4742 026246'  
4743 026246' 104455  
4744 026250' 000004  
4745 026252' 015762'  
4746 026254' 015042'  
4747 026256'  
4748 026256' 013700 000242'  
4749 026262' 104451  
4750 026264'  
4751 026264' 104444  
4752 026266'  
4753 026266' 012700 000004  
4754 026272' 104436  
4755 026274'  
4756 026274'  
4757 026274' 104401

BGNTST

SETVEC #4,#ISRNXM,#PRIO7 ; SET UP TIMEOUT TRAP VECTOR T4::  
MOV #PRIO7,-(SP)  
MOV #ISRNXM,-(SP)  
MOV #4,-(SP)  
MOV #3,-(SP)  
TRAP C\$SVEC  
ADD #10,SP  
CLR NEXMEM ; CLEAR NXM TIMEOUT FLAG  
MOV #3,R2 ; R2 = WHICH PCSR IS BEING TESTED  
MOV @PCSR3,R1 ; DOES PCSR EXIST?  
TST NEXMEM  
BEQ 10\$ ; YES  
ERRDF 004,ERR001,MSG001 ; NO, PRINT DEVICE FATAL ERROR MESSAGE  
TRAP C\$ERDF  
.WORD 4  
.WORD ERR001  
.WORD MSG001  
DODU UNIT ; DROP UNIT  
MOV UNIT,R0  
TRAP C\$DODU  
DOCLN ; AND ABORT PASS  
TRAP C\$DCLN  
10\$: CLRVEC #4  
MOV #4,R0  
TRAP C\$CVEC  
ENDTST  
L10027: TRAP C\$SETST

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TEST 5: PCSR2 STATIC BIT TEST

.SBTTL TEST 5: PCSR2 STATIC BIT TEST

```

*****
THIS TEST WILL CHECK PCSR2 FOR ALL SA0 AND SA1 ERRORS.
THE HOST WILL WRITE PATTERNS TO PCSR2 AND READ THEM
BACK TO VERIFY.

NOTE: PCSR2 BIT00 SHOULD ALWAYS BE A ZERO.
      THIS BIT WILL BE MASKED BEFORE DOING THE COMPARE.

TEST SEQUENCE:
1. WRITE PATTERN TO PCSR2
2. COMPARE MASKED PATTERN WITH PCSR2 CONTENTS
3. REPEAT STEPS 1 AND 2 FOR ALL PATTERNS
*****

```

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4807

```

026276'
026276'
026276' 012701 013216'
026302' 012705 000004
026306' 012103
026310'
026310' 104404
026312' 010377 151714
026316' 017704 151710
026322' 042703 000001
026326' 020304
026330' 001404
026332'
026332' 104456
026334' 000005
026336' 016012'
026340' 015066'
^26342'
 26342'
026342'
026342' 104405
026344' 005305
026346' 001357
026350'
026350'
026350' 104401

```

```

BGNTST
T5::
MOV #PATRN1,R1 ; GET ADDRESS OF DATA PATTERNS
MOV #4,R5 ; COUNT 4 PATTERNS (PASSES)
10$: MOV (R1)+,R3 ; DATA PATTERN -> R3

BGNSEG
TRAP C$BSEG

MOV R3,@PCSR2 ; DATA PATTERN -> PCSR2
MOV @PCSR2,R4 ; READ PCSR2
BIC #1,R3 ; MASK BIT00
CMP R3,R4 ; DATA COMPARE?
BEQ 20$ ; YES, CONTINUE

ERRHRD 005,ERR002,MSG002 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 5
.WORD ERR002
.WORD MSG002

20$: ENDSEG
10000$: TRAP C$ESEG

DEC R5 ; DONE?
BNE 10$ ; NO

ENDTST
L10030: TRAP C$ETST

```

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TEST 6: PCRS3 STATIC BIT TEST

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 4857

.SBTTL TEST 6: PCRS3 STATIC BIT TEST

```

*****
THIS TEST WILL CHECK PCRS3 FOR ALL SA0 AND SA1 ERRORS.
THE HOST WILL WRITE PATTERNS TO PCRS3 AND READ THEM
BACK TO VERIFY.

NOTE: PCRS3 BIT02 THRU BIT15 SHOULD ALWAYS BE A ZERO.
      THESE BITS WILL BE MASKED BEFORE DOING THE COMPARE.

TEST SEQUENCE:
  1. WRITE PATTERN TO PCRS3
  2. COMPARE MASKED PATTERN WITH PCRS3 CONTENTS
  3. REPEAT STEPS 1 AND 2 FOR ALL PATTERNS
*****
    
```

```

026352'          BGNTST
026352'          T6::
026352' 012701 013216'  MOV    #PATRN1,R1          ; GET ADDRESS OF DATA PATTERNS
026356' 012705 000004'  MOV    #4,R5             ; COUNT 4 PATTERNS (PASSES)
026362' 012103          10$: MOV    (R1)+,R3          ; DATA PATTERN -> R3

026364'          BGNSEG
026364' 104404          TRAP    C$BSEG

026366' 010377 151642'  MOV    R3,@PCSR3          ; DATA PATTERN -> PCRS3
026372' 017704 151636'  MOV    @PCSR3,R4          ; READ PCRS3
026376' 042703 177774'  BIC    #177774,R3        ; MASK BIT02 THRU BIT15
026402' 020304          CMP    R3,R4             ; DATA COMPARE?
026404' 001404          BEQ    20$             ; YES, CONTINUE

026406'          ERRHRD 006,ERR003,MSG002      ; NO, REPORT ERROR
026406' 104456          TRAP    C$ERHRD
026410' 000006          .WORD 6
026412' 016050'          .WORD ERR003
026414' 015066'          .WORD MSG002

026416'          20$: ENDSEG
026416'          10000$: TRAP    C$ESEG
026420' 005305          DEC    R5             ; DONE '
026422' 001357          BNE    10$           ; NO

026424'          ENDTST
026424' 104401          L10031: TRAP    C$ETST
    
```

HARDWARE TESTS M CY11 30(10'6) 11-JAN-83 12:03 PAGE 115  
CZUABA.MAC 10 JAN-83 12: TEST 7: SELF TEST

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.SBTTL TEST 7: SELF TEST

\*\*\*\*\*  
THIS TEST VERIFIES THAT THE ROM BASED SELF TEST  
CAN BE RUN SUCCESSFULLY WHEN INVOKED VIA  
THE SELF TEST PORT COMMAND.  
TEST SEQUENCE:  
1. ISSUE THE SELF TEST PORT COMMAND  
2. WAIT FOR DNI  
3. CHECK LITE BITE REGISTER FOR SUCCESSFUL SELF TEST  
4. WRITE ONE TO CLEAR DNI  
\*\*\*\*\*

026426' 004737 025334'  
026426' 103025  
026426' 012777 000040 151564  
026442' 004737 022546'  
026450' 104456  
026452' 000007  
026454' 016106'  
026456' 015114'  
026460' 104410  
026462' 000172  
026464' 004737 023434'  
026470' 103006  
026472' 104456  
026474' 000010  
026476' 016206'  
026500' 015114'  
026502' 104410  
026504' 000150  
026506' 012777 000003 151512  
026514' 012701 000034  
026520' 005000  
026522' 017704 151500  
026526' 032704 004000  
026532' 001017  
026534' 005300  
026536' 001371  
026540' 005301  
026542' 001367

```

BGNTST
T7::
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 25$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 007.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 7
.WORD ERR004
.WORD MSG003
ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10032-.
20$: JSR PC,CLR DNI ; WRITE ONE TO CLEAR DNI
; ERROR
; NO
; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 8
.WORD ERR006
.WORD MSG003
ESCAPE TST ; AND ABORT
TRAP C$ESCAPE
.WORD L10032-.
25$: MOV #SLFT,@PCSR0 ; RUN SELF TEST
; WAIT FOR SELF TEST DNI
; LOOP FOR APPROX 20 SEC (11/24 CPU)
MOV #28.,R1 ; INIT OUTER LOOP
26$: CLR R0 ; INNER LOOP
27$: MOV @PCSR0,R4 ; PCSRO -> R4
BIT #DNI,R4 ; DNI SET ?
; YES
; INNER LOOP EXHAUSTED ?
; NO, CHECK FOR DNI AGAIN
; OUTER LOOP EXHAUSTED ?
; NO, KEEP CHECKING FOR DNI

```

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 CZUABA.MAC 10-JAN-83 12:46 TEST 7: SELF TEST

```

4914
4915
4916 026544' 010437 013126'          MOV    R4,EPCSR0          : LOOP EXHAUSTED AND NO DNI
4917 026550' 017737 151454 013130'  MOV    @PCSR1,EPCSR1     : PCSRO -> EPCSR0
4918 026556'          ERRHRD 009.,ERR045,MSG003 : PCSR1 -> EPCSR1
                                        : NO, REPORT ERROR
4919 026556' 104456          TRAP   C$ERHRD
4920 026560' 000011          .WORD 9
4921 026562' 022003'          .WORD ERR045
4922 026564' 015114'          .WORD MSG003
4923 026566'          ESCAPE TST          : AND ABORT TEST
4924 026566' 104410          TRAP   C$ESCAPE
4925 026570' 000064          .WORD L10032-.
4926
4927 026572' 004737 023142'          30$: JSR    PC,CHKSTR          : SELF TEST SUCCESSFUL ?
4928 026576' 103015          BCC    40$           : YES
4929 026600' 013704 013206'          MOV    ECODE,R4        : NO, SET UP TO PRINT ERROR
4930 026604' 006304          ASL    R4              : SHIFT CODE FOR INDEX
4931 026606' 062704 026660'          ADD    #STTBL,R4       : INDEX INTO SELF TEST TABLE
4932 026612' 011437 026656'          MOV    (R4),STMSG      : LOAD INTO SELF TEST MESSAGE
4933 026616'          ERRHRD 010.,ERR005,MSG004 : REPORT SELF TEST FAILURE
4934 026616' 104456          TRAP   C$ERHRD
4935 026620' 000012          .WORD 10
4936 026622' 016162'          .WORD ERR005
4937 026624' 015146'          .WORD MSG004
4938 026626'          ESCAPE TST          : AND ABORT TEST
4939 026626' 104410          TRAP   C$ESCAPE
4940 026630' 000024          .WORD L10032-.
4941
4942 026632' 004737 023434'          40$: JSR    PC,CLRDN1          : WRITE ONE TO CLEAR DNI
4943          BCC    50$           : ERROR?
4944 026636' 103006          ERRHRD 011.,ERR006,MSG003 : NO
                                        : YES, REPORT ERROR
4945 026640'          TRAP   C$ERHRD
4946 026640' 104456          .WORD 11
4947 026642' 000013          .WORD ERR006
4948 026644' 016206'          .WORD MSG003
4949 026646' 015114'          ESCAPE TST          : AND ABORT
4950 026650'          TRAP   C$ESCAPE
4951 026650' 104410          .WORD L10032-.
4952 026652' 000002          50$:
4953 026654'          ENDTST
4954 026654'
4955 026654'
4956 026654' 104401          L10032: TRAP   C$ETST

```

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CZUABA.MAC 10-JAN-83 12:46 TEST 7: SELF TEST

M  
C

4957  
4958 026656' 000000  
4959  
4960 026660' 027060'  
4961 026662' 027110'  
4962 026664' 027137'  
4963 026666' 027152'  
4964 026670' 027211'  
4965 026672' 027240'  
4966 026674' 027303'  
4967 026676' 027336'  
4968 026700' 027354'  
4969 026702' 027406'  
4970 026704' 027421'  
4971 026706' 027436'  
4972 026710' 027452'  
4973 026712' 027466'  
4974 026714' 027502'  
4975 026716' 027516'  
4976 026720' 027532'  
4977 026722' 027555'  
4978 026724' 027571'  
4979 026726' 027605'  
4980 026730' 027621'  
4981 026732' 027635'  
4982 026734' 027651'  
4983 026736' 027665'  
4984 026740' 027701'  
4985 026742' 027756'  
4986 026744' 030030'  
4987 026746' 030103'  
4988 026750' 030147'  
4989 026752' 030220'  
4990 026754' 030263'  
4991 026756' 030334'  
4992 026760' 030377'  
4993 026762' 030467'  
4994 026764' 030554'  
4995 026766' 030642'  
4996 026770' 030721'  
4997 026772' 031005'  
4998 026774' 031063'  
4999 026776' 031077'  
5000 027000' 031113'  
5001 027002' 031201'  
5002 027004' 031264'  
5003 027006' 031350'  
5004 027010' 031425'  
5005 027012' 031507'  
5006 027014' 031563'  
5007 027016' 031577'  
5008 027020' 031613'  
5009 027022' 031626'  
5010 027024' 031651'  
5011 027026' 031665'  
5012 027030' 031714'

:LOCAL STORAGE FOR TEST 7  
STMSG:: .WORD 0  
:SELF TEST MESSAGE TABLE  
STTBL.: .WORD SMSG00  
.WORD SMSG01  
.WORD SMSG02  
.WORD SMSG03  
.WORD SMSG04  
.WORD SMSG05  
.WORD SMSG06  
.WORD SMSG07  
.WORD SMSG10  
.WORD SMSG11  
.WORD SMSG12  
.WORD SMSG13  
.WORD SMSG14  
.WORD SMSG15  
.WORD SMSG16  
.WORD SMSG17  
.WORD SMSG20  
.WORD SMSG21  
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.WORD SMSG62  
.WORD SMSG63  
.WORD SMSG64

; SELF TEST MESSAGE ADDRESS













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5349	03226	005015	000			.ASCIZ	<15><12>
5350	032131	125	042116	043105	MSG75::	.ASCII	/UNDEFINED/
5351	032136	047111	042105				
5352	032142	005015	000			.ASCIZ	<15><12>
5353	032145	125	042116	043105	MSG76::	.ASCII	/UNDEFINED/
5354	032152	047111	042105				
5355	032156	005015	000			.ASCIZ	<15><12>
5356	032161	116	053105	051105	MSG77::	.ASCII	/NEVER GOT STARTED/
5357	032166	043440	052117	051440			
5358	032174	040524	052122	042105			
5359	032202	005015	000			.ASCIZ	<15><12>
5360	032206					.EVEN	

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TEST 8: PORT COMMAND TEST

.SBTTL TEST 8: PORT COMMAND TEST

```

*****
THIS TEST VERIFIES THAT NO ERRORS OCCUR WHEN
A DEUNA PORT COMMAND IS ISSUED.

TEST SEQUENCE:
1. ISSUE A NOP PORT COMMAND
2. WAIT FOR DNI
3. WRITE ONE TO CLEAR DNI
4. MOVE NOP FUNCTION INTO PCBB
5. ISSUE A GETPCBB PORT COMMAND
6. WAIT FOR DNI
7. WRITE ONE TO CLEAR DNI
8. ISSUE A GETCMD PORT COMMAND
9. WAIT FOR DNI
10. WRITE ONE TO CLEAR DNI
*****

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5416

```

032206'
032206'
032206' 004737 025334'
032212' 103025
032214' 012777 000040 146004
032222' 004737 022546'
032226' 103006
032230'
032230' 104456
032232' 000014
032234' 016106'
032236' 015114'
032240'
032240' 104410
032242' 000236
032244' 004737 023434'
032250' 103006
032252'
032252' 104456
032254' 000015
032256' 016206'
032260' 015114'
032262'
032262' 104410
032264' 000214
032266' 012777 000006 145732 25$
032274' 004737 022546'
032300' 103006
032302'
032302' 104456
032304' 000016
032306' 016343'

```

```

BGNTST
T8::
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 25$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 012.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 12
.WORD ERR004
.WORD MSG003
ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10033-.
20$:
SR PC,CLR DNI ; WRITE ONE TO CLEAR DNI
; ERROR
; NO
ERRHRD 013.,ERR006,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 13
.WORD ERR006
.WORD MSG003
ESCAPE TST ; AND ABORT
TRAP C$ESCAPE
.WORD L10033-.
25$:
MOV #PNOP,@PCSR0 ; ISSUE A NOP PORT COMMAND
JSR PC,CHKDNI ; DNI ?
BCC 30$ ; YES
ERRHRD 014.,ERR008,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 14
.WORD ERR008

```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 126  
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```

5417 032310' 015114'
5418 032312'          ESCAPE TST          : AND ABORT TEST          .WORD  MSG003
5419 032312' 104410
5420 032314' 000164          TRAP          C$ESCAPE
5421          .          .WORD          L10033-.
5422 032316' 004737 023434' 30$: JSR      PC,CLRDNI          : WRITE ONE TO CLEAR DNI
5423          .          .          : ERROR
5424 032322' 103006          BCC      40$          : NO
5425 032324'          ERRHRD  015.,ERR006,MSG003 : YES, REPORT ERROR
5426 032324' 104456          TRAP          C$ERHRD
5427 032326' 000017          .WORD          15
5428 032330' 016206'          .WORD          ERR006
5429 032332' 015114'          .WORD          MSG003
5430 032334'          ESCAPE TST          . AND ABORT
5431 032334' 104410          TRAP          C$ESCAPE
5432 032336' 000142          .WORD          L10033-.
5433          .
5434 032340' 012705 011072' 40$: MOV      #NOPF,R5          : POINT TO DEFAULT NOP FUNCTION
5435 032344' 004737 024630' JSR      PC,LDPCBB          : LOAD FUNCTION INTO PCBB
5436 032350' 004737 024660' JSR      PC,LDPCSR          : ADDRESS OF PCBB -> PCSR2!3
5437 032354' 012777 000001 145644 MOV      #GETPCBB,@PCSR0    : ISSUE A GETPCBB PORT COMMAND
5438 032362' 004737 022546' JSR      PC,CHKDNI          : DNI?
5439 032366' 103006          BCC      50$          : YES
5440 032370'          ERRHRD  016.,ERR009,MSG003 : NO, REPORT ERROR
5441 032370' 104456          TRAP          C$ERHRD
5442 032372' 000020          .WORD          16
5443 032374' 016422'          .WORD          ERR009
5444 032376' 015114'          .WORD          MSG003
5445 032400'          ESCAPE TST          : AND ABORT TEST
5446 032400' 104410          TRAP          C$ESCAPE
5447 032402' 000076          .WORD          L10033-.
5448          .
5449 032404' 004737 023434' 50$: JSR      PC,CLRDNI          : WRITE ONE TO CLEAR DNI
5450          .          .          : ERROR ?
5451 032410' 103006          BCC      60$          : NO
5452 032412'          ERRHRD  017.,ERR006,MSG003 : YES, REPORT ERROR
5453 032412' 104456          TRAP          C$ERHRD
5454 032414' 000021          .WORD          17
5455 032416' 016206'          .WORD          ERR006
5456 032420' 015114'          .WORD          MSG003
5457 032422'          ESCAPE TST          : AND ABORT TEST
5458 032422' 104410          TRAP          C$ESCAPE
5459 032424' 000054          .WORD          L10033-.
5460          .
5461 032426' 012777 000002 145572 60$: MOV      #GETCMD,@PCSR0    : ISSUE A GETCMD PORT COMMAND
5462 032434' 004737 022546' JSR      PC,CHKDNI          : DNI ?
5463 032440' 103006          BCC      70$          : YES
5464 032442'          ERRHRD  018.,ERR010,MSG003 : NO, REPORT ERROR
5465 032442' 104456          TRAP          C$ERHRD
5466 032444' 000022          .WORD          18
5467 032446' 016506'          .WORD          ERR010
5468 032450' 015114'          .WORD          MSG003
5469 032452'          ESCAPE TST          : AND ABORT TEST
5470 032452' 104410          TRAP          C$ESCAPE
5471 032454' 000024          .WORD          L10033-.
5472          .

```

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TEST 8: PORT COMMAND TEST

54 032456\* 004737 023434\*  
5475 032462\* 103006  
5476 032464\*  
5477 032464\* 104456  
5478 032466\* 000023  
5479 032470\* 016206\*  
5480 032472\* 015114\*  
5481 032474\*  
5482 032474\* 104410  
5483 032476\* 000002  
5484 032500\*  
5485 032500\*  
5486 032500\*  
5487 032500\* 104401

70\$: JSR PC,CLRDNI  
BCC 80\$  
ERRHRL 019.,ERR006,MSG003  
  
ESCAPE TST  
  
80\$:  
ENDTST

: WRITE ONE TO CLEAR DNI  
: ERROR ?  
: NO  
: YES, REPORT ERROR

TRAP C\$ERHRD  
.WORD 19  
.WORD ER006  
.WORD MSG003

: AND ABORT TEST

TRAP C\$ESCAPE  
.WORD L10033-

L10033:

TRAP C\$ETST

M  
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TEST 9: INTERRUPT LOGIC TEST

.SBTTL TEST 9: INTERRUPT LOGIC TEST

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*****
THIS TEST VERIFIES THAT A DEUNA INTERRUPT CAN BE GENERATED.
TEST SEQUENCE:
1. SET UP THE INTERRUPT VECTOR
2. ISSUE A GET PCBB PORT COMMAND
3. WAIT FOR A DNI INTERRUPT
4. WRITE ONE TC CLEAR DNI
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5502 032502'          BGNTST
5503 032502'
5504 032502' 004737 025334'          JSR    PC,TINIT          ; IS A DEVICE RESET NEEDED?
5505 032506' 103025          BCC    25$              ; NO
5506 032510' 012777 000040 145510    MOV    #RSET,@PCSR0     ; YES, RESET DEUNA
5507 032516' 004737 022546'          JSR    PC,CHKDNI        ; DNI ?
5508 032522' 103006          BCC    20$              ; YES
5509 032524'          ERRHRD 020.,ERR04,MSG003 ; NO, REPORT ERROR
5510 032524' 104456          TRAP   C$ERHRD
5511 032526' 000024          .WORD 20
5512 032530' 016106'          .WORD ERR04
5513 032532' 015114'          .WORD MSG003
5514 032534'          ESCAPE TST          ; AND ABORT TEST
5515 032534' 104410          TRAP   C$ESCAPE
5516 032536' 000226          .WORD L10034-.
5517
5518 032540' 004737 023434'          20$: JSR    PC,CLRDNI        ; WRITE ONE TO CLEAR DNI
5519          .WORD 20$          ; ERROR
5520 032544' 103006          BCC    25$              ; NO
5521 032546'          ERRHRD 021.,ERR06,MSG003 ; YES, REPORT ERROR
5522 032546' 104456          TRAP   C$ERHRD
5523 032550' 000025          .WORD 21
5524 032552' 016206'          .WORD ERR06
5525 032554' 015114'          .WORD MSG003
5526 032556'          ESCAPE TST          ; AND ABORT
5527 032556' 104410          TRAP   C$ESCAPE
5528 032560' 000204          .WORD L10034-.
5529
5530          ; SET UP INTERRUPT VECTOR
5531 032562'          25$: SETVEC INTVEC,#ISRDN1,UNAPRI
5532 032562' 013746 000240'          MOV    UNAPRI,-(SP)
5533 032566' 012746 025652'          MOV    #ISRDN1,-(SP)
5534 032572' 013746 000236'          MOV    INTVEC,-(SP)
5535 032576' 012746 000003          MOV    #3,-(SP)
5536 032602' 104437          TRAP   C$SVEC
5537 032604' 062706 000010          ADD    #10,SP
5538 032610'          SETPRI #PRI04          ; SET CPU PRIORITY = 4
5539 032610' 012700 000200          MOV    #PRI04,R0
5540 032614' 104441          TRAP   C$SPRI
5541 032616' 005037 013212'          CLR    DNIFLG          ; CLEAR DNI INTERRUPT FLAG
5542          ; ISSUE GET PCBB PORT COMMAND WITH INTERRUPTS ENABLED
5543 032622' 012777 000100 145376    40$: MOV    #INTE,@PCSR0 ; ENABLE INTERRUPTS

```

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5544 032630' 012705 011072'      MOV      #NOPF,R5      ; POINT TO DEFAULT NOP FUNCTION
5545 032634' 004737 024630'      JSR      PC,LDPCBB    ; LOAD FUNCTION INTO PCBB
5546 032640' 004737 024660'      JSR      PC,LDPCSR    ; ADDRESS OF PCBB -> PCSR2!3
5547 032644' 012777 000101 145354  MOV      #GETPCB!INTE,@PCSR0 ; ISSUE A GETPCBB PORT COMMAND
5548                                     ; WAIT FOR DNI INTERRUPT
5549                                     ; LOOP FOR APPROX 2 SEC.
5550 032652' 012701 000003      MOV      #3,R1        ; INIT OUTER LOOP
5551 032656' 005000      50$: CLR      RO        ; INNER LOOP
5552 032660' 005737 013212'      60$: TST     DNIFLG    ; DNI INTERRUPT OCCUR ?
5553 032664' 001020      BNE     70$          ; YES, CONTINUE TEST
5554 032666' 005300      DEC     RO          ; INNER LOOP EXHAUSTED?
5555 032670' 001373      BNE     60$          ; NO, CHECK FOR INTERRUPT AGAIN
5556 032672' 005301      DEC     R1          ; OUTER LOOP EXHAUSTED?
5557 032674' 001371      BNE     60$          ; NO, KEEP CHECKING FOR INTERRUPT
5558 032676'      ERRHRD 022.,ERR007 ; YES, REPORT ERROR
5559 032676' 104456      TRAP   C$ERHRD      ;
5560 032700' 000026      .WORD 22            ;
5561 032702' 016254'      .WORD ERRO07       ;
5562 032704' 000000      .WORD 0             ;
5563 032706'      CLRVEC INTVEC      ; DEALLOCATE VECTOR
5564 032706' 013700 000236'      MOV     INTVEC,RO    ;
5565 032712' 104436      TRAP   C$CVEC      ;
5566 032714'      SETPRI #PRI07      ; RESTORE CPU PRIORITY TO 7
5567 032714' 012700 000340      MOV     #PRI07,RO    ;
5568 032720' 104441      TRAP   C$SPRI      ;
5569 032722'      ESCAPE TST      ; AND ABORT TEST
5570 032722' 104410      TRAP   C$ESCAPE    ;
5571 032724' 000040      .WORD L10034-.     ;
5572                                     ;
5573                                     ;WRITE ONE TO CLEAR DNI
5574 032726'      70$: CLRVEC INTVEC ; DEALLOCATE VECTOR
5575 032726' 013700 000236'      MOV     INTVEC,RO    ;
5576 032732' 104436      TRAP   C$CVEC      ;
5577 032734'      SETPRI #PRI07      ; RESTORE CPU PRIORITY TO 7
5578 032734' 012700 000340      MOV     #PRI07,RO    ;
5579 032740' 104441      TRAP   C$SPRI      ;
5580 032742' 004737 023'34'      JSR     PC,CL'DNI    ; WRITE ONE TO CLEAR DNI
5581                                     ; ERROR?
5582 032746' 103006      BCC    80$          ; NO
5583 032750'      ERRHRD 023.,ERR006,MSG003 ; YES, REPORT ERROR
5584 032750' 104456      TRAP   C$ERHRD      ;
5585 032752' 000027      .WORD 23            ;
5586 032754' 016206'      .WORD ERRO06       ;
5587 032756' 015114'      .WORD MSG003       ;
5588 032760'      ESCAPE TST      ; AND ABORT
5589 032760' 104410      TRAP   C$ESCAPE    ;
5590 032762' 000002      .WORD L10034-.     ;
5591 032764'      80$:      ;
5592 032764'      ENDTST      ;
5593 032764'      ;
5594 032764' 104401      L10034: TRAP   C$ETST ;

```

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TEST 10: READ INTERNAL ROM TEST

.SBTTL TEST 10: READ INTERNAL ROM TEST

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*****
THIS TEST READS AND VERIFIES THE INTERNAL ROM.
THE DUMP INTERNAL MEMORY FUNCTION IS USED TO READ THE ROM.
A CRC IS GENERATED FROM THE ROM DATA READ.
A CRC VALUE OF ZERO SHOULD BE GENERATED FROM THE ROM
DATA READ WHICH INCLUDES THE STORED ROM CRC VALUE.

TEST SEQUENCE:
1. CLEAR RBUF
2. READ 1K OF ROM INTO RBUF
3. CALCULATE CRC ON RBUF
4. REPEAT STEPS 1-3 FOR EACH 1K BLOCK OF ROM (8 TIMES)
5. VERIFY CRC GENERATED = 0
*****

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032766'          BGNTST
032766'          T10::
032766' 004737 025334' JSR PC,TINIT          ; IS A DEVICE RESET NEEDED?
032772' 103025      BCC 30$              ; NO
032774' 012777 000040 145224 MOV #RSET,@PCSR0 ; YES, RESET DEUNA
033002' 004737 022546' JSR PC,CHKDNI       ; DNI ?
033006' 103006      BCC 20$              ; YES
033010'          ERRHRD 024.,ERR004,MSG003 ; NO, REPORT ERROR
033010' 104456      TRAP C$ERHRD
033012' 000030      .WORD 24
033014' 016106'    .WORD ERR004
033016' 015114'    .WORD MSG003
033020'          ESCAPE TST          ; AND ABORT TEST
033020' 104410      TRAP C$ESCAPE
033022' 000272      .WORD L10035-.
033024' 004737 023434' 20$: JSR PC,CLRDNI       ; WRITE ONE TO CLEAR DNI
033030' 103006      ; ERROR ?
033032'          BCC 30$              ; NO
033032' 104456      ERRHRD 025.,ERR006,MSG003 ; YES, REPORT ERROR
033034' 000031      TRAP C$ERHRD
033036' 016206'    .WORD 25
033040' 015114'    .WORD ERR006
033042'          ESCAPE TST          ; AND ABORT TEST
033042' 104410      TRAP C$ESCAPE
033044' 000250      .WORD L10035-.
033046' 004737 024660' 30$: JSR PC,LDPCSR       ; ADDRESS OF PCBB -> PCSR2!3
033052' 012777 000001 145146 MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
033060' 004737 022546' JSR PC,CHKDNI       ; DNI ?
033064' 103006      BCC 40$              ; YES
033066'          ERRHRD 026.,ERR009,MSG003 ; NO, REPORT ERROR
033066' 104456      TRAP C$ERHRD
033070' 000032      .WORD 26
033072' 016422'    .WORD ERR009
033074' 015114'    .WORD MSG003

```

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5651 033076'          ESCAPE TST          ; AND ABORT TEST
5652 033076' 104410          TRAP          C$ESCAPE
5653 033100' 000214          .WORD          L10035-.
5654
5655 033102' 004737 023434' 40$: JSR      PC,CLRDN1          ; WRITE ONE TO CLEAR DNI
5656                                     ; ERROR ?
5657 033106' 103006          BCC      50$
5658 033110'          ERRHRD 027.,ERR006,MSG003 ; YES, REPORT ERROR
5659 033110' 104410          TRAP          C$ERHRD
5660 033112' 000013          .WORD          27
5661 033114' 016206'          .WORD          ERR006
5662 033116' 015114'          .WORD          MSG003
5663 033120'          ESCAPE TST          ; AND ABORT TEST
5664 033120' 104410          TRAP          C$ESCAPE
5665 033122' 000172          .WORD          L10035-.
5666
5667 033124' 012705 011272' 50$: MOV      #DMPMEM,R5          ; DEFAULT DUMP INTERNAL MEMORY
5668 033130' 004737 024630' JSR      PC,LDPCBB          ; LOAD FUNCTION -> PCBB
5669 033134' 012705 012204' MOV      #UDB10A,R5          ; DEFAULT UDBB
5670 033140' 012700 000004' MOV      #4,R0              ; FOUR WORDS
5671 033144' 004737 025030' JSR      PC,LDUDBB          ; LOAD INTO UDBB
5672
5673 033150' 012737 000000 012202' ; MOV      #INITH,CRCH          ; INITIAL CRC VALUE (ZERO)
5674                                     ;
5675 033156' 012703 012214' MOV      #MEM10A,R3          ; R3 POINTS TO ROM ADDRESS TABLE
5676 033162' 012700 000010' MOV      #8.,R0              ; PERFORM 8 ROM DUMPS
5677                                     ; AND CRC CALCULATIONS
5678
5679 033166' 012705 005072' 60$: MOV      #RBUF,R5          ; CLEAR RBUF
5680 033172' 012704 002000' MOV      #1024.,R4
5681 033176' 005025          65$: CLR      (R5)+
5682 033200' 077402          SOB      R4,65$
5683                                     ;
5684 033202' 012337 000270' MOV      (R3)+,UDBB+6          ; LOAD ROM ADDRESS -> UDBB+6
5685 033206' 012777 000002 145012' MOV      #GETCMD,@PCSRO          ; ISSUE GET COMMAND PORT COMMAND
5686 033214' 004737 022546' JSR      PC,CHKDNI          ; DNI ?
5687 033220' 103006          BCC      70$
5688 033222'          ERRHRD 028.,ERR010,MSG003 ; YES
5689 033222' 104456          ; NO, REPORT ERROR
5690 033224' 000034          TRAP          C$ERHRD
5691 033226' 016506'          .WORD          28
5692 033230' 015114'          .WORD          ERR010
5693 033232'          .WORD          MSG003
5694 033232' 104410          ESCAPE TST          ; AND ABORT TEST
5695 033234' 000060          TRAP          C$ESCAPE
5696                                     .WORD          L10035-.
5697 033236' 004737 023434' 70$: JSR      PC,CLRDN1          ; WRITE ONE TO CLEAR DNI
5698                                     ; ERROR ?
5699 033242' 103006          BCC      80$
5700 033244'          ERRHRD 029.,ERR006,MSG003 ; YES, REPORT ERROR
5701 033244' 104456          TRAP          C$ERHRD
5702 033246' 000035          .WORD          29
5703 033250' 016206'          .WORD          ERR006
5704 033252' 015114'          .WORD          MSG003
5705 033254'          ESCAPE TST          ; AND ABORT TEST
5706 033254' 104410          TRAP          C$ESCAPE
    
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TEST 11: READ/WRITE INTERNAL WCS TEST

.SBTTL TEST 11: READ/WRITE INTERNAL WCS TEST

\*\*\*\*\*  
THIS TEST READS AND WRITES THE INTERNAL WCS MEMORY.  
THE DUMP/LOAD INTERNAL MEMORY FUNCTIONS ARE USED TO  
READ/WRITE THE RESERVED DOWNLINE LOAD PORTION OF THE WCS MEMORY.  
THE TOP 1K OF WCS.

TEST SEQUENCE:

1. LOAD TBUF WITH DATA = ADDRESS
2. LOAD TOP 1K OF INTERNAL WCS MEMORY WITH TBUF
3. RESETUP TBUF FOR DATA COMPARE
4. CLEAR RBUF
5. DUMP INTERNAL WCS MEMORY -> RBUF
6. COMPARE RBUF WITH TBUF
7. REPEAT STEPS 1 THRU 6 WITH COMPLIMENT DATA

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5749 033316' 004737 025334'  
5750 033316'  
5751 033316' 004737 025334'  
5752 033322' 103025  
5753 033324' 012777 000040 144674  
5754 033332' 004737 022546'  
5755 033336' 103006  
5756 033340'  
5757 033340' 104456  
5758 033342' 000037  
5759 033344' 016106'  
5760 033346' 015114'  
5761 033350'  
5762 033350' 104410  
5763 033352' 000716  
5764  
5765 033354' 004737 023434' 20\$:  
5766  
5767 033360' 103006  
5768 033362'  
5769 033362' 104456  
5770 033364' 000040  
5771 033366' 016206'  
5772 033370' 015114'  
5773 033372'  
5774 033372' 104410  
5775 033374' 000674  
5776  
5777 033376' 004737 024660' 30\$:  
5778 033402' 012777 000001 144616  
5779 033410' 004737 022546'  
5780 033414' 103006  
5781 033416'  
5782 033416' 104456  
5783 033420' 000041

```

BGNTST
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 30$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DE INA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 031.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 31
.WORD ERR004
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10036-.

20$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
; ERROR ?
BCC 30$ ; NO
ERRHRD 032.,ERR006,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 32
.WORD ERR006
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10036-.

30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> ^CSR2!3
MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
JSR PC,CHKDN! ; DNI ?
BCC 40$ ; YES
ERRHRD 033.,ERR009,MSG00? ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 33

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5784 033422' 016422' .WORD ERR009
5785 033424' 015114' .WORD MSG003
5786 033426' ESCAPE TST ; AND ABORT TEST
5787 033426' 104410 TRAP C$ESCAPE
5788 033430' 000640 .WORD L10036-.
5789
5790 033432' 004737 023434' 40$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
5791 ; ERROR ?
5792 033436' 103006 BCC 50$ ; NO
5793 033440' ERRHRD 034. _RR006,MSG003 ; YES, REPORT ERROR
5794 033440' 104456 TRAP C$ERHRD
5795 033442' 000042 .WORD 34
5796 033444' 016206' .WORD ERR006
5797 033446' 015114' .WORD MSG003
5798 033450' ESCAPE TST ; AND ABORT TEST
5799 033450' 104410 TRAP C$ESCAPE
5800 033452' 000616 .WORD L10036-.
5801
5802 ;WRITE TOP 1K DOWNLINE LOAD WCS WITH DATA = ADDRESS
5803 033454' 012703 012244' 50$: MOV #MEM11A,R3 ; R3 POINTS TO WCS ADDRESS TABLE
5804
5805 ;WRITE TBUF WITH DATA = ADDRESS
5806 033460' 010305 60$: MOV R3,R5 ; R5 POINTS TO ADDRESS
5807 033462' 004737 024466' JSR PC,LDBUF ; LOAD TBUF WITH ADDRESS DATA PATTERN
5808 ;LOAD INTERNAL WCS MEMORY
5809 033466' 012705 011302' MOV #LDMEM,R5 ; DEFAULT LOAD INTERNAL MEMORY
5810 033472' 004737 0246 JSR PC,LDPCCB ; LOAD FUNCTION -> PCBB
5811 033476' 012705 012234' MOV #UDB11A,R5 ; DEFAULT UDBB
5812 033502' 012700 000004 MOV #4,R0 ; FOUR WORDS
5813 033506' 004737 025030' JSR PC,LDUDBB ; LOAD INTO UDE
5814 033512' 012737 001072' 000264' MOV #TBUF,UDBB+2 ; LOAD TBUF ADDRESS -> UDBB+2
5815 033520' 011337 000270' MOV (R3),UDBB+6 ; LOAD WCS ADDRESS -> UDBB+6
5816 033524' 012777 000002 144474 MOV #GETCMD,@PCSR0 ; ISSUE GET COMMAND PORT COMMAND
5817 033532' 004737 022546' JSR PC,CHKDNI ; DNI ?
5818 033536' 103006 BCC 70$ ; YES
5819 033540' ERRHRD 035.,ERR010,MSG003 ; NO, REPORT ERROR
5820 033540' 104456 TRAP C$ERHRD
5821 033542' 000043 .WORD 35
5822 033544' 016506' .WORD ERR010
5823 033546' 015114' .WORD MSG003
5824 033550' ESCAPE TST ; AND ABORT TEST
5825 033550' 104410 TRAP C$ESCAPE
5826 033552' 000516 .WORD L10036-.
5827
5828 033554' 004737 023434' 70$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
5829 ; ERROR ?
5830 033560' 103006 BCC 80$ ; NO
5831 033562' ERRHRD 036.,ERR006,MSG003 ; YES, REPORT ERROR
5832 033562' 104456 TRAP C$ERHRD
5833 033564' 000044 .WORD 36
5834 033566' 016206' .WORD ERR006
5835 033570' 015114' .WORD MSG003
5836 033572' ESCAPE TST ; AND ABORT TEST
5837 033572' 104410 TRAP C$ESCAPE
5838 033574' 000474 .WORD L10036-.
5839 ;

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 TEST 11: READ/WRITE INTERNAL WCS TEST

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5840 ;READ TOP 1K DOWNLINE LOAD WCS AND COMPARE DATA
5841 033576' 012703 012244' 80$: MOV #MEM11A,R3 ; R3 POINTS TO WCS ADDRESS TABLE
5842 ;
5843 ;SETUP RBUF FOR DATA COMPARE
5844 033602' 010305 100$: MOV R3,R5 ; R5 POINTS TO ADDRESS
5845 033604' 004737 024466' JSR PC,LDBUF ; LOAD TBUF WITH ADDRESS DATA PATTERN
5846 ;CLEAR RBUF
5847 033610' 012704 005072' MOV #RBUF,R4 ; CLEAR RBUF
5848 033614' 012700 002000 MOV #1024.,R0
5849 033620' 005024 110$: CLR (R4)+
5850 033622' 077002 SOB R0,110$
5851 ;DUMP INTERNAL WCS MEMORY INTO RBUF
5852 033624' 012705 011272' MOV #DMPMEM,R5 ; DEFAULT DUMP INTERNAL MEMORY
5853 033630' 004737 024630' JSP PC,LDPCCB ; LOAD FUNCTION -> PCBB
5854 033634' 012705 012234' MOV #UDB11A,R5 ; DEFAULT UDBB
5855 033640' 012700 000004 MOV #4,R0 ; FOUR WORDS
5856 033644' 004737 025050' JSR PC,LDUDBB ; LOAD INTO UDBB
5857 033650' 012737 005072' 000264' MOV #RBUF,UDBB+2 ; LOAD RBUF ADDRESS -> UDBB+2
5858 033656' 011337 000270' MOV (R3),UDBB+6 ; LOAD WCS ADDRESS -> UDBB+6
5859 033662' 012777 000002 144336 MOV #GETCMD,@PCSR0 ; ISSUE GET COMMAND PORT COMMAND
5860 033670' 004737 022546' JSR PC,CHKDNI ; DNI ?
5861 033674' 103006 BCC 120$ ; YES
5862 033676' ERRHRD 037.,ERR010,MSG003 ; NO, REPORT ERROR
5863 033676' 104456 TRAP C$ERHRD
5864 033700' 000045 .WORD 37
5865 033702' 016506' .WORD ERR010
5866 033704' 015114' .WORD MSG003
5867 033706' ESCAPE TST ; AND ABORT TEST
5868 033706' 104410 TRAP C$ESCAPE
5869 033710' 000360 .WORD L10036-.
5870 ;
5871 033712' 004737 023434' 120$: JSR PC,CLR DNI ; WRITE ONE TO CLEAR DNI
5872 ; ERROR ?
5873 033716' 103006 BCC 130$ ; NO
5874 033720' ERRHRD 038.,ERR006,MSG003 ; YES, REPORT ERROR
5875 033720' 104456 TRAP C$ERHRD
5876 033722' 000046 .WORD 38
5877 033724' 016206' .WORD ERR006
5878 033726' 015114' .WORD MSG003
5879 033728' ESCAPE TST ; AND ABORT TEST
5880 033730' 104410 TRAP C$ESCAPE
5881 033732' 000336 .WORD L10036-.
5882 ;
5883 ;COMPARE RBUF WITH TBUF
5884 ;
5885 033734' 012705 002000 130$: MOV #1024.,R5 ; COMPARE 1024. WORDS OF DATA
5886 033740' 004737 024062' JSR PC,CMEMEM ; DATA COMPARE ERROR ?
5887 033744' 103006 BCC 140$ ; NO
5888 033746' ERRHRD 039.,ERR042,MSG007 ; YES, REPORT ERROR
5889 033746' 104456 TRAP C$ERHRD
5890 033750' 000047 .WORD 39
5891 033752' 021607' .WORD ERR042
5892 033754' 015524' .WORD MSG007
5893 033756' ESCAPE TST ; AND ABORT TEST
5894 033756' 104410 TRAP C$ESCAPE
5895 033760' 000310 .WORD L10036-.

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 CZUABA.MAC 10-JAN-83 12:46 TEST 11: READ/WRITE INTERNAL WCS TEST

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5900 033762' 012703 012244'
5901
5902
5903 033766' 010305
5904 033770' 004737 024530'
5905
5906 033774' 012705 011302'
5907 034000' 004737 024630'
5908 034004' 012705 012234'
5909 034010' 012700 000004
5910 034014' 004737 025030'
5911 034020' 012737 001072' 000264'
5912 034026' 011337 000270'
5913 034032' 012777 000002 144166
5914 034040' 004737 022546'
5915 034044' 103006
5916 034046'
5917 034046' 104456
5918 034050' 000050
5919 034052' 016506'
5920 034054' 015114'
5921 034056'
5922 034056' 104410
5923 034060' 000210
5924
5925 034062' 004737 023434'
5926
5927 034066' 103006
5928 034070'
5929 034070' 104456
5930 034072' 000051
5931 034074' 016206'
5932 034076' 015114'
5933 034100'
5934 034100' 104410
5935 034102' 000166
5936
5937
5938 034104' 012703 012244'
5939
5940
5941 034110' 010305
5942 034112' 004737 024530'
5943
5944 034116' 012704 005072'
5945 034122' 012700 002000
5946 034126' 005024
5947 034130' 077002
5948
5949 034132' 012705 011272'
5950 034136' 004737 024630'
5951 034142' 012705 012234'

;REPEAT TEST WITH COMPLIMENTED DATA PATTERN
;WRITE TOP 1K DOWNLINE LOAD WCS WITH DATA = COMPLIMENT OF ADDRESS
140$: MOV #MEM11A,R3 ; R3 POINTS TO WCS ADDRESS TABLE
;WRITE RBUF WITH DATA = ADDRESS
160$: MOV R3,R5 ; R5 POINTS TO ADDRESS
; JSR PC,LDBUFC ; LOAD TBUF WITH COMPLIMENTED DATA
;LOAD INTERNAL WCS MEMORY
MOV #LDMEM,R5 ; DEFAULT LOAD INTERNAL MEMORY
; JSR PC,LPCBB ; LOAD FUNCTION -> PCBB
;MOV #UDB11A,R5 ; DEFAULT UDBB
;MOV #4,R0 ; FOUR WORDS
; JSR PC,LDUDBB ; LOAD INTO UDBB
;MOV #TBUF,UDBB+2 ; LOAD TBUF ADDRESS -> UDBB+2
;MOV (R3),UDBB+6 ; LOAD WCS ADDRESS -> UDBB+6
;MOV #GETCMD,@PCSR0 ; ISSUE GET COMMAND PORT COMMAND
; JSR PC,CHKDNI ; DNI ?
; BCC 170$ ; YES
; ERRHRD 040.,ERR010,MSG003 ; NO, REPORT ERROR
; TRAP C$ERHRD
; .WORD 40
; .WORD ERR010
; .WORD MSG003
ESCAPE TST ; AND ABORT TEST
; TRAP C$ESCAPE
; .WORD L10036-.
170$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
; ERROR ?
; BCC 180$ ; NO
; ERRHRD 041.,ERR006,MSG003 ; YES, REPORT ERROR
; TRAP C$ERHRD
; .WORD 41
; .WORD ERR006
; .WORD MSG003
ESCAPE TST ; AND ABORT TEST
; TRAP C$ESCAPE
; .WORD L10036-.

;READ TOP 1K DOWNLINE LOAD WCS AND COMPARE DATA
180$: MOV #MEM11A,R3 ; R3 POINTS TO WCS ADDRESS TABLE
;SETUP TBUF FOR DATA COMPARE
200$: MOV R3,R5 ; R5 POINTS TO ADDRESS
; JSR PC,LDBUFC ; LOAD TBUF WITH COMPLIMENTED DATA
;CLEAR RBUF
MOV #RBUF,R4 ; CLEAR RBUF
;MOV #1024.,R0
210$: CLR (R4)+
; SOB R0,210$
;DUMP INTERNAL WCS MEMORY INTO RBUF
MOV #DMPMEM,R5 ; DEFAULT DUMP INTERNAL MEMORY
; JSR PC,LPCBB ; LOAD FUNCTION -> PCBB
;MOV #UDB11A,R5 ; DEFAULT UDBB

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 CZUABA.MAC 10-JAN-83 12:46 TEST 11: READ/WRITE INTERNAL WCS TEST

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5952 034146 012700 000004      MOV      #4,R0      ; FOUR WORDS
5953 034152 004737 025030      JSR      PC,LDUDBB  ; LOAD INTO UDBB
5954 034156 012737 005072 000264  MOV      #RBUF,UDBB+2 ; LOAD RBUF ADDRESS -> UDBB+2
5955 034164 011337 000270      MOV      (R3),UDBB+6 ; LOAD WCS ADDRESS -> UDBB+6
5956 034170 012777 000002 144030  MOV      #GETCMD,@PCSR0 ; ISSUE GET COMMAND PORT COMMAND
5957 034176 004737 022546      JSR      PC,CHKDNI  ; DNI ?
5958 034202 103006      BCC      220$      ; YES
5959 034204      ERRHRD  042.,ERR010,MSG003 ; NO, REPORT ERROR
5960 034204 104456      ;
5961 034206 000052      ; TRAP C$ERHRD
5962 034210 016506      ; .WORD 42
5963 034212 015114      ; .WORD ERR010
5964 034214      ; .WORD MSG003
5965 034214 104410      ESCAPE  TST      ; AND ABORT TEST
5966 034216 000052      ; TRAP C$ESCAPE
5967      ; .WORD L10036-
5968 034220 004737 023434 220$: JSR      PC,CLRDNI  ; WRITE ONE TO CLEAR DNI
5969      ; ERROR ?
5970 034224 103006      BCC      230$      ; NO
5971 034226      ERRHRD  043.,ERR006,MSG003 ; YES, REPORT ERROR
5972 034226 104456      ; TRAP C$ERHRD
5973 034230 000053      ; .WORD 43
5974 034232 016206      ; .WORD ERR006
5975 034234 015114      ; .WORD MSG003
5976 034236      ESCAPE  TST      ; AND ABORT TEST
5977 034236 104410      ; TRAP C$ESCAPE
5978 034240 000030      ; .WORD L10036-
5979      ;
5980      ; COMPARE RBUF WITH TBUF
5981      ;
5982 034242 012705 002000 230$: MOV      #1024,R5  ; COMPARE 1024. WORDS OF DATA
5983 034246 004737 024062  JSR      PC,CMPMEM  ; DATA COMPARE ERROR ?
5984 034252 103006      BCC      240$      ; NO
5985 034254      ERRHRD  044.,ERR042,MSG007 ; YES, REPORT ERROR
5986 034254 104456      ; TRAP C$ERHRD
5987 034256 000054      ; .WORD 44
5988 034260 021607      ; .WORD ERR042
5989 034262 015524      ; .WORD MSG007
5990 034264      ESCAPE  TST      ; AND ABORT TEST
5991 034264 104410      ; TRAP C$ESCAPE
5992 034266 000002      ; .WORD L10036-
5993      ;
5994 034270 240$:      ;
5995 034270      ;
5996 034270      ;
5997 034270 104401      ; L10036: TRAP C$ETST

```



HARDWARE TESTS MACY11 30(1046)  
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TEST 12: READ/WRITE MODE FUNCTION TEST

```

6054
6055 034412' 103006          BCC      50$          : ERROR ?
6056 034414'          ERRHRD  048.,ERR006,MSG003 : NO
6057 034414' 104456          : YES, REPORT ERROR
6058 034416' 000060          TRAP    C$ERHRD
6059 034420' 016206'          .WORD  48
6060 034422' 015114'          .WORD  ERR006
6061 034424'          .WORD  MSG003
6062 034424' 104410          ESCAPE  TST          : AND ABORT TEST
6063 034426' 000406          TRAP    C$ESCAPE
6064          .WORD  L10037-.
6065          :
6066 034430' 012705 011232' 50$: WRITE SETABLE MODE REGISTER BITS WITH ONES
6067 034434' 004737 024630' : POINT TO DEFAULT WRITE MODE FUNCTION
6068 034440' 012737 175015 000254' : LOAD FUNCTION INTO PCBB
6069 034446' 012777 000002 143552 : SETABLE MODE REGISTER BITS = ALL ONES
6070 034454' 004737 022546' : ISSUE GET_CMD PORT COMMAND
6071 034460' 103006          JSR     PC,CHKDNI    : DNI ?
6072 034462'          BCC     60$          : YES
6073 034462' 104456          ERRHRD  049.,ERR010,MSG003 : NO, REPORT ERROR
6074 034464' 000061          TRAP    C$ERHRD
6075 034466' 016506'          .WORD  49
6076 034470' 015114'          .WORD  ERR010
6077 034472'          .WORD  MSG003
6078 034472' 104410          ESCAPE  TST          : AND ABORT TEST
6079 034474' 000340          TRAP    C$ESCAPE
6080          .WORD  L10037-.
6081 034476' 004737 023434' 60$: JSR     PC,CLR DNI
6082          : WRITE ONE TO CLEAR DNI
6083 034502' 103006          BCC     70$          : ERROR ?
6084 034504'          ERRHRD  050.,ERR006,MSG003 : NO
6085 034504' 104456          : YES, REPORT ERROR
6086 034506' 000062          TRAP    C$ERHRD
6087 034510' 016206'          .WORD  50
6088 034512' 015114'          .WORD  ERR006
6089 034514'          .WORD  MSG003
6090 034514' 104410          ESCAPE  TST          : AND ABORT TEST
6091 034516' 000316          TRAP    C$ESCAPE
6092          .WORD  L10037-.
6093          :
6094 034520' 012705 011222' 70$: READ AND COMPARE MODE REGISTER
6095 034524' 004737 024630' : POINT TO DEFAULT READ MODE FUNCTION
6096 034530' 012777 000002 143470 : LOAD FUNCTION INTO PCBB
6097 034536' 004737 022546' : ISSUE GET_CMD PORT COMMAND
6098 034542' 103006          JSR     PC,CHKDNI    : DNI ?
6099 034544'          BCC     80$          : YES
6100 034544' 104456          ERRHRD  051.,ERR010,MSG003 : NO, REPORT ERROR
6101 034546' 000063          TRAP    C$ERHRD
6102 034550' 016506'          .WORD  51
6103 034552' 015114'          .WORD  ERR010
6104 034554'          .WORD  MSG003
6105 034554' 104410          ESCAPE  TST          : AND ABORT TEST
6106 034556' 000256          TRAP    C$ESCAPE
6107          .WORD  L10037-.
6108 034560' 004737 023434' 80$: JSR     PC,CLR DNI
6109          : WRITE ONE TO CLEAR DNI
          : ERROR ?

```

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 CZUABA.MAC 10-JAN-83 12:46 TEST 12: READ/WRITE MODE FUNCTION TEST

```

6110 034564' 103006          BCC      90$          ; NO
6111 034566'          ERRHRD  052.,ERR006,MSG003 ; YES, REPORT ERROR
6112 034566' 104456          TRAP      C$ERHRD
6113 034570' 000064          .WORD   52
6114 034572' 016206'          .WORD   ERR006
6115 034574' 015114'          .WORD   MSG003
6116 034576'          ESCAPE  TST          ; AND ABORT TEST
6117 034576' 104410          TRAP      C$ESCAPE
6118 034600' 000234          .WORD   L10037-.
6119
6120 034602'          ;
6121 034602' 012703 175015    90$:  MOV      #CMODE1,R3      ; EXPECTED DATA -> R3
6122 034606' 013704 000254'    MOV      PCBB+2,R4      ; ACTUAL DATA -> R4
6123 034612' 020304          CMP      R3,R4          ; MODE REGISTER = EXPECTED DATA ?
6124 034614' 001406          BEQ      100$          ; YES
6125 034616'          ERRHRD  053.,ERR011,MSG002 ; NO, REPORT ERROR
6126 034616' 104456          TRAP      C$ERHRD
6127 034620' 000065          .WORD   53
6128 034622' 016571'          .WORD   ERR011
6129 034624' 015066'          .WORD   MSG002
6130 034626'          ESCAPE  TST          ; AND ABORT TEST
6131 034626' 104410          TRAP      C$ESCAPE
6132 034630' 000204          .WORD   L10037-.
6133
6134          ; WRITE MODE REGISTER WITH ZEROS
6135
6136 034632' 012705 011232'    100$: MOV      #WTMODE,R5      ; POINT TO DEFAULT WRITE MODE FUNCTION
6137 034636' 004737 024630'    JSR      PC,LDPCCBB     ; LOAD FUNCTION INTO PCBB
6138 034642' 012737 000000 000254' MOV      #ZERO,PCBB+2   ; MODE REGISTER = ALL ZEROS
6139 034650' 012777 000002 143350 MOV      #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
6140 034656' 004737 022546'    JSR      PC,CHKDNI      ; DNI ?
6141 034662' 103006          BCC      160$          ; YES
6142 034664'          ERRHRD  054.,ERR010,MSG003 ; NO, REPORT ERROR
6143 034664' 104456          TRAP      C$ERHRD
6144 034666' 000066          .WORD   54
6145 034670' 016506'          .WORD   ERR010
6146 034672' 015114'          .WORD   MSG003
6147 034674'          ESCAPE  TST          ; AND ABORT TEST
6148 034674' 104410          TRAP      C$ESCAPE
6149 034676' 000136          .WORD   L10037-.
6150
6151 034700' 004737 023434'    160$: JSR      PC,CLRDN1     ; WRITE ONE TO CLEAR DNI
6152          ; ERROR ?
6153 034704' 103006          BCC      170$          ; NO
6154 034706'          ERRHRD  055.,ERR006,MSG003 ; YES, REPORT ERROR
6155 034706' 104456          TRAP      C$ERHRD
6156 034710' 000067          .WORD   55
6157 034712' 016206'          .WORD   ERR006
6158 034714' 015114'          .WORD   MSG003
6159 034716'          ESCAPE  TST          ; AND ABORT TEST
6160 034716' 104410          TRAP      C$ESCAPE
6161 034720' 000114          .WORD   L10037-.
6162
6163          ; READ AND COMPARE MODE REGISTER
6164 034722' 012705 011222'    170$: MOV      #RDMODE,R5      ; POINT TO DEFAULT READ MODE FUNCTION
6165 034726' 004737 024630'    JSR      PC,LDPCCBB     ; LOAD FUNCTION INTO PCBB
    
```



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TEST 13: READ/WRITE LINK MEMORY TEST

.SBTTL TEST 13: READ/WRITE LINK MEMORY TEST

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*****
THIS TEST READS AND WRITES THE INTERNAL LINK MEMORY.
THE DUMP/LOAD INTERNAL MEMORY FUNCTIONS ARE USED TO
READ/WRITE THE ENTIRE 16K LINK MEMORY.

TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK MODE
   TO REMOVE LINK MEMORY FROM THE WIRE
2. LOAD TBUF WITH DATA = ADDRESS
3. LOAD 1K OF INTERNAL LINK MEMORY WITH TBUF
4. REPEAT STPLS 1 AND 2 FOR
   EACH 1K BLOCK OF LINK MEMORY (16 TIMES)
5. RESETUP TBUF FOR DATA COMPARE
6. CLEAR RBUF
7. DUMP INTERNAL LINK MEMORY -> RBUF
8. COMPARE RBUF WITH TBUF
9. REPEAT STEPS 4,5,6 AND 7 FOR EACH 1K BLCK
10. REPEAT STEPS 1 THRU 8 WITH COMPLIMENT DATA
*****

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6263

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035036'
035036'
035036' 004737 025334'
035042' 103025
035044' 012777 000040 143154
035052' 004737 022546'
035056' 103006
035060'
035060' 104456
035062' 000073
035064' 016106'
035066' 015114'
035070'
035070' 104410
035072' 001150
035074' 004737 023434'
035100' 103006
035102'
035102' 104456
035104' 000074
035106' 016206'
035110' 015114'
035112'
035112' 104410
035114' 001126
035116' 004737 024660'
035122' 012777 000001 143076
035130' 004737 022546'

```

```

BGNTST
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 30$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 059.,ERR004,MSG003 ; NO, REPORT ERROR
;
; TRAP C$ERHRD
; .WORD 59
; .WORD ERR004
; .WORD MSG003
ESCAPE TST ; AND ABORT TEST
;
; TRAP C$ESCAPE
; .WORD L10040-.
;
; 20$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
; ; ERROR ?
; ; NO
; ; YES, REPORT ERROR
;
; TRAP C$ERHRD
; .WORD 60
; .WORD ERR006
; .WORD MSG003
ESCAPE TST ; AND ABORT TEST
;
; TRAP C$ESCAPE
; .WORD L10040-.
;
; 30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
; MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
; JSR PC,CHKDNI ; DNI ?

```

HARDWARE TESTS MACY11 30(1046)  
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TEST 13: READ/WRITE LINK MEMORY TEST

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6264 035134' 103006          BCC      40$          : YES
6265 035136'          ERRHRD  061.,ERR009,MSG003 : NO, REPORT ERROR
6266 035136' 104456          TRAP    C$ERHRD
6267 035140' 000075          .WORD   61
6268 035142' 016422'          .WORD   ERR009
6269 035144' 015114'          .WORD   MSG003
6270 035146'          ESCAPE  TST          : AND ABORT TEST
6271 035146' 104410          TRAP    C$ESCAPE
6272 035150' 001072          .WORD   L10040-.
6273
6274 035152' 004737 023434' 40$: JSR      PC,CLRDNI : WRITE ONE TO CLEAR DNI
6275                                     : ERROR ?
6276 035156' 103006          BCC      45$
6277 035160'          ERRHRD  062.,ERR006,MSG003 : NO
6278 035160' 104456          : YES, REPORT ERROR
6279 035162' 000076          TRAP    C$ERHRD
6280 035164' 016206'          .WORD   62
6281 035166' 015114'          .WORD   ERR006
6282 035170'          ESCAPE  TST          : AND ABORT TEST
6283 035170' 104410          TRAP    C$ESCAPE
6284 035172' 001050          .WORD   L10040-.
6285
6286                                     ;WRITE MODE REGISTER = INTERNAL LOOPBACK TO TURN OFF LINK MEMORY
6287
6288 035174' 012705 011232' 45$: MOV      #WTMODE,R5 : DEFAULT WRITE MODE FUNCTION
6289 035200' 004737 024630' JSR      PC,LDPCBB : LOAD FUNCTION -> PCBB
6290 035204' 012777 000002 143014 MOV      #GETCMD,@PCSR0 : ISSUE GET_CMD PORT COMMAND
6291 035212' 004737 022546' JSR      PC,CHKDNI : DNI ?
6292 035216' 103006          BCC      47$
6293 035220'          ERRHRD  063.,ERR010,MSG003 : YES
6294 035220' 104456          : NO, REPORT ERROR
6295 035222' 000077          TRAP    C$ERHRD
6296 035224' 016506'          .WORD   63
6297 035226' 015114'          .WORD   ERR010
6298 035230'          ESCAPE  TST          : AND ABORT TEST
6299 035230' 104410          TRAP    C$ESCAPE
6300 035232' 001010          .WORD   L10040-.
6301
6302 035234' 004737 023434' 47$: JSR      PC,CLRDNI : WRITE ONE TO CLEAR DNI
6303                                     : ERROR ?
6304 035240' 103006          BCC      50$
6305 035242'          ERRHRD  064.,ERR006,MSG003 : NO
6306 035242' 104456          : YES, REPORT ERROR
6307 035244' 000100          TRAP    C$ERHRD
6308 035246' 016206'          .WORD   64
6309 035250' 015114'          .WORD   ERR006
6310 035252'          ESCAPE  TST          : AND ABORT TEST
6311 035252' 104410          TRAP    C$ESCAPE
6312 035254' 000766          .WORD   L10040-.
6313
6314                                     ;WRITE 16K LINK MEMORY WITH DATA = ADDRESS BY 1K BLOCKS
6315 035256' 012703 012246' 50$: MOV      #MEM13A,R3 : R3 POINTS TO LINK MEM ADDRESS TABLE
6316 035262' 012701 000020          MOV      #16.,R1 : DO LOOP = 16
6317
6318                                     ;WRITE RBUF WITH DATA = ADDRESS
6319 035266' 010305          60$: MOV      R3,R5 : R5 POINTS TO ADDRESS

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 CZUABA.MAC 10-JAN-83 12:46 TEST 13: READ/WRITE LINK MEMORY TEST

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6320 035270' 004737 024466'          JSR    PC,LDBUF          ; LOAD TBUF WITH ADDRESS DATA PATTERN
6321                                     ;
6322                                     ;:LOAD INTERNAL LINK MEMORY
6323 035274' 012705 011302'          MOV    #LDMEM,R5          ; DEFAULT LOAD INTERNAL MEMORY
6324 035300' 004737 024630'          JSR    PC,LDPCCBB        ; LOAD FUNCTION -> PCBB
6325 035304' 012705 012234'          MOV    #UDB11A,R5        ; DEFAULT UDBB
6326 035310' 012700 000004'          MOV    #4,R0             ; FOUR WORDS
6327 035314' 004737 025030'          JSR    PC,LDUDBB         ; LOAD INTO UDBB
6328 035320' 012737 001072' 000264' MOV    #TBUF,UDBB+2      ; LOAD TBUF ADDRESS -> UDBB+2
6329 035326' 012337 000270'          MOV    (R3)+,UDBB+6      ; LOAD LINK ADDRESS -> UDBB+6
6330                                     ;
6331 035332' 022701 000001'          CMP    #1,R1             ; IS THIS THE LAST 1K BLOCK ?
6332 035336' 001003 000000'          BNE   65$               ; NO
6333 035340' 012737 003774 000262' MOV    #3774,UDBB        ; YES, ONLY WRITE 1022. WORDS
6334                                     ;
6335 035346' 012777 000002 142652 65$: MOV    #GETCMD,@PCSR0      ; ISSUE GET COMMAND PORT COMMAND
6336 035354' 004737 022546'          JSR    PC,CHKDNI         ; DNI ?
6337 035360' 103006 000000'          BCC   70$               ; YES
6338 035362'          ERRHRD 065.,ERR010,MSG003 ; NO, REPORT ERROR
6339 035362' 104456          TRAP   C$ERRHRD
6340 035364' 000101          .WORD 65
6341 035366' 016506'          .WORD ERR010
6342 035370' 015114'          .WORD MSG003
6343 035372'          ESCAPE TST          ; AND ABORT TEST
6344 035372' 104410          TRAP   C$ESCAPE
6345 035374' 000646          .WORD L10040-.
6346                                     ;
6347 035376' 004737 023434' 70$: JSR    PC,CLRDMI         ; WRITE ONE TO CLEAR DNI
6348                                     ; ERROR ?
6349 035402' 103006          BCC   80$               ; NO
6350 035404'          ERRHRD 066.,ERR006,MSG003 ; YES, REPORT ERROR
6351 035404' 104456          TRAP   C$ERRHRD
6352 035406' 000102          .WORD 66
6353 035410' 016206'          .WORD ERR006
6354 035412' 015114'          .WORD MSG003
6355 035414'          ESCAPE TST          ; AND ABORT TEST
6356 035414' 104410          TRAP   C$ESCAPE
6357 035416' 000624          .WORD L10040-.
6358 035420' 005301          80$: DEC    R1             ; DONE 16 WRITES ?
6359 035422' 001321          BNE   60$               ; NO
6360                                     ;
6361                                     ;:READ 16K LINK MEMORY BY 1K BLOCKS AND COMPARE DATA
6362 035424' 012703 012246'          MOV    #MEM13A,R3        ; R3 POINTS TO LINK MEM ADDRESS TABLE
6363 035430' 012701 000020'          MOV    #16.,R1          ; DO LOOP = 16
6364                                     ;
6365                                     ;:SETUP TBUF FOR DATA COMPARE
6366 035434' 010305          100$: MOV    R3,R5          ; R5 POINTS TO ADDRESS
6367 035436' 004737 024466'          JSR    PC,LDBUF         ; LOAD TBUF WITH ADDRESS DATA PATTERN
6368                                     ;
6369                                     ;:CLEAR RBUF
6370 035442' 012704 005072'          MOV    #RBUF,R4          ; CLEAR RBUF
6371 035446' 012700 002000'          MOV    #1024.,R0
6372 035452' 005024          110$: CLR    (R4)+
6373 035454' 077002          SOB   R0,110$
6374                                     ;
6375                                     ;:DUMP INTERNAL LINK MEMORY INTO RBUF

```

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 CZUABA.MAC 10-JAN-83 12:46 TEST 13: READ/WRITE LINK MEMORY TEST

```

6376 035456' 012705 011272'      MOV      #DMPMEM,R5      ; DEFAULT DUMP INTERNAL MEMORY
6377 035462' 004737 024630'      JSR      PC,LDPCBB      ; LOAD FUNCTION -> PCBB
6378 035466' 012705 012234'      MOV      #UDB11A,R5     ; DEFAULT UDBB
6379 035472' 012700 000004'      MOV      #4,R0          ; FOUR WORDS
6380 035476' 004737 025030'      JSR      PC,LDUDBB      ; LOAD INTO UDBB
6381 035502' 012737 005072' 000264'  MOV      #RBUF,UDBB+2    ; LOAD RBUF ADDRESS -> UDBB+2
6382 035510' 012337 000270'      MOV      (R3)+,UDBB+6   ; LOAD LINK ADDRESS -> UDBB+6
6383                                     ;
6384 035514' 022701 000001          ;
6385 035520' 001003          ;
6386 035522' 012737 003774 000262'  MOV      #3774,UDBB     ; IS THIS THE LAST 1K BLOCK ?
6387                                     ; NO
6388 035530' 012777 000002 142470 115$:  MOV      #GETCMD,@PCSR0 ; YES, ONLY READ 1022. WORDS
6389 035536' 004737 022546'      JSR      PC,CHKDNI      ; IS 'JE GET COMMAND PORT COMMAND
6390 035542' 103006          ; DNI ?
6391 035544'          ;
6392 035544' 104456          ;
6393 035546' 000103          ;
6394 035550' 016506'          ;
6395 035552' 015114'          ;
6396 035554'          ;
6397 035554' 104410          ;
6398 035556' 000464          ;
6399                                     ;
6400 035560' 004737 023434'      120$:  JSR      PC,CLRDN1    ; WRITE ONE TO CLEAR DNI
6401                                     ; ERROR ?
6402 035564' 103006          ;
6403 035566'          ;
6404 035566' 104456          ;
6405 035570' 000104          ;
6406 035572' 016206'          ;
6407 035574' 015114'          ;
6408 035576'          ;
6409 035576' 104410          ;
6410 035600' 000442          ;
6411                                     ;
6412                                     ; COMPARE RBUF WITH TBUF
6413                                     ;
6414 035602' 022701 000001          130$:  CMP      #1,R1        ; IS THIS THE LAST 1K BLOCK ?
6415 035606' 001003          ;
6416 035610' 012705 001776          ;
6417 035614' 000402          ;
6418                                     ;
6419 035616' 012705 002000          135$:  MOV      #1024.,R5     ; COMPARE 1024. WORDS OF DATA
6420 035622' 004737 024062'      136$:  JSR      PC,CMPMEM    ; DATA COMPARE ERROR ?
6421 035626' 103006          ;
6422 035630'          ;
6423 035630' 104456          ;
6424 035632' 000105          ;
6425 035634' 021650'          ;
6426 035636' 015524'          ;
6427 035640'          ;
6428 035640' 104410          ;
6429 035642' 000400          ;
6430                                     ;
6431 035644' 005301          140$:  DEC      R1          ; DONE 16 READS ?

```

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 CZUABA.MAC 10-JAN-83 12:46 TEST 13: READ/WRITE LINK MEMORY TEST

```

6432 035646' 001272          BNE      100$
6433
6434          ;REPEAT TEST WITH COMPLIMENTED DATA PATTERN
6435
6436          ;WRITE 16K LINK MEMORY WITH DATA = COMPLIMENT OF ADDRESS BY 1K BLOCKS
6437 035650' 012703 012246'   MOV      #MEM13A,R3          ; R3 POINTS TO LINK MEM ADDRESS TABLE
6438 035654' 012701 000020   MOV      #16.,R1           ; DO LOOP = 16
6439
6440          ;WRITE RBUF WITH DATA = ADDRESS
6441 035660' 010305 160$:     MOV      R3,R5           ; R5 POINTS TO ADDRESS
6442 035662' 004737 024530'   JSR      PC,LDBUFC        ; LOAD TBUF WITH COMPLIMENTED DATA
6443
6444          ;LOAD INTERNAL LINK MEMORY
6445 035666' 012705 011302'   MOV      #LDMEM,R5        ; DEFAULT LOAD INTERNAL MEMORY
6446 035672' 004737 024630'   JSR      PC,LDPCCBB       ; LOAD FUNC "N -> PCBB
6447 035676' 012705 012234'   MOV      #UDB11A,R5       ; DEFAULT L
6448 035702' 012700 000004'   MOV      #4,R0            ; FOUR WORDS
6449 035706' 004737 025030'   JSR      PC,LDUDBB        ; LOAD INTO UDBB
6450 035712' 012737 001072' 000264' MOV      #TBUF,UDBB+2     ; LOAD TBUF ADDRESS -> UDBB+2
6451 035720' 012337 000270'   MOV      (R3)+,UDBB+6     ; LOAD LINK ADDRESS -> UDBB+6
6452
6453          ;
6454 035724' 022701 000001'   CMP      #1,R1            ; IS THIS THE LAST 1K BLOCK ?
6455 035730' 001003 003774 000262' BNE      165$            ; NO
6456          ;
6457 035740' 012777 000002 142260 165$: MOV      #GETCMD,@PCSRO    ; ISSUE ^T COMMAND PORT COMMAND
6458 035746' 004737 022546'   JSR      PC,CHKDNI        ; DNI ?
6459 035752' 103006          BCC      170$            ; YES
6460 035754'          ERRHRD 070.,ERR010,MSG003 ; NO, REPORT ERROR
6461 035754' 104456          TRAP    C$ERHRD
6462 035756' 000106          .WORD  70
6463 035760' 016506'          .WORD  ERR010
6464 035762' 015114'          .WORD  MSG003
6465 035764'          ESCAPE  TST          ; AND ABORT TEST
6466 035764' 104410          TRAP    C$ESCAPE
6467 035766' 000254          .WORD  L10040-.
6468
6469 035770' 004737 023434' 170$: JSR      PC,CLRDN1     ; WRITE ONE TO CLEAR DNI
6470          ; ERROR ?
6471 035774' 103006          BCC      180$            ; NO
6472 035776'          ERRHRD 071.,ERR006,MSG003 ; YES, REPORT ERROR
6473 035776' 104456          TRAP    C$ERHRD
6474 036000' 000107          .WORD  71
6475 036002' 016206'          .WORD  ERR006
6476 036004' 015114'          .WORD  MSG003
6477 036006'          ESCAPE  TST          ; AND ABORT TEST
6478 036006' 104410          TRAP    C$ESCAPE
6479 036010' 000232          .WORD  L10040-.
6480 036012' 005301 180$: DEC      R1          ; DONE 16 WRITES ?
6481 036014' 001321          BNE      160$            ; NO
6482
6483          ;READ 16K LINK MEMORY BY 1K BLOCKS AND COMPARE DATA
6484 036016' 012703 012246'   MOV      #MEM13A,R3       ; R3 POINTS TO LINK MEM ADDRESS TABLE
6485 036022' 012701 000020   MOV      #16.,R1         ; DO LOOP = 16
6486
6487          ;SETUP TBUF FOR DATA COMPARE

```

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TEST 13: READ/WRITE LINK MEMORY TEST

```

6488 036026' 010305      200$:  MOV      R3,R5      ; R5 POINTS TO ADDRESS
6489 036030' 004737 024530'  JSR      PC,LDBUFC    ; LOAD TBUF WITH COMPLIMENTED DATA
6490
6491      ;CLEAR RBUF
6492 036034' 012704 005072'  MOV      #RBUF,R4     ; CLEAR RBUF
6493 036040' 012700 002000    MCV      #1024.,R0
6494 036044' 005024      210$:  CLR      (R4)+
6495 036046' 077002      SOB      R0,210$
6496
6497      ;DUMP INTERNAL LINK MEMORY INTO RBUF
6498 036050' 012705 011272'  MOV      #DMPMEM,R5   ; DEFAULT DUMP INTERNAL MEMORY
6499 036054' 004737 024630'  JSR      PC,LDPCCBB   ; LOAD FUNCTION -> PCBB
6500 036060' 012705 012234'  MOV      #UDB11A,R5   ; DEFAULT UDBB
6501 036064' 012700 000004    MOV      #4,R0        ; FOUR WORDS
6502 036070' 004737 025030'  JSR      PC,LDUDBB    ; LOAD INTO UDBB
6503 036074' 012737 005072'  MOV      #RBUF,UDBB+2 ; LOAD RBUF ADDRESS -> UDBB+2
6504 036102' 012337 000270'  MOV      (R3)+,UDBB+6 ; LOAD LINK ADDRESS -> UDBB+6
6505
6506 036106' 022701 000001    ;
6507 036112' 001003      CMP      #1,R1        ; IS THIS THE LAST 1K BLOCK ?
6508 036114' 012737 003774 000262'  BNE      215$         ; NO
6509      MOV      #3774,UDBB ; YES, ONLY READ 1022. WORDS
6510 036122' 012777 000002 142076 215$:  MOV      #GETCMD,@PCSR0 ; ISSUFE GET COMMAND PORT COMMAND
6511 036130' 004737 022546'  JSR      PC,CHKDNI    ; DNI ?
6512 036134' 103006      BCC      220$         ; YES
6513 036136'      ERRHRD 072.,ERR010,MSG003 ; NO, REPORT ERROR
6514 036136' 104456
6515 036140' 000110      TRAP    C$ERRHRD
6516 036142' 016506'      .WORD  72
6517 036144' 015114'      .WORD  ERR010
6518 036146'      .WORD  MSG003
6519 036146' 104410      ESCAPE  TST          ; AND ABORT TEST
6520 036150' 000072      TRAP    C$ESCAPE
6521      .WORD  L10040-.
6522 036152' 004737 023434'  220$:  JSR      PC,CLRDNI  ; WRITE ONE TO CLEAR DNI
6523      ; ERROR ?
6524 036156' 103006      BCC      230$         ; NO
6525 036160'      ERRHRD 073.,ERR006,MSG003 ; YES, REPORT ERROR
6526 036160' 104456
6527 036162' 000111      TRAP    C$ERRHRD
6528 036164' 016206'      .WORD  73
6529 036166' 015114'      .WORD  ERR006
6530 036170'      .WORD  MSG003
6531 036170' 104410      ESCAPE  TST          ; AND ABORT TEST
6532 036172' 000050      TRAP    C$ESCAPE
6533      .WORD  L10040-.
6534      ;COMPARE RBUF WITH TBUF
6535
6536 036174' 022701 000001  230$:  CMP      #1,R1        ; IS THIS THE LAST 1K BLOCK ?
6537 036200' 001003      BNE      235$         ; NO
6538 036202' 012705 001776    MOV      #1022.,R5   ; YES, ONLY COMPARE 1022. WORDS
6539 036206' 000402      BR      236$
6540
6541 036210' 012705 002000  235$:  MOV      #1024.,R5   ; COMPARE 1024. WORDS OF DATA
6542 036214' 004737 024062'  236$:  JSR      PC,CMPEM    ; DATA COMPARE ERROR ?
6543 036220' 103006      BCC      240$         ; NO

```

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6544	036222°		ERRHRD 074.,ERR043,MSG007	; YES, REPORT ERROR		
6545	036222°	104456			TRAP	C\$ERHRD
6546	036224°	000112			.WORD	74
6547	036226°	021650°			.WORD	ERR043
6548	036230°	015524°			.WORD	MSG007
6549	036232°		ESCAPE TST	; AND ABORT TEST		
6550	036232°	104410			TRAP	C\$ESCAPE
6551	036234°	000006			.WORD	L10040-
6552						
6553	036236°	005301	240\$: DEC R1	; DONE 16 READS ?		
6554	036240°	001272	BNE 200\$			
6555						
6556	036242°		ENDTST			
6557	036242°				L10040:	
6558	036242°	104401			TRAP	C\$ETST

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TEST 14: INTERNAL LOOPBACK TEST

.SBTTL TEST 14: INTERNAL LOOPBACK TEST

```

*****
THIS TEST HAS TWO PARTS: SUBTEST #1 AND SUBTEST #2
SUBTEST #1 VERIFIES THAT AN INTERNAL LOOPBACK OPERATION
CAN BE PERFORMED SUCCESSFULLY.
SUBTEST #2 VERIFIES THAT THE HEARTBEAT CIRCUITRY IS OPERATING CORRECTLY

TEST SEQUENCE:
1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
5. ISSUE START
6. CHECK FOR ERRORS
7. ISSUE STOP
8. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM MODE, ENABLE
   COLLISION TEST CIRCUITRY
9. SET UP RINGS AND BUFFERS
10. ISSUE START
11. ISSUE STOP
12. ISSUE READ PORT STATUS
13. VERIFY 'CERR' BIT SET IN PORT CONTROL WORD 2
*****

```

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6559
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6586 036244'
6587 036244'
6588 036244'
6589 036244'
6590 036244' 104402
6591
6592 036246' 004737 025334'
6593 036252' 103025
6594 036254' 012777 000040 141744
6595 036262' 004737 022546'
6596 036266' 103006
6597 036270'
6598 036270' 104456
6599 036272' 000113
6600 036274' 016106'
6601 036276' 015114'
6602 036300'
6603 036300' 104410
6604 036302' 001636
6605
6606 036304' 004737 023434'
6607
6608 036310' 103006
6609 036312'
6610 036312' 104456
6611 036314' 000114
6612 036316' 016206'
6613 036320' 015114'
6614 036322'

```

```

BGNTST
BGNSUB ;#1
T14::
T14.1: TRAP C$BSUB

JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 30$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 075.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 75
.WORD ERR004
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10041-.

20$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
; ERROR ?
BCC 30$ ; NO
ERRHRD 076.,ERR006,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 76
.WORD ERR006
.WORD MSG003

ESCAPE TST ; AND ABORT TEST

```

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```

6615 036322° 104410                                TRAP  C$ESCAPE
6616 036324° 001614                                .WORD L10041-.
6617
6618 036326° 004737 024660°                        ;
6619 036332° 012777 000001° 141666 30$: JSR    PC,LDPCSR      ; ADDRESS OF PCBB -> PCSR2!3
6620 036340° 004737 022546°                        MOV    #GETPCB,@PCSR0  ; ISSUE GET_PCBB PORT COMMAND
6621 036344° 103006                        JSR    PC,CHKDNI      ; DNI?
6622 036346°                                BCC    40$            ; YES
6623 036346° 104456                                ERRHRD 077.,ERR009,MSG003 ; NO, REPORT ERROR
6624 036350° 000115                                TRAP  C$ERHRD
6625 036352° 016422°                                .WORD 77
6626 036354° 015114°                                .WORD ERR009
6627 036356°                                .WORD MSG003
6628 036356° 104410                                ESCAPE TST           ; AND ABORT TEST
6629 036360° 001560                                TRAP  C$ESCAPE
6630                                .WORD L10041-.
6631 036362° 004737 023434°                        ;
6632                                40$: JSR    PC,CLRDNI    ; WRITE ONE TO CLEAR DNI
6633 036366° 103006                                ; ERROR ?
6634 036370°                                BCC    50$            ; NO
6635 036370° 104456                                ERRHRD 078.,ERR006,MSG003 ; YES, REPORT ERROR
6636 036372° 000116                                TRAP  C$ERHRD
6637 036374° 016206°                                .WORD 78
6638 036376° 015114°                                .WORD ERR006
6639 036400°                                .WORD MSG003
6640 036400° 104410                                ESCAPE TST           ; AND ABORT TEST
6641 036402° 001536                                TRAP  C$ESCAPE
6642                                .WORD L10041-.
6643                                ;
6644 036404° 012705 011232°                        ;WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
6645 036410° 004737 024630°                        50$: MOV    #WTMODE,R5  ; DEFAULT WRITE MODE FUNCTION
6646 036414° 012777 000002° 141604 JSR    PC,LDPCBB      ; LOAD FUNCTION -> PCBB
6647 036422° 004737 022546° MOV    #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
6648 036426° 103006                        JSR    PC,CHKDNI      ; DNI ?
6649 036430°                                BCC    60$            ; YES
6650 036430° 104456                                ERRHRD 079.,ERR010,MSG003 ; NO, REPORT ERROR
6651 036432° 000117                                TRAP  C$ERHRD
6652 036434° 016506°                                .WORD 79
6653 036436° 015114°                                .WORD ERR010
6654 036440°                                .WORD MSG003
6655 036440° 104410                                ESCAPE TST           ; AND ABORT TEST
6656 036442° 001476                                TRAP  C$ESCAPE
6657                                .WORD L10041-.
6658 036444° 004737 023434°                        ;
6659                                60$: JSR    PC,CLRDNI    ; WRITE ONE TO CLEAR DNI
6660 036450° 103006                                ; ERROR ?
6661 036452°                                BCC    70$            ; NO
6662 036452° 104456                                ERRHRD 080.,ERR006,MSG003 ; YES, REPORT ERROR
6663 036454° 000120                                TRAP  C$ERHRD
6664 036456° 016206°                                .WORD 80
6665 036460° 015114°                                .WORD ERR006
6666 036462°                                .WORD MSG003
6667 036462° 104410                                ESCAPE TST           ; AND ABORT TEST
6668 036464° 001454                                TRAP  C$ESCAPE
6669                                .WORD L10041-.
6670                                ;
                                ;WRITE RING FORMAT

```

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TEST 14: INTERNAL LOOPBACK TEST

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6671 036466' 012705 011172' 70$: MOV #WTRNGS,R5 ; DEFAULT WRITE RING FORMAT FUNCTION
6672 036472' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
6673 036476' 012705 011312' MOV #RFRMT,R5 ; DEFAULT RING FORMAT
6674 036502' 012700 000006' MOV #6,R0 ; FORMAT = SIX WORDS
6675 036506' 004737 025030' JSR PC,LDUDBB ; LOAD RING FORMAT -> UDBB
6676 036512' 012777 000002' 141506 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
6677 036520' 004737 022546' JSR PC,CHKDI.I ; DNI ?
6678 036524' 103006 BCC 80$ ; YES
6679 036526' ERRHRD 081.,ERR010,MSG003 ; NO, REPORT ERROR
6680 036526' 104456 TRAP C$ERHRD
6681 036530' 000121 .WORD 81
6682 036532' 016506' .WORD ERR010
6683 036534' 015114' .WORD MSG003
6684 036536' ESCAPE TST ; AND ABORT TEST
6685 036536' 104410 TRAP C$ESCAPE
6686 036540' 001400 .WORD L10041-.
6687
6688 036542' 004737 023434' 80$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
6689 BCC 90$ ; ERROR ?
6690 036546' 103006 ERRHRD 082.,ERR006,MSG003 ; YES, REPORT ERROR
6691 036550' TRAP C$ERHRD
6692 036550' 104456 .WORD 82
6693 036552' 000122 .WORD ERR006
6694 036554' 016206' .WORD MSG003
6695 036556' 015114' ESCAPE TST ; AND ABORT TEST
6696 036560' TRAP C$ESCAPE
6697 036560' 104410 .WORD L10041-.
6698 036562' 001356
6699
6700 ;WRITE PHYSICAL ADDRESS
6701 036564' 012705 011132' 90$: MOV #WTPHYA,R5 ; DEFAULT WRITE PHYSICAL ADDR FUNC
6702 036570' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
6703 036574' 012777 000002' 141424 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
6704 036602' 004737 022546' JSR PC,CHKDNI ; DNI ?
6705 036606' 103006 BCC 100$ ; YES
6706 036610' ERRHRD 083.,ERR010,MSG003 ; NO, REPORT ERROR
6707 036610' 104456 TRAP C$ERHRD
6708 036612' 000123 .WORD 83
6709 036614' 016506' .WORD ERR010
6710 036616' 015114' .WORD MSG003
6711 036620' ESCAPE TST ; AND ABORT TEST
6712 036620' 104410 TRAP C$ESCAPE
6713 036622' 001316 .WORD L10041-.
6714
6715 036624' 004737 023434' 100$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
6716 BCC 110$ ; ERROR ?
6717 036630' 103006 ERRHRD 084.,ERR006,MSG003 ; YES, REPORT ERROR
6718 036632' TRAP C$ERHRD
6719 036632' 104456 .WORD 84
6720 036634' 000124 .WORD ERR006
6721 036636' 016206' .WORD MSG003
6722 036640' 015114' ESCAPE TST ; AND ABORT TEST
6723 036642' TRAP C$ESCAPE
6724 036642' 104410 .WORD L10041-.
6725 036644' 001274
6726

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 TEST 14: INTERNAL LOOPBACK TEST

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6727      ;SET UP RINGS FOR ONE BUFFER LOOPBACK
6728 036646 012705 011542 110$: MOV #TDRB1A,R5      ; DEFAULT ONE BUFFER TRANSMIT RING
6729 036652 004737 024734 JSR PC,LDTDRB      ; LOAD TDRB
6730 036656 012705 011342 MOV #RDR31A,R5     ; DEFAULT ONE BUFFER RECEIVE RING
6731 036662 004737 024676 JSR PC,LDRDRB      ; LOAD RDRB
6732      ;
6733      ;SET UP BUFFERS AND START
6734 036666 012705 000254 MOV #PCBB+2,R5     ; POINT TO DESTINATION ADDRESS
6735 036672 004737 024602 JSR PC,LDDDEST     ; LOAD DEST
6736 036676 004737 025230 JSR PC,SETBU       ; SET UP BUFFERS
6737 036702 012777 000004 MOV #START,@PCSRO  ; ISSUE START PORT COMMAND
6738 036710 004737 022546 JSR PC,CHKDNI      ; DNI?
6739 036714 103006 BCC 120$          ; YES
6740 036716 ERRHRD 085.,ERR012,MSG003 ; NO, REPORT ERROR
6741 036716 104456 TRAP C$ERHRD
6742 036720 000125 .WORD 85
6743 036722 016637 .WORD ERR012
6744 036724 015114 .WORD MSG003
6745 036726 ESCAPE TST ; AND ABORT TEST
6746 036726 104410 TRAP C$ESCAPE
6747 036730 001210 .WORD L10041-.
6748      ;
6749 036732 004737 023434 120$: JSR PC,CLRDNI      ; WRITE ONE TO CLEAR DNI
6750      ; ERROR ?
6751 036736 103006 BCC 130$          ; NO
6752 036740 ERRHRD 086.,ERR006,MSG003 ; YES, REPORT ERROR
6753 036740 104456 TRAP C$ERHRD
6754 036742 000126 .WORD 86
6755 036744 016206 .WORD ERR006
6756 036746 015114 .WORD MSG003
6757 036750 ESCAPE TST ; AND ABORT TEST
6758 036750 104410 TRAP C$ESCAPE
6759 036752 001166 .WORD L10041-.
6760      ;
6761 036754 004737 023306 130$: JSR PC,CHKTXI      ; TXI ?
6762 036760 103006 BCC 140$          ; YES
6763 036762 ERRHRD 087.,ERR013,MSG003 ; NO, REPORT ERROR
6764 036762 104456 TRAP C$ERHRD
6765 036764 000127 .WORD 87
6766 036766 016720 .WORD ERR013
6767 036770 015114 .WORD MSG003
6768 036772 ESCAPE TST ; AND ABORT TEST
6769 036772 104410 TRAP C$ESCAPE
6770 036774 001144 .WORD L10041-.
6771      ;
6772 036776 004737 023616 140$: JSR PC,CLRTXI      ; WRITE ONE TO CLEAR TXI
6773      ; ERROR ?
6774 037002 103006 BCC 150$          ; NO
6775 037004 ERRHRD 088.,ERR014,MSG003 ; YES, REPORT ERROR
6776 037004 104456 TRAP C$ERHRD
6777 037006 000130 .WORD 88
6778 037010 016751 .WORD ERR014
6779 037012 015114 .WORD MSG003
6780 037014 ESCAPE TST ; AND ABORT TEST
6781 037014 104410 TRAP C$ESCAPE
6782 037016 001122 .WORD L10041-.
    
```







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TEST 14: INTERNAL LOOPBACK TEST

```

6951 037506' 016506'                                .WORD  ERR010
6952 037510' 015114'                                .WORD  MSG003
6953      037512'                                ESCAPE  TST                        : AND ABORT TEST
6954 037512' 104410'
6955 037514' 000424'                                TRAP   C$ESCAPE
6956                                      :                                       .WORD  L10041-.
6957 037516' 004737 023434'          260$: JSR      PC,CLRDN1           : WRITE ONE TO CLEAR DNI
6958                                      :                                       : ERROR ?
6959 037522' 103006'                   BCC      270$             : NO
6960 037524'                                ERRHRD  102.,ERR006,MSG003 : YES, REPORT ERROR
6961 037524' 104456'                                TRAP   C$ERHRD
6962 037526' 0C0146'                                .WORD  102
6963 037530' 016206'                                .WORD  ERR006
6964 037532' 015114'                                .WORD  MSG003
6965      037534'                                ESCAPE  TST                        : AND ABORT TEST
6966 037534' 104410'                                TRAP   C$ESCAPE
6967 037536' 000402'                                .WORD  L10041-.
6968
6969     ;SET UP RINGS FOR ONE BUFFER LOOPBACK
6970
6971 037540' 012705 011542'          270$: MOV      #TDRB1A,R5           : DEFAULT ONE BUFFER TRANSMIT RING
6972 037544' 004737 024734'          JSR      PC,LDTDRB          : LOAD TDRB
6973 037550' 012705 011342'          MOV      #RDRB1A,R5         : DEFAULT ONE BUFFER RECEIVE RING
6974 037554' 004737 024676'          JSR      PC,LDRDRB          : LOAD RDRB
6975
6976     ;SET UP BUFFERS AND START
6977
6978 037560' 012705 000254'          MOV      #PCBB+2,R5         : POINT TO DESTINATION ADDRESS
6979 037564' 004737 024602'          JSR      PC,LDDDEST        : LOAD DEST
6980 037570' 004737 025230'          JSR      PC,SETBUF          : SET UP BUFFERS
6981 037574' 012777 000004'          MOV      #START,@PCSRO     : ISSUE START PORT COMMAND
6982 037602' 004737 022546'          JSR      PC,CHKDNI         : DNI?
6983 037606' 103006'                   BCC      280$             : YES
6984 037610'                                ERRHRD  103.,ERR012,MSG003 : NO, REPORT ERROR
6985 037610' 104456'                                TRAP   C$ERHRD
6986 037612' 000147'                                .WORD  103
6987 037614' 016637'                                .WORD  ERR012
6988 037616' 015114'                                .WORD  MSG003
6989 037620'                                ESCAPE  TST                        : AND ABORT TEST
6990 037620' 104410'                                TRAP   C$ESCAPE
6991 037622' 000316'                                .WORD  L10041-.
6992
6993 037624' 004737 023434'          280$: JSR      PC,CLRDN1           : WRITE ONE TO CLEAR DNI
6994                                      :                                       : ERROR ?
6995 037630' 103006'                   BCC      290$             : NO
6996 037632'                                ERRHRD  104.,ERR006,MSG003 : YES, REPORT ERROR
6997 037632' 104456'                                TRAP   C$ERHRD
6998 037634' 000150'                                .WORD  104
6999 037636' 016206'                                .WORD  ERR006
7000 037640' 015114'                                .WORD  MSG003
7001 037642'                                ESCAPE  TST                        : AND ABORT TEST
7002 037642' 104410'                                TRAP   C$ESCAPE
7003 037644' 000274'                                .WORD  L10041-.
7004
7005 037646' 004737 023306'          290$: JSR      PC,CHKTXI          : TXI ?
7006 037652' 103006'                   BCC      300$             : YES

```





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TEST 15: CRC CHECKING TEST

.SBTTL TEST 15: CRC CHECKING TEST

\*\*\*\*\*  
THIS TEST VERIFIES THAT CRC CHECKING MODE IS OPERATIONAL.  
AN INTERNAL LOOPBACK IS PERFORMED WHILE IN  
THE DISABLE TRANSMIT CRC MODE.  
WITH A GOOD CRC VALUE APPENDED TO THE TRANSMIT BUFFER  
AN ERROR FREE LOOPBACK IS EXPECTED.

TEST SEQUENCE:

1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM,  
AND DISABLE TRANSMIT CRC MODE
  2. WRITE RING FORMAT
  3. WRITE PHYSICAL ADDRESS
  4. SET UP RINGS AND BUFFERS
  5. APPEND GOOD CRC VALUE TO TRANSMIT BUFFER
  6. ISSUE START
  7. CHECK FOR ERRORS
  8. ISSUE STOP
- \*\*\*\*\*

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7136 040142'  
7137 040142'  
7138 040142' 004737 025334'  
7139 040146' 103025  
7140 040150' 012777 000040 140050  
7141 040156' 004737 022546'  
7142 040162' 103006  
7143 040164'  
7144 040164' 104456  
7145 040156' 000163  
7146 040170' 016106'  
7147 040172' 015114'  
7148 040174'  
7149 040174' 104410  
7150 040176' 001054  
7151  
7152 040200' 004737 023434' 20\$:  
7153  
7154 040204 103006  
7155 040206'  
7156 040206' 104456  
7157 040210' 000164  
7158 040212' 016206'  
7159 040214' 015114'  
7160 040216'  
7161 040216' 104410  
7162 040220' 001032  
7163  
7164 040222' 004737 024660' 30\$:  
7165 040226' 012777 000001 137772  
7166 040234' 004737 022546'  
7167 040240' 103006  
7168 040242'

BGNTST

```

                T15::
JSR    PC,TINIT      ; IS A DEVICE RESET NEEDED?
BCC    30$           ; NO
MOV    #RSET,@PCSR0  ; YES, RESET DEUNA
JSR    PC,CHKDNI     ; DNI ?
BCC    20$           ; YES
ERPHRD 115.,ERR004,MSG003 ; NO, REPORT ERROR
                TRAP    C$ERHRD
                .WORD   115
                .WORD   ERR004
                .WORD   MSG003
ESCAPE TST          ; AND ABORT TEST
                TRAP    C$ESCAPE
                .WORD   L10044-.

20$: JSR    PC,CLRDNI ; WRITE ONE TO CLEAR DNI
                ; ERROR ?
                ; NO
ERRHRD 116.,ERR006,MSG003 ; YES, REPORT ERROR
                TRAP    C$ERHRD
                .WORD   116
                .WORD   ERR006
                .WORD   MSG003
ESCAPE TST          ; AND ABORT TEST
                TRAP    C$ESCAPE
                .WORD   L10044-.

30$: JSR    PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
MOV    #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
JSR    PC,CHKDNI     ; DNI?
BCC    40$           ; YES
ERHRD 117.,ERR009,MSG003 ; NO, REPORT ERROR

```

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```

7169 040242 104456 TRAP C$ERHRD
7170 040244 000165 .WORD 117
7171 040246 016422 .WORD ERR009
7172 040250 015114 .WORD MSG003
7173 040252 ESCAPE TST ; AND ABORT TEST
7174 040252 104410 TRAP C$ESCAPE
7175 040254 000776 .WORD L10044-
7176
7177 040256 004737 023434 40$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7178 ; ERROR ?
7179 040262 103006 BCC 50$ ; NO
7180 040264 ERRHRD 118.,ERR006,MSG003 ; YES, REPORT ERROR
7181 040264 104456 TRAP C$ERHRD
7182 040266 000166 .WORD 118
7183 040270 016206 .WORD ERR006
7184 040272 015114 .WORD MSG003
7185 040274 ESCAPE TST ; AND ABORT TEST
7186 040274 104410 TRAP C$ESCAPE
7187 040276 000754 .WORD L10044-
7188 ;WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM AND DISABLE XMIT CRC MODE
7189 040300 012705 011232 50$: MOV #WTRNGS,R5 ; DEFAULT WRITE MODE FUNCTION
7190 040304 004737 024630 JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
7191 040310 013737 013076 000254 MOV MODE15,PCBB+2 ; LOAD MODE REGISTER
7192 040316 012777 000002 137702 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7193 040324 004737 022546 JSR PC,CHKDNI ; DNI ?
7194 040330 103006 BCC 60$ ; YES
7195 040332 ERRHRD 119.,ERR010,MSG003 ; NO, REPORT ERROR
7196 040332 104456 TRAP C$ERHRD
7197 040334 000167 .WORD 119
7198 040336 016506 .WORD ERR010
7199 040340 015114 .WORD MSG003
7200 040342 ESCAPE TST ; AND ABORT TEST
7201 040342 104410 TRAP C$ESCAPE
7202 040344 000706 .WORD L10044-
7203
7204 040346 004737 023434 60$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7205 ; ERROR ?
7206 040352 103006 BCC 70$ ; NO
7207 040354 ERRHRD 120.,ERR006,MSG003 ; YES, REPORT ERROR
7208 040354 104456 TRAP C$ERHRD
7209 040356 000170 .WORD 120
7210 040360 016206 .WORD ERR006
7211 040362 015114 .WORD MSG003
7212 040364 ESCAPE TST ; AND ABORT TEST
7213 040364 104410 TRAP C$ESCAPE
7214 040366 000664 .WORD L10044-
7215 ;WRITE RING FORMAT
7216 040370 012705 011172 70$: MOV #WTRNGS,R5 ; DEFAULT WRITE RING FORMAT FUNCTION
7217 040374 004737 024630 JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
7218 040400 012705 011312 MOV #RFRMT,R5 ; DEFAULT RING FORMAT
7219 040404 012700 000006 MOV #6,R0 ; FORMAT = SIX WORDS
7220 040410 004737 025030 JSR PC,LDUDBB ; LOAD RING FORMAT -> UDBB
7221 040414 012777 000002 137604 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7222 040422 004737 022546 JSR PC,CHKDNI ; DNI ?
7223 040426 103006 BCC 80$ ; YES
7224 040430 ERRHRD 121.,ERR010,MSG003 ; NO, REPORT ERROR

```

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```

7225 040430' 104456 TRAP C$ERHRD
7226 040432' 000171 .WORD 121
7227 040434' 016506' .WORD ERR010
7228 040436' 015114' .WORD MSG003
7229 040440' ESCAPE TST ; AND ABORT TEST
7230 040440' 104410 TRAP C$ESCAP:
7231 040442' 000610 .WORD L10044-.
7232
7233 040444' 004737 023434' 80$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7234 ; ERROR ?
7235 040450' 103006 BCC 90$ ; NO
7236 040452' ERRHRD 122.,ERR006,MSG003 ; YES, REPORT ERROR
7237 040452' 104456 TRAP C$ERHRD
7238 040454' 000172 .WORD 122
7239 040456' 016206' .WORD ERR006
7240 040460' 015114' .WORD MSG003
7241 040462' ESCAPE TST ; AND ABORT TEST
7242 040462' 104410 TRAP C$ESCAPE
7243 040464' 000566 .WORD L10044-.
7244 ;WRITE PHYSICAL ADDRESS
7245 040466' 012705 011132' 90$: MOV #WTPHYA,R5 ; DEFAULT WRITE PHYSICAL ADDR FUNC
7246 040472' 004737 024630' JSR PC,LDP CBB ; LOAD FUNCTION -> PCBB
7247 040476' 012777 000002 137522 MOV #GETCMD,@PCSR0 ; ISSUF GET_CMD PORT COMMAND
7248 040504' 004737 022546' JSR PC,CHKDNI ; DNI ?
7249 040510' 103006 BCC 100$ ; YES
7250 040512' ERRHRD 123.,ERR010,MSG003 ; NO, REPORT ERROR
7251 040512' 104456 TRAP C$ERHRD
7252 040514' 000173 .WORD 123
7253 040516' 016506' .WORD ERR010
7254 040520' 015114' .WORD MSG003
7255 040522' ESCAPE TST ; AND ABORT TEST
7256 040522' 104410 TRAP C$ESCAPE
7257 040524' 000526 .WORD L10044-.
7258
7259 040526' 004737 023434' 100$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7260 ; ERROR ?
7261 040532' 103006 BCC 110$ ; NO
7262 040534' ERRHRD 124.,ERR006,MSG003 ; YES, REPORT ERROR
7263 040534' 104456 TRAP C$ERHRD
7264 040536' 000174 .WORD 124
7265 040540' 016206' .WORD ERR006
7266 040542' 015114' .WORD MSG003
7267 040544' ESCAPE TST ; AND ABORT TEST
7268 040544' 104410 TRAP C$ESCAPE
7269 040546' 000504 .WORD L10044-.
7270 ;SET UP RINGS FOR ONE BUFFER LOOPBACK
7271 040550' 012705 011602' 110$: MOV #TDRB1B,R5 ; DEFAULT ONE BUFFER TRANSMIT RING
7272 040554' 004737 024734' JSR PC,LDTDRB ; LOAD TDRB
7273 040560' 012705 011342' MOV #RDRB1A,R5 ; DEFAULT ONE BUFFER RECEIVE RING
7274 040564' 004737 024676' JSR PC,LDRDRB ; LOAD RDRB
7275 ;SET UP BUFFERS AND START
7276 040570' 012705 000254' MOV #PCBB+2,R5 ; POINT TO DESTINATION ADDRESS
7277 040574' 004737 024602' JSR PC,LDDEST ; LOAD DEST
7278 040600' 004737 025230' JSR PC,SETBUF ; SET UP BUFFERS
7279 040604' 013737 012716' 001266' MOV CRC15H,TBUF+124. ; APPEND GODD CRC VALUE
7280 040612' 013737 012720' 001270' MOV CRC15L,TBUF+126. ; TO TRANSMIT DATA

```





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```

7393 041134' 103006          BCC 210$           : NO
7394 041136'                ERRHRD 134.,ERRO21,MSG006 : YES, REPORT ERROR
7395 041136' 104456                TRAP C$ERHRD
7396 041140' 000206                .WORD 134
7397 041142' 017457'                .WORD ERRO21
7398 041144' 015362'                .WORD MSG006
7399 041146'                ESCAPE TST          : AND ABORT TEST
7400 041146' 104410                TRAP C$ESCAPE
7401 041150' 000102                .WORD L10044-.
7402
7403 041152' 012705 000070        :COMPARE RBUF WITH TBUF
7404 041156' 004737 023732'      210$: MOV #56.,R5          : COMPARE 56 WORDS OF DATA
7405 1162' 103006                JSR PC, CMPDAT      : DATA COMPARE ERROR ?
7406 1164'                BCC 230$           : NO
7407 041164' 104456                ERRHRD 135.,ERRO22,MSG007 : YES, REPORT ERROR
7408 041166' 000207                TRAP C$ERHRD
7409 041170' 017540'                .WORD 135
7410 041172' 015524'                .WORD ERRO22
7411 041174'                .WORD MSG007
7412 041174' 104410                ESCAPE TST          : AND ABORT TEST
7413 041176' 000054                TRAP C$ESCAPE
7414                                .WORD L10044-.
7415 041200' 012777 000017 137020 230$: MOV #STOP,@PCSR0 : ISSUF STOP PORT COMMAND
7416 041206' 004737 022546'        JSR PC,CHKDNI      : DNI ?
7417 041212' 103006                BCC 240$           : YES
7418 041214'                ERRHRL 136.,ERRO19,MSG003 : NO, REPORT ERROR
7419 041214' 104456                TRAP C$ERHRD
7420 041216' 000210                .WORD 136
7421 041220' 017316'                .WORD ERRO19
7422 041222' 015114'                .WORD MSG003
7423 041224'                ESCAPE TST          : AND ABORT TEST
7424 041224' 104410                TRAP C$ESCAPE
7425 041226' 000024                .WORD L10044-.
7426
7427 041230' 004737 023434'        240$: JSR PC,CLRDNI : WRITE ONE TO CLEAR DNI
7428                                : ERROR ?
7429 041234' 103006                BCC 250$           : NO
7430 041236'                ERRHRD 137.,ERRO06,MSG003 : YES, REPORT ERROR
7431 041236' 104456                TRAP C$ERHRD
7432 041240' 000211                .WORD 137
7433 041242' 016206'                .WORD ERRO06
7434 041244' 015114'                .WORD MSG003
7435 041246'                ESCAPE TST          : AND ABORT TEST
7436 041246' 104410                TRAP C$ESCAPE
7437 041250' 000002                .WORD L10044-.
7438 041252'                250$:
7439 041252'                ENDTST
7440 041252'
7441 041252' 104401                L10044: TRAP C$ETST

```

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TEST 16: FORCE CRC ERROR TEST

.SBTTL TEST 16: FORCE CRC ERROR TEST

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*****
THIS TEST VERIFIES THAT A CRC ERROR CAN BE DETECTED.
AN INTERNAL LOOPBACK IS PERFORMED WHILE IN
THE DISABLE TRANSMIT CRC MODE.
WITH A BAD CRC VALUE APPENDED TO THE TRANSMIT BUFFER
A CRC ERROR IS EXPECTED IN THE RECEIVE DESCRIPTOR RING.

TEST SEQUENCE:
1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM,
   AND DISABLE TRANSMIT CRC MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
5. APPEND BAD CRC VALUE TO TRANSMIT BUFFER
6. ISSUE START
7. CHECK FOR CRC ERROR IN RDRB+4
8. ISSUE STOP
*****

```

```

041254'
041254'
041254' 004737 025334'
041260' 103025
041262' 012777 000040 136736
041270' 004737 022546'
041274' 103006
041276' 104456
041300' 000212
041302' 016106'
041304' 015114'
041306'
041306' 104410
041310' 001054
041312' 004737 023434'
041316' 103006
041320'
041320' 104456
041322' 000213
041324' 016206'
041326' 015114'
041330'
041330' 104410
041332' 001032
041334' 004737 024660'
041340' 012777 000001 136660
041346' 004737 022546'
041352' 103006
041354'

```

```

BGNTST
; IS A DEVICE RESET NEEDED?
T16::
JSR PC,TINIT ; NO
BCC 30$ ; YES, RESET DEUNA
MOV #RSET,@PCSR0 ; DNI ?
JSR PC,CHKDNI ; YES
BCC 20$ ; NO, REPORT ERROR
ERRHRD 138.,ERR004,MSG003 TRAP C$ERHRD
; WORD 138
; WORD ERR004
; WORD MSG003
ESCAPE TST ; AND ABORT TEST TRAP C$ESCAPE
; WORD L10045-.
;
20$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
; ERROR ?
; NO
BCC 30$ ; YES, REPORT ERROR
ERRHRD 139.,ERR006,MSG003 TRAP C$ERHRD
; WORD 139
; WORD ERR006
; WORD MSG003
ESCAPE TST ; AND ABORT TEST TRAP C$ESCAPE
; WORD L10045-.
;
30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
JSR PC,CHKDNI ; DNI?
BCC 40$ ; YES
ERRHRD 140.,ERR009,MSG003 ; NO, REPORT ERROR

```

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```

7498 041354' 104456 TRAP C$ERHRD
7499 041356' 000214 .WORD 140
7500 041360' 016422' .WORD ERRO09
7501 041362' 015114' .WORD MSG003
7502 041364' ESCAPE TST ; AND ABORT TEST
7503 041364' 104410 TRAP C$ESCAPE
7504 041366' 000776 .WORD L10045-.
7505
7506 041370' 004737 023434' 40$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7507 ; ERROR ?
7508 041374' 103006 BCC 50$ ; NO
7509 041376' ERRHRD 141.,ERR006,MSG003 ; YES, REPORT ERROR
7510 041376' 104456 TRAP C$ERHRD
7511 041400' 000215 .WORD 141
7512 041402' 016206' .WORD ERRO0
7513 041404' 015114' .WORD MSG003
7514 041406' ESCAPE TST ; AND ABORT TEST
7515 041406' 104410 TRAP C$ESCAPE
7516 041410' 000754 .WORD L10045-.
7517 ;WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM AND DISABLE XMIT CRC MODE
7518 041412' 012705 011232' 50$: MOV #WTMODE,R5 ; DEFAULT WRITE MODE FUNCTION
7519 041416' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
7520 041422' 013737 013076' 000254' MOV MODE15,PCBB+2 ; LOAD MODE REGISTER
7521 041430' 012777 000002 136570 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7522 041436' 004737 022546' JSR PC,CHKDNI ; DNI ?
7523 041442' 103006 BCC 60$ ; YES
7524 041444' ERRHRD 142.,ERR010,MSG003 ; NO, REPORT ERROR
7525 041444' 104456 TRAP C$ERHRD
7526 041446' 000216 .WORD 142
7527 041450' 016506' .WORD ERRO10
7528 041452' 015114' .WORD MSG003
7529 041454' ESCAPE TST ; AND ABORT TEST
7530 041454' 104410 TRAP C$ESCAPE
7531 041456' 000706 .WORD L10045-.
7532
7533 041460' 004737 023434' 60$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7534 ; ERROR ?
7535 041464' 103006 BCC 70$ ; NO
7536 041466' ERRHRD 143.,ERR006,MSG003 ; YES, REPORT ERROR
7537 041466' 104456 TRAP C$ERHRD
7538 041470' 000217 .WORD 143
7539 041472' 016206' .WORD ERRO06
7540 041474' 015114' .WORD MSG003
7541 041476' ESCAPE TST ; AND ABORT TEST
7542 041476' 104410 TRAP C$ESCAPE
7543 041500' 000664 .WORD L10045-.
7544 ;WRITE RING FORMAT
7545 041502' 012705 011172' 70$: MOV #WTRNGS,R5 ; DEFAULT WRITE RING FORMAT FUNCTION
7546 041506' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
7547 041512' 012705 011312' MOV #RFRMT,R5 ; DEFAULT RING FORMAT
7548 041516' 012700 000006 MOV #6,R0 ; FORMAT = SIX WORDS
7549 041522' 004737 025030' JSR PC,LDUDBB ; LOAD RING FORMAT -> UDBB
7550 041526' 012777 000002 136472 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7551 041534' 004737 022546' JSR PC,CHKDNI ; DNI ?
7552 041540' 103006 BCC 80$ ; YES
7553 041542' ERRHRD 144.,ERR010,MSG003 ; NO, REPORT ERROR
    
```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 167  
 CZUABA.MAC 10-JAN-83 12:46 TEST 16: FORCE CRC ERROR TEST

```

7554 041542' 104456 TRAP C$ERHRD
7555 041544' 000220 .WORD 144
7556 041546' 016506' .WORD ERR010
7557 041550' 015114' .WORD MSG003
7558 041552' ESCAPE TST : AND ABORT TEST
7559 041552' 104410 TRAP C$ESCAPE
7560 041554' 000610 .WORD L10045-.
7561
7562 041556' 004737 023434' 80$: JSR PC,CLRDNI : WRITE ONE TO CLEAR DNI
7563 : ERROR ?
7564 041562' 103006 BCC 90$ : NO
7565 041564' ERRHRD 145.,ERR006,MSG003 : YES, REPORT ERROR
7566 041564' 104456 TRAP C$ERHRD
7567 041566' 000221 .WORD 145
7568 041570' 016206' .WORD ERR006
7569 041572' 015114' .WORD MSG003
7570 041574' ESCAPE TST : AND ABORT TEST
7571 041574' 104410 TRAP C$ESCAPE
7572 041576' 000566 .WORD L10045-.
7573
7574 041600' 012705 011132' :WRITE PHYSICAL ADDRESS
7575 041604' 004737 024630' 90$: MOV #WTPHYA,R5 : DEFAULT WRITE PHYSICAL ADDR FUNC
7576 041610' 012777 000002 136410 JSR PC,LDPCCB : LOAD FUNCTION -> PCBB
7577 041616' 004737 022546' MOV #GETCMD,@PCSR0 : ISSUF GET_CMD PORT COMMAND
7578 041622' 103006 JSR PC,CHKDNI : DNI ?
7579 041624' BCC 100$ : YES
7580 041624' 104456 ERRHRD 146.,ERR010,MSG003 : NO, REPORT ERROR
7581 041626' 000222 TRAP C$ERHRD
7582 041630' 016506' .WORD 146
7583 041632' 015114' .WORD ERR010
7584 041634' ESCAPE TST : AND ABORT TEST
7585 041634' 104410 TRAP C$ESCAPE
7586 041636' 000526 .WORD L10045-.
7587
7588 041640' 004737 023434' 100$: JSR PC,CLRDNI : WRITE ONE TO CLEAR DNI
7589 : ERROR ?
7590 041644' 103006 BCC 110$ : NO
7591 041646' ERRHRD 147.,ERR006,MSG003 : YES, REPORT ERROR
7592 041646' 104456 TRAP C$ERHRD
7593 041650' 000223 .WORD 147
7594 041652' 016206' .WORD ERR006
7595 041654' 015114' .WORD MSG003
7596 041656' ESCAPE TST : AND ABORT TEST
7597 041656' 104410 TRAP C$ESCAPE
7598 041660' 000504 .WORD L10045-.
7599
7600 041662' 012705 011602' :SET UP RINGS FOR ONE BUFFER LOOPBACK
7601 041666' 004737 024734' 110$: MOV #TDRB1B,R5 : DEFAULT ONE BUFFER TRANSMIT RING
7602 041672' 012705 011342' JSR PC,LDTDRB : LOAD TDRB
7603 041676' 004737 024676' MOV #RDRB1A,R5 : DEFAULT ONE BUFFER RECEIVE RING
7604 :SET UP BUFFERS AND START JSR PC,LDRDRB : LOAD RDRB
7605 041702' 012705 000254' MOV #PCBB+2,R5 : POINT TO DESTINATION ADDRESS
7606 041706' 004737 024602' JSR PC,LDDEST : LOAD DEST
7607 041712' 004737 025230' JSR PC,SETBUF : SET UP BUFFERS
7608 041716' 013737 012722' 001266' MOV CRC16H,TBUF+124. : APPEND BAD CRC VALUE
7609 041724' 013737 012724' 001270' MOV CRC16L,TBUF+126. : TO TRANSMIT DATA
    
```







HARDWARE TESTS MACY11 30( 6) 11-JAN-83 12:03 PAGE 171  
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TEST 17: DISABLE RECEIVE CHAINING TEST

.SBTTL TEST 17: DISABLE RECEIVE CHAINING TEST

```

*****
THIS TEST VERIFIES DISABLE DATA CHAINING MODE.
AN INTERNAL LOOPBACK IS PERFORMED WITH RECEIVE BUFFERS CHAINED
WHILE IN DISABLE DATA CHAINING MODE.
A NCHN ERROR IS EXPECTED IN THE RECEIVE DESCRIPTOR RING.

TEST SEQUENCE:
1. WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM,
   AND DISABLE DATA CHAINING MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS FOR RECEIVE DATA CHAINING
5. ISSUE START
6. CHECK FOR NCHN ERROR IN PDRB+6
7. ISSUE STOP
*****

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042366'  
042366'  
042366' 004737 025334'  
042372' 103025  
042374' 012777 000040 135624  
042402' 004737 022546'  
042406' 103006  
042410'  
042410' 104456  
042412' 000241  
042414' 016106'  
042416' 015114'  
042420'  
042420' 104410  
042422' 001050  
042424' 004737 023434'  
042430' 103006  
042432'  
042432' 104456  
042434' 000242  
042436' 016206'  
042440' 015114'  
042442'  
042442' 104410  
042444' 001026  
042446' 004737 024660'  
042452' 012777 000001 35546  
042460' 004737 022546'  
042464' 103006  
042466'  
042466' 104456  
042470' 000243

```

BGNTST
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 30$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI?
BCC 20$ ; YES
ERRHRD 161.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 161
.WORD ERR004
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10046-

20$: JSR PC,CLR DNI ; WRITE ONE TO CLEAR DNI
; ERROR?
; NO
ERRHRD 162.,ERR006,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 162
.WORD ERR006
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10046-

30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
JSR PC,CHKDNI ; DNI?
BCC 40$ ; YES
ERRHRD 163.,ERR009,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 163

```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 172  
CZUABA.MAC 10-JAN-83 12:46 TEST 17: DISABLE RECEIVE CHAINING TEST

```

7827 042472' 016422' .WORD ERR009
7828 042474' 015114' .WORD MSG003
7829 042476' ESCAPE TST ; AND ABORT TEST
7830 042476' 104410 TRAP C$ESCAPE
7831 042500' 000772 .WORD L10046-.
7832
7833 042502' 004737 023434' 40$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
7834 ; ERROR ?
7835 042506' 103006 BCC 50$ ; NO
7836 042510' ERRHRD 164.,ERR006,MSG003 ; YES, REPORT ERROR
7837 042510' 104456 TRAP C$ERHRD
7838 042512' 000244 .WORD 164
7839 042514' 016206' .WORD ERR006
7840 042516' 015114' .WORD MSG003
7841 042520' ESCAPE TST ; AND ABORT TEST
7842 042520' 104410 TRAP C$ESCAPE
7843 042522' 000750 .WORD L10046-.
7844
7845 ;WRITE MODE REGISTER = INTERNAL LOOPBACK, PROM AND
7846 ;DISABLE RECEIVE DATA CHAINING MODE
7847 042524' 012705 011232' 50$: MOV #WTMODE,R5 ; DEFAULT WRITE MODE FUNCTION
7848 042530' 004737 024630' JSR PC,LDPCCB ; LOAD FUNCTION -> PCBB
7849 042534' 013737 013100' 000254' MOV MODE17,PCBB+2 ; LOAD MODE REGISTER
7850 042542' 012777 000002 135456 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7851 042550' 004737 022546' JSR PC,CHKDNI ; DNI ?
7852 042554' 103006 BCC 60$ ; YES
7853 042556' ERRHRD 165.,ERR010,MSG003 ; NO, REPORT ERROR
7854 042556' 104456 TRAP C$ERHRD
7855 042560' 000245 .WORD 165
7856 042562' 016506' .WORD ERR010
7857 042564' 015114' .WORD MSG003
7858 042566' ESCAPE TST ; AND ABORT TEST
7859 042566' 104410 TRAP C$ESCAPE
7860 042570' 000702 .WORD L10046-.
7861
7862 042572' 004737 023434' 60$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
7863 ; ERROR ?
7864 042576' 103006 BCC 70$ ; NO
7865 042600' ERRHRD 166.,ERR006,MSG003 ; YES, REPORT ERROR
7866 042600' 104456 TRAP C$ERHRD
7867 042602' 000246 .WORD 166
7868 042604' 016206' .WORD ERR006
7869 042606' 015114' .WORD MSG003
7870 042610' ESCAPE TST ; AND ABORT TEST
7871 042610' 104410 TRAP C$ESCAPE
7872 042612' 000660 .WORD L10046-.
7873
7874 ;WRITE RING FORMAT
7875 042614' 012705 011172' 70$: MOV #WTRNGS,R5 ; DEFAULT WRITE RING FORMAT FUNCTION
7876 042620' 004737 024630' JSR PC,LDPCCB ; LOAD FUNCTION -> PCBB
7877 042624' 012705 011312' MOV #RFRMT,R5 ; DEFAULT RING FORMAT
7878 042630' 012700 000006 MOV #6,R0 ; FORMAT = SIX WORDS
7879 042634' 004737 025030' JSR PC,LDUDBB ; LOAD RING FORMAT -> UDBB
7880 042640' 012777 000002 135360 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7881 042646' 004737 022546' JSR PC,CHKDNI ; DNI ?
7882 042652' 103006 BCC 80$ ; YES

```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 173  
 CZUABA.MAC 10-JAN-83 12:46 TEST 17: DISABLE RECEIVE CHAINING TEST

```

7883 042654' ERRHRD 167.,ERR010,MSG003 ; NO, REPORT ERROR
7884 042654' 104456 TRAP C$ERHRD
7885 042656' 000247 .WORD 167
7886 042660' 016506' .WORD ERR010
7887 042662' 015114' .WORD MSG003
7888 042664' ESCAPE TST ; AND ABORT TEST
7889 042664' 104410 TRAP C$ESCAPE
7890 042666' 000604 .WORD L10046-
7891
7892 042670' 004737 023434' 80$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7893 .WORD .WORD ; ERROR ?
7894 042674' 103006 BCC 90$ ; NO
7895 042676' ERRHRD 168.,ERR006,MSG003 ; YES, REPORT ERROR
7896 042676' 104456 TRAP C$ERHRD
7897 042700' 000250 .WORD 168
7898 042702' 016206' .WORD ERR006
7899 042704' 015114' .WORD MSG003
7900 042706' ESCAPE TST ; AND ABORT TEST
7901 042706' 104410 TRAP C$ESCAPE
7902 042710' 000562 .WORD L10046-
7903
7904 ;WRITE PHYSICAL ADDRESS
7905 042712' 012705 011132' 90$: MOV #WTPHYA,R5 ; DEFAULT WRITE PHYSICAL ADDR FUNC
7906 042716' 004737 024630' JSR PC,LDPCCB ; LOAD FUNCTION -> PCBB
7907 042722' 012777 000002' 135276 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
7908 042730' 004737 022546' JSR PC,CHKDNI ; DNI ?
7909 042734' 103006 BCC 100$ ; YES
7910 042736' ERRHRD 169.,ERR010,MSG003 ; NO, REPORT ERROR
7911 042736' 104456 TRAP C$ERHRD
7912 042740' 000251 .WORD 169
7913 042742' 016506' .WORD ERR010
7914 042744' 015114' .WORD MSG003
7915 042746' ESCAPE TST ; AND ABORT TEST
7916 042746' 104410 TRAP C$ESCAPE
7917 042750' 000522 .WORD L10046-
7918
7919 042752' 004737 023434' 100$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
7920 .WORD .WORD ; ERROR ?
7921 042756' 103006 BCC 110$ ; NO
7922 042760' ERRHRD 170.,ERR006,MSG003 ; YES, REPORT ERROR
7923 042760' 104456 TRAP C$ERHRD
7924 042762' 000252 .WORD 170
7925 042764' 016206' .WORD ERR006
7926 042766' 015114' .WORD MSG003
7927 042770' ESCAPE TST ; AND ABORT TEST
7928 042770' 104410 TRAP C$ESCAPE
7929 042772' 000500 .WORD L10046-
7930
7931 ;SET UP RINGS FOR LOOPBACK
7932 042774' 012705 011542' 110$: MOV #TDRB1A,R5 ; DEFAULT ONE BUFFER TRANSMIT RING
7933 043000' 004737 024734' JSR PC,LDTDRB ; LOAD TDRB
7934 043004' 012705 011442' MOV #RDRB2A,R5 ; DEFAULT CHAINED RECEIVE RING
7935 043010' 004737 024676' JSR PC,LDRDRB ; LOAD RDRB
7936
7937 ;SET UP BUFFERS AND START
7938 043014' 012705 000254' MOV #PCBB+2,R5 ; POINT TO DESTINATION ADDRESS

```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 174  
CZUABA.MAC 10-JAN-83 12:46 TEST 17: DISABLE RECEIVE CHAINING TEST

```

7939 043020' 004737 024602'      JSR   PC,LDDEST      ; LOAD DEST
7940 043024' 004737 025230'      JSR   PC,SETBUF      ; SET UP BUFFERS
7941 043030' 012777 000004' 135170 MOV   #START,@PCSR0 ; ISSUE START PORT COMMAND
7942 043036' 004737 022546'      JSR   PC,CHKDNI      ; DNI?
7943 043042' 103006                    BCC   120$           ; YES
7944 043044'                                ERRHRD 171.,ERR012,MSG003 ; NO, REPORT ERROR
7945 043044' 104456                                TRAP  C$ERHRD
7946 043046' 000253                                .WORD 171
7947 043050' 016637'                                .WORD ERR012
7948 043052' 015114'                                .WORD MSG003
7949 043054'                                ESCAPE TST          ; AND ABORT TEST
7950 043054' 104410                                TRAP  C$ESCAPE
7951 043056' 000414                                .WORD L10046-.
7952
7953 043060' 004737 023434'      .i20$: JSR   PC,CLRDNI      ; WRITE ONE TO CLEAR DNI
7954                                ; ERROR ?
7955 043064' 103006                    BCC   130$           ; NO
7956 043066'                                ERRHRD 172.,ERR006,MSG003 ; YES, REPORT ERROR
7957 043066' 104456                                TRAP  C$ERHRD
7958 043070' 000254                                .WORD 172
7959 043072' 016206'                                .WORD ERR006
7960 043074' 015114'                                .WORD MSG003
7961 043076'                                ESCAPE TST          ; AND ABORT TEST
7962 043076' 104410                                TRAP  C$ESCAPE
7963 043100' 000372                                .WORD L10046-.
7964
7965 043102' 004737 023306'      .i30$: JSR   PC,CHKTXI      ; TXI ?
7966 043106' 103006                    BCC   140$           ; YES
7967 043110'                                ERRHRD 173.,ERR013,MSG003 ; NO, REPORT ERROR
7968 043110' 104456                                TRAP  C$ERHRD
7969 043112' 000255                                .WORD 173
7970 043114' 016720'                                .WORD ERR013
7971 043116' 015114'                                .WORD MSG003
7972 043120'                                ESCAPE TST          ; AND ABORT TEST
7973 043120' 104410                                TRAP  C$ESCAPE
7974 043122' 000350                                .WORD L10046-.
7975
7976 043124' 004737 023616'      .i40$: JSR   PC,CLRTXI      ; WRITE ONE TO CLEAR TXI
7977                                ; ERROR ?
7978 043130' 103006                    BCC   150$           ; NO
7979 043132'                                ERRHRD 174.,ERR014,MSG003 ; YES, REPORT ERROR
7980 043132' 104456                                TRAP  C$ERHRD
7981 043134' 000256                                .WORD 174
7982 043136' 016751'                                .WORD ERR014
7983 043140' 015114'                                .WORD MSG003
7984 043142'                                ESCAPE TST          ; AND ABORT TEST
7985 043142' 104410                                TRAP  C$ESCAPE
7986 043144' 000326                                .WORD L10046-.
7987
7988 043146' 012705 000572'      .i50$: MOV   #TDRB,R5      ; CHECK TDRB OWNERSHIP
7989 043152' 004737 022634'      JSR   PC,CHKOWN      ; OWN = PORT DRIVER ?
7990 043156' 103006                    BCC   160$           ; YES
7991 043160'                                ERRHRD 175.,ERR018 ; NO, REPORT ERROR
7992 043160' 104456                                TRAP  C$ERHRD
7993 043162' 000257                                .WORD 175
7994 043164' 017216'                                .WORD ERR018

```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 175  
 CZUABA.MAC 10-JAN-83 12:46 TEST 17: DISABLE RECEIVE CHAINING TEST

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7995 043166 000000
7996 043170          ESCAPE TST          ; AND ABORT TEST          .WORD 0
7997 043170 104410
7998 043172 000300          TRAP C$ESCAPE
7999          .WORD L10046-.
8000 043174 012705 012512  i60$: MOV #TDR14A,R5          ; POINT TO EXPECTED TDRB
8001 043200 004737 025140  JSR PC,LDXTR          ; LOAD INTO XTDRB0 TABLE
8002 043204 012705 000572  MOV #TDRB,R5          ; CHECK TDRB
8003 043210 004737 023220  JSR PC,CHKTR          ; ERRORS ?
8004 043214 103006          BCC 170$              ; NO
8005 043216          ERRHRD 176.,ERR020,MSG005 ; YES, REPORT ERROR
8006 043216 104456          TRAP C$ERHRD
8007 043220 000260          .WORD 176
8008 043222 017376          .WORD ERR020
8009 043224 015220          .WORD MSG005
8010 043226          ESCAPE TST          ; AND ABORT TEST          TRAP C$ESCAPE
8011 043226 104410          .WORD L10046-.
8012 043230 000242
8013
8014 043232 004737 023054  i70$: JSR PC,CHKRXI          ; RXI ?
8015 043236 103006          BCC 180$              ; YES
8016 043240          ERRHRD 177.,ERR015,MSG003 ; NO, REPORT ERROR
8017 043240 104456          TRAP C$ERHRD
8018 043242 000261          .WORD 177
8019 043244 017017          .WORD ERR015
8020 043246 015114          .WORD MSG003
8021 043250          ESCAPE TST          ; AND ABORT TEST          TRAP C$ESCAPE
8022 043250 104410          .WORD L10046-.
8023 043252 000220
8024
8025 043254 004737 023550  i80$: JSR PC,CLRRXI          ; WRITE ONE TO CLEAR RXI
8026          .WORD 178
8027 043260 103006          BCC 190$              ; ERROR ?
8028 043262          ERRHRD 178.,ERR016,MSG003 ; NO
8029          .WORD 178
8030 043262 104456          .WORD ERR016
8031 043264 000262          .WORD MSG003
8032 043266 017050          ESCAPE TST          ; AND ABORT TEST          TRAP C$ESCAPE
8033 043272          .WORD L10046-.
8034 043272 104410
8035 043274 000176
8036          ;CHECK FIRST RING ENTRY
8037 043276 012705 000632  i90$: MOV #RDRB,R5          ; CHECK RDRB OWNERSHIP
8038 043302 004737 022634  JSR PC,CHKOWN          ; OWN = PORT DRIVER ?
8039 043306 103006          BCC 200$              ; YES
8040 043310          ERRHRD 179.,ERR030 ; NO, REPORT ERROR
8041 043310 104456          TRAP C$ERHRD
8042 043312 000263          .WORD 179
8043 043314 020317          .WORD ERR030
8044 043316 000000          .WORD 0
8045 043320          ESCAPE TST          ; AND ABORT TEST          TRAP C$ESCAPE
8046 043320 104410          .WORD L10046-.
8047 043322 000150
8048
8049 043324 012705 012642  i200$: MOV #RDR17A,R5          ; POINT TO EXPECTED RDRB
8050 043330 004737 025110  JSR PC,LDXRDR          ; LOAD INTO XRDRB0 TABLE

```



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TEST 18: TRANSMIT CHAINING ERROR TEST

.SBTTL TEST 18: TRANSMIT CHAINING ERROR TEST

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*****
THIS TEST VERIFIES THAT A TRANSMIT BUFL ERROR CAN BE GENERATED.
AN INTERNAL LOOPBACK IS ATTEMPTED WITH TRANSMIT BUFFERS CHAINED
AND SUCCESSIVE OWNED RINGS HAVING STP SET.
A BUFL ERROR IS EXPECTED IN THE TRANSMIT DESCRIPTOR RING.

TEST SEQUENCE:
1. WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
   TRANSMIT RING = CHAINED WITH SUCCESSIVE STPS
5. ISSUE START
6. CHECK FOR BUFL ERROR IN TDRB+6
7. ISSUE STOP
*****

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8125 043474'
8126 043474'
8127 043474' 004737 025334'
8128 043500' 103025
8129 043502' 012777 000040 134516
8130 043510' 004737 022546'
8131 043514' 103006
8132 043516'
8133 043516' 104456
8134 043520' 000270
8135 043522' 016106'
8136 043524' 015114'
8137 043526'
8138 043526' 104410
8139 043530' 000740
8140
8141 043532' 004737 023434'
8142
8143 043536' 103006
8144 043540'
8145 043540' 104456
8146 043542' 000271
8147 043544' 016206'
8148 043546' 015114'
8149 043550'
8150 043550' 104410
8151 043552' 000716
8152
8153 043554' 004737 024660'
8154 043560' 012777 000001 134440
8155 043566' 004737 022546'
8156 043572' 103006
8157 043574'
8158 043574' 104456
8159 043576' 000272

```

BGNTST

```

                T18::
JSR    PC,TINIT      ; IS A DEVICE RESET NEEDED?
BCC    30$           ; NO
MOV    #RSET,@PCSR0  ; YES, RESET DEUNA
JSR    PC,CHKDNI     ; DNI ?
BCC    20$           ; YES
ERRHRD 184.,ERR004,MSG003 ; NO, REPORT ERROR
                TRAP    C$ERHRD
                .WORD   184
                .WORD   ERR004
                .WORD   MSG003
ESCAPE  TST          ; AND ABORT TEST
                TRAP    C$ESCAPE
                .WORD   L10047-.
20$: JSR    PC,CLRDNI ; WRITE ONE TO CLEAR DNI
                ; ERROR ?
                ; NO
ERRHRD 185.,ERR006,MSG003 ; YES, REPORT ERROR
                TRAP    C$ERHRD
                .WORD   185
                .WORD   ERR006
                .WORD   MSG003
ESCAPE  TST          ; AND ABORT TEST
                TRAP    C$ESCAPE
                .WORD   L10047-.
30$: JSR    PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
MOV    #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
JSR    PC,CHKDNI     ; DNI?
BCC    40$           ; YES
ERRHRD 186.,ERR009,MSG003 ; NO, REPORT ERROR
                TRAP    C$ERHRD
                .WORD   186

```









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CZUABA.MAC 10-JAN-83 12:46 TEST 18: TRANSMIT CHAINING ERROR TEST

8384							
8385	044452'	103006	BCC	250\$	:	ERROR ?	
8386	044454'		ERRHRD	203.,ERR006,MSG003	:	NO	
8387	044454'	104456			:	YES, REPORT ERROR	
8388	044456'	000313					TRAP C\$ERHRD
8389	044460'	016206'					.WORD 203
8390	044462'	015114'					.WORD ERR006
8391	044464'		ESCAPE	TST	:	AND ABORT TEST	.WORD MSG003
8392	044464'	104410					TRAP C\$ESCAPE
8393	044466'	000002					.WORD L10047-
8394	044470'		250\$:				
8395	044470'		ENDTST				
8396	044470'					L10047:	
8397	044470'	104401					TRAP C\$ETST









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 CZUABA.MAC 10-JAN-83 12:46 TEST 19: NO RECEIVE BUFFER TEST

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8622 045256' 017676' .WORD ERR025
8623 045260' 015114' .WORD MSG003
8624 045262' ESCAPE TST ; AND ABORT TEST
8625 045262' 104410 TRAP C$ESCAPE
8626 045264' 000076 .WORD L10050-
8627
8628 045266' 004737 023502' 180$: JSR PC,CLRRCE ; WRITE ONE TO CLEAR RCBI
8629 ; ERROR ?
8630 045272' 103006 BCC 200$ ; NO
8631 045274' ERRHRD 219.,ERR026,MSG003 ; YES, REPORT ERROR
8632 045274' 104456 TRAP C$ERHRD
8633 045276' 000333 .WORD 219
8634 045300' 017730' .WORD ERR026
8635 045302' 015114' .WORD MSG003
8636 045304' ESCAPE TST ; AND ABORT TEST
8637 045304' 104410 TRAP C$ESCAPE
8638 045306' 000054 .WORD L10050-
8639
8640 045310' 012777 000017 132710 230$: MOV #STOP,@PCSR0 ; ISSUE STOP PORT COMMAND
8641 045316' 004737 022546' JSR PC,CHKDNI ; DNI ?
8642 045322' 103006 BCC 240$ ; YES
8643 045324' ERRHRD 220.,ERR019,MSG003 ; NO, REPORT ERROR
8644 045324' 104456 TRAP C$ERHRD
8645 045326' 000334 .WORD 220
8646 045330' 017316' .WORD ERR019
8647 045332' 015114' .WORD MSG003
8648 045334' ESCAPE TST ; AND ABORT TEST
8649 045334' 104410 TRAP C$ESCAPE
8650 045336' 000024 .WORD L10050-
8651
8652 045340' 004737 023434' 240$: JSR PC,CLR DNI ; WRITE ONE TO CLEAR DNI
8653 ; ERROR ?
8654 045344' 103006 BCC 250$ ; NO
8655 045346' ERRHRD 221.,ERR006,MSG003 ; YES, REPORT ERROR
8656 045346' 104456 TRAP C$ERHRD
8657 045350' 000335 .WORD 221
8658 045352' 016206' .WORD ERR006
8659 045354' 015114' .WORD MSG003
8660 045356' ESCAPE TST ; AND ABORT TEST
8661 045356' 104410 TRAP C$ESCAPE
8662 045360' 000002 .WORD L10050-
8663 045362' 250$:
8664 045362' ENDTST
8665 045362'
8666 045362' 104401 L10050: TRAP C$ETST

```

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CZUABA.MAC 10-JAN-83 12:46 TEST 20: DATA CHAINING TEST

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.SBTTL TEST 20: DATA CHAINING TEST

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*****
THIS TEST VERIFIES TRANSMIT AND RECEIVE DATA CHAINING.
AN INTERNAL OR EXTERNAL LOOPBACK IS PERFORMED
WITH THREE TRANSMIT AND THREE RECEIVE BUFFERS CHAINED.
INTERNAL LOOPBACK IS DEFAULT WITH EXTERNAL LOOPBACK BEING
SELECTED VIA A SOFTWARE QUESTION.

TEST SEQUENCE:
1. WRITE MODE REGISTER = PROM MODE AND EITHER
INTERNAL(D) OR EXTERNAL LOOPBACK MODE
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. SET UP RINGS AND BUFFERS
THREE TRANSMIT AND RECEIVE BUFFERS
5. ISSUE START
6. CHECK FOR ERRORS
7. ISSUE STOP
*****

```

```

045364'
045364'
045364' 004737 025334'
045370' 103025
045372' 012777 000040 132626
045400' 004737 022546'
045404' 103006
045406'
045406' 104456
045410' 000336
045412' 016106'
045414' 015114'
045416'
045416' 104410
045420' 001536
045422' 004737 023434'
045426' 103006
045430'
045430' 104456
045432' 000337
045434' 016206'
045436' 015114'
045440'
045440' 104410
045442' 001514
045444' 004737 024660'
045450' 012777 000001 132550
045456' 004737 022546'
045462' 103006
045464'

```

```

BGNTST
T20::
1$: JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 30$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 222.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 222
.WORD ERR004
.WORD MSG003
ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10051-.
20$: JSR PC,CLR DNI ; WRITE ONE TO CLEAR DNI
; ERROR ?
BCC 30$ ; NO
ERRHRD 223.,ERR006,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 223
.WORD ERR006
.WORD MSG003
ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10051-.
30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
JSR PC,CHKDNI ; DNI?
BCC 40$ ; YES
ERRHRD 224.,ERR009,MSG003 ; NO, REPORT ERROR

```

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 CZUABA.MAC 10-JAN-83 12:46 TEST 20: DATA CHAINING TEST

```

8723 045464' 104456 TRAP C$ERHRD
8724 045466' 000340 .WORD 224
8725 045470' 016422' .WORD ERR009
8726 045472' 015114' .WORD MSG003
8727 045474' ESCAPE TST ; AND ABORT TEST
8728 045474' 104410 TRAP C$ESCAPE
8729 045476' 001460 .WORD L10051-.
8730
8731 045500' 004737 023434' 40$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
8732 .WORD ; ERROR ?
8733 045504' 103006 BCC 50$ ; NO
8734 045506' ERRHRD 225.,ERR006,MSG003 ; YES, REPORT ERROR
8735 045506' 104456 TRAP C$ERHRD
8736 045510' 000341 .WORD 225
8737 045512' 016206' .WORD ERR006
8738 045514' 015114' .WORD MSG003
8739 045516' ESCAPE TST ; AND ABORT TEST
8740 045516' 104410 TRAP C$ESCAPE
8741 045520' 001436 .WORD L10051-.
8742
8743 ;CHECK IF EXTERNAL LOOPBACK
8744 045522' 005737 000224' 50$: TST EXLOOP ; EXTERNAL LOOPBACK SELECTED ?
8745 045526' 001005 BNE 55$ ; YES
8746
8747 ;WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
8748 045530' 012705 011232' MOV #WTMODE,R5 ; DEFAULT WRITE MODE FUNCTION
8749 045534' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
8750 045540' 000407 BR 56$
8751 ;WRITE MODE REGISTER = PROM MODE ONLY (EXTERNAL LOOPBACK)
8752 045542' 012705 011232' 55$: MOV #WTMODE,R5 ; DEFAULT WRITE MODE FUNCTION
8753 045546' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
8754 045552' 013737 013102' 000254' MOV MODE20,PCBB+2 ; PROM MODE ONLY
8755 045560' 012777 000002 132440 56$: MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
8756 045566' 004737 022546' JSR PC,CHKDNI ; DNI ?
8757 045572' 103006 BCC 60$ ; YES
8758 045574' ERRHRD 226.,ERR010,MSG003 ; NO, REPORT ERROR
8759 045574' 104456 TRAP C$ERHRD
8760 045576' 000342 .WORD 226
8761 045600' 016506' .WORD ERR010
8762 045602' 015114' .WORD MSG003
8763 045604' ESCAPE TST ; AND ABORT TEST
8764 045604' 104410 TRAP C$ESCAPE
8765 045606' 001350 .WORD L10051-.
8766
8767 045610' 004737 023434' 60$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
8768 .WORD ; ERROR ?
8769 045614' 103006 BCC 70$ ; NO
8770 045616' ERRHRD 227.,ERR006,MSG003 ; YES, REPORT ERROR
8771 045616' 104456 TRAP C$ERHRD
8772 045620' 000343 .WORD 227
8773 045622' 016206' .WORD ERR006
8774 045624' 015114' .WORD MSG003
8775 045626' ESCAPE TST ; AND ABORT TEST
8776 045626' 104410 TRAP C$ESCAPE
8777 045630' 001326 .WORD L10051-.
8778 ;

```







HARDWARE TESTS MACY11 30(1046)  
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TEST 20: DATA CHAINING TEST

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8947 046342' 000614 .WORD L10051-.
8948
8949 046344' 012705 000612' ;CHECK THIRD RING ENTRY
8950 046350' 004737 022634' 166$: MOV #TDRB+16.,R5 ; CHECK TDRB OWNERSHIP
8951 046354' 103006 JSR PC,CHKOWN ; OWN = PORT DRIVER ?
8952 046356' BCC 168$ ; YES
8953 046356' 104456 ERRHRD 240.,ERR029 ; NO, REPORT ERROR
8954 046360' 000360 TRAP C$ERHRD
8955 046362' 020212' .WORD 240
8956 046364' 000000 .WORD ERR029
8957 046366' ESCAPE TST ; AND ABORT TEST .WORD 0
8958 046366' 104410 TRAP C$ESCAPE
8959 046370' 000566 .WORD L10051-.
8960
8961 046372' 012705 012572' ;168$: MOV #TDR20C,R5 ; POINT TO EXPECTED TDRB
8962 046376' 004737 025140' JSR PC,LDXTDR ; LOAD INTO XTDRB0 TABLE
8963 046402' 012705 000612' MOV #TDRB+16.,R5 ; CHECK TDRB
8964 046406' 004737 023220' JSR PC,CHKTDR ; ERRORS ?
8965 046412' 103006 BCC 170$ ; NO
8966 046414' ERRHRD 241.,ERR035,MSG005 ; YES, REPORT ERROR
8967 046414' 104456 TRAP C$ERHRD
8968 046416' 000361 .WORD 241
8969 046420' 021016' .WORD ERR035
8970 046422' 015220' .WORD MSG005
8971 046424' ESCAPE TST ; AND ABORT TEST
8972 046424' 104410 TRAP C$ESCAPE
8973 046426' 000530 .WORD L10051-.
8974
8975 046430' 004737 023054' ;170$: JSR PC,CHKRXI ; RXI ?
8976 046434' 103006 BCC 180$ ; YES
8977 046436' ERRHRD 242.,ERR015,MSG003 ; NO, REPORT ERROR
8978 046436' 104456 TRAP C$ERHRD
8979 046440' 000362 .WORD 242
8980 046442' 017017' .WORD ERR015
8981 046444' 015114' .WORD MSG003
8982 046446' ESCAPE TST ; AND ABORT TEST
8983 046446' 104410 TRAP C$ESCAPE
8984 046450' 000506 .WORD L10051-.
8985
8986 046452' 004737 023550' ;180$: JSR PC,CLRRXI ; WRITE ONE TO CLEAR RXI
8987 BCC 182$ ; ERROR ?
8988 046456' 103006 ERRHRD 243.,ERR016,MSG003 ; NO
8989 046460' .WORD 243
8990 046460' 104456 TRAP C$ERHRD
8991 046462' 000363 .WORD 243
8992 046464' 017050' .WORD ERR016
8993 046466' 015114' .WORD MSG003
8994 046470' ESCAPE TST ; AND ABORT TEST
8995 046470' 104410 TRAP C$ESCAPE
8996 046472' 000464 .WORD L10051-.
8997
8998 046474' 005737 00022' ;182.: TST EXLOOP ; EXTERNAL LOOPBACK
8999 046500' 001431 BEQ 190$ ; NO, SKIP EXTERNAL CHECKS
9000 ;EXTERNAL LOOPBACK CHECKS
9001 ;CHECK SOURCE ADDRESS = DESTINATION ADDRESS
9002 046502' 012703 005100' MOV #RBUF+6,R3 ; R3 POINTS TO SOURCE ADDRESS

```







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TEST 21: PHYSICAL ADDRESS TEST

.SBTTL TEST 21: PHYSICAL ADDRESS TEST

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047160'  
047160' 004737 025334'  
047164' 103025  
047166' 012777 000040 131052  
047174' 004737 022546'  
047200' 103006  
047202'  
047202' 104456  
047204' 000377  
047206' 016106'  
047210' 015114'  
047212'  
047212' 104410  
047214' 002624  
047216' 004737 023434'  
047222' 103006  
047224'  
047224' 104456  
047226' 000400  
047230' 016206'

\*\*\*\*\*  
THIS TEST VERIFIES THAT PHYSICAL ADDRESS DETECTION IS OPERATIONAL.  
A WRITE PHYSICAL ADDRESS FUNCTION IS USED TO SET THE DEUNA'S PHYSICAL ADDRESS.  
INTERNAL LOOPBACKS ARE THEN PERFORMED WITH A CURRENTLY ENABLED AND THEN A CURRENTLY DISABLED DESTINATION ADDRESS.  
THE PHYSICAL ADDRESS IS THEN COMPLEMENTED AND THE TEST IS REPEATED.  
TEST SEQUENCE:  
1. WRITE MODE REGISTER = INTERNAL LOOPBACK  
2. WRITE RING FORMAT  
3. WRITE PHYSICAL ADDRESS  
4. SET UP RINGS AND BUFFERS WITH DESTINATION ADDRESS = PHYSICAL ADDRESS  
5. ISSUE START  
6. CHECK FOR ERRORS  
7. ISSUE STOP  
8. SET UP RINGS AND BUFFERS WITH DESTINATION ADDRESS NOT = PHYSICAL ADDRESS  
9. ISSUE START  
10. CHECK FOR NO RXI  
11. ISSUE STOP  
12. WRITE PHYSICAL ADDRESS WITH COMPLEMENTED VAULE  
13. REPEAT STEPS 4 - 11  
\*\*\*\*\*

BGNTST  
T21::  
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?  
BCC 30\$ ; NO  
MOV #RSET,@PCSR0 ; YES, RESET DEUNA  
JSR PC,CHKDNI ; DNI ?  
BCC 20\$ ; YES  
ERRHRD 255.,ERR004,MSG003 ; NO, REPORT ERROR  
TRAP C\$ERHRD  
.WORD 255  
.WORD ERR004  
.WORD MSG003  
ESCAPE TST ; AND ABORT TEST  
TRAP C\$ESCAPE  
.WORD L10052-  
20\$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI  
; ERROR ?  
BCC 30\$ ; NO  
ERRHRD 256.,ERR006,MSG003 ; YES, REPORT ERROR  
TRAP C\$ERHRD  
.WORD 256  
.WORD ERR006

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 CZUABA.MAC 10-JAN-83 12:46 TEST 21: PHYSICAL ADDRESS TEST

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9215 047232' 015114'
9216 047234'
9217 047234' 104410
9218 047236' 002602
9219
9220 047240' 004737 024660' 30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
9221 047244' 012777 000001 130754 MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
9222 047252' 004737 022546' JSR PC,CHKDNI ; DNI?
9223 047256' 103006 BCC 40$ ; YES
9224 047260' ERRHRD 257.,ERR009,MSG003 ; NO, REPORT ERROR
9225 047260' 104456 TRAP C$ERHRD
9226 047262' 000401 .WORD 257
9227 047264' 016422' .WORD ERR009
9228 047266' 015114' .WORD MSG003
9229 047270' ESCAPE TST ; AND ABORT TEST
9230 047270' 104410 TRAP C$ESCAPE
9231 047272' 002546 .WORD L10052-.
9232
9233 047274' 004737 023434' 40$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
9234 BCC 50$ ; ERROR ?
9235 047300' 103006 ERRHRD 258.,ERR006,MSG003 ; NO
9236 047302' .WORD 258
9237 047302' 104456 .WORD ERR006
9238 047304' 000402 .WORD MSG003
9239 047306' 016206'
9240 047310' 015114'
9241 047312' ESCAPE TST ; AND ABORT TEST
9242 047312' 104410 TRAP C$ESCAPE
9243 047314' 002524 .WORD L10052-.
9244
9245 ;WRITE MODE REGISTER = INTERNAL LOOPBACK
9246 047316' 012705 011232' 50$: MOV #WIMODE,R5 ; DEFAULT WRITE MODE FUNCTION
9247 047322' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
9248 047326' 013737 013104' 000254' MOV MODE21,PCBB+2 ; MODE = INTL LOOPBACK ONLY
9249 047334' 012777 000002 130664 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
9250 047342' 004737 022546' JSR PC,CHKDNI ; DNI ?
9251 047346' 103006 BCC 60$ ; YES
9252 047350' ERRHRD 259.,ERR010,MSG003 ; NO, REPORT ERROR
9253 047350' 104456 TRAP C$ERHRD
9254 047352' 000403 .WORD 259
9255 047354' 016506' .WORD ERR010
9256 047356' 015114' .WORD MSG003
9257 047360' ESCAPE TST ; AND ABORT TEST
9258 047360' 104410 TRAP C$ESCAPE
9259 047362' 002456 .WORD L10052-.
9260
9261 047364' 004737 023434' 60$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
9262 BCC 70$ ; ERROR ?
9263 047370' 103006 ERRHRD 260.,ERR006,MSG003 ; NO
9264 047372' .WORD 260
9265 047372' 104456 .WORD ERR006
9266 047374' 000404 .WORD MSG003
9267 047376' 016206'
9268 047400' 015114'
9269 047402' ESCAPE TST ; AND ABORT TEST
9270 047402' 104410 TRAP C$ESCAPE

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CZUABA.MAC 10-JAN-83 12:46 TEST 21: PHYSICAL ADDRESS TEST

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9271 047404' 002434 .WORD L10052-.
9272
9273 ;WRITE RING FORMAT
9274 047406' 012705 011172' 70$: MOV #WTRNGS,R5 ; DEFAULT WRITE RING FORMAT FUNCTION
9275 047412' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
9276 047416' 012705 011312' MOV #RFRMT,R5 ; DEFAULT RING FORMAT
9277 047422' 012700 000006 MOV #6,R0 ; FORMAT = SIX WORDS
9278 047426' 004737 025030' JSR PC,LDUDBB ; LOAD RING FORMAT -> UDBB
9279 047432' 012777 000002 130566 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
9280 047440' 004737 022546' JSR PC,CHKDNI ; DNI ?
9281 047444' 103006 BCC 80$ ; YES
9282 047446' ERRHRD 261.,ERR010,MSG003 ; NO, REPORT ERROR
9283 047446' 104456 TRAP C$ERHRD
9284 047450' 000405 .WORD 261
9285 047452' 016506' .WORD ERR010
9286 047454' 015114' .WORD MSG003
9287 047456' ESCAPE TST ; AND ABORT TEST
9288 047456' 104410 TRAP C$ESCAPE
9289 047460' 002360 .WORD L10052-.
9290
9291 047462' 004737 023434' 80$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
9292 BCC 90$ ; ERROR ?
9293 047466' 103006 ERRHRD 262.,ERR006,MSG003 ; YES, REPORT ERROR
9294 047470'
9295 047470' 104456 TRAP C$ERHRD
9296 047472' 000406 .WORD 262
9297 047474' 016206' .WORD ERR006
9298 047476' 015114' .WORD MSG003
9299 047500' ESCAPE TST ; AND ABORT TEST
9300 047500' 104410 TRAP C$ESCAPE
9301 047502' 002336 .WORD L10052-.
9302
9303 ;WRITE PHYSICAL ADDRESS
9304 047504' 012705 011132' 90$: MOV #WTPHYA,R5 ; DEFAULT WRITE PHYSICAL ADDR FUNC
9305 047510' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
9306 ;LOAD DEFAULT PHYSICAL ADDRESS
9307 047514' 012703 012306' MOV #ADR21,R3 ; POINT TO PHYSICAL ADDRESS
9308 047520' 012704 000254' MOV #PCBB+2,R4 ; POINT TO PCBB + 2
9309 047524' 012324 MOV (R3)+,(R4)+ ; LOAD ADDRESS
9310 047526' 012324 MOV (R3)+,(R4)+
9311 047530' 012324 MOV (R3)+,(R4)+
9312 047532' 012777 000002 130466 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
9313 047540' 004737 022546' JSR PC,CHKDNI ; DNI ?
9314 047544' 103006 BCC 100$ ; YES
9315 047546' ERRHRD 263.,ERR010,MSG003 ; NO, REPORT ERROR
9316 047546' 104456 TRAP C$ERHRD
9317 047550' 000407 .WORD 263
9318 047552' 016506' .WORD ERR010
9319 047554' 015114' .WORD MSG003
9320 047556' ESCAPE TST ; AND ABORT TEST
9321 047556' 104410 TRAP C$ESCAPE
9322 047560' 002260 .WORD L10052-.
9323
9324 047562' 004737 023434' 100$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
9325 BCC 110$ ; ERROR ?
9326 047566' 103006 ; NO

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 CZUABA.MAC 10-JAN-83 12:46 TEST 21: PHYSICAL ADDRESS TEST

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9327 047570'          ERRHRD 264.,ERR006,MSG003      : YES, REPORT ERROR
9328 047570' 104456
9329 047572' 000410
9330 047574' 016206'
9331 047576' 015114'
9332 047600'          ESCAPE TST                    : AND ABORT TEST
9333 047600' 104410
9334 047602' 002236
9335
9336          ;SET UP RINGS FOR ONE BUFFER LOOPBACK
9337 047604' 012705 011542' 110$: MOV #TDRB1A,R5      : DEFAULT ONE BUFFER TRANSMIT RING
9338 047610' 004737 024734' JSR PC,LDTDRB      : LOAD TDRB
9339 047614' 012705 011342' MOV #RDRB1A,R5    : DEFAULT ONE BUFFER RECEIVE RING
9340 047620' 004737 024676' JSR PC,LDRDRB    : LOAD RDRB
9341
9342          ;SET UP BUFFERS AND START
9343 047624' 012705 000254' MOV #PCBB+2,R5    : POINT TO DESTINATION ADDRESS
9344 047630' 004737 024602' JSR PC,LDDEST    : LOAD DEST
9345 047634' 004737 025230' JSR PC,SETBUF    : SET UP BUFFERS
9346 047640' 012777 000004' 130360 MOV #START,@PCSRO : ISSUE START PORT COMMAND
9347 047646' 004737 022546' JSR PC,CHKDNI    : DNI?
9348 047652' 103006 BCC 120$         : YES
9349 047654'          ERRHRD 265.,ERR012,MSG003      : NO, REPORT ERROR
9350 047654' 104456
9351 047656' 000411
9352 047660' 016637'
9353 047662' 015114'
9354 047664'          ESCAPE TST                    : AND ABORT TEST
9355 047664' 104410
9356 047666' 002152
9357
9358 047670' 004737 023434' 120$: JSR PC,CLRDN1  : WRITE ONE TO CLEAR DNI
9359
9360 047674' 103006 BCC 130$         : ERROR ?
9361 047676'          ERRHRD 266.,ERR006,MSG003      : YES, REPORT ERROR
9362 047676' 104456
9363 047700' 000412
9364 047702' 016206'
9365 047704' 015114'
9366 047706'          ESCAPE TST                    : AND ABORT TEST
9367 047706' 104410
9368 047710' 002130
9369
9370 047712' 004737 023306' 130$: JSR PC,CHKTXI  : TXI ?
9371 047716' 103006 BCC 140$         : YES
9372 047720'          ERRHRD 267.,ERR013,MSG003      : NO, REPORT ERROR
9373 047720' 104456
9374 047722' 000413
9375 047724' 016720'
9376 047726' 015114'
9377 047730'          ESCAPE TST                    : AND ABORT TEST
9378 047730' 104410
9379 047732' 002106
9380
9381 047734' 004737 023616' 140$: JSR PC,CLRTXI  : WRITE ONE TO CLEAR TXI
9382

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```

9439 050102' 104410                                TRAP  C$ESCAPE
9440 050104' 001734                                .WORD L10052-.
9441
9442 050106' 012705 000632'                ;190$:  MOV    #RDRB,R5                : CHECK RDRB OWNERSHIP
9443 050112' 004737 022634'                JSR    PC,CHKOWN                : OWN = PORT DRIVER ?
9444 050116' 103006                BCC   200$                      : YES
9445 050120'                                ERRHRD 273.,ERR017              : NO, REPORT ERROR
9446 050120' 104456                                TRAP  C$ERHRD
9447 050122' 000421                                .WORD 273
9448 050124' 017116'                                .WORD ERR017
9449 050126' 000000                                .WORD 0
9450 050130'                                ESCAPE TST                        ; AND ABORT TEST
9451 050130' 104410                                TRAP  C$ESCAPE
9452 050132' 001706                                .WORD L10052-.
9453
9454 050134' 012705 012622'                ;200$:  MOV    #RDR14A,R5           : POINT TO EXPECTED RDRB
9455 050140' 004737 025110'                JSR    PC,LDXRDR                : LOAD INTO XRDRBO TABLE
9456 050144' 012705 000632'                MOV    #RDRB,R5                 : CHECK RDRB
9457 050150' 004737 022754'                JSR    PC,CHKRDR                : ERRORS ?
9458 050154' 103006                BCC   210$                      : NO
9459 050156'                                ERRHRD 274.,ERR021,MSG006      : YES, REPORT ERROR
9460 050156' 104456                                TRAP  C$ERHRD
9461 050160' 000422                                .WORD 274
9462 050162' 017457'                                .WORD ERR021
9463 050164' 015362'                                .WORD MSG006
9464 050166'                                ESCAPE TST                        ; AND ABORT TEST
9465 050166' 104410                                TRAP  C$ESCAPE
9466 050170' 001650                                .WORD L10052-.
9467
9468
9469 050172' 012705 000070                ;COMPARE RBUF WITH TBUF
9470 050176' 004737 023732'                210$:  MOV    #56.,R5             : COMPARE 56 WORDS OF DATA
9471 050202' 103006                JSR    PC,CMPDAT                : DATA COMPARE ERROR ?
9472 050204'                                BCC   220$                      : NO
9473 050204' 104456                ERRHRD 275.,ERR022,MSG007      : YES, REPORT ERROR
9474 050206' 000423                                TRAP  C$ERHRD
9475 050210' 017540'                                .WORD 275
9476 050212' 015524'                                .WORD ERR022
9477 050214'                                .WORD MSG007
9478 050214' 104410                                ESCAPE TST                        ; AND ABORT TEST
9479 050216' 001622                                TRAP  C$ESCAPE
9480                                .WORD L10052-.
9481 050220' 012705 012732'                ;220$:  MOV    #CRC21A,R5          : POINT TO EXPECTED CRC
9482 050224' 004737 025064'                JSR    PC,LDXCRC                : LOAD INTO XCRC TABLE
9483 050230' 012705 005266'                MOV    #RBUF+124.,R5           : CHECK CRC
9484 050234' 004737 024012'                JSR    PC,CMPCRC                : ERRORS ?
9485 050240' 103006                BCC   230$                      : NO
9486 050242'                                ERRHRD 276.,ERR023,MSG008      : YES, REPORT ERROR
9487 050242' 104456                                TRAP  C$ERHRD
9488 050244' 000424                                .WORD 276
9489 050246' 017607'                                .WORD ERR023
9490 050250' 015556'                                .WORD MSG008
9491 050252'                                ESCAPE TST                        ; AND ABORT TEST
9492 050252' 104410                                TRAP  C$ESCAPE
9493 050254' 001564                                .WORD L10052-.
9494

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```

9495 050256' 012777 000017 127742 230$: MOV #STOP,@PCSR0 ; ISSUE STOP PORT COMMAND
9496 050264' 004737 022546' JSR PC,CHKDNI ; DNI ?
9497 050270' 103006 BCC 240$ ; YES
9498 050272' ERRHRD 277.,ERR019,MSG003 ; NO, REPORT ERROR
9499 050272' 104456 TRAP C$ERHRD
9500 050274' 000425 .WORD 277
9501 050276' 017316' .WORD ERR019
9502 050300' 015114' .WORD MSG003
9503 050302' ESCAPE TST ; AND ABORT TEST
9504 050302' 104410 TRAP C$ESCAPE
9505 050304' 001534 .WORD L10052-.
9506
9507 050306' 004737 023434' 240$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
9508 BCC 250$ ; ERROR ?
9509 050312' 103006 ERRHRD 278.,ERR006,MSG003 ; YES, REPORT ERROR
9510 050314' TRAP C$ERHRD
9511 050314' 104456 .WORD 278
9512 050316' 000426 .WORD ERR006
9513 050320' 016206' .WORD MSG003
9514 050322' 015114' ESCAPE TST ; AND ABORT TEST
9515 050324' TRAP C$ESCAPE
9516 050324' 104410 .WORD L10052-.
9517 050326' 001512
9518
9519 ;:DESTINATION ADDRESS NOT = PHYSICAL ADDRESS
9520
9521 ;:SET UP RINGS FOR ONE BUFFER LOOPBACK
9522 050330' 012705 011542' 250$: MOV #TDRB1A,R5 ; DEFAULT ONE BUFFER TRANSMIT RING
9523 050334' 004737 024734' JSR PC,LDTDRB ; LOAD TDRB
9524 050340' 012705 011342' MOV #RDRB1A,R5 ; DEFAULT ONE BUFFER RECEIVE RING
9525 050344' 004737 024676' JSR PC,LDRDRB ; LOAD RDRB
9526
9527 ;:SET UP BUFFERS AND START
9528 050350' 012705 012314' MOV #ADR21C,R5 ; POINT TO COMPLEMENTED ADDRESS
9529 050354' 004737 024602' JSR PC,LDDEST ; LOAD DEST
9530 050360' 004737 025230' JSR PC,SETBUF ; SET UP BUFFERS
9531 050364' 012777 000004 127634 MOV #START,@PCSR0 ; ISSUE START PORT COMMAND
9532 050372' 004737 022546' JSR PC,CHKDNI ; DNI?
9533 050376' 103006 BCC 260$ ; YES
9534 050400' ERRHRD 279.,ERR012,MSG003 ; NO, REPORT ERROR
9535 050400' 104456 TRAP C$ERHRD
9536 050402' 000427 .WORD 279
9537 050404' 016637' .WORD ERR012
9538 050406' 015114' .WORD MSG003
9539 050410' ESCAPE TST ; AND ABORT TEST
9540 050410' 104410 TRAP C$ESCAPE
9541 050412' 001426 .WORD L10052-.
9542
9543 050414' 004737 023434' 260$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
9544 BCC 270$ ; ERROR ?
9545 050420' 103006 ERRHRD 280.,ERR006,MSG003 ; YES, REPORT ERROR
9546 050422' TRAP C$ERHRD
9547 050422' 104456 .WORD 280
9548 050424' 000430 .WORD ERR006
9549 050426' 016206' .WORD MSG003
9550 050430' 015114'

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```

9607 050574' 104456          TRAP  C$ERHRD
9608 050576' 000435          .WORD 285
9609 050600' 021350'          .WORD ERR039
9610 050602' 000000          .WORD 0
9611 050604'          ESCAPE TST          ; AND ABORT TEST
9612 050604' 104410          TRAP  C$ESCAPE
9613 050606' 001232          .WORD L10052-.
9614
9615 050610' 012777 000017 127410 320$: MOV  #STOP,@PCSR0      ; ISSUE STOP PORT COMMAND
9616 050616' 004737 022546' JSR  PC,CHKDNI        ; DNI ?
9617 050622' 103006          BCC  330$            ; YES
9618 050624'          ERRHRD 286.,ERR019,MSG003 ; NO, REPORT ERROR
9619 050624' 104456          TRAP  C$ERHRD
9620 050626' 000436          .WORD 286
9621 050630' 017316'          .WORD ERR019
9622 050632' 015114'          .WORD MSG003
9623 050634'          ESCAPE TST          ; AND ABORT TEST
9624 050634' 104410          TRAP  C$ESCAPE
9625 050636' 001202          .WORD L10052-.
9626
9627 050640' 004737 023434' 330$: JSR  PC,CLRDN1      ; WRITE ONE TO CLEAR DNI
9628          .WORD ERR019
9629 050644' 103006          BCC  340$            ; NO
9630 050646'          ERRHRD 287.,ERR006,MSG003 ; YES, REPORT ERROR
9631 050646' 104456          TRAP  C$ERHRD
9632 050650' 000437          .WORD 287
9633 050652' 016206'          .WORD ERR006
9634 050654' 015114'          .WORD MSG003
9635 050656'          ESCAPE TST          ; AND ABORT TEST
9636 050658' 104410          TRAP  C$ESCAPE
9637 050660' 001160          .WORD L10052-.
9638
9639          ; REPEAT WITH COMPLEMENTED PHYSICAL ADDRESS
9640
9641          ; WRITE PHYSICAL ADDRESS
9642 050662' 012705 011132' 340$: MOV  #WTPHYA,R5      ; DEFAULT WRITE PHYSICAL ADDR FUNC
9643 050666' 004737 024630' JSR  PC,LDPCBB        ; LOAD FUNCTION -> PCBB
9644          ; LOAD COMPLIMENTED PHYSICAL ADDRESS
9645 050672' 012703 012314' MOV  #ADR21C,R3      ; POINT TO PHYSICAL ADDRESS
9646 050676' 012704 000254' MOV  #PCBB+2,R4      ; POINT TO PCBB + 2
9647 050702' 012324          MOV  (R3)+,(R4)+     ; LOAD ADDRESS
9648 050704' 012324          MOV  (R3)+,(R4)+
9649 050706' 012324          MOV  (R3)+,(R4)+
9650 050710' 012777 000002 127310 MOV  #GETCMD,@PCSR0  ; ISSUE GET_CMD PORT COMMAND
9651 050716' 004737 022546' JSR  PC,CHKDNI        ; DNI ?
9652 050722' 103006          BCC  350$            ; YES
9653 050724'          ERRHRD 288.,ERR010,MSG003 ; NO, REPORT ERROR
9654 050724' 104456          TRAP  C$ERHRD
9655 050726' 000440          .WORD 288
9656 050730' 016506'          .WORD ERR010
9657 050732' 015114'          .WORD MSG003
9658 050734'          ESCAPE TST          ; AND ABORT TEST
9659 050734' 104410          TRAP  C$ESCAPE
9660 050736' 001100          .WORD L10052-.
9661
9662 050740' 004737 023434' 350$: JSR  PC,CLRDN1      ; WRITE ONE TO CLEAR DNI
    
```

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9663                                     ; ERROR ?
9664 050744 103006                       BCC 360$
9665 050746                                     ERRHRD 289.,ERR006,MSG003
9666 050746 104456
9667 050750 000441
9668 050752 016206
9669 050754 015114
9670 050756                                     ESCAPE TST
9671 050756 104410
9672 050760 001060
9673
9674                                     ;SET UP RINGS FOR ONE BUFFER LOOPBACK
9675 050762 012705 011542 360$: MOV #TDRB1A,R5
9676 050766 004737 024734 JSR PC,LDTDRB
9677 050772 012705 011342 MOV #RDRB1A,R5
9678 050776 004737 024676 JSR PC,LDRDRB
9679
9680                                     ;SET UP BUFFERS AND START
9681 051002 012705 000254 MOV #PCBB+2,R5
9682 051006 004737 024602 JSR PC,LDDEST
9683 051012 004737 025230 JSR PC,SETBUF
9684 051016 012777 000004 127202 MOV #START,@PCSRO
9685 051024 004737 022546 JSR PC,CHKDNI
9686 051030 103006 BCC 370$
9687 051032                                     ERRHRD 290.,ERR012,MSG003
9688 051032 104456
9689 051034 000442
9690 051036 016637
9691 051040 015114
9692 051042                                     ESCAPE TST
9693 051042 104410
9694 051044 000774
9695
9696 051046 004737 023434 370$: JSR PC,CLR DNI
9697
9698 051052 103006 BCC 380$
9699 051054                                     ERRHRD 291.,ERR006,MSG003
9700 051054 104456
9701 051056 000443
9702 051060 016206
9703 051062 015114
9704 051064                                     ESCAPE TST
9705 051064 104410
9706 051066 000752
9707
9708 051070 004737 023306 380$: JSR PC,CHKTXI
9709 051074 103006 BCC 390$
9710 051076                                     ERRHRD 292.,ERR013,MSG003
9711 051076 104456
9712 051100 000444
9713 051102 016720
9714 051104 015114
9715 051106                                     ESCAPE TST
9716 051106 104410
9717 051110 000730
9718

```

```

; NO
; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 289
.WORD ERR006
.WORD MSG003
; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10052-.
; DEFAULT ONE BUFFER TRANSMIT RING
; LOAD TDRB
; DEFAULT ONE BUFFER RECEIVE RING
; LOAD RDRB
; POINT TO DESTINATION ADDRESS
; LOAD DEST
; SET UP BUFFERS
; ISSUE START PORT COMMAND
; DNI?
; YES
; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 290
.WORD ERR012
.WORD MSG003
; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10052-.
; WRITE ONE TO CLEAR DNI
; ERROR ?
; NO
; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 291
.WORD ERR006
.WORD MSG003
; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10052-.
; TXI ?
; YES
; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 292
.WORD ERR013
.WORD MSG003
; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10052-.

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9719 051112' 004737 023616'      390$: JSR    PC,CLRTXI      : WRITE ONE TO CLEAR TXI
9720                               : ERROR ?
9721 051116' 103006             BCC    400$      : NO
9722 051120'                               ERRHRD 293.,ERR014,MSG003 : YES, REPORT ERROR
9723 051120' 104456                               TRAP  C$ERHRD
9724 051122' 000445                               .WORD 293
9725 051124' 016751'                               .WORD ERR014
9726 051126' 015114'                               .WORD MSG003
9727 051130'                               ESCAPE TST      : AND ABORT TEST
9728 051130' 104410                               TRAP  C$ESCAPE
9729 051132' 000706                               .WORD L10052-.
9730
9731 051134' 012705 000572'      400$: MOV    #TDRB,R5      : CHECK TDRB OWNERSHIP
9732 051140' 004737 022634'      JSR    PC,CHKOWN  : OWN = PORT DRIVER ?
9733 051144' 103006             BCC    410$      : YES
9734 051146'                               ERRHRD 294.,ERR018 : NO, REPORT ERROR
9735 051146' 104456                               TRAP  C$ERHRD
9736 051150' 000446                               .WORD 294
9737 051152' 017216'                               .WORD ERR018
9738 051154' 000000                               .WORD 0
9739 051156'                               ESCAPE TST      : AND ABORT TEST
9740 051156' 104410                               TRAP  C$ESCAPE
9741 051160' 000660                               .WORD L10052-.
9742
9743 051162' 012705 012512'      410$: MOV    #TDR14A,R5   : POINT TO EXPECTED TDRB
9744 051166' 004737 025140'      JSR    PC,LDXTDR  : LOAD INTO XTDRB0 TABLE
9745 051172' 012705 000572'      MOV    #TDRB,R5   : CHECK TDRB
9746 051176' 004737 023220'      JSR    PC,CHKTDR  : ERRORS ?
9747 051202' 103006             BCC    420$      : NO
9748 051204'                               ERRHRD 295.,ERR020,MSG005 : YES, REPORT ERROR
9749 051204' 104456                               TRAP  C$ERHRD
9750 051206' 000447                               .WORD 295
9751 051210' 017376'                               .WORD ERR020
9752 051212' 015220'                               .WORD MSG005
9753 051214'                               ESCAPE TST      : AND ABORT TEST
9754 051214' 104410                               TRAP  C$ESCAPE
9755 051216' 000622                               .WORD L10052-.
9756
9757 051220' 004737 023054'      420$: JSR    PC,CHKRXI   : RXI ?
9758 051224' 103006             BCC    430$      : YES
9759 051226'                               ERRHRD 296.,ERR015,MSG003 : NO, REPORT ERROR
9760 051226' 104456                               TRAP  C$ERHRD
9761 051230' 000450                               .WORD 296
9762 051232' 017017'                               .WORD ERR015
9763 051234' 015114'                               .WORD MSG003
9764 051236'                               ESCAPE TST      : AND ABORT TEST
9765 051236' 104410                               TRAP  C$ESCAPE
9766 051240' 000600                               .WORD L10052-.
9767
9768 051242' 004737 023550'      430$: JSR    PC,CLRRXI   : WRITE ONE TO CLEAR RXI
9769                               : ERROR ?
9770 051246' 103006             BCC    440$      : NO
9771 051250'                               ERRHRD 297.,ERR016,MSG003 : YES, REPORT ERROR
9772 051250' 104456                               TRAP  C$ERHRD
9773 051252' 000451'                               .WORD 297
9774 051254' 017050'                               .WORD ERR016

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```

9831 051432' 000406                                     .WORD  L10052-.
9832
9833 051434' 012777 000017 126564 480$:  MOV  #STOP,@PCSR0      ; ISSUE STOP PORT COMMAND
9834 051442' 004737 022546'          JSR  PC,CHKDNI          ; DNI ?
9835 051446' 103006                   BCC  490$              ; YES
9836 051450'                               ERRHRD 302.,ERR019,MSG003 ; NO, REPORT ERROR
9837 051450' 104456                                     TRAP  C$ERHRD
9838 051452' 000456                                     .WORD  302
9839 051454' 017316'                                     .WORD  ERR019
9840 051456' 015114'                                     .WORD  MSG003
9841 051460'                               ESCAPE TST           ; AND ABORT TEST
9842 051460' 104410                                     TRAP  C$ESCAPE
9843 051462' 000356                                     .WORD  L10052-.
9844
9845 051464' 004737 023434'          490$:  JSR  PC,CLRDN1          ; WRITE ONE iD CLEAR DNI
9846                                     ; ERROR ?
9847 051470' 103006                   BCC  500$              ; NO
9848 051472'                               ERRHRD 303.,ERR006,MSG003 ; YES, REPORT ERROR
9849 051472' 104456                                     TRAP  C$ERHRD
9850 051474' 000457                                     .WORD  303
9851 051476' 016206'                                     .WORD  ERR006
9852 051500' 015114'                                     .WORD  MSG003
9853 051502'                               ESCAPE TST           ; AND ABORT TEST
9854 051502' 104410                                     TRAP  C$ESCAPE
9855 051504' 000334                                     .WORD  L10052-.
9856
9857                                     ; DESTINATION ADDRESS NOT = PHYSICAL ADDRESS
9858
9859                                     ; SET UP RINGS FOR ONE BUFFER LOOPBACK
9860 051506' 012705 011542'          500$:  MOV  #TDRB1A,R5      ; DEFAULT ONE BUFFER TRANSMIT RING
9861 051512' 004737 024734'          JSR  PC,LDTDRB          ; LOAD TDRB
9862 051516' 012705 011342'          MOV  #RDRB1A,R5      ; DEFAULT ONE BUFFER RECEIVE RING
9863 051522' 004737 024676'          JSR  PC,LDRDRB          ; LOAD RDRB
9864
9865                                     ; SET UP BUFFERS AND START
9866 051526' 012705 012306'          MOV  #ADR21,R5        ; COMPLIMENT DESTINATION ADDRESS
9867 051532' 004737 024602'          JSR  PC,LDDDEST        ; LOAD DEST
9868 051536' 004737 025230'          JSR  PC,SETBUF         ; SET UP BUFFERS
9869 051542' 012777 000004 126456    MOV  #START,@PCSR0    ; ISSUE START PORT COMMAND
9870 051550' 004737 022546'          JSR  PC,CHKDNI          ; DNI?
9871 051554' 103006                   BCC  510$              ; YES
9872 051556'                               ERRHRD 304.,ERR012,MSG003 ; NO, REPORT ERROR
9873 051556' 104456                                     TRAP  C$ERHRD
9874 051560' 000460                                     .WORD  304
9875 051562' 016637'                                     .WORD  ERR012
9876 051564' 015114'                                     .WORD  MSG003
9877 051566'                               ESCAPE TST           ; AND ABORT TEST
9878 051566' 104410                                     TRAP  C$ESCAPE
9879 051570' 000250                                     .WORD  L10052-.
9880
9881 051572' 004737 023434'          510$:  JSR  PC,CLRDN1          ; WRITE ONE TO CLEAR DNI
9882                                     ; ERROR ?
9883 051576' 103006                   BCC  520$              ; NO
9884 051600'                               ERRHRD 305.,ERR006,MSG003 ; YES, REPORT ERROR
9885 051600' 104456                                     TRAP  C$ERHRD
9886 051602' 000461                                     .WORD  305

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9943 051750' 103006          BCC      570$          ; NO
9944 051752'          ERRHRD  310.,ERR039  ; YES, REPORT ERROR
9945 051752' 104456          ;
9946 051754' 000466          TRAP    C$ERHRD
9947 051756' 021350'          .WORD  310
9948 051760' 000000          .WORD  ERR039
9949 051762'          .WORD  0
9950 051762' 104410          ESCAPE  TST          ; AND ABORT TEST
9951 051764' 000054          TRAP    C$ESCAPE
9952          .WORD  L10052-.
9953 051766' 012777 000017 126232 570$: MOV      #STOP,@PCSR0 ; ISSUE STOP PORT COMMAND
9954 051774' 004737 022546' JSR      PC,CHKDNI   ; DNI ?
9955 052000' 103006          BCC      580$          ; YES
9956 052002'          ERRHRD  311.,ERR019,MSG003 ; NO, REPORT ERROR
9957 052002' 104456          TRAP    C$ERHRD
9958 052004' 000467          .WORD  311
9959 052006' 017316'          .WORD  ERR019
9960 052010' 015114'          .WORD  MSG003
9961 052012'          ESCAPE  TST          ; AND ABORT TEST
9962 052012' 104410          TRAP    C$ESCAPE
9963 052014' 000024          .WORD  L10052-.
9964          ;
9965 052016' 004737 023434' 580$: JSR      PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
9966          .WORD  ; ERROR ?
9967 052022' 103006          BCC      590$          ; NO
9968 052024'          ERRHRD  312.,ERR006,MSG003 ; YES, REPORT ERROR
9969 052024' 104456          TRAP    C$ERHRD
9970 052026' 000470          .WORD  312
9971 052030' 016206'          .WORD  ERR006
9972 052032' 015114'          .WORD  MSG003
9973 052034'          ESCAPE  TST          ; AND ABORT TEST
9974 052034' 104410          TRAP    C$ESCAPE
9975 052036' 000002          .WORD  L10052-.
9976 052040'          590$:
9977 052040'          ENDTST
9978 052040'          L10052:
9979 052040' 104401          TRAP    C$ETST

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.SBTTL TEST 22: MULTICAST ADDRESS TEST

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*****
THIS TEST VERIFIES THAT MULTICAST ADDRESSING
IS OPERATIONAL.
A WRITE MULTICAST ADDRESS LIST FUNCTION IS USED TO SET
THE DEUNA'S MULTICAST ADDRESS LIST.
INTERNAL LOOPBACKS ARE THEN PERFORMED WITH
CURRENTLY ENABLED AND THEN CURRENTLY DISABLED
MULTICAST DESTINATION ADDRESSES.
THE MULTICAST ADDRESS LIST IS THEN COMPLEMENTED AND THE
TEST IS REPEATED.

TEST SEQUENCE:
1. WRITE MODE REGISTER = INTERNAL LOOPBACK
2. WRITE RING FORMAT
3. WRITE PHYSICAL ADDRESS
4. WRITE MULTICAST ADDRESS LIST
5. SET UP RINGS AND BUFFERS
   WITH DESTINATION ADDRESS = MULTICAST ADDRESS
6. ISSUE START
7. CHECK FOR ERRORS
8. ISSUE STOP
9. REPEAT STEPS 5 - 8 FOR ALL TEN LIST ENTRIES
10. SET UP RINGS AND BUFFERS
   WITH DESTINATION ADDRESS = COMPLIMENTED MULTICAST ADDRESS
11. ISSUE START
12. CHECK FOR NO RXI
13. ISSUE STOP
14. REPEAT STEPS 10 - 13 FOR ALL TEN ENTRIES
15. WRITE MULTICAST ADDRESS LIST WITH COMPLEMENTED VAULES
16. REPEAT STEPS 5 - 14
*****

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052042'
052042'
052042' 004737 025334'
052046' 103025
052050' 012777 000040 126150
052056' 004737 022546'
052062' 103006
052064'
052064' 104456
052066' 000471
052070' 016106'
052072' 015114'
052074'
052074' 104410
052076' 003016
052100' 004737 023434'
052104' 103006
052106'

```

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BGNTST
T22::
JSR PC,TINIT ; IS A DEVICE RESET NEEDED?
BCC 30$ ; NO
MOV #RSET,@PCSR0 ; YES, RESET DEUNA
JSR PC,CHKDNI ; DNI ?
BCC 20$ ; YES
ERRHRD 313.,ERR004,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 313
.WORD ERR004
.WORD MSG003
ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10053-
20$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
; ERROR ?
BCC 30$ ; NO
ERRHRD 314.,ERR006,MSG003 ; YES, REPORT ERROR

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10036 052106' 104456 TRAP C$ERHRD
10037 052110' 000472 .WORD 314
10038 052112' 016206' .WORD ERR006
10039 052114' 015114' .WORD MSG003
10040 052116' ESCAPE TST ; AND ABORT TEST
10041 052116' 104410 TRAP C$ESCAPE
10042 052120' 002774 .WORD L10053-.
10043
10044 052122' 004737 024660' 30$: JSR PC,LDPCSR ; ADDRESS OF PCBB -> PCSR2!3
10045 052126' 012777 000001 126072 MOV #GETPCB,@PCSR0 ; ISSUE GET_PCBB PORT COMMAND
10046 052134' 004737 022546' JSR PC,CHKDNI ; DNI?
10047 052140' 103006 BCC 40$ ; YES
10048 052142' ERRHRD 315.,ERR009,MSG003 ; NO, REPORT ERROR
10049 052142' 104456 TRAP C$ERHRD
10050 052144' 000473 .WORD 315
10051 052146' 016422' .WORD ERR009
10052 052150' 015114' .WORD MSG003
10053 052152' ESCAPE TST ; AND ABORT TEST
10054 052152' 104410 TRAP C$ESCAPE
10055 052154' 002740 .WORD L10053-.
10056
10057 052156' 004737 023434' 40$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
10058 BCC 50$ ; ERROR ?
10059 052162' 103006 ERRHRD 316.,ERR006,MSG003 ; NO
10060 052164' ; YES, REPORT ERROR
10061 052164' 104456 TRAP C$ERHRD
10062 052166' 000474 .WORD 316
10063 052170' 016206' .WORD ERR006
10064 052172' 015114' .WORD MSG003
10065 052174' ESCAPE TST ; AND ABORT TEST
10066 052174' 104410 TRAP C$ESCAPE
10067 052176' 002716 .WORD L10053-.
10068
10069 ;WRITE MODE REGISTER = INTERNAL LOOPBACK
10070 052200' 012705 011232' 50$: MOV #WTMODE,R5 ; DEFAULT WRITE MODE FUNCTION
10071 052204' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
10072 052210' 013737 013104' 000254' MOV MODE21,PCBB+2 ; MODE = INTL LOOPBACK ONLY
10073 052216' 012777 000002 126002 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
10074 052224' 004737 022546' JSR PC,CHKDNI ; DNI ?
10075 052230' 103006 BCC 60$ ; YES
10076 052232' ERRHRD 317.,ERR010,MSG003 ; NO REPORT ERROR
10077 052232' 104456 TRAP C$ERHRD
10078 052234' 000475 .WORD 317
10079 052236' 016506' .WORD ERR010
10080 052240' 015114' .WORD MSG003
10081 052242' ESCAPE TST ; AND ABORT TEST
10082 052242' 104410 TRAP C$ESCAPE
10083 052244' 002650 .WORD L10053-.
10084
10085 052246' 004737 023434' 60$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
10086 BCC 70$ ; ERROR ?
10087 052252' 103006 ERRHRD 318.,ERR006,MSG003 ; NO
10088 052254' ; YES, REPORT ERROR
10089 052254' 104456 TRAP C$ERHRD
10090 052256' 000476 .WORD 318
10091 052260' 016206' .WORD ERR006

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TEST 22: MULTICAST ADDRESS TEST

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10148 052440' 016206' .WORD ERRO06
10149 052442' 015114' .WORD MSG003
10150 052444'          ESCAPE TST          ; AND ABORT TEST
10151 052444' 104410          TRAP C$ESCAPE
10152 052446' 002446          .WORD L10053-.
10153
10154          ;WRITE MULTICAST ADDRESS LIST
10155 052450' 012705 011152' 102$: MOV #WTMULA,R5          ; DEFAULT WRITE MULTICAST ADDR FUNC
10156 052454' 004737 024630' .SR PC,LDPBB          ; LOAD FUNCTION -> PCBB
10157 052460' 012705 012322' MOV #MULTL,R5          ; LOAD LIST INTO UDBB
10158 052464' 012700 000036 MOV #30.,R0          ; LOAD 30 ENTRIES
10159 052470' 004737 025030' JSR PC,LDUDBB          ; MULTICAST LIST -> UDBB
10160 052474' 012777 000002 125524 MOV #GETCMD,@PCSR0    ; ISSUE GET_CMD PORT COMMAND
10161 052502' 004737 022546' JSR PC,CHKDNI          ; DNI ?
10162 052506' 103006          BCC 104$              ; YES
10163 052510'          ERRHRD 323.,ERR010,MSG003 ; NO, REPORT ERROR
10164 052510' 104456          TRAP C$ERHRD
10165 052512' 000503          .WORD 323
10166 052514' 016506'          .WORD ERR010
10167 052516' 015114'          .WORD MSG003
10168 052520'          ESCAPE TST          ; AND ABORT TEST
10169 052520' 104410          TRAP C$ESCAPE
10170 052522' 002372          .WORD L10053-.
10171
10172 052524' 004737 023434' 104$: JSR PC,CLRDNI          ; WRITE ONE TO CLEAR DNI
10173          ; ERROR ?
10174 052530' 103006          BCC 106$              ; NO
10175 052532'          ERRHRD 324.,ERR006,MSG003 ; YES, REPORT ERROR
10176 052532' 104456          TRAP C$ERHRD
10177 052534' 000504          .WORD 324
10178 052536' 016206'          .WORD ERRO06
10179 052540' 015114'          .WORD MSG003
10180 052542'          ESCAPE TST          ; AND ABORT TEST
10181 052542' 104410          TRAP C$ESCAPE
10182 052544' 002350          .WORD L10053-.
10183
10184          ;DO TEN LOOPS WITH DEST ADDR = MULTICAST ADDRESS
10185
10186 052546' 012701 000012 106$: MOV #10.,R1          ; DO LOOP = TEN
10187 052552' 012702 012322' MOV #MULTL,R2          ; R2 POINTS TO MULTICAST LIST
10188 052556' 012703 012742' MOV #CRC22A,R3          ; R3 POINTS TO EXPECTED CRC TABLE
10189
10190          ;SET UP RINGS FOR ONE BUFFER LOOPBACK
10191 052562' 012705 011542' 110$: MOV #TDRB1A,R5          ; DEFAULT ONE BUFFER TRANSMIT RING
10192 052566' 004737 024734' JSR PC,LDTDRB          ; LOAD TDRB
10193 052572' 012705 011342' MOV #RDRB1A,P5          ; DEFAULT ONE BUFFER RECEIVE RING
10194 052576' 004737 024676' JSR PC,LDRDRB          ; LOAD RDRB
10195
10196          ;SET UP BUFFERS AND START
10197 052602' 010205          MOV R2,R5          ; POINT TO DESTINATION ADDRESS
10198 052604' 004737 024602' JSR PC,LDDDEST          ; LOAD DEST
10199 052610' 004737 025230' JSR PC,SETBUF          ; SET UP BUFFERS
10200 052614' 012777 000004 125404 MOV #START,@PCSR0    ; ISSUE START PORT COMMAND
10201 052622' 004737 022546' JSR PC,CHKDNI          ; DNI?
10202 052626' 103006          BCC 120$              ; YES
10203 052630'          ERRHRD 325.,ERR012,MSG003 ; NO, REPORT ERROR

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10204 052630' 104456 TRAP C$ERHRD
10205 052632' 000505 .WORD 325
10206 052634' 016637' .WORD ERR012
10207 052636' 015114' .WORD MSG003
10208 052640' ESCAPE TST ; AND ABORT TEST
10209 052640' 104410 TRAP C$ESCAPE
10210 052642' 002252 .WORD L10053-.
10211
10212 052644' 004737 023434' i20$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
10213 .WORD ; ERROR ?
10214 052650' 103006 BCC 130$ ; NO
10215 052652' ERRHRD 326.,ERR006,MSG003 ; YES, REPORT ERROR
10216 052652' 104456 TRAP C$ERHRD
10217 052654' 000506 .WORD 326
10218 052656' 016206' .WORD ERR006
10219 052660' 015114' .WORD MSG003
10220 052662' ESCAPE TST ; AND ABORT TEST
10221 052662' 104410 TRAP C$ESCAPE
10222 052664' 002230 .WORD L10053-.
10223
10224 052666' 004737 023306' i30$: JSR PC,CHKTXI ; TXI ?
10225 052672' 103006 BCC 140$ ; YES
10226 052674' ERRHRD 327.,ERR013,MSG003 ; NO, REPORT ERROR
10227 052674' 104456 TRAP C$ERHRD
10228 052676' 000507 .WORD 327
10229 052700' 016720' .WORD ERR013
10230 052702' 015114' .WORD MSG003
10231 052704' ESCAPE TST ; AND ABORT TEST
10232 052704' 104410 TRAP C$ESCAPE
10233 052706' 002206 .WORD L10053-.
10234
10235 052710' 004737 023616' i40$: JSR PC,CLRTXI ; WRITE ONE TO CLEAR TXI
10236 .WORD ; ERROR ?
10237 052714' 103006 BCC 150$ ; NO
10238 052716' ERRHRD 328.,ERR014,MSG003 ; YES, REPORT ERROR
10239 052716' 104456 TRAP C$ERHRD
10240 052720' 000510 .WORD 328
10241 052722' 016751' .WORD ERR014
10242 052724' 015114' .WORD MSG003
10243 052726' ESCAPE TST ; AND ABORT TEST
10244 052726' 104410 TRAP C$ESCAPE
10245 052730' 002164 .WORD L10053-.
10246
10247 052732' 012705 000572' i50$: MOV #TDRB,R5 ; CHECK IDR B OWNERSHIP
10248 052736' 004737 022634' JSR PC,CHKOWN ; OWN = PORT DRIVER ?
10249 052742' 103006 BCC 160$ ; YES
10250 052744' ERRHRD 329.,ERR018 ; NO, REPORT ERROR
10251 052744' 104456 TRAP C$ERHRD
10252 052746' 000511 .WORD 329
10253 052750' 017216' .WORD ERR018
10254 052752' 000000 .WORD 0
10255 052754' ESCAPE TST ; AND ABORT TEST
10256 052754' 104410 TRAP C$ESCAPE
10257 052756' 002136 .WORD L10053-.
10258
10259 052760' 012705 012512' i60$: MOV #TDR14A,R5 ; POINT TO EXPECTED TDRB

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10372
10373 053302' 062702 000006      245$:  ADD      #6,R2      ; UPDATE R2
10374 053306' 062703 000004      ADD      #4,R3      ; UPDATE R3
10375 053312' 005301      DEC      R1         ; DONE TEN LOOPBACKS
10376 053314' 001402      BEQ     246$       ; YES
10377 053316' 000137 052562'  JMP     110$       ; NO
10378
10379
10380      ; DO TEN LOOPS WITH DEST ADDRESS = COMPLIMENTED MULTICAST ADDRESS
10381
10382 053322' 012701 000012      246$:  MOV     #10.,R1    ; DO LOOP = TEN
10383 053326' 012702 012416'  MOV     #MULTLC,R2  ; R2 POINTS TO COMPLIMENTED LIST
10384
10385      ; SET UP RINGS FOR ONE BUFFER LOOPBACK
10386 053332' 012705 011542'  250$:  MOV     #TDRB1A,R5 ; DEFAULT ONE BUFFER TRANSMIT RING
10387 053336' 004737 024734'  JSR    PC,LDTDRB   ; LOAD TDRB
10388 053342' 012705 011342'  MOV     #RDRB1A,R5 ; DEFAULT ONE BUFFER RECEIVE RING
10389 053346' 004737 024676'  JSR    PC,LDRDRB   ; LOAD RDRB
10390
10391      ; SET UP BUFFERS AND START
10392 053352' 010205      MOV     R2,R5      ; POINT TO COMPLEMENTED ADDRESS
10393 053354' 004737 024602'  JSR    PC,LDDEST   ; LOAD DEST
10394 053360' 004737 025230'  JSR    PC,SETBUF   ; SET UP BUFFERS
10395 053364' 012777 000004 124634  MOV     #START,@PCSR0 ; ISSUE START PORT COMMAND
10396 053372' 004737 022546'  JSR    PC,CHKDNI   ; DNI?
10397 053376' 103006      BCC    260$       ; YES
10398 053400'      ERRHRD 339.,ERR012,MSG003 ; NO, REPORT ERROR
10399 053400' 104456      TRAP   C$ERHRD
10400 053402' 000523      .WORD 339
10401 053404' 016637'      .WORD ERR012
10402 053406' 015114'      .WORD MSG003
10403 053410'      ESCAPE TST        ; AND ABORT TEST
10404 053410' 104410      TRAP   C$ESCAPE
10405 053412' 001502      .WORD L10053-.
10406
10407 053414' 004737 023434'  260$:  JSR    PC,CLRDNI   ; WRITE ONE TO CLEAR DNI
10408      ; ERROR ?
10409 053420' 103006      BCC    270$       ; NO
10410 053422'      ERRHRD 340.,ERR006,MSG003 ; YES, REPORT ERROR
10411 053422' 104456      TRAP   C$ERHRD
10412 053424' 000524      .WORD 340
10413 053426' 016206'      .WORD ERR006
10414 053430' 015114'      .WORD MSG003
10415 053432'      ESCAPE TST        ; AND ABORT TEST
10416 053432' 104410      TRAP   C$ESCAPE
10417 053434' 001460      .WORD L10053-.
10418
10419 053436' 004737 023306'  270$:  JSR    PC,CHKTXI   ; TXI ?
10420 053442' 103006      BCC    280$       ; YES
10421 053444'      ERRHRD 341.,ERR013,MSG003 ; NO, REPORT ERROR
10422 053444' 104456      TRAP   C$ERHRD
10423 053446' 000525      .WORD 341
10424 053450' 016720'      .WORD ERR013
10425 053452' 015114'      .WORD MSG003
10426 053454'      ESCAPE TST        ; AND ABORT TEST
10427 053454' 104410      TRAP   C$ESCAPE

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10484 053626' 000532          .WORD 346
10485 053630' 017316'        .WORD ERR019
10486 053632' 015114'        .WORD MSG003
10487 053634'                ESCAPE TST          ; AND ABORT TEST
10488 053634' 104410          TRAP C$ESCAPE
10489 053636' 001256          .WORD L10053-.
10490
10491 053640' 004737 023434' 330$: JSR PC,CLRDNI          ; WRITE ONE TO CLEAR DNI
10492                                ; ERROR ?
10493 053644' 103006          BCC 335$
10494 053646'                ERRHRD 347.,ERR006,MSG003 ; YES, REPORT ERROR
10495 053646' 104456          TRAP C$ERHRD
10496 053650' 000533          .WORD 347
10497 053652' 016206'        .WORD ERR006
10498 053654' 015114'        .WORD MSG003
10499 053656'                ESCAPE TST          ; AND ABORT TEST
10500 053656' 104410          TRAP C$ESCAPE
10501 053660' 001234          .WORD L10053-.
10502
10503 053662' 062702 000006 335$: ADD #6,R2          ; UPDATE R2
10504 053666' 005301          DEC R1          ; DONE 10 LOOPBACKS
10505 053670' 001220          BNE 250$        ; NO
10506
10507                ;REPEAT WITH COMPLEMENTED MULTICAST ADDRESS LIST
10508
10509                ;WRITE MULTICAST ADDRESS LIST
10510 053672' 012705 011152' 340$: MOV #WTMULA,R5          ; DEFAULT WRITE MULTICAST ADDR FUNC
10511 053676' 004737 024630' JSR PC,LDPCBB          ; LOAD FUNCTION -> PCBB
10512 053702' 012705 012416' MOV #MULTLC,R5          ; LOAD LIST INTO UDBB
10513 053706' 012700 000036 MOV #30.,R0          ; LOAD 30 ENTRIES
10514 053712' 004737 025030' JSR PC,LDUDBB          ; MULTICAST LIST -> UDBB
10515 053716' 012777 000002 124302 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
10516 053724' 004737 022546' JSR PC,CHKDNI          ; D:I ?
10517 053730' 103006          BCC 350$        ; YES
10518 053732'                ERRHRD 348.,ERR010,MSG003 ; NO, REPORT ERROR
10519 053732' 104456          TRAP C$ERHRD
10520 053734' 000534          .WORD 348
10521 053736' 016506'        .WORD ERR010
10522 053740' 015114'        .WORD MSG003
10523 053742'                ESCAPE TST          ; AND ABORT TEST
10524 053742' 104410          TRAP C$ESCAPE
10525 053744' 001150          .WORD L10053-.
10526
10527 053746' 004737 023434' 350$: JSR PC,CLRDNI          ; WRITE ONE TO CLEAR DNI
10528                                ; ERROR ?
10529 053752' 103006          BCC 355$
10530 053754'                ERRHRD 349.,ERR006,MSG003 ; YES, REPORT ERROR
10531 053754' 104456          TRAP C$ERHRD
10532 053756' 000535          .WORD 349
10533 053760' 016206'        .WORD ERR006
10534 053762' 015114'        .WORD MSG003
10535 053764'                ESCAPE TST          ; AND ABORT TEST
10536 053764' 104410          TRAP C$ESCAPE
10537 053766' 001126          .WORD L10053-.
10538
10539                ;DO TEN LOOPS WITH DEST ADDR = NEW COMPLEMENTED MULTICAST ADDRESS

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10708 054466' 104456          TRAP C$ERHRD
10709 054470' 000552          .WORD 362
10710 054472' 017316'        .WORD ERR019
10711 054474' 015114'        .WORD MSG003
10712 054476'          ESCAPE TST          ; AND ABORT TEST
10713 054476' 104410          TRAP C$ESCAPE
10714 054500' 000414          .WORD L10053-
10715
10716 054502' 004737 023434' 490$: JSR PC,CLRDN1      ; WRITE ONE TO CLEAR DNI
10717                                ; ERROR ?
10718 054506' 103006          BCC 495$            ; NO
10719 054510'          ERRHRD 363.,ERR006,MSG003 ; YES, REPORT ERROR
10720 054510' 104456          TRAP C$ERHRD
10721 054512' 000553          .WORD 363
10722 054514' 016206'        .WORD ERR006
10723 054516' 015114'        .WORD MSG003
10724 054520'          ESCAPE TST          ; AND ABORT TEST
10725 054520' 104410          TRAP C$ESCAPE
10726 054522' 000372          .WORD L10053-
10727
10728 054524' 062702 000006 495$: ADD #6,R2          ; UPDATE R2
10729 054530' 062703 000004   ADD #4,R3          ; UPDATE R3
10730 054534' 005301          DEC R1             ; DONE TEN LOOPBACKS ?
10731 054536' 001402          BEQ 496$           ; YES
10732 054540' 000137 054004'   JMP 360$           ; NO
10733
10734                                ; DO TEN LOOPS WITH DEST ADDR = COMPLIMENT OF NEW COMPLIMENTED ADDRESS LIST
10735
10736 054544' 012701 000012 496$: MOV #10.,R1          ; DO LOOP = TEN
10737 054550' 012702 012322'   MOV #MULTL,R2      ; POINT TO MULTICAST LIST
10738
10739                                ; SET UP RINGS FOR ONE BUFFER LOOPBACK
10740 054554' 012705 011542' 500$: MOV #TDRB1A,R5      ; DEFAULT ONE BUFFER TRANSMIT RING
10741 054560' 004737 024734'   JSR PC,LDTDRB      ; LOAD TDRB
10742 054564' 012705 011342'   MOV #RDRB1A,R5     ; DEFAULT ONE BUFFER RECEIVE RING
10743 054570' 004737 024676'   JSR PC,LDRDRB      ; LOAD RDRB
10744
10745                                ; SET UP BUFFERS AND START
10746 054574' 010205          MOV R2,R5          ; COMPLIMENT DESTINATION ADDRESS
10747 054576' 004737 024602'   JSR PC,LDDDEST     ; LOAD DEST
10748 054602' 004737 025230'   JSR PC,SETBUF      ; SET UP BUFFERS
10749 054606' 012777 000004 123412 MOV #START,@PCSR0  ; ISSUE START PORT COMMAND
10750 054614' 004737 022546'   JSR PC,CHKDNI      ; DNI?
10751 054620' 103006          BCC 510$           ; YES
10752 054622'          ERRHRD 364.,ERR012,MSG003 ; NO, REPORT ERROR
10753 054622' 104456          TRAP C$ERHRD
10754 054624' 000554          .WORD 364
10755 054626' 016637'        .WORD ERR012
10756 054630' 015114'        .WORD MSG003
10757 054632'          ESCAPE TST          ; AND ABORT TEST
10758 054632' 104410          TRAP C$ESCAPE
10759 054634' 000260          .WORD L10053-
10760
10761 054636' 004737 023434' 510$: JSR PC,CLRDN1      ; WRITE ONE TO CLEAR DNI
10762                                ; ERROR ?
10763 054642' 103006          BCC 520$            ; NO

```

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 CZUABA.MAC 10-JAN-83 12:46 TEST 22: MULTICAST ADDRESS TEST

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10764 054644'          ERRHRD 365.,ERP006,MSG003      ; YES, REPORT ERROR
10765 054644' 104456
10766 054646' 000555          TRAP C$ERHRD
10767 054650' 016206'          .WORD 365
10768 054652' 015114'          .WORD ERR006
10769 054654'          ESCAPE TST                  ; AND ABORT TEST          .WORD MSG003
10770 054654' 104410          TRAP C$ESCAPE
10771 054656' 000236          .WORD L10053-.
10772
10773 054660' 004737 023306'   §20$: JSR PC,CHKTXI          ; TXI ?
10774 054664' 103006          BCC 530$          ; YES
10775 054666'          ERRHRD 366.,ERR013,MSG003 ; NO, REPORT ERROR
10776 054666' 104456          TRAP C$ERHRD
10777 054670' 000556          .WORD 366
10778 054672' 016720'          .WORD ERR013
10779 054674' 015114'          .WORD MSG003
10780 054676'          ESCAPE TST                  ; AND ABORT TEST
10781 054676' 104410          TRAP C$ESCAPE
10782 054700' 000214          .WORD L10053-.
10783
10784 054702' 004737 023616'   §30$: JSR PC,CLRTXI          ; WRITE ONE TO CLEAR TXI
10785
10786 054706' 103006          BCC 540$          ; ERROR ?
10787 054710'          ERRHRD 367.,ERR014,MSG003 ; NO
10788 054710' 104456          ; YES, REPORT ERROR
10789 054712' 000557          TRAP C$ERHRD
10790 054714' 016751'          .WORD 367
10791 054716' 015114'          .WORD ERR014
10792 054720'          ESCAPE TST                  ; AND ABORT TEST          .WORD MSG003
10793 054720' 104410          TRAP C$ESCAPE
10794 054722' 000172          .WORD L10053-.
10795
10796 054724' 012705 000572'   §40$: MOV #TDRB,R5          ; CHECK TDRB OWNERSHIP
10797 054730' 004737 022634'   JSR PC,OWN          ; OWN = PORT DRIVER ?
10798 054734' 103006          BCC 550$          ; YES
10799 054736'          ERRHRD 368.,ERR018 ; NO, REPORT ERROR
10800 054736' 104456          TRAP C$ERHRD
10801 054740' 000560          .WORD 368
10802 054742' 017216'          .WORD ERR018
10803 054744' 000000          .WORD 0
10804 054746'          ESCAPE TST                  ; AND ABORT TEST
10805 054746' 104410          TRAP C$ESCAPE
10806 054750' 000144          .WORD L10053-.
10807
10808 054752' 012705 012602'   §50$: MOV #TDR21X,R5        ; POINT TO EXPECTED TDRB
10809 054756' 004737 025140'   JSR PC,LDXTDR      ; LOAD INTO XTDRBO TABLE
10810 054762' 012705 000572'   MOV #TDRB,R5       ; CHECK TDRB
10811 054766' 004737 023220'   JSR PC,CHKTDR      ; ERRORS ?
10812 054772' 103006          BCC 560$          ; NO
10813 054774'          ERRHRD 369.,ERR020,MSG005 ; YES, REPORT ERROR
10814 054774' 104456          TRAP C$ERHRD
10815 054776' 000561          .WORD 369
10816 055000' 017376'          .WORD ERR020
10817 055002' 015220'          .WORD MSG005
10818 055004'          ESCAPE TST                  ; AND ABORT TEST
10819 055004' 104410          TRAP C$ESCAPE

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TEST 23: PROMISCUOUS ADDRESS MODE TEST

.SBTTL TEST 23: PROMISCUOUS ADDRESS MODE TEST

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055116'  
055116'  
055116' 004737 025334'  
055122' 103025  
055124' 012777 000040 123074  
055132' 004737 022546'  
055136' 103006  
055140'  
055140' 104456  
055142' 000565  
055144' 016106'  
055146' 015114'

\*\*\*\*\*  
THIS TEST VERIFIES THAT PROMISCUOUS ADDRESSING MODE IS OPERATIONAL.  
A WRITE PHYSICAL ADDRESS FUNCTION IS USED TO SET THE DEUNA'S PHYSICAL ADDRESS.  
A WRITE MULTICAST ADDRESS LIST FUNCTION IS USED TO SET THE DEUNA'S MULTICAST ADDRESS LIST.  
INTERNAL LOOPBACKS ARE THEN PERFORMED WITH CURRENTLY ENABLED AND THEN CURRENTLY DISABLED PHYSICAL AND MULTICAST DESTINATION ADDRESSES.  
TEST SEQUENCE:  
1. WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE  
2. WRITE RING FORMAT  
3. WRITE PHYSICAL ADDRESS  
4. WRITE MULTICAST ADDRESS LIST  
5. SET UP RINGS AND BUFFERS WITH DESTINATION ADDRESS = PHYSICAL ADDRESS  
6. ISSUE START  
7. CHECK FOR ERRORS  
8. ISSUE STOP  
9. SET UP RINGS AND BUFFERS WITH DESTINATION ADDRESS NOT = PHYSICAL ADDRESS  
10. ISSUE START  
11. CHECK FOR ERRORS  
12. ISSUE STOP  
13. SET UP RINGS AND BUFFERS WITH DESTINATION ADDRESS = MULTICAST ADDRESS  
14. ISSUE START  
15. CHECK FOR ERRORS  
16. ISSUE STOP  
17. REPEAT STEPS 13 - 16 FOR ALL TEN LIST ENTRIES  
18. SET UP RINGS AND BUFFERS WITH DESTINATION ADDRESS NOT = MULTICAST ADDRESS  
19. ISSUE START  
20. CHECK FOR ERRORS  
21. ISSUE STOP  
22. REPEAT STEPS 18 - 21 FOR ALL TEN ENTRIES  
\*\*\*\*\*

BGNTST

JSR PC,TINIT ; IS A DEVICE RESET NEEDED?  
BCC 30\$ ; NO  
MOV #RSET,@PCSR0 ; YES, RESET DEUNA  
JSR PC,CHKDNI ; DNI ?  
BCC 20\$ ; YES  
ERRHRD 373.,ERR004,MSG003 ; NO, REPORT ERROR

TRAP CSERHRD  
.WORD 373  
.WORD ERRJ04  
.WORD MSG003

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10920 055150'          ESCAPE TST          : AND ABORT TEST
10921 055150' 104410          :                               TRAP C$ESCAPE
10922 055152' 003342          :                               .WORD L10054-.
10923
10924 055154' 004737 023434' 20$: JSR PC,CLRDNI          : WRITE ONE TO CLEAR DNI
10925                                     : ERROR ?
10926 055160' 103006          BCC 30$          : NO
10927 055162'          ERRHRD 374.,ERR006,MSG003 : YES, REPORT ERROR
10928 055162' 104456          :                               TRAP C$ERHRD
10929 055164' 000566          :                               .WORD 374
10930 055166' 016206'          :                               .WORD ERR006
10931 055170' 015114'          :                               .WORD MSG003
10932 055172'          ESCAPE TST          : AND ABORT TEST
10933 055172' 104410          :                               TRAP C$ESCAPE
10934 055174' 003320          :                               .WORD L10054-.
10935
10936 055176' 004737 024660' 30$: JSR PC,LDPCSR          : ADDRESS OF PCBB -> PCSR2!3
10937 055202' 012777 000001 123016 MOV #GETPCB,@PCSR0 : ISSUE GET_PCBB PORT COMMAND
10938 055210' 004737 022546' JSR PC,CHKDNI          : DNI?
10939 055214' 103006          BCC 40$          : YES
10940 055216'          ERRHRD 375.,ERR009,MSG003 : NO, REPORT ERROR
10941 055216' 104456          :                               TRAP C$ERHRD
10942 055220' 000567          :                               .WORD 375
10943 055222' 016422'          :                               .WORD ERR009
10944 055224' 015114'          :                               .WORD MSG003
10945 055226'          ESCAPE TST          : AND ABORT TEST
10946 055226' 104410          :                               TRAP C$ESCAPE
10947 055230' 003264          :                               .WORD L10054-.
10948
10949 055232' 004737 023434' 40$: JSR PC,CLRDNI          : WRITE ONE TO CLEAR DNI
10950                                     : ERROR ?
10951 055236' 103006          BCC 50$          : NO
10952 055240'          ERRHRD 376.,ERR006,MSG003 : YES, REPORT ERROR
10953 055240' 104456          :                               TRAP C$ERHRD
10954 055242' 000570          :                               .WORD 376
10955 055244' 016206'          :                               .WORD ERR006
10956 055246' 015114'          :                               .WORD MSG003
10957 055250'          ESCAPE TST          : AND ABORT TEST
10958 055250' 104410          :                               TRAP C$ESCAPE
10959 055252' 003242          :                               .WORD L10054-.
10960
10961                                     : WRITE MODE REGISTER = INTERNAL LOOPBACK AND PROM MODE
10962 055254' 012705 011232' 50$: MOV #WTMODE,R5          : DEFAULT WRITE MODE FUNCTION
10963 055260' 004737 024630' JSR PC,LDPCBB          : LOAD FUNCTION -> PCBB
10964 055264' 012777 000002 122734 MOV #GETCMD,@PCSR0 : ISSUE GET_CMD PORT COMMAND
10965 055272' 004737 022546' JSR PC,CHKDNI          : DNI ?
10966 055276' 103006          BCC 60$          : YES
10967 055300'          ERRHRD 377.,ERR010,MSG003 : NO, REPORT ERROR
10968 055300' 104456          :                               TRAP C$ERHRD
10969 055302' 000571          :                               .WORD 377
10970 055304' 016506'          :                               .WORD ERR010
10971 055306' 015114'          :                               .WORD MSG003
10972 055310'          ESCAPE TST          : AND ABORT TEST
10973 055310' 104410          :                               TRAP C$ESCAPE
10974 055312' 003202          :                               .WORD L10054-.
10975

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10976 055314' 004737 023434' 60$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
10977 ; ERROR ?
10978 055320' 103006 BCC 70$ ; NO
10979 055322' ERRHRD 378.,ERR006,MSG003 ; YES, REPORT ERROR
10980 055322' 104456 TRAP C$ERHRD
10981 055324' 000572 .WORD 378
10982 055326' 016206' .WORD ERR006
10983 055330' 015114' .WORD MSG003
10984 055332' ESCAPE TST ; AND ABORT TEST
10985 055332' 104410 TRAP C$ESCAPE
10986 055334' 003160 .WORD L10054-.
10987
10988 ;WRITE RING FORMAT
10989 055336' 012705 011172' 70$: MOV #WTRNGS,R5 ; DEFAULT WRITE RING FORMAT FUNCTION
10990 055342' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
10991 055346' 012705 011312' MOV #RFRMT,R5 ; DEFAULT RING FORMAT
10992 055352' 012700 000006 MOV #6,R0 ; FORMAT = SIX WORDS
10993 055356' 004737 025030' JSR PC,LDUDBB ; LOAD RING FORMAT -> UDBB
10994 055362' 012777 000002' 122636 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
10995 055370' 00' 37 022546' JSR PC,CHKDNI ; DNI ?
10996 055374' 10,J06 BCC 80$ ; YES
10997 055376' ERRHRD 379.,ERR010,MSG003 ; NO, REPORT ERROR
10998 055376' 104456 TRAP C$ERHRD
10999 055400' 000573 .WORD 379
11000 055402' 016506' .WORD ERR010
11001 055404' 015114' .WORD MSG003
11002 055406' ESCAPE TST ; AND ABORT TEST
11003 055406' 104410 TRAP C$ESCAPE
11004 055410' 003104 .WORD L10054-.
11005
11006 055412' 004737 023434' 80$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
11007 ; ERROR ?
11008 055416' 103006 BCC 90$ ; NO
11009 055420' ERRHRD 380.,ERR006,MSG003 ; YES, REPORT ERROR
11010 055420' 104456 TRAP C$ERHRD
11011 055422' 000574 .WORD 380
11012 055424' 016206' .WORD ERR006
11013 055426' 015114' .WORD MSG003
11014 055430' ESCAPE TST ; AND ABORT TEST
11015 055430' 104410 TRAP C$ESCAPE
11016 055432' 003062 .WORD L10054-.
11017
11018 ;WRITE PHYSICAL ADDRESS
11019 055434' 012705 011132' 90$: MOV #WTPHYA,R5 ; DEFAULT WRITE PHYSICAL ADDR FUNC
11020 055440' 004737 024630' JSR PC,LDPCBB ; LOAD FUNCTION -> PCBB
11021 ;LOAD DEFAULT PHYSICAL ADDRESS
11022 055444' 012703 012306' MOV #ADR21,R3 ; POINT TO PHYSICAL ADDRESS
11023 055450' 012704 000254' MOV #PCBB+2,R4 ; POINT TO PCBB + 2
11024 055454' 012324 MOV (R3)+,(R4)+ ; LOAD ADDRESS
11025 055456' 012324 MOV (R3)+,(R4)+
11026 055460' 012324 MOV (R3)+,(R4)+
11027 055462' 012777 000002' 122536 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
11028 055470' 004737 022546' JSR PC,CHKDNI ; DNI ?
11029 055474' 103006 BCC 100$ ; YES
11030 055476' ERRHRD 381.,ERR010,MSG003 ; NO, REPORT ERROR
11031 055476' 104456 TRAP C$ERHRD

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11032 055500' 000575          .WORD 381
11033 055502' 016506'          .WORD ERR010
11034 055504' 015114'          .WORD MSG003
11035 055506'                ESCAPE TST          ; AND ABORT TEST
11036 055506' 104410          TRAP C$ESCAPE
11037 055510' 003004          .WORD L10054-.
11038
11039 055512' 004737 023434' 100$: JSR PC,CLRDNI          ; WRITE ONE TO CLEAR DNI
11040                                ; ERROR ?
11041 055516' 103006          BCC 102$
11042 055520'                ERRHRD 382.,ERR006,MSG003 ; YES, REPORT ERROR
11043 055520' 104456          TRAP C$ERHRD
11044 055522' 000576          .WORD 382
11045 055524' 016206'          .WORD ERR006
11046 055526' 015114'          .WORD MSG003
11047 055530'                ESCAPE TST          ; AND ABORT TEST
11048 055530' 104410          TRAP C$ESCAPE
11049 055532' 002762          .WORD L10054-.
11050
11051                                ;WRITE MULTICAST ADDRESS LIST
11052 055534' 012705 011152' 102$: MOV #WTMULA,R5          ; DEFAULT WRITE MULTICAST ADDR FUNC
11053 055540' 004737 024630' JSR PC,LDPCBB          ; LOAD FUNCTION -> PCBB
11054 055544' 012705 012322' MOV #MULTL,R5          ; LOAD LIST INTO UDBB
11055 055550' 012700 000036 MOV #30.,R0           ; LOAD 30 ENTRIES
11056 055554' 004737 025030' JSR PC,LDUDBB          ; MULTICAST LIST -> UDBB
11057 055560' 012777 000002 122440 MOV #GETCMD,@PCSR0    ; ISSUE GET_CMD PORT COMMAND
11058 055566' 004737 022546' JSR PC,CHKDNI          ; DNI ?
11059 055572' 103006          BCC 104$
11060 055574'                ERRHRD 383.,ERR010,MSG003 ; NO, REPORT ERROR
11061 055574' 104456          TRAP C$ERHRD
11062 055576' 000577          .WORD 383
11063 055600' 016506'          .WORD ERR010
11064 055602' 015114'          .WORD MSG003
11065 055604'                ESCAPE TST          ; AND ABORT TEST
11066 055604' 104410          TRAP C$ESCAPE
11067 055606' 002706          .WORD L10054-.
11068
11069 055610' 004737 023434' 104$: JSR PC,CLRDNI          ; WRITE ONE TO CLEAR DNI
11070                                ; ERROR ?
11071 055614' 103006          BCC 110$
11072 055616'                ERRHRD 384.,ERR006,MSG003 ; YES, REPORT ERROR
11073 055616' 104456          TRAP C$ERHRD
11074 055620' 000600          .WORD 384
11075 055622' 016206'          .WORD ERR006
11076 055624' 015114'          .WORD MSG003
11077 055626'                ESCAPE TST          ; AND ABORT TEST
11078 055626' 104410          TRAP C$ESCAPE
11079 055630' 002664          .WORD L10054-.
11080
11081                                ;DESTINATION ADDRESS = PHYSICAL ADDRESS
11082
11083                                ;SET UP RINGS FOR ONE BUFFER LOOPBACK
11084 055632' 012705 011542' 110$: MOV #TDRB1A,R5          ; DEFAULT ONE BUFFER TRANSMIT RING
11085 055636' 004737 024734' JSR PC,LDTDRB          ; LOAD TDRB
11086 055642' 012705 011342' MOV #RDRB1A,R5          ; DEFAULT ONE BUFFER RECEIVE RING
11087 055646' 004737 024676' JSR PC,LDRDRB          ; LOAD RDRB

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11088
11089
11090 055652' 012705 012306'
11091 055656' 004737 024602'
11092 055662' 004737 025230'
11093 055666' 012777 000004' 122332
11094 055674' 004737 022546'
11095 055700' 103006
11096 055702'
11097 055702' 104456
11098 055704' 000601
11099 055706' 016637'
11100 055710' 015114'
11101 055712'
11102 055712' 104410
11103 055714' 002600
11104
11105 055716' 004737 023434'
11106
11107 055722' 103006
11108 055724'
11109 055724' 104456
11110 055726' 000602
11111 055730' 016206'
11112 055732' 015114'
11113 055734'
11114 055734' 104410
11115 055736' 002556
11116
11117 055740' 004737 023306'
11118 055744' 103006
11119 055746'
11120 055746' 104456
11121 055750' 000603
11122 055752' 016720'
11123 055754' 015114'
11124 055756'
11125 055756' 104410
11126 055760' 002534
11127
11128 055762' 004737 023616'
11129
11130 055766' 103006
11131 055770'
11132 055770' 104456
11133 055772' 000604
11134 055774' 016751'
11135 055776' 015114'
11136 056000'
11137 056000' 104410
11138 056002' 002512
11139
11140 056004' 012705 000572'
11141 056004' 004737 022634'
11142 056014' 103006
11143 056016'

;SET UP BUFFERS AND START
MOV #ADR21,P5 ; POINT TO DESTINATION ADDRESS
JSR PC,LDDEST ; LOAD DEST
JSR PC,SETBUF ; SET UP BUFFERS
MOV #START,@PCSR0 ; ISSUE START PORT COMMAND
JSR PC,CHKDNI ; DNI?
BCC 120$ ; YES
ERRHRD 385.,ERR012,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 385
.WORD ERR012
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10054-.

;120$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
; ERROR ?
BCC 130$ ; NO
ERRHRD 386.,ERR006,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 386
.WORD ERR006
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10054-.

;130$: JSR PC,CHKTXI ; TXI ?
BCC 140$ ; YES
ERRHRD 387.,ERR013,MSG003 ; NO, REPORT ERROR
TRAP C$ERHRD
.WORD 387
.WORD ERR013
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10054-.

;140$: JSR PC,CLRTXI ; WRITE ONE TO CLEAR TXI
; ERROR ?
BCC 150$ ; NO
ERRHRD 388.,ERR014,MSG003 ; YES, REPORT ERROR
TRAP C$ERHRD
.WORD 388
.WORD ERR014
.WORD MSG003

ESCAPE TST ; AND ABORT TEST
TRAP C$ESCAPE
.WORD L10054-.

;150$: MOV #TDRB,R5 ; CHECK TDRB OWNERSHIP
JSR PC,CHKOWN ; OWN = PORT DRIVER ?
BCC 160$ ; YES
ERRHRD 389.,ERR018 ; NO, REPORT ERROR

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TEST 23: PROMISCUOUS ADDRESS MODE TEST

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11200
11201 056162' 012705 012622'      200$:  MOV    #RDR14,R5      ; POINT TO EXPECTED RDRB
11202 056166' 004737 025110'      JSR    PC,LDXRDR      ; LOAD INTO XRDRB0 TABLE
11203 056172' 012705 000632'      MOV    #RDRB,R5      ; CHECK RDRB
11204 056176' 004737 022754'      JSR    PC,CHKRDR      ; ERRORS ?
11205 056202' 103006                BCC    210$           ; NO
11206 056204'                ERRHRD 394.,ERR021,MSG006 ; YES, REPORT ERROR
11207 056204' 104456                TRAP  C$ERHRD
11208 056206' 000612                .WORD 394
11209 056210' 017457'                .WORD ERR021
11210 056212' 015362'                .WORD MSG006
11211 056214'                ESCAPE TST           ; AND ABORT TEST
11212 056214' 104410                TRAP  C$ESCAPE
11213 056216' 002276                .WORD L10054-.
11214
11215
11216 056220' 012705 000070      ; COMPARE RBUF WITH TBUF
11217 056224' 004737 023732'      210$:  MOV    #56.,R5      ; COMPARE 56 WORDS OF DATA
11218 056230' 103006                JSR    PC,CMPDAT      ; DATA COMPARE ERROR ?
11219 056232'                BCC    220$           ; NO
11220 056232' 104456                ERRHRD 395.,ERR022,MSG007 ; YES, REPORT ERROR
11221 056234' 000613                TRAP  C$ERHRD
11222 056236' 017540'                .WORD 395
11223 056240' 015524'                .WORD ERR022
11224 056242'                .WORD MSG007
11225 056242' 104410                ESCAPE TST           ; AND ABORT TEST
11226 056244' 002250                TRAP  C$ESCAPE
11227                .WORD L10054-.
11228 056246' 012705 012732'      220$:  MOV    #CRC21A,R5     ; POINT TO EXPECTED CRC
11229 056252' 004737 025064'      JSR    PC,LDXCRC      ; LOAD INTO XCRC TABLE
11230 056256' 012705 005266'      MOV    #RBUF+124.,R5  ; CHECK CRC
11231 056262' 004737 024012'      JSR    PC,CMPCRC      ; ERRORS ?
11232 056266' 103006                BCC    230$           ; NO
11233 056270'                ERRHRD 396.,ERR023,MSG008 ; YES, REPORT ERROR
11234 056270' 104456                TRAP  C$ERHRD
11235 056272' 000614                .WORD 396
11236 056274' 017607'                .WORD ERR023
11237 056276' 015556'                .WORD MSG008
11238 056300'                ESCAPE TST           ; AND ABORT TEST
11239 056300' 104410                TRAP  C$ESCAPE
11240 056302' 002212                .WORD L10054-.
11241
11242 056304' 012777 000017 121714 230$: MOV    #STOP,@PCSR0    ; ISSUE STOP PORT COMMAND
11243 056312' 004737 022546'      JSR    PC,CHKDNI      ; DNI ?
11244 056316' 103006                BCC    240$           ; YES
11245 056320'                ERRHRD 397.,ERR019,MSG003 ; NO, REPORT ERROR
11246 056320' 104456                TRAP  C$ERHRD
11247 056322' 000615                .WORD 397
11248 056324' 017316'                .WORD ERR019
11249 056326' 015114'                .WORD MSG003
11250 056330'                ESCAPE TST           ; AND ABORT TEST
11251 056330' 104410                TRAP  C$ESCAPE
11252 056332' 002162                .WORD L10054-.
11253
11254 056334' 004737 023434'      240$:  JSR    PC,CLRDN1    ; WRITE ONE TO CLEAR DNI
11255                ; ERROR ?

```

HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 235  
CZUABA.MAC 10-JAN-83 12:46 TEST 23: PROMISCUOUS ADDRESS MODE TEST

```

11256 056340' 103006          BCC 250$          ; NO
11257 056342'          ERRHRD 398.,ERR006,MSG003 ; YES, REPORT ERROR
11258 056342' 104456          TRAP C$ERHRD
11259 056344' 000616          .WORD 398
11260 056346' 016206'        .WORD ERR006
11261 056350' 015114'        .WORD MSG003
11262 056352'          ESCAPE TST          ; AND ABORT TEST
11263 056352' 104410          TRAP C$ESCAPE
11264 056354' 002140          .WORD L10054-.
11265
11266          ;:DESTINATION ADDRESS NOT = PHYSICAL ADDRESS
11267
11268          ;:SET UP RINGS FOR ONE BUFFER LOOPBACK
11269 056356' 012705 011542' 250$: MOV #TDRB1A,R5 ; DEFAULT ONE BUFFER TRANSMIT RING
11270 056362' 004737 024734' JSR PC,LDTDRB ; LOAD TDRB
11271 056366' 012705 011342' MOV #RDRB1A,R5 ; DEFAULT ONE BUFFER RECEIVE RING
11272 056372' 004737 024676' JSR PC,LDRDRB ; LOAD RDRB
11273
11274          ;:SET UP BUFFERS AND START
11275 056376' 012705 012314' MOV #ADR21C,R5 ; POINT TO COMPLEMENTED ADDRESS
11276 056402' 004737 024602' JSR PC,LDDEST ; LOAD DEST
11277 056406' 004737 025230' JSR PC,SETBUF ; SET UP BUFFERS
11278 056412' 012777 000004' 121606 MOV #START,@PCSR0 ; ISSUF START PORT COMMAND
11279 056420' 004737 022546' JSR PC,CHKDNI ; DNI?
11280 056424' 103006          BCC 260$          ; YES
11281 056426'          ERRHRD 399.,ERR012,MSG003 ; NO, REPORT ERRCR
11282 056426' 104456          TRAP C$ERHRD
11283 056430' 000617          .WORD 399
11284 056432' 016637'        .WORD ERR012
11285 056434' 015114'        .WORD MSG003
11286 056436'          ESCAPE TST          ; AND ABORT TEST
11287 056436' 104410          TRAP C$ESCAPE
11288 056440' 002054          .WORD L10054-.
11289
11290 056442' 004737 023434' 260$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
11291          ;: ERROR ?
11292 056446' 103006          BCC 270$          ; NO
11293 056450'          ERRHRD 400.,ERR006,MSG003 ; YES, REPORT ERROR
11294 056450' 104456          TRAP C$ERHRD
11295 056452' 000620          .WORD 400
11296 056454' 016206'        .WORD ERR006
11297 056456' 015114'        .WORD MSG003
11298 056460'          ESCAPE TST          ; AND ABORT TEST
11299 056460' 104410          TRAP C$ESCAPE
11300 056462' 002032          .WORD L10054-.
11301
11302 056464' 004737 023306' 270$: JSR PC,CHKTXI ; TXI ?
11303 056470' 103006          BCC 280$          ; YES
11304 056472'          ERRHRD 401.,ERR013,MSG003 ; NO, REPORT ERROR
11305 056472' 104456          TRAP C$ERHRD
11306 056474' 000621          .WORD 401
11307 056476' 016720'        .WORD ERR013
11308 056500' 015114'        .WORD MSG003
11309 056502'          ESCAPE TST          ; AND ABORT TEST
11310 056502' 104410          TRAP C$ESCAPE
11311 056504' 002010          .WORD L10054-.

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HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 236  
 CZUABA.MAC 10-JAN-83 12:46 TEST 23: PROMISCUOUS ADDRESS MODE TEST

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11312
11313 056506' 004737 023616'      280$: JSR      PC,CLRTXI      : WRITE ONE TO CLEAR TXI
11314                                     : ERROR ?
11315 056512' 103006                BCC      290$      : NO
11316 056514'                                ERRHRD  402.,ERR014,MSG003 : YES, REPORT ERROR
11317 056514' 104456                                TRAP   C$ERHRD
11318 056516' 000622                                .WORD  402
11319 056520' 016751'                                .WORD  ERR014
11320 056522' 015114'                                .WORD  MSG003
11321 056524'                                ESCAPE  TST      : AND ABORT TEST
11322 056524' 104410                                TRAP   C$ESCAPE
11323 056526' 001766                                .WORD  L10054-.
11324
11325 056530' 012705 000572'      290$: MOV      #TDRB,R5      : CHECK TDRB OWNERSHIP
11326 056534' 004737 022634'      JSR      PC,CHKOWN    : OWN = PORT DRIVER ?
11327 056540' 103006                BCC      300$      : YES
11328 056542'                                ERRHRD  403.,ERR018 : NO, REPORT ERROR
11329 056542' 104456                                TRAP   C$ERHRD
11330 056544' 000623                                .WORD  403
11331 056546' 017216'                                .WORD  ERR018
11332 056550' 000000                                .WORD  0
11333 056552'                                ESCAPE  TST      : AND ABORT TEST
11334 056552' 104410                                TRAP   C$ESCAPE
11335 056554' 001740                                .WORD  L10054-.
11336
11337 056556' 012705 012512'      300$: MOV      #TDR14A,R5 : POINT TO EXPECTED TDRB
11338 056562' 004737 025140'      JSR      PC,LDXTDR    : LOAD INTO XTDRBO TABLE
11339 056566' 012705 000572'      MOV      #TDRB,R5    : CHECK TDRB
11340 056572' 004737 023220'      JSR      PC,CHKTDR   : ERRORS ?
11341 056576' 103006                BCC      310$      : NO
11342 056600'                                ERRHRD  404.,ERR020,MSG005 : YES, REPORT ERROR
11343 056600' 104456                                TRAP   C$ERHRD
11344 056602' 000624                                .WORD  404
11345 056604' 017376'                                .WORD  ERR020
11346 056606' 015220'                                .WORD  MSG005
11347 056610'                                ESCAPE  TST      : AND ABORT TEST
11348 056610' 104410                                TRAP   C$ESCAPE
11349 056612' 001702                                .WORD  L10054-.
11350
11351 056614' 004737 023054'      310$: JSR      PC,CHKRXI    : RXI ?
11352 056620' 103006                BCC      320$      : YES
11353 056622'                                ERRHRD  405.,ERR015,MSG003 : NO, REPORT ERROR
11354 056622' 104456                                TRAP   C$ERHRD
11355 056624' 000625                                .WORD  405
11356 056626' 017017'                                .WORD  ERR015
11357 056630' 015114'                                .WORD  MSG003
11358 056632'                                ESCAPE  TST      : AND ABORT TEST
11359 056632' 104410                                TRAP   C$ESCAPE
11360 056634' 001660                                .WORD  L10054-.
11361
11362 056636' 004737 023550'      320$: JSR      PC,CLRRXI    : WRITE ONE TO CLEAR RXI
11363                                     : ERROR ?
11364 056642' 103006                BCC      330$      : NO
11365 056644'                                ERRHRD  406.,ERR016,MSG003 : YES, REPORT ERROR
11366 056644' 104456                                TRAP   C$ERHRD
11367 056646' 000626                                .WORD  406

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HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 238  
 CZUABA.MAC 10-JAN-83 12:46 TEST 23: PROMISCUOUS ADDRESS MODE TEST

```

11424 057024' 104410 TRAP C$ESCAPE
11425 057026' 001466 .WORD L10054-.
11426
11427 057030' 012777 000017 121170 370$: MOV #STOP,@PCSR0 ; ISSUE STOP PORT COMMAND
11428 057036' 004737 022546' JSR PC,CHKDNI ; DNI ?
11429 057042' 103006 BCC 380$ ; YES
11430 057044' ERRHRD 411.,ERR019,MSG003 ; NO, REPORT ERROR
11431 057044' 104456 TRAP C$ERHRD
11432 057046' 000633 .WORD 411
11433 057050' 017316' .WORD ERR019
11434 057052' 015114' .WORD MSG003
11435 057054' ESCAPE TST ; AND ABORT TEST
11436 057054' 104410 TRAP C$ESCAPE
11437 057056' 001436 .WORD L10054-.
11438
11439 057060' 004737 023434' 380$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
11440 .WORD ERROR ?
11441 057064' 103006 BCC 390$ ; NO
11442 057066' ERRHRD 412.,ERR006,MSG003 ; YES, REPORT ERROR
11443 057066' 104456 TRAP C$ERHRD
11444 057070' 000634 .WORD 412
11445 057072' 016206' .WORD ERR006
11446 057074' 015114' .WORD MSG003
11447 057076' ESCAPE TST ; AND ABORT TEST
11448 057076' 104410 TRAP C$ESCAPE
11449 057100' 001414 .WORD L10054-.
11450
11451 ;REWRITE DEFAULT PHYSICAL ADDRESS
11452 057102' 012705 011132' 390$: MOV #WTPHYA,R5 ; DEFAULT WRITE PHYSICAL ADDR FUNC
11453 057106' 004737 024630' JSR PC,LDPCCB ; LOAD FUNCTION -> PCBB
11454 057112' 012777 000002 121106 MOV #GETCMD,@PCSR0 ; ISSUE GET_CMD PORT COMMAND
11455 057120' 004737 022546' JSR PC,CHKDNI ; DNI ?
11456 057124' 103006 BCC 400$ ; YES
11457 057126' ERRHRD 413.,ERR010,MSG003 ; NO, REPORT ERROR
11458 057126' 104456 TRAP C$ERHRD
11459 057130' 000635 .WORD 413
11460 057132' 016506' .WORD ERR010
11461 057134' 015114' .WORD MSG003
11462 057136' ESCAPE TST ; AND ABORT TEST
11463 057136' 104410 TRAP C$ESCAPE
11464 057140' 001354 .WORD L10054-.
11465
11466 057142' 004737 023434' 400$: JSR PC,CLRDNI ; WRITE ONE TO CLEAR DNI
11467 .WORD ERROR ?
11468 057146' 103006 BCC 410$ ; NO
11469 057150' ERRHRD 414.,ERR006,MSG003 ; YES, REPORT ERROR
11470 057150' 104456 TRAP C$ERHRD
11471 057152' 000636 .WORD 414
11472 057154' 016206' .WORD ERR006
11473 057156' 015114' .WORD MSG003
11474 057160' ESCAPE TST ; AND ABORT TEST
11475 057160' 104410 TRAP C$ESCAPE
11476 057162' 001332 .WORD L10054-.
11477
11478 ;DO TEN LOOPS WITH DEST ADDR = MULTICAST ADDRESS
11479

```







HARDWARE TESTS MACY11 30(1046) 11-JAN-83 12:03 PAGE 242  
 CZUABA.MAC 10-JAN-83 12:46 TEST 23: PROMISCUOUS ADDRESS MODE TEST

```

11648 057664' 000653' .WORD 427
11649 057666' 017316' .WORD ERR019
11650 057670' 015114' .WORD MSG003
11651 057672' ESCAPE TST ; AND ABORT TEST
11652 057672' 104410 TRAP C$ESCAPE
11653 057674' 000620 .WORD L10054-.
11654
11655 057676' 004737 023434' 560$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
11656 ; ERROR ?
11657 057702' 103006 BCC 565$ ; NO
11658 057704' ERRHRD 428.,ERR006,MSG003 ; YES, REPORT ERROR
11659 057704' 104456 TRAP C$ERHRD
11660 057706' 000654 .WORD 428
11661 057710' 016206' .WORD ERR006
11662 057712' 015114' .WORD MSG003
11663 057714' ESCAPE TST ; AND ABORT TEST
11664 057714' 104410 TRAP C$ESCAPE
11665 057716' 000576 .WORD L10054-.
11666
11667 057720' 062702 000006 565$: ADD #6,R2 ; UPDATE R2
11668 057724' 062703 000004 ADD #4,R3 ; UPDATE R3
11669 057730' 005301 DEC R1 ; DONE TEN LOOPBACKS
11670 057732' 001402 BEQ 566$ ; YES
11671 057734' 000137 057200' JMP 420$ ; NO
11672
11673 ;
11674 ;DO TEN LOOPS WITH DEST ADDRESS = COMPLIMENTED MULTICAST ADDRESS
11675 ;
11676 057740' 012701 000012 566$: MOV #10.,R1 ; DO LOOP = TEN
11677 057744' 012702 012416' MOV #MULTLC,R2 ; R2 POINTS TO COMPLIMENTED LIST
11678 057750' 012703 013012' MOV #CRC22B,R3 ; R3 POINTS TO CRC TABLE
11679 ;
11680 ;SET UP RINGS FOR ONE BUFFER LOOPBACK
11681 057754' 012705 011542' 570$: MOV #TDRB1A,R5 ; DEFAULT ONE BUFFER TRANSMIT RING
11682 057760' 004737 024734' JSR PC,LDTDRB ; LOAD TDRB
11683 057764' 012705 011342' MOV #RDRB1A,R5 ; DEFAULT ONE BUFFER RECEIVE RING
11684 057770' 004737 024676' JSR PC,LDRDRB ; LOAD RDRB
11685 ;
11686 ;SET UP BUFFERS AND START
11687 057774' 010205 MOV R2,R5 ; POINT TO COMPLEMENTED ADDRESS
11688 057776' 004737 024602' JSR PC,LDDEST ; LOAD DEST
11689 060002' 004737 025230' JSR PC,SETBUF ; SET UP BUFFERS
11690 060006' 012777 000004 120212 MOV #START,@PCSR0 ; ISSUE START PORT COMMAND
11691 060014' 004737 022546' JSR PC,CHKDNI ; DNI?
11692 060020' 103006 BCC 580$ ; YES
11693 060022' ERRHRD 429.,ERR012,MSG003 ; NO, REPORT ERROR
11694 060022' 104456 TRAP C$ERHRD
11695 060024' 000655 .WORD 427
11696 060026' 016637' .WORD ERR012
11697 060030' 015114' .WORD MSG003
11698 060032' ESCAPE TST ; AND ABORT TEST
11699 060032' 104410 TRAP C$ESCAPE
11700 060034' 000460 .WORD L10054-.
11701
11702 060036' 004737 023434' 580$: JSR PC,CLRDN1 ; WRITE ONE TO CLEAR DNI
11703 ; ERROR ?
    
```







HARDWARE TESTS MACY11 3)(1046) 11-JAN-83 12:03 PAGE 246  
CZUABA.MAC 10-JAN-83 12:46 TEST 23: PROMISCUOUS ADDRESS MODE TEST

11872 060514\* 104401

TRAP C\$ETST



























































































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PARAMETER CODING    MACY:1 30(1046) 11-JAN-83 12:03 PAGE 292
CZUABA.MAC        10-JAN-83 12:46    SOFTWARE PARAMETER CODING SECTION
```

```
14244
14245
14246
14247
14248
14249
14250
14251
14252
14253
14254
14255 071104'    BGNSFT
14256 071104' 000003
14257 071106'
14258
14259 071106'    GPRML  ASKEXT,0,1,YES
14260 071106' 000130
14261 071110' 071114'
14262 071112' 000001
14263
14264
14265 071114'
14266
14267 071114'
14268
14269
14270
14271 071114' 052522 020116 042524 ASKEXT: .ASCIZ  /RUN TEST 20 IN EXTERNAL LOOPBACK MODE ?/
14272 071122' 052123 031040 020060
14273 071130' 047111 042440 052130
14274 071136' 051105 040516 020114
14275 071144' 047514 050117 040502
14276 071152' 045503 046440 042117
14277 071160' 020105 000077
14278
14279
14280 071164'
14281 071164' 000010
14282
14283
14284 071204'
14285
14286 071204' 000000
14287 071206' 000000
14288 071210'
14289 071210'
14290          000001
```

.SBTTL SOFTWARE PARAMETER CODING SECTION

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

```

                L$SOFT:: .WORD L10063-L$SOFT/2
                L$SOFT::
                T$CODE
                ASKEXT
                1
                .EVEN
                L10063: .EVEN
                .ASCIZ  /RUN TEST 20 IN EXTERNAL LOOPBACK MODE ?/
                .BLKW  10
                LASTAD
                .EVEN
                .WORD  0
                .WORD  0
                L$LAST::
                ENDMOD
                .END
```





















PARAMETER CODING MACY11 30(1046) 11-JAN-83 12:03 PAGE 304  
 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- USER SYMBOLS

GSPRMD=	000002	1068#																		
GSPRML=	000000	1068#	14260																	
GSRADA=	000140	1068#																		
GSRADB=	000000	1068#																		
GSRADD=	000040	1068#																		
GSRADL=	000120	1068#	14260																	
GSRADO=	000020	1068#	14220	14225																
G\$XFER=	000004	1068#																		
G\$YES =	000010	1068#	14260																	
HELP =	000000	1066#	1068	1082	1170	1209	1223	1241	1248#	1251	1259	2089	2112	2129						
		2134	2136	2294	2948	4358#	4371	4376	4398	4408	4460	4473	4487	4492						
		4508	4513	4530	4535	4589#	4590	14201#	14219	14233	14259	14270	14283							
HEXDAT	070276RG	3796*	3831	3867	14105#															
HEXDPA	024320RG	3787#	13971																	
HEXH	024402RG	3797	3828#																	
HEXL	024440RG	3799	3864#																	
HEXTBL	070367RG	3839	3870	14127#																
HEXVAL	070277RG	3798	3800	3840*	3871*	14106#														
HOE =	100000 G	1328#																		
IBE =	010000 G	1325#																		
ICAB =	040000 G	1354#																		
IDU =	000040 G	1318#																		
IER =	020000 G	1326#																		
INITH =	000000 G	1390#	5673																	
INTE =	000100 G	1340#	5543	5547																
INTR =	000200 G	1339#																		
INTVEC	000236RG	1408#	4445*	5534	5564	5575														
ISR =	000100 G	1319#																		
ISRDNI	025652RG	4576#	5533																	
ISRNXM	025642RG	4556#	4606	4649	4691	4732														
IXE =	004000 G	1324#																		
ISAU =	000041	1068#	4528#	4541#																
ISAUTO=	000041	1068#	4471#	4477#																
ISCLN =	000041	1068#	4485#	4489	4498#															
ISDU =	000041	1068#	4506#	4519#																
ISHRD =	000041	14216#	14232#																	
ISINIT=	000041	1068#	4406#	4460#																
ISMOD =	000041	1068#	1074#	14290#																
ISMSG =	000041	1068#	2295#	2306#	2308#	2320#	2322#	2334#	2336#	2354#	2356#	2392#	2394#	2430#						
		2432#	2444#	2446#	2466#	2468#	2500#													
ISPROT=	000040	1068#	4390#																	
ISPTAB=	000041	1068#																		
ISPW =	000041	1068#																		
ISRPT =	000041	1068#	4369#	4382#																
ISSEG =	000041	1068#	4603	4646	4688	4729	4777	4784#	4802#	4827	4834#	4852#	4875	5383						
		5503	5615	5750	6013	6234	6587	6589	6914	7137	7466	7793	8126	8421						
		8691	9193	10017	10909	11908	12506	13001	13409	13882										
ISSETU=	000041	1068#																		
ISSFT =	000041	14256#	14268#																	
ISSRV =	000041	1068#	4556#	4561#	4576#	4588#														
ISSUB =	000041	1068#	4603	4646	4688	4729	4777	4827	4875	5383	5503	5615	5750	6013						
		6234	6587	6589#	6911#	6913#	6914#	7108#	7110#	7137	7466	7793	8126	8421						
		8691	9193	10017	10909	11908	12506	13001	13409	13882										
ISTST =	000041	1068#	4603#	4630#	4632#	4646#	4673#	4675#	4688#	4715#	4717#	4729#	4756#	4758#						
		4777#	4806#	4808#	4827#	4856#	4858#	4875#	4887	4899	4924	493?	4951	4955#						
		4957#	5383#	5395	5407	5419	5431	5446	5458	5470	5482	5486#	5488#	5503#						

PARAMETER CODING MACY11 30(1046) 11-JAN-83 12:03 PAGE 305  
CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- USER SYMBOLS

5515	5527	5570	5589	5593#	5595#	5615#	5627	5639	5652	5664	5694	5706
5722	5726#	5728#	5750#	5762	5774	5787	5799	5825	5837	5868	5880	5894
5922	5934	5965	5977	5991	5996#	5998#	6013#	6025	6037	6050	6062	6078
6090	6105	6117	6131	6148	6160	6175	6187	6201	6206#	6208#	6234#	6246
6258	6271	6283	6299	6311	6344	6356	6397	6409	6428	6466	6478	6519
6531	6550	6557#	6559#	6587#	6589	6603	6615	6628	6640	6655	6667	6685
6697	6712	6724	6746	6758	6769	6781	6793	6807	6818	6830	6842	6856
6869	6883	6895	6907	6914	6930	6940	6954	6966	6990	7002	7013	7025
7026	7048	7068	7082	7111#	7113#	7137#	7149	7161	7174	7186	7201	7213
7230	7242	7256	7268	7290	7302	7313	7325	7337	7351	7362	7374	7386
7400	7412	7424	7436	7440#	7442#	7466#	7478	7490	7503	7515	7530	7542
7559	7571	7585	7597	7619	7631	7642	7654	7666	7680	7691	7703	7715
7729	7741	7753	7765	7769#	7771#	7793#	7805	7817	7830	7842	7859	7871
7889	7901	7916	7928	7950	7962	7973	7985	7997	8011	8022	8034	8046
8060	8074	8086	8098	8102#	8104#	8126#	8138	8150	8163	8175	8190	8202
8220	8232	8247	8259	8281	8293	8304	8316	8328	8342	8354	8368	8380
8392	8396#	8398#	8421#	8433	8445	8458	8470	8485	8497	8515	8527	8542
8554	8577	8589	8600	8612	8625	8637	8649	8661	8665#	8667#	8691#	8703
8715	8728	8740	8764	8776	8794	8806	8821	8833	8859	8871	8882	8894
8906	8920	8932	8946	8958	8972	8983	8995	9023	9036	9050	9062	9076
9088	9102	9115	9129	9141	9153	9157#	9159#	9193#	9205	9217	9230	9242
9258	9270	9288	9300	9321	9333	9355	9367	9378	9390	9402	9416	9427
9439	9451	9465	9478	9492	9504	9516	9540	9552	9563	9575	9587	9601
9612	9624	9636	9659	9671	9693	9705	9716	9728	9740	9754	9765	9777
9789	9803	9816	9830	9842	9854	9878	9890	9901	9913	9925	9939	9950
9962	9974	9978#	9980#	10017#	10029	10041	10054	10066	10082	10094	10112	10124
10139	10151	10169	10181	10209	10221	10232	10244	10256	10270	10281	10293	10305
10319	10332	10346	10358	10370	10404	10416	10427	10439	10451	10465	10476	10488
10500	10524	10536	10564	10576	10587	10599	10611	10625	10636	10648	10660	10674
10687	10701	10713	10725	10758	10770	10781	10793	10805	10819	10830	10842	10854
10862#	10864#	10909#	10921	10933	10946	10958	10973	10985	11003	11015	11036	11048
11066	11078	11102	11114	11125	11137	11149	11163	11174	11186	11198	11212	11225
11239	11251	11263	11287	11299	11310	11322	11334	11348	11359	11371	11383	11397
11410	11424	11436	11448	11463	11475	11503	11515	11526	11538	11550	11564	11575
11587	11599	11613	11626	11640	11652	11664	11699	11711	11722	11734	11746	11760
11771	11783	11795	11809	11822	11836	11848	11860	11871#	11873#	11908#	11920	11932
11945	11957	11975	11987	12005	12017	12032	12044	12062	12074	12102	12114	12125
12137	12149	12163	12174	12186	12198	12212	12225	12239	12251	12263	12298	12310
12321	12333	12345	12359	12370	12382	12394	12408	12421	12435	12447	12459	12470#
12472#	12506#	12518	12530	12543	12555	12570	12582	12600	12612	12627	12639	12661
12673	12684	12696	12710	12722	12734	12754	12766	12788	12800	12811	12823	12835
12849	12860	12872	12884	12898	12911	12924	12938	12950	12962	12966#	12968#	13001#
13013	13025	13038	13050	13066	13078	13096	13108	13129	13141	13163	13175	13186
13198	13210	13224	13235	13247	13259	13283	13295	13306	13318	13330	13344	13355
13367	13379	13384#	13386#	13409#	13421	13433	13446	13458	13473	13485	13503	13515
13530	13542	13570	13582	13595	13607	13618	13630	13642	13656	13668	13682	13694
13708	13719	13731	13743	13757	13769	13783	13795	13809	13822	13836	13848	13860
13864#	13866#	13882#	13886	13900	13912	13925	13937	13952	13964	13984	13996	14020
14032	14092#	14094#										
	1068#	4373	4510	4532								
JSJMP = 000167	LDBUF	024466RG	3892#	5807	5845	6320	6367					
LDBUFC	024530RG	3924#	5904	5942	6442	6489						
LDDEST	024602RG	3960#	6735	6979	7277	7606	7939	8270	8566	8844	9344	9529
		10198	10393	10553	10747	11091	11276	11492	11688	12091	12287	12650
		13272	13553									9682
		1524#	5809	5906	6323	6445						9867
												13152

JSJMP = 000167  
LDBUF 024466RG  
LDBUFC 024530RG  
LDDEST 024602RG  
LDMEM 011302RG



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L\$EXP4	000064RG	1139#							
L\$EXP5	000066RG	1141#							
L\$HARD	070774RG	1102	14216	14217#					
L\$HIME	000120RG	1167#							
L\$HPCP	000016RG	1101#							
L\$HPTP	000022RG	1105#							
L\$HW	000216RG	1106	1219	1220#					
L\$ICP	000104RG	1155#							
L\$INIT	025416RG	1156	4406#						
L\$LDAP	000026RG	1109#							
L\$LAST	071210RG	1110	14288#						
L\$LOAD	000100RG	1151#							
L\$LUN	000074RG	1147#							
L\$MREV	000050RG	1127#							
L\$NAME	000000RG	1084#							
L\$PRIO	000042RG	1121#							
L\$PROT	025410RG	1162	4390#						
L\$PRT	000112RG	1161#							
L\$REPP	000062RG	1137#							
L\$REV	000010RG	1093#							
L\$RPT	025402RG	1138	4369#						
L\$SOFT	071106RG	1104	14256	14257#					
L\$SPC	000056RG	1133#							
L\$SPCP	000020RG	1103#							
L\$SPTP	000024RG	1107#							
L\$STA	000030RG	1111#							
L\$SW	000224RG	1108	1237	1238#					
L\$TEST	000114RG	1163#							
L\$TIML	000014RG	1099#							
L\$UNIT	000012RG	1097#	4436						
L10000	000222R	1219	1226#						
L10001	000226R	1237	1245#						
L10002	015064R	2304#							
L10003	015112R	2318#							
L10004	015144R	2332#							
L10005	015216R	2352#							
L10006	015360R	2390#							
L10007	015522R	2428#							
L10010	015554R	2442#							
L10011	015636R	2464#							
L10012	015760R	2498#							
L10013	025406R	4374	4380#						
L10015	025614R	4458#							
L10016	025616R	4475#							
L10017	025624R	4490	4496#						
L10020	025632R	4511	4517#						
L10021	025640R	4533	4539#						
L10022	025650R	4559#							
L10023	025676R	4586#							
L10024	025774R	4630#							
L10025	026074R	4673#							
L10026	026174R	4715#							
L10027	026274R	4756#							
L10030	026350R	4806#							
L10031	026424R	4856#							
L10032	026654R	4888	4900	4925	4940	4952	4955#		

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L10033	032500R	5396	5408	5420	5432	5447	5459	5471	5483	5486#				
L10034	032764R	5516	5528	5571	5590	5593#								
L10035	033314R	5628	5640	5653	5665	5695	5707	5723	5726#					
L10036	034270R	5763	5775	5788	5800	5826	5838	5869	5881	5895	5923	5935	5966	5978
		5992	5996#											
L10037	035034R	6026	6038	6051	6063	6079	6091	6106	6118	6132	6149	6161	6176	6188
		6202	6206#											
L10040	036242R	6247	6259	6272	6284	6300	6312	6345	6357	6398	6410	6429	6467	6479
		6520	6532	6551	6557#									
L10041	040140R	6604	6616	6629	6641	6656	6668	6686	6698	6713	6725	6747	6759	6770
		6782	6794	6808	6819	6831	6843	6857	6870	6884	6896	6908	6931	6941
		6955	6967	6991	7003	7014	7026	7037	7049	7069	7083	7111#		
L10042	037372R	6911#												
L10043	040136R	7108#												
L10044	041252R	7150	7162	7175	7187	7202	7214	7231	7243	7257	7269	7291	7303	7314
		7326	7338	7352	7363	7375	7387	7401	7413	7425	7437	7440#		
L10045	042364R	7479	7491	7504	7516	7531	7543	7560	7572	7586	7598	7620	7632	7643
		7655	7667	7681	7692	7704	7716	7730	7742	7754	7766	7769#		
L10046	043472R	7806	7818	7831	7843	7860	7872	7890	7902	7917	7929	7951	7963	7974
		7986	7998	8012	8023	8035	8047	8061	8075	8087	8099	8102#		
L10047	044470R	8139	8151	8164	8176	8191	8203	8221	8233	8248	8260	8282	8294	8305
		8317	8329	8343	8355	8369	8381	8393	8396#					
L10050	045362R	8434	8446	8459	8471	8486	8498	8516	8528	8543	8555	8578	8590	8601
		8613	8626	8638	8650	8662	8665#							
L10051	047156R	8704	8716	8729	8741	8765	8777	8795	8807	8822	8834	8860	8872	8883
		8895	8907	8921	8933	8947	8959	8973	8984	8996	9024	9037	9051	9063
		9077	9089	9103	9116	9130	9142	9154	9157#					
L10052	052040R	9206	9218	9231	9243	9259	9271	9289	9301	9322	9334	9356	9368	9379
		9391	9403	9417	9428	9440	9452	9466	9479	9493	9505	9517	9541	9553
		9564	9576	9588	9602	9613	9625	9637	9660	9672	9694	9706	9717	9729
		9741	9755	9766	9778	9790	9804	9817	9831	9843	9855	9879	9891	9902
		9914	9926	9940	9951	9963	9975	9978#						
L10053	055114R	10030	10042	10055	10067	10083	10095	10113	10125	10140	10152	10170	10182	10210
		10222	10233	10245	10257	10271	10282	10294	10306	10320	10333	10347	10359	10371
		10405	10417	10428	10440	10452	10466	10477	10489	10501	10525	10537	10565	10577
		10588	10600	10612	10626	10637	10649	10661	10675	10688	10702	10714	10726	10759
		10771	10782	10794	10806	10820	10831	10843	10855	10862#				
L10054	060514R	10922	10934	10947	10959	10974	10986	11004	11016	11037	11049	11067	11079	11103
		11115	11126	11138	11150	11164	11175	11187	11199	11213	11226	11240	11252	11264
		11288	11300	11311	11323	11335	11349	11360	11372	11384	11398	11411	11425	11437
		11449	11464	11476	11504	11516	11527	11539	11551	11565	11576	11588	11600	11614
		11627	11641	11653	11665	11700	11712	11723	11735	11747	11761	11772	11784	11796
		11810	11823	11837	11849	11861	11871#							
L10055	062552R	11921	11933	11946	11958	11976	11988	12006	12018	12033	12045	12063	12075	12103
		12115	12126	12138	12150	12164	12175	12187	12199	12213	12226	12240	12252	12264
		12299	12311	12322	12334	12346	12360	12371	12383	12395	12409	12422	12436	12448
		12460	12470#											
L10056	064272R	12519	12531	12544	12556	12571	12583	12601	12613	12628	12640	12662	12674	12685
		12697	12711	12723	12735	12755	12767	12789	12801	12812	12824	12836	12850	12861
		12873	12885	12899	12912	12925	12939	12951	12963	12966#				
L10057	065604R	13014	13026	13039	13051	13067	13079	13097	13109	13130	13142	13164	13176	13187
		13199	13211	13225	13236	13248	13260	13284	13296	13307	13319	13331	13345	13356
		13368	13380	13384#										
L10060	067334R	13422	13434	13447	13459	13474	13486	13504	13516	13531	13543	13571	13583	13596
		13608	13619	13631	13643	13657	13669	13683	13695	13709	13720	13732	13744	13758
		13770	13784	13796	13810	13823	13837	13849	13861	13864#				

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L10061	070256R	13887	13901	13913	13926	13938	13953	13965	13985	13997	14021	14033	14092#	
L10062	071014R	14216	14231#											
L10063	071114R	14256	14267#											
MEM10A	012214RG	1817#	5675											
MEM11A	012244RG	1831#	5803	5841	5900	5938								
MEM13A	012246RG	1833#	6315	6362	6437	6484								
MODE15	013076RG	2040#	7191	7520										
MODE17	013100RG	2041#	7849											
MODE20	013102RG	2042#	8754											
MODE21	013104RG	2043#	9248	10072										
MODE24	013106RG	2044#	11965											
MODE25	013110RG	2045#	12744											
MODE26	013112RG	2046#	13056											
MSG001	015042RG	2295#	4620	4663	4705	4746								
MSG002	015066RG	2308#	4796	4846	6129	6199								
MSG003	015114RG	2322#	4885	4897	4922	4949	5393	5405	5417	5429	5444	5456	5468	5480
		5513	5525	5587	5625	5637	5650	5662	5692	5704	5760	5772	5785	5797
		5823	5835	5866	5878	5920	5932	5963	5975	6023	6035	6048	6060	6076
		6088	6103	6115	6146	6158	6173	6185	6244	6256	6269	6281	6297	6309
		6342	6354	6395	6407	6464	6476	6517	6529	6601	6613	6626	6638	6653
		6665	6683	6695	6710	6722	6744	6756	6767	6779	6816	6828	6893	6905
		6928	6938	6952	6964	6988	7000	7011	7023	7034	7046	7057	7066	7080
		7105	7147	7159	7172	7184	7199	7211	7228	7240	7254	7266	7288	7300
		7311	7323	7360	7372	7422	7434	7476	7488	7501	7513	7528	7540	7557
		7569	7583	7595	7617	7629	7640	7652	7689	7701	7751	7763	7803	7815
		7828	7840	7857	7869	7887	7899	7914	7926	7948	7960	7971	7983	8020
		802	8084	8096	8136	8148	8161	8173	8188	8200	8218	8230	8245	8257
		8279	8291	8302	8314	8378	8390	8431	8443	8456	8468	8483	8495	8513
		8525	8540	8552	8575	8587	8598	8610	8623	8635	8647	8659	8701	8713
		8726	8738	8762	8774	8792	8804	8819	8831	8857	8869	8880	8892	8981
		8993	9139	9151	9203	9215	9228	9240	9256	9268	9286	9298	9319	9331
		9353	9365	9376	9388	9425	9437	9502	9514	9538	9550	9561	9573	9622
		9634	9657	9669	9691	9703	9714	9726	9763	9775	9840	9852	9876	9888
		9899	9911	9960	9972	10027	10039	10052	10064	10080	10092	10110	10122	10137
		10149	10167	10179	10207	10219	10230	10242	10279	10291	10356	10368	10402	10414
		10425	10437	10486	10498	10522	10534	10562	10574	10585	10597	10634	10646	10711
		10723	10756	10768	10779	10791	10840	10852	10919	10931	10944	10956	10971	10983
		11001	11013	11034	11046	11064	11076	11100	11112	11123	11135	11172	11184	11249
		11261	11285	11297	11308	11320	11357	11369	11434	11446	11461	11473	11501	11513
		11524	11536	11573	11585	11650	11662	11697	11709	11720	11732	11769	11781	11846
		11858	11918	11930	11943	11955	11973	11985	12003	12015	12030	12042	12060	12072
		12100	12112	12123	12135	12172	12184	12249	12261	12296	12308	12319	12331	12368
		12380	12445	12457	12516	12528	12541	12553	12568	12580	12598	12610	12625	12637
		12659	12671	12682	12694	12720	12732	12752	12764	12786	12798	12809	12821	12858
		12870	12948	12960	13011	13023	13036	13048	13064	13076	13094	13106	13127	13139
		13161	13173	13184	13196	13245	13257	13281	13293	13304	13316	13365	13377	13419
		13431	13444	13456	13471	13483	13501	13513	13528	13540	13568	13580	13593	13605
		13616	13628	13717	13729	13846	13858	13898	13910	13923	13935	13950	13962	13982
		13994	14018	14030										
MSG004	015146RG	2336#	4937											
MSG005	015220RG	2356#	6805	7349	7678	8009	8340	8366	8918	8944	8970	9414	9599	9752
		9937	10268	10463	10623	10817	11161	11346	11562	11758	12161	12357	12847	13222
		13342	13654	13680	13706									
MSG006	015362RG	2394#	6854	7398	7727	8058	8072	9048	9074	9100	9463	9801	10317	10672
		11210	11395	11611	11807	12210	12406	12896	13755	13781	13807			
MSG007	015524RG	2432#	5892	5989	6426	6548	6867	7410	7739	9113	9476	9814	10330	10685



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PRI01 =	000040 G	1310#												
PRI02 =	000100 G	1309#												
PRI03 =	000140 G	1308#												
PRI04 =	000200 G	1307#	5539											
PRI05 =	000240 G	1306#												
PRI06 =	000300 G	1305#												
PRI07 =	000340 G	1304#	4605	4648	4690	4731	5567	5578						
RBUF	005072RG	1430#	1548	1553	1558	1563	1568	1573	1578	1583	1588	1598	1603	1608
		1623	1813	1955	1959	1963	1971	3571	3660	3704	3745	4290	5679	5847
		5857	5944	5954	6370	6381	6492	6503	6874	9002	9003	9013	9120	9483
		9821	10337	10692	11230	11415	11631	11827	12230	12426	12929	13827		
RBUF2	005472RG	1431#	1593	1613	1967	1975								
RBUF3	006072RG	1432#	1618	1979										
RBUF4	006472RG	1433#												
RBUF5	007072RG	1434#												
RBUF6	007472RG	1435#												
RBUF7	010072RG	1436#												
RBUF8	010472RG	1437#												
RCBI =	002000 G	1336#	3059	3424	3426									
RDCNT	011202RG	1485#	13557											
RDDEFA	011112RG	1450#	13941											
RDMODE	011222RG	1495#	6094	6164										
RDMULA	011142RG	1465#												
RDPHYA	011122RG	1455#												
RDRB	000632RG	1420#	1534	1541	4043	6833	6847	7377	7391	7706	7720	8037	8051	8065
		9027	9041	9053	9067	9079	9093	9442	9456	9780	9794	10296	10310	10651
		10665	11189	11203	11374	11388	11590	11604	11786	11800	12189	12203	12385	12399
		12875	12889	13734	13748	13760	13774	13786	13800					
RDRB1A	011342RG	1547#	6730	6973	7273	7602	8265	9339	9524	9677	9862	10193	10388	10548
		10742	11086	11271	11487	11683	12086	12282	12645	12772	13147	13267		
RDRB1B	011402RG	1567#	8561											
RDRB2A	011442RG	1587#	7934											
RDRB3A	011502RG	1607#	8839	13548										
RDRNGS	011162RG	1475#												
RDR14A	012622RG	1954#	6845	7718	9454	9792	10308	10663	11201	11386	11602	11798	12201	12397
		12887												
RDR15A	012632RG	1958#	7389											
RDR17A	012642RG	1962#	8049											
RDR17B	012652RG	1966#	8063											
RDR20A	012662RG	1970#	9039	13746										
RDR20B	012672RG	1974#	9065	13772										
RDR20C	012702RG	1978#	9091	13798										
RDSTA	011252RG	1509#	7071	13973										
READY =	000002 G	1368#	4348											
RESET =	000000 G	1366#												
RFRMT	011312RG	1531#	6673	7218	7547	7877	8208	8782	9276	10100	10991	11993	12588	13084
		13491												
RFRMTX	011326RG	1538#	8503											
RMTC =	000010 G	1361#												
RREV	070266RG	1400*	14001*	14062	14099#									
RSET =	000040 G	1341#	4878	5386	5506	5618	5753	6016	6237	6594	6921	7140	7469	7796
		8129	8424	8694	9196	10020	10912	11911	12509	13004	13412	13891		
RUN =	000003 G	1369#												
RXI =	020000 G	1333#	3168	3460	3462	4253								
SERI =	100000 G	1331#	3354	3531	3533									
SETBUF	025230RG	4285#	6736	6980	7278	7607	7940	8271	8567	8845	9345	9530	9683	9868



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SMSG61	031626RG	5009	5306#																	
SMSG62	031651RG	5010	5310#																	
SMSG63	031665RG	5011	5313#																	
SMSG64	031714RG	5012	5318#																	
SMSG65	031730RG	5013	5321#																	
SMSG66	031751RG	5014	5325#																	
SMSG67	031765RG	5015	5328#																	
SMSG70	032001RG	5016	5331#																	
SMSG71	032022RG	5017	5335#																	
SMSG72	032055RG	5018	5340#																	
SMSG73	032101RG	5019	5344#																	
SMSG74	032115RG	5020	5347#																	
SMSG75	032131RG	5021	5350#																	
SMSG76	032145RG	5022	5353#																	
SMSG77	032161RG	5023	5356#																	
START =	000004 G	1347#	6737	6981	7281	7610	7941	8272	8568	8850	9346	9531	9684	9869						
		10200	10395	10555	10749	11093	11278	11494	11690	12093	12289	12652	12779	13154						
		13274	13561																	
STMASK=	140377 G	1357#	3210																	
STMSG	026656RG	2345	4932*	4958#																
STOP =	000017 G	1350#	6886	7415	7744	8077	8371	8640	9132	9495	9615	9833	9953	10349						
		10479	10704	10833	11242	11427	11643	11839	12242	12438	12713	12941	13238	13358						
		13839																		
STP =	001000 G	1377#																		
STTBL	026660RG	4931	4960#																	
SVCGBL=	000000	1068#	1084	1093	1095	1097	1099	1101	1103	1105	1107	1109	1111	1113						
		1115	1117	1119	1121	1123	1125	1127	1130	1133	1135	1137	1139	1141						
		1143	1145	1147	1149	1151	1153	1155	1157	1159	1161	1163	1165	1167						
		1179	1220	1221	1238	1239	2091	2108	2116	2295	2308	2322	2336	2356						
		2394	2432	2446	2468	4369	4390	4406	4471	4485	4506	4528	4556	4576						
		14217	14257	14288#	14289															
SVCINS=	000001	1068#	1085	1086	1087	1088	1089	1090	1091	1092	1094	1096	1098	1100						
		1102	1104	1106	1108	1110	1112	1114	1116	1118	1120	1122	1124	1126						
		1128	1129	1131	1132	1134	1136	1138	1140	1142	1144	1146	1148	1150						
		1152	1154	1156	1158	1160	1162	1164	1166	1168	1178	1180	1181	1182						
		1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195						
		1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1219						
		1237	2109	2110	2117	2126	2297	2298	2299	2300	2301	2302	2305	2310						
		2311	2312	2313	2314	2315	2316	2319	2324	2325	2326	2327	2328	2329						
		2330	2333	2338	2339	2340	2341	2342	2343	2345	2346	2347	2348	2349						
		2350	2353	2358	2359	2360	2361	2362	2363	2364	2366	2367	2368	2369						
		2370	2371	2372	2374	2375	2376	2377	2378	2379	2380	2382	2383	2384						
		2385	2386	2387	2388	2391	2396	2397	2398	2399	2400	2401	2402	2404						
		2405	2406	2407	2408	2409	2410	2412	2413	2414	2415	2416	2417	2418						
		2420	2421	2422	2423	2424	2425	2426	2429	2434	2435	2436	2437	2438						
		2439	2440	2443	2448	2449	2450	2451	2452	2453	2454	2456	2457	2458						
		2459	2460	2461	2462	2465	2470	2471	2472	2473	2474	2475	2477	2478						
		2479	2480	2481	2482	2484	2485	2486	2487	2488	2489	2491	2492	2493						
		2494	2495	2496	2499	4373	4374	4381	4411	4412	4414	4416	4417	4419						
		4421	4422	4424	4426	4427	4429	4439	4440	4441	4443	4456	4459	4476						
		4489	4490	4497	4510	4511	4518	4532	4533	4540	4560	4587	4605	4606						
		4607	4608	4609	4610	4617	4618	4619	4620	4622	4623	4625	4627	4628						
		4631	4648	4649	4650	4651	4652	4653	4660	4661	4662	4663	4665	4666						
		4668	4670	4671	4674	4690	4691	4692	4693	4694	4695	4702	4703	4704						
		4705	4707	4708	4710	4712	4713	4716	4731	4732	4733	4734	4735	4736						
		4743	4744	4745	4746	4748	4749	4751	4753	4754	4757	4784	4793	4794						

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4795	4796	4801	4807	4834	4843	4844	4845	4846	4851	4857	4882	4883
4884	4887	4887	4888	4894	4895	4896	4897	4899	4900	4919	4920	4921
4922	4924	4925	4934	4935	4936	4937	4939	4940	4946	4947	4948	4949
4951	4952	4956	5390	5391	5392	5393	5395	5396	5402	5403	5404	5405
5407	5408	5414	5415	5416	5417	5419	5420	5426	5427	5428	5429	5431
5432	5441	5442	5443	5444	5446	5447	5453	5454	5455	5456	5458	5459
5465	5466	5467	5468	5470	5471	5477	5478	5479	5480	5482	5483	5487
5510	5511	5512	5513	5515	5516	5522	5523	5524	5525	5527	5528	5532
5533	5534	5535	5536	5537	5539	5540	5559	5560	5561	5562	5564	5565
5567	5568	5570	5571	5575	5576	5578	5579	5584	5585	5586	5587	5589
5590	5594	5622	5623	5624	5625	5627	5628	5634	5635	5636	5637	5639
5640	5647	5648	5649	5650	5652	5653	5659	5660	5661	5662	5664	5665
5689	5690	5691	5692	5694	5695	5701	5702	5703	5704	5706	5707	5717
5718	5719	5720	5722	5723	5727	5757	5758	5759	5760	5762	5763	5769
5770	5771	5772	5774	5775	5782	5783	5784	5785	5787	5788	5794	5795
5796	5797	5799	5800	5820	5821	5822	5823	5825	5826	5832	5833	5834
5835	5837	5838	5863	5864	5865	5866	5868	5869	5875	5876	5877	5878
5880	5881	5889	5890	5891	5892	5894	5895	5917	5918	5919	5920	5922
5923	5929	5930	5931	5932	5934	5935	5960	5961	5962	5963	5965	5966
5972	5973	5974	5975	5977	5978	5986	5987	5988	5989	5991	5992	5997
6020	6021	6022	6023	6025	6026	6032	6033	6034	6035	6037	6038	6045
6046	6047	6048	6050	6051	6057	6058	6059	6060	6062	6063	6073	6074
6075	6076	6078	6079	6085	6086	6087	6088	6090	6091	6100	6101	6102
6103	6105	6106	6112	6113	6114	6115	6117	6118	6126	6127	6128	6129
6131	6132	6143	6144	6145	6146	6148	6149	6155	6156	6157	6158	6160
6161	6170	6171	6172	6173	6175	6176	6182	6183	6184	6185	6187	6188
6196	6197	6198	6199	6201	6202	6207	6241	6242	6243	6244	6246	6247
6253	6254	6255	6256	6258	6259	6266	6267	6268	6269	6271	6272	6278
6279	6280	6281	6283	6284	6294	6295	6296	6297	6299	6300	6306	6307
6308	6309	6311	6312	6339	6340	6341	6342	6344	6345	6351	6352	6353
6354	6356	6357	6392	6393	6394	6395	6397	6398	6404	6405	6406	6407
6409	6410	6423	6424	6425	6426	6428	6429	6461	6462	6463	6464	6466
6467	6473	6474	6475	6476	6478	6479	6514	6515	6516	6517	6519	6520
6526	6527	6528	6529	6531	6532	6545	6546	6547	6548	6550	6551	6558
6590	6598	6599	6600	6601	6603	6604	6610	6611	6612	6613	6615	6616
6623	6624	6625	6626	6628	6629	6635	6636	6637	6638	6640	6641	6650
6651	6652	6653	6655	6656	6662	6663	6664	6665	6667	6668	6680	6681
6682	6683	6685	6686	6692	6693	6694	6695	6697	6698	6707	6708	6709
6710	6712	6713	6719	6720	6721	6722	6724	6725	6741	6742	6743	6744
6746	6747	6753	6754	6755	6756	6758	6759	6764	6765	6766	6767	6769
6770	6776	6777	6778	6779	6781	6782	6788	6789	6790	6791	6793	6794
6802	6803	6804	6805	6807	6808	6813	6814	6815	6816	6818	6819	6825
6826	6827	6828	6830	6831	6837	6838	6839	6840	6842	6843	6851	6852
6853	6854	6856	6857	6864	6865	6866	6867	6869	6870	6878	6879	6880
6881	6883	6884	6890	6891	6892	6893	6895	6896	6902	6903	6904	6905
6907	6908	6912	6915	6925	6926	6927	6928	6930	6931	6935	6936	6937
6938	6940	6941	6949	6950	6951	6952	6954	6955	6961	6962	6963	6964
6966	6967	6985	6986	6987	6988	6990	6991	6997	6998	6999	7000	7002
7003	7008	7009	7010	7011	7013	7014	7020	7021	7022	7023	7025	7026
7031	7032	7033	7034	7036	7037	7043	7044	7045	7046	7048	7049	7054
7055	7056	7057	7063	7064	7065	7066	7068	7069	7077	7078	7079	7080
7082	7083	7088	7089	7090	7091	7095	7096	7097	7098	7102	7103	7104
7105	7109	7112	7144	7145	7146	7147	7149	7150	7156	7157	7158	7159
7161	7162	7169	7170	7171	7172	7174	7175	7181	7182	7183	7184	7186
7187	7196	7197	7198	7199	7201	7202	7208	7209	7210	7211	7213	7214
7225	7226	7227	7228	7230	7231	7237	7238	7239	7240	7242	7243	7251

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7252	7253	7254	7256	7257	7263	7264	7265	7266	7268	7269	7285	7286
7287	7288	7290	7291	7297	7298	7299	7300	7302	7303	7308	7309	7310
7311	7313	7314	7320	7321	7322	7323	7325	7326	7332	7333	7334	7335
7337	7338	7346	7347	7348	7349	7351	7352	7357	7358	7359	7360	7362
7363	7369	7370	7371	7372	7374	7375	7381	7382	7383	7384	7386	7387
7395	7396	7397	7398	7400	7401	7407	7408	7409	7410	7412	7413	7419
7420	7421	7422	7424	7425	7431	7432	7433	7434	7436	7437	7441	7473
7474	7475	7476	7478	7479	7485	7486	7487	7488	7490	7491	7498	7499
7500	7501	7503	7504	7510	7511	7512	7513	7515	7516	7525	7526	7527
7528	7530	7531	7537	7538	7539	7540	7542	7543	7554	7555	7556	7557
7559	7560	7566	7567	7568	7569	7571	7572	7580	7581	7582	7583	7585
7586	7592	7593	7594	7595	7597	7598	7614	7615	7616	7617	7619	7620
7626	7627	7628	7629	7631	7632	7637	7638	7639	7640	7642	7643	7649
7650	7651	7652	7654	7655	7661	7662	7663	7664	7666	7667	7675	7676
7677	7678	7680	7681	7686	7687	7688	7689	7691	7692	7698	7699	7700
7701	7703	7704	7710	7711	7712	7713	7715	7716	7724	7725	7726	7727
7729	7730	7736	7737	7738	7739	7741	7742	7748	7749	7750	7751	7753
7754	7760	7761	7762	7763	7765	7766	7770	7800	7801	7802	7803	7805
7806	7812	7813	7814	7815	7817	7818	7825	7826	7827	7828	7830	7831
7837	7838	7839	7840	7842	7843	7854	7855	7856	7857	7859	7860	7866
7867	7868	7869	7871	7872	7884	7885	7886	7887	7889	7890	7896	7897
7898	7899	7901	7902	7911	7912	7913	7914	7916	7917	7923	7924	7925
7926	7928	7929	7945	7946	7947	7948	7950	7951	7957	7958	7959	7960
7962	7963	7968	7969	7970	7971	7973	7974	7980	7981	7982	7983	7985
7986	7992	7993	7994	7995	7997	7998	8006	8007	8008	8009	8011	8012
8017	8018	8019	8020	8022	8023	8029	8030	8031	8032	8034	8035	8041
8042	8043	8044	8046	8047	8055	8056	8057	8058	8060	8061	8069	8070
8071	8072	8074	8075	8081	8082	8083	8084	8086	8087	8093	8094	8095
8096	8098	8099	8102	8133	8134	8135	8136	8138	8139	8145	8146	8147
8148	8150	8151	8156	8159	8160	8161	8163	8164	8170	8171	8172	8173
8175	8176	8185	8186	8187	8188	8190	8191	8197	8198	8199	8200	8202
8203	8215	8216	8217	8218	8220	8221	8227	8228	8229	8230	8232	8233
8242	8243	8244	8245	8247	8248	8254	8255	8256	8257	8259	8260	8276
8277	8278	8279	8281	8282	8288	8289	8290	8291	8293	8294	8299	8300
8301	8302	8304	8305	8311	8312	8313	8314	8316	8317	8323	8324	8325
8326	8328	8329	8337	8338	8339	8340	8342	8343	8349	8350	8351	8352
8354	8355	8363	8364	8365	8366	8368	8369	8375	8376	8377	8378	8380
8381	8387	8388	8389	8390	8392	8393	8397	8428	8429	8430	8431	8433
8434	8440	8441	8442	8443	8445	8446	8453	8454	8455	8456	8458	8459
8465	8466	8467	8468	8470	8471	8480	8481	8482	8483	8485	8486	8492
8493	8494	8495	8497	8498	8510	8511	8512	8513	8515	8516	8522	8523
8524	8525	8527	8528	8537	8538	8539	8540	8542	8543	8549	8550	8551
8552	8554	8555	8572	8573	8574	8575	8577	8578	8584	8585	8586	8587
8589	8590	8595	8596	8597	8598	8600	8601	8607	8608	8609	8610	8612
8613	8620	8621	8622	8623	8625	8626	8632	8633	8634	8635	8637	8638
8644	8645	8646	8647	8649	8650	8656	8657	8658	8659	8661	8662	8666
8698	8699	8700	8701	8703	8704	8710	8711	8712	8713	8715	8716	8723
8724	8725	8726	8728	8729	8735	8736	8737	8738	8740	8741	8759	8760
8761	8762	8764	8765	8771	8772	8773	8774	8776	8777	8789	8790	8791
8792	8794	8795	8801	8802	8803	8804	8806	8807	8816	8817	8818	8819
8821	8822	8828	8829	8830	8831	8833	8834	8854	8855	8856	8857	8859
8860	8866	8867	8868	8869	8871	8872	8877	8878	8879	8880	8882	8883
8889	8890	8891	8892	8894	8895	8901	8902	8903	8904	8906	8907	8915
8916	8917	8918	8920	8921	8927	8928	8929	8930	8932	8933	8941	8942
8943	8944	8946	8947	8953	8954	8955	8956	8958	8959	8967	8968	8969
8970	8972	8973	8978	8979	8980	8981	8983	8984	8990	8991	8992	8993

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8995	8996	9018	9019	9020	9021	9023	9024	9031	9032	9033	9034	9036
9037	9045	9046	9047	9048	9050	9051	9057	9058	9059	9060	9062	9063
9071	9072	9073	9074	9076	9077	9083	9084	9085	9086	9088	9089	9097
9098	9099	9100	9102	9103	9110	9111	9112	9113	9115	9116	9124	9125
9126	9127	9129	9130	9136	9137	9138	9139	9141	9142	9148	9149	9150
9151	9153	9154	9158	9200	9201	9202	9203	9205	9206	9212	9213	9214
9215	9217	9218	9225	9226	9227	9228	9230	9231	9237	9238	9239	9240
9242	9243	9253	9254	9255	9256	9258	9259	9265	9266	9267	9268	9270
9271	9283	9284	9285	9286	9288	9289	9295	9296	9297	9298	9300	9301
9316	9317	9318	9319	9321	9322	9328	9329	9330	9331	9333	9334	9350
9351	9352	9353	9355	9356	9362	9363	9364	9365	9367	9368	9373	9374
9375	9376	9378	9379	9385	9386	9387	9388	9390	9391	9397	9398	9399
9400	9402	9403	9411	9412	9413	9414	9416	9417	9422	9423	9424	9425
9427	9428	9434	9435	9436	9437	9439	9440	9446	9447	9448	9449	9451
9452	9460	9461	9462	9463	9465	9466	9473	9474	9475	9476	9478	9479
9487	9488	9489	9490	9492	9493	9499	9500	9501	9502	9504	9505	9511
9512	9513	9514	9516	9517	9535	9536	9537	9538	9540	9541	9547	9548
9549	9550	9552	9553	9558	9559	9560	9561	9563	9564	9570	9571	9572
9573	9575	9576	9582	9583	9584	9585	9587	9588	9596	9597	9598	9599
9601	9602	9607	9608	9609	9610	9612	9613	9619	9620	9621	9622	9624
9625	9631	9632	9633	9634	9636	9637	9654	9655	9656	9657	9659	9660
9666	9667	9668	9669	9671	9672	9688	9689	9690	9691	9693	9694	9700
9701	9702	9703	9705	9706	9711	9712	9713	9714	9716	9717	9723	9724
9725	9726	9728	9729	9735	9736	9737	9738	9740	9741	9749	9750	9751
9752	9754	9755	9760	9761	9762	9763	9765	9766	9772	9773	9774	9775
9777	9778	9784	9785	9786	9787	9789	9790	9798	9799	9800	9801	9803
9804	9811	9812	9813	9814	9816	9817	9825	9826	9827	9828	9830	9831
9837	9838	9839	9840	9842	9843	9849	9850	9851	9852	9854	9855	9873
9874	9875	9876	9878	9879	9885	9886	9887	9888	9890	9891	9896	9897
9898	9899	9901	9902	9908	9909	9910	9911	9913	9914	9920	9921	9922
9923	9925	9926	9934	9935	9936	9937	9939	9940	9945	9946	9947	9948
9950	9951	9957	9958	9959	9960	9962	9963	9969	9970	9971	9972	9974
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10077	10078	10079	10080	10082	10083	10089	10090	10091	10092	10094	10095	10107
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10136	10137	10139	10140	10146	10147	10148	10149	10151	10152	10164	10165	10166
10167	10169	10170	10176	10177	10178	10179	10181	10182	10204	10205	10206	10207
10209	10210	10216	10217	10218	10219	10221	10222	10227	10228	10229	10230	10232
10233	10239	10240	10241	10242	10244	10245	10251	10252	10253	10254	10256	10257
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10289	10290	10291	10293	10294	10300	10301	10302	10303	10305	10306	10314	10315
10316	10317	10319	10320	10327	10328	10329	10330	10332	10333	10341	10342	10343
10344	10346	10347	10353	10354	10355	10356	10358	10359	10365	10366	10367	10368
10370	10371	10399	10400	10401	10402	10404	10405	10411	10412	10413	10414	10416
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10576	10577	10582	10583	10584	10585	10587	10588	10594	10595	10596	10597	10599
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10631	10632	10633	10634	10636	10637	10643	10644	10645	10646	10648	10649	10655
10656	10657	10658	10660	10661	10669	10670	10671	10672	10674	10675	10682	10683
10684	10685	10687	10688	10696	10697	10698	10699	10701	10702	10708	10709	10710
10711	10713	10714	10720	10721	10722	10723	10725	10726	10753	10754	10755	10756

PARAMETER CODING  
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CROSS REFERENCE TABLE -- USER SYMBOLS

10758	10759	10765	10766	10767	10768	10770	10771	10776	10777	10778	10779	10781
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10814	10815	10816	10817	10819	10820	10825	10826	10827	10828	10830	10831	10837
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11538	11539	11545	11546	11547	11548	11550	11551	11559	11560	11561	11562	11564
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11747	11755	11756	11757	11758	11760	11761	11766	11767	11768	11769	11771	11772
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12175	12181	12182	12183	12184	12186	12187	12193	12194	12195	12196	12198	12199
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12360	12365	12366	12367	12368	12370	12371	12377	12378	12379	12380	12382	12383
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12417	12418	12419	12421	12422	12430	12431	12432	12433	12435	12436	12442	12443
12444	12445	12447	12448	12454	12455	12456	12457	12459	12460	12471	12513	12514
12515	12516	12518	12519	12525	12526	12527	12528	12530	12531	12538	12539	12540

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 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- USER SYMBOLS

12541	12543	12544	12550	12551	12552	12553	12555	12556	12565	12566	12567	12568	
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13316	13318	13319	13325	13326	13327	13328	13330	13331	13339	13340	13341	13342	
13344	13345	13350	13351	13352	13353	13355	13356	13362	13363	13364	13365	13367	
13368	13374	13375	13376	13377	13379	13380	13385	13416	13417	13418	13419	13421	
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13582	13583	13590	13591	13592	13593	13595	13596	13602	13603	13604	13605	13607	
13608	13613	13614	13615	13616	13618	13619	13625	13626	13627	13628	13630	13631	
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13664	13665	13666	13668	13669	13677	13678	13679	13680	13682	13683	13689	13690	
13691	13692	13694	13695	13703	13704	13705	13706	13708	13709	13714	13715	13716	
13717	13719	13720	13726	13727	13728	13729	13731	13732	13738	13739	13740	13741	
13743	13744	13752	13753	13754	13755	13757	13758	13764	13765	13766	13767	13769	
13770	13778	13779	13780	13781	13783	13784	13790	13791	13792	13793	13795	13796	
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13857	13858	13860	13861	13865	13886	13887	13895	13896	13897	13898	13900	13901	
13907	13908	13909	13910	13912	13913	13920	13921	13922	13923	13925	13926	13932	
13933	13934	13935	13937	13938	13947	13948	13949	13950	13952	13953	13959	13960	
13961	13962	13964	13965	13979	13980	13981	13982	13983	13985	13991	13992	13993	
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14067	14069	14070	14071	14072	14073	14074	14076	14077	14078	14079	14080	14081	
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14226	14227	14228	14230	14256	14260	14261	14262	14266	14285	14286	14287		
	1068#	6589	6914										
	1068#	1226	1245	2304	2318	2332	2352	2390	2428	2442	2464	2498	4380
	4458	4475	4496	4517	4539	4559	4586	4630	4673	4715	4756	4800	4806
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SVCSUB= 000001  
 SVCTAG= 000001

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		7769	8102	8396	8665	9157	9978	10862	11871	12470	12966	13384	13864	14092
		14231	14267											
SVCTST=	000001	1068#	4603	4646	4688	4729	4777	4827	4875	5383	5503	5615	5750	6013
		6234	6587	7137	7466	7793	8126	8421	8691	9193	10017	10909	11908	12506
		13001	13409	13882										
SWADDR	013124RG	2051#	14010											
SWHDR	070424RG	14069	14154#											
SWPACK	070270RG	14009	14035	14043	14101#									
S&LSYM=	010000	1068#	1227#	1246#	2305#	2319#	2333#	2353#	2391#	2429#	2443#	2465#	2499#	4381#
		4459#	4476#	4497#	4518#	4540#	4560#	4587#	4631#	4674#	4716#	4757#	4784#	4807#
		4834#	4857#	4956#	5487#	5594#	5727#	5997#	6207#	6558#	6912#	7109#	7112#	7441#
		7770#	8103#	8397#	8666#	9158#	9979#	10863#	11872#	12471#	12967#	13385#	13865#	14093#
		14232#	14268#											
TBUF	001072RG	1422#	1630	1735	1640	1645	1650	1655	1660	1665	1670	1675	1680	1685
		1690	1695	1700	1705	1710	1725	1730	1735	1740	1745	1750	1755	1760
		1765	1770	1775	1780	1785	1790	1795	1800	1805	1919	1923	1927	1931
		1935	1947	1951	3570	3659	3898	3931	4298	5814	5911	6328	6450	7279*
		7280*	7608*	7609*	8847									
TBUF2	001472RG	1423#	1715	1939										
TBUF3	002072RG	1424#	1720	1943										
TBUF4	002472RG	1425#												
TBUF5	003072RG	1426#												
TBUF6	003472RG	1427#												
TBUF7	004072RG	1428#												
TBUF8	004472RG	1429#												
TDRB	000572RG	1419#	1531	4074	6784	6798	7328	7342	7657	7671	7988	8002	8319	8333
		8345	8359	8897	8911	8923	8937	8949	8963	9393	9407	9578	9592	9731
		9745	9916	9930	10247	10261	10442	10456	10602	10616	10796	10810	11140	11154
		11325	11339	11541	11555	11737	11751	12140	12154	12336	12350	12700	12826	12840
		13201	13215	13321	13335	13633	13647	13659	13673	13685	13699			
TDRBXX	012002RG	1729#	8559											
TDRB1A	011542RG	1629#	6728	6971	7932	9337	9522	9675	9860	10191	10386	10546	10740	11084
		11269	11485	11681	12084	12280	13145	13265						
TDRB1B	011602RG	1649#	7271	7600										
TDRB1C	011642RG	1669#	12643	12770										
TDRB2A	011702RG	1689#	8263											
TDRB3A	011742RG	1709#	8837	13546										
TDRMSK=	007777 G	1387#	3120											
TDRX	000672RG	1421#	1538	4105										
TDR14A	012512RG	1918#	6796	8000	9405	9743	10259	10614	11152	11337	11553	11749	12152	12348
		13213												
TDR15A	012522RG	1922#	7340	7669										
TDR18A	012532RG	1926#	8331											
TDR18B	012542RG	1930#	8357											
TDR20A	012552RG	1934#	8909	13645										
TDR20B	012562RG	1938#	6935	13671										
TDR20C	012572RG	1942#	8961	13697										
TDR21X	012602RG	1946#	9590	9928	10454	10808	13333							
TDR25A	012612RG	1950#	12838											
TIMASK=	177400 G	1384#	4343											
TINIT	025334RG	4341#	4876	5384	5504	5616	5751	6014	6235	6592	6919	7138	7467	7794
		8127	8422	8692	9194	10018	10910	11909	12507	13002	13410	13889		
TXI =	010000 G	1334#	3315	3496	3498									
T&ARGC=	000002	1085#	1086#	1087#	1088#	1089#	1090#	1091#	1092#	2297#	2302	2310#	2316	2324#
		2330	2338#	2343	2345#	2350	2358#	2364	2366#	2372	2374#	2380	2382#	2388
		2396#	2402	2404#	2410	2412#	2418	2420#	2426	2434#	2440	2448#	2454	2456#

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T\$CODE= 000130  
T\$ERRN= 001114

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14220#	14225#	14260#										
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5403#	5415#	5427#	5442#	5454#	5466#	5478#	5511#	5523#	5560#	5585#	5623#	5635#
5648#	5660#	5690#	5702#	5718#	5758#	5770#	5783#	5795#	5821#	5833#	5864#	5876#
5890#	5918#	5930#	5961#	5973#	5987#	6021#	6033#	6046#	6058#	6074#	6086#	6101#
6113#	6127#	6144#	6156#	6171#	6183#	6197#	6242#	6254#	6267#	6279#	6295#	6307#
6340#	6352#	6393#	6405#	6424#	6462#	6474#	6515#	6527#	6546#	6599#	6611#	6624#
6636#	6651#	6663#	6681#	6693#	6708#	6720#	6742#	6754#	6765#	6777#	6789#	6803#
6814#	6826#	6838#	6852#	6865#	6879#	6891#	6903#	6926#	6936#	6950#	6962#	6986#
6998#	7009#	7021#	7032#	7044#	7055#	7064#	7078#	7089#	7096#	7103#	7145#	7157#
7170#	7182#	7197#	7209#	7226#	7238#	7252#	7264#	7286#	7298#	7309#	7321#	7333#
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14220#	14224	14225#	14229									
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6344#	6356#	6397#	6409#	6428#	6466#	6478#	6519#	6531#	6550#	6603#	6615#	6628#

T\$EXCP= 000000  
T\$FLAG= 000040

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CROSS REFERENCE TABLE -- USER SYMBOLS

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7400#	7412#	7424#	7436#	7478#	7490#	7503#	7515#	7530#	7542#	7559#	7571#	7585#	
7597#	7619#	7631#	7642#	7654#	7666#	7680#	7691#	7703#	7715#	7729#	7741#	7753#	
7765#	7805#	7817#	7830#	7842#	7859#	7871#	7889#	7901#	7916#	7928#	7950#	7962#	
7973#	7985#	7997#	8011#	8022#	8034#	8046#	8060#	8074#	8086#	8098#	8138#	8150#	
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9504#	9516#	9540#	9552#	9563#	9575#	9587#	9601#	9612#	9624#	9636#	9659#	9671#	
9693#	9705#	9716#	9728#	9740#	9754#	9765#	9777#	9789#	9803#	9816#	9830#	9842#	
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11957#	11975#	11987#	12005#	12017#	12032#	12044#	12062#	12074#	12102#	12114#	12125#	12137#	
12149#	12163#	12174#	12186#	12198#	12212#	12225#	12239#	12251#	12263#	12298#	12310#	12321#	
12333#	12345#	12359#	12370#	12382#	12394#	12408#	12421#	12435#	12447#	12459#	12518#	12530#	
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13295#	13306#	13318#	13330#	13344#	13355#	13367#	13379#	13421#	13433#	13446#	13458#	13473#	
13485#	13503#	13515#	13530#	13542#	13570#	13582#	13595#	13607#	13618#	13630#	13642#	13656#	
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13836#	13848#	13860#	13886#	13900#	13912#	13925#	13937#	13952#	13964#	13984#	13996#	14020#	
14032#	1068#												
TSGMAN= 000000	14220#	14223	14225#	14228									
TSHILI= 000776	1068#	14286#											
TSLAST= 000001	14220#	14222	14225#	14227									
TSLOLI= 000000	1068#	1227	1246	2305	2319	2333	2353	2391	2429	2443	2465	2499	4381
TSLSYM= 010000	4459	4476	4497	4518	4540	4560	4587	4631	4674	4716	4757	4807	4857
	4956	5487	5594	5727	5997	6207	6558	6912	7109	7112	7441	7770	8103
	8397	8666	9158	9979	10863	11872	12471	12967	13385	13865	14093	14232	14268
TSLTNO= 000034	14289#												
TSNEST= 177777	1068#	1074#	1219#	1226#	1237#	1245#	2295#	2304#	2308#	2318#	2322#	2332#	2336#
	2352#	2356#	2390#	2394#	2428#	2432#	2442#	2446#	2464#	2468#	2498#	4369#	4380#
	4390#	4397#	4406#	4458#	4471#	4475#	4485#	4496#	4506#	4517#	4528#	4539#	4556#
	4559#	4576#	4586#	4604#	4630#	4647#	4673#	4689#	4715#	4730#	4756#	4778#	4784#
	4800#	4806#	4828#	4834#	4850#	4856#	4876#	4955#	5384#	5486#	5504#	5593#	5616#
	5726#	5751#	5996#	6014#	6206#	6235#	6557#	6588#	6590#	6911#	6915#	7108#	7111#
	7138#	7440#	7467#	7769#	7794#	8102#	8127#	8396#	8422#	8665#	8692#	9157#	9194#

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	9978#	10018#	10862#	10910#	11871#	11909#	12470#	12507#	12966#	13002#	13384#	13410#	13864#
	13883#	14092#	14216#	14230#	14256#	14266#	14290#						
TSNSO = 000000	1074#	14290											
TSNS1 = 000005	1219#	1226	1237#	1245	2295#	2304	2308#	2318	2322#	2332	2336#	2352	2356#
	2390	2394#	2428	2432#	2442	2446#	2464	2468#	2498	4369#	4380	4390#	4397
	4406#	4458	4471#	4475	4485#	4496	4506#	4517	4528#	4539	4556#	4559	4576#
	4586	4604#	4630	4647#	4673	4689#	4715	4730#	4756	4778#	4806	4828#	4856
	4876#	4955	5384#	5486	5504#	5593	5616#	5726	5751#	5996	6014#	6206	6235#
	6557	6588#	7111	7138#	7440	7467#	7769	7794#	8102	8127#	8396	8422#	8665
	8692#	9157	9194#	9978	10018#	10862	10910#	11871	11909#	12470	12507#	12966	13002#
TSNS2 = 000002	13384	13410#	13864	13883#	14092	14216#	14230	14256#	14266				
TSPTNU= 000000	4784#	4800	4834#	4850	6590#	6911	6915#	7108					
TSSAVL= 177777	1068#												
TSSEGL= 177777	1068#												
TSSEKO= 010000	1068#	4784#	4800#	4802	4834#	4850#	4852						
TSUBN= 000000	4784#	4800	4834#	4850									
	1068#	4603#	4646#	4688#	4729#	4777#	4827#	4875#	5383#	5503#	5615#	5750#	6013#
	6234#	6587#	6589#	6914#	7137#	7466#	7793#	8126#	8421#	8691#	9193#	10017#	10909#
	11908#	12506#	13001#	13409#	13882#								
TSTAGL= 177777	1068#												
TSTAGN= 010064	1068#	1219#	1237#	2295#	2308#	2322#	2336#	2356#	2394#	2432#	2446#	2468#	4369#
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	4828#	4876#	5384#	5504#	5616#	5751#	6014#	6235#	6588#	6590#	6915#	7138#	7467#
	7794#	8127#	8422#	8692#	9194#	10018#	10910#	11909#	12507#	13002#	13410#	13883#	14216#
	14256#												
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	1206#	1207#	1208#	1226#	1245#	2304#	2318#	2332#	2352#	2394#	2428#	2442#	2464#
	2498#	4373#	4374	4380#	4397#	4458#	4475#	4489#	4490	4496#	4510#	4511	4517#
	4532#	4533	4539#	4559#	4586#	4630#	4673#	4715#	4756#	4800#	4806#	4850#	4856#
	4887#	4888	4899#	4900	4924#	4925	4939#	4940	4951#	4952	4955#	5335#	5396
	5407#	5408	5419#	5420	5431#	5432	5446#	5447	5458#	5459	5470#	5471	5482#
	5483	5486#	5515#	5516	5527#	5528	5570#	5571	5589#	5590	5593#	5627#	5628
	5639#	5640	5652#	5653	5664#	5665	5694#	5695	5706#	5707	5722#	5723	5726#
	5762#	5763	5774#	5775	5787#	5788	5799#	5800	5825#	5826	5837#	5838	5868#
	5869	5880#	5881	5894#	5895	5922#	5923	5934#	5935	5965#	5966	5977#	5978
	5991#	5992	5996#	6025#	6026	6037#	6038	6050#	6051	6062#	6063	6078#	6079
	6090#	6091	6105#	6106	6117#	6118	6131#	6132	6148#	6149	6160#	6161	6175#
	6176	6187#	6188	6201#	6202	6206#	6246#	6247	6258#	6259	6271#	6272	6283#
	6284	6299#	6300	6311#	6312	6344#	6345	6356#	6357	6397#	6398	6409#	6410
	6428#	6429	6466#	6467	6478#	6479	6519#	6520	6531#	6532	6550#	6551	6557#
	6603#	6604	6615#	6616	6628#	6629	6640#	6641	6655#	6656	6667#	6668	6685#
	6686	6697#	6698	6712#	6713	6724#	6725	6746#	6747	6758#	6759	6769#	6770
	6781#	6782	6793#	6794	6807#	6808	6818#	6819	6830#	6831	6842#	6843	6856#
	6857	6869#	6870	6883#	6884	6895#	6896	6907#	6908	6911#	6930#	6931	6940#
	6941	6954#	6955	6966#	6967	6990#	6991	7002#	7003	7013#	7014	7025#	7026
	7036#	7037	7048#	7049	7068#	7069	7082#	7083	7108#	7111#	7149#	7150	7161#
	7162	7174#	7175	7186#	7187	7201#	7202	7213#	7214	7230#	7231	7242#	7243
	7256#	7257	7268#	7269	7290#	7291	7302#	7303	7313#	7314	7325#	7326	7337#
	7338	7351#	7352	7362#	7363	7374#	7375	7386#	7387	7400#	7401	7412#	7413
	7424#	7425	7436#	7437	7440#	7478#	7479	7490#	7491	7503#	7504	7515#	7516
	7530#	7531	7542#	7543	7559#	7560	7571#	7572	7585#	7586	7597#	7598	7619#
	7620	7631#	7632	7642#	7643	7654#	7655	7666#	7667	7680#	7681	7691#	7692
	7703#	7704	7715#	7716	7729#	7730	7741#	7742	7753#	7754	7765#	7766	7769#
	7805#	7806	7817#	7818	7830#	7831	7842#	7843	7859#	7860	7871#	7872	7889#
	7890	7901#	7902	7916#	7917	7928#	7929	7950#	7951	7962#	7963	7973#	7974

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CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- USER SYMBOLS

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8164	8175#	8176	8190#	8191	8202#	8203	8220#	8221	8232#	8233	8247#	8248
8259#	8260	8281#	8282	8293#	8294	8304#	8305	8316#	8317	8328#	8329	8342#
8343	8354#	8355	8368#	8369	8380#	8381	8392#	8393	8396#	8433#	8434	8445#
8446	8458#	8459	8470#	8471	8485#	8486	8497#	8498	8515#	8516	8527#	8528
8542#	8543	8554#	8555	8577#	8578	8589#	8590	8600#	8601	8612#	8613	8625#
8626	8637#	8638	8649#	8650	8661#	8662	8665#	8703#	8704	8715#	8716	8728#
8729	8740#	8741	8764#	8765	8776#	8777	8794#	8795	8806#	8807	8821#	8822
8833#	8834	8859#	8860	8871#	8872	8882#	8883	8894#	8895	8906#	8907	8920#
8921	8932#	8933	8946#	8947	8958#	8959	8972#	8973	8983#	8984	8995#	8996
9023#	9024	9036#	9037	9050#	9051	9062#	9063	9076#	9077	9088#	9089	9102#
9103	9115#	9116	9129#	9130	9141#	9142	9153#	9154	9157#	9205#	9206	9217#
9218	9230#	9231	9242#	9243	9258#	9259	9270#	9271	9288#	9289	9300#	9301
9321#	9322	9333#	9334	9355#	9356	9367#	9368	9378#	9379	9390#	9391	9402#
9403	9416#	9417	9427#	9428	9439#	9440	9451#	9452	9465#	9466	9478#	9479
9492#	9493	9504#	9505	9516#	9517	9540#	9541	9552#	9553	9563#	9564	9575#
9576	9587#	9588	9601#	9602	9612#	9613	9624#	9625	9636#	9637	9659#	9660
9671#	9672	9693#	9694	9705#	9706	9716#	9717	9728#	9729	9740#	9741	9754#
9755	9765#	9766	9777#	9778	9789#	9790	9803#	9804	9816#	9817	9830#	9831
9842#	9843	9854#	9855	9878#	9879	9890#	9891	9901#	9902	9913#	9914	9925#
9926	9939#	9940	9950#	9951	9962#	9963	9974#	9975	9978#	10029#	10030	10041#
10042	10054#	10055	10066#	10067	10082#	10083	10094#	10095	10112#	10113	10124#	10125
10139#	10140	10151#	10152	10169#	10170	10181#	10182	10209#	10210	10221#	10222	10232#
10233	10244#	10245	10256#	10257	10270#	10271	10281#	10282	10293#	10294	10305#	10306
10319#	10320	10332#	10333	10346#	10347	10358#	10359	10370#	10371	10404#	10405	10416#
10417	10427#	10428	10439#	10440	10451#	10452	10465#	10466	10476#	10477	10488#	10489
10500#	10501	10524#	10525	10536#	10537	10564#	10565	10576#	10577	10587#	10588	10599#
10600	10611#	10612	10625#	10626	10636#	10637	10648#	10649	10660#	10661	10674#	10675
10687#	10688	10701#	10702	10713#	10714	10725#	10726	10758#	10759	10770#	10771	10781#
10782	10793#	10794	10805#	10806	10819#	10820	10830#	10831	10842#	10843	10854#	10855
10862#	10921#	10922	10933#	10934	10946#	10947	10958#	10959	10973#	10974	10985#	10986
11003#	11004	11015#	11016	11036#	11037	11048#	11049	11066#	11067	11078#	11079	11102#
11103	11114#	11115	11125#	11126	11137#	11138	11149#	11150	11163#	11164	11174#	11175
11186#	11187	11198#	11199	11212#	11213	11225#	11226	11239#	11240	11251#	11252	11263#
11264	11287#	11288	11299#	11300	11310#	11311	11322#	11323	11334#	11335	11348#	11349
11359#	11360	11371#	11372	11383#	11384	11397#	11398	11410#	11411	11424#	11425	11436#
11437	11448#	11449	11463#	11464	11475#	11476	11503#	11504	11515#	11516	11526#	11527
11538#	11539	11550#	11551	11564#	11565	11575#	11576	11587#	11588	11599#	11600	11613#
11614	11626#	11627	11640#	11641	11652#	11653	11664#	11665	11699#	11700	11711#	11712
11722#	11723	11734#	11735	11746#	11747	11760#	11761	11771#	11772	11783#	11784	11795#
11796	11809#	11810	11822#	11823	11836#	11837	11848#	11849	11860#	11861	11871#	11920#
11921	11932#	11933	11945#	11946	11957#	11958	11975#	11976	11987#	11988	12005#	12006
12017#	12018	12032#	12033	12044#	12045	12062#	12063	12074#	12075	12102#	12103	12114#
12115	12125#	12126	12137#	12138	12149#	12150	12163#	12164	12174#	12175	12186#	12187
12198#	12199	12212#	12213	12225#	12226	12239#	12240	12251#	12252	12263#	12264	12298#
12299	12310#	12311	12321#	12322	12333#	12334	12345#	12346	12359#	12360	12370#	12371
12382#	12383	12394#	12395	12408#	12409	12421#	12422	12435#	12436	12447#	12448	12459#
12460	12470#	12518#	12519	12530#	12531	12543#	12544	12555#	12556	12570#	12571	12582#
12583	12600#	12601	12612#	12613	12627#	12628	12639#	12640	12661#	12662	12673#	12674
12684#	12685	12696#	12697	12710#	12711	12722#	12723	12734#	12735	12754#	12755	12766#
12767	12788#	12789	12800#	12801	12811#	12812	12823#	12824	12835#	12836	12849#	12850
12860#	12861	12872#	12873	12884#	12885	12898#	12899	12911#	12912	12924#	12925	12938#
12939	12950#	12951	12962#	12963	12966#	13013#	13014	13025#	13026	13038#	13039	13050#
13051	13066#	13067	13078#	13079	13096#	13097	13108#	13109	13129#	13130	13141#	13142
13163#	13164	13175#	13176	13186#	13187	13198#	13199	13210#	13211	13224#	13225	13235#

PARAMETER CODING  
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TSTEST= 000034

TSTSTM= 177777

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13433#	13434	13446#	13447	13458#	13459	13473#	13474	13485#	13486	13503#	13504	13515#
13516	13530#	13531	13542#	13543	13570#	13571	13582#	13583	13595#	13596	13607#	13608
13618#	13619	13630#	13631	13642#	13643	13656#	13657	13668#	13669	13682#	13683	13694#
13695	13708#	13709	13719#	13720	13731#	13732	13743#	13744	13757#	13758	13769#	13770
13783#	13784	13795#	13796	13809#	13810	13822#	13823	13836#	13837	13848#	13849	13860#
13861	13864#	13886#	13887	13900#	13901	13912#	13913	13925#	13926	13937#	13938	13952#
13953	13964#	13965	13984#	13985	13996#	13997	14020#	14021	14032#	14033	14092#	14220#
14225#	14230#	14260#	14266#	14290#								
1068#	4603#	4646#	4688#	4729#	4777#	4827#	4875#	5383#	5503#	5615#	5750#	6013#
6234#	6587#	6589	6914	7137#	7466#	7793#	8126#	8421#	8691#	9193#	10017#	10909#
11908#	12506#	13001#	13409#	13882#	14289							
1068#	2301	2305	2315	2319	2329	2333	2342	2349	2353	2363	2371	2379
2387	2391	2401	2409	2417	2425	2429	2439	2443	2453	2461	2465	2474
2481	2488	2495	2499	4381	4412	4417	4422	4427	4440	4456	4459	4476
4489	4497	4518	4540	4609	4617	4623	4625	4628	4631	4652	4660	4666
4668	4671	4674	4694	4702	4708	4710	4713	4716	4735	4743	4749	4751
4754	4757	4784	4793	4801	4807	4834	4843	4851	4857	4882	4887	4894
4899	4919	4924	4934	4939	4946	4951	4956	5390	5395	5402	5407	5414
5419	5426	5431	5441	5446	5453	5458	5465	5470	5477	5482	5487	5510
5515	5522	5527	5536	5540	5559	5565	5568	5570	5576	5579	5584	5589
5594	5622	5627	5634	5639	5647	5652	5659	5664	5689	5694	5701	5706
5717	5722	5727	5757	5762	5769	5774	5782	5787	5794	5799	5820	5825
5832	5837	5863	5868	5875	5880	5889	5894	5917	5922	5929	5934	5960
5965	5972	5977	5986	5991	5997	6020	6025	6032	6037	6045	6050	6057
6062	6073	6078	6085	6090	6100	6105	6112	6117	6126	6131	6143	6148
6155	6160	6170	6175	6182	6187	6196	6201	6207	6241	6246	6253	6258
6266	6271	6278	6283	6294	6299	6306	6311	6339	6344	6351	6356	6392
6397	6404	6409	6423	6428	6461	6466	6473	6478	6514	6519	6526	6531
6545	6550	6558	6590	6598	6603	6610	6615	6623	6628	6635	6640	6650
6655	6662	6667	6680	6685	6692	6697	6707	6712	6719	6724	6741	6746
6753	6758	6764	6769	6776	6781	6788	6793	6802	6807	6813	6818	6825
6830	6837	6842	6851	6856	6864	6869	6878	6883	6890	6895	6902	6907
6912	6915	6925	6930	6935	6940	6949	6954	6961	6966	6985	6990	6997
7002	7008	7013	7020	7025	7031	7036	7043	7048	7054	7063	7068	7077
7082	7088	7095	7102	7109	7112	7144	7149	7156	7161	7169	7174	7181
7186	7196	7201	7208	7213	7225	7230	7237	7242	7251	7256	7263	7268
7285	7290	7297	7302	7308	7313	7320	7325	7332	7337	7346	7351	7357
7362	7369	7374	7381	7386	7395	7400	7407	7412	7419	7424	7431	7436
7441	7473	7478	7485	7490	7498	7503	7510	7515	7525	7530	7537	7542
7554	7559	7566	7571	7580	7585	7592	7597	7614	7619	7626	7631	7637
7642	7649	7654	7661	7666	7675	7680	7686	7691	7698	7703	7710	7715
7724	7729	7736	7741	7748	7753	7760	7765	7770	7770	7800	7805	7812
7825	7830	7837	7842	7854	7859	7866	7871	7884	7889	7896	7901	7911
7916	7923	7928	7945	7950	7957	7962	7968	7973	7980	7985	7992	7997
8006	8011	8017	8022	8029	8034	8041	8046	8055	8060	8069	8074	8081
8086	8093	8098	8103	8133	8138	8145	8150	8158	8163	8170	8175	8185
8190	8197	8202	8215	8220	8227	8232	8242	8247	8254	8259	8276	8281
8288	8293	8299	8304	8311	8316	8323	8328	8337	8342	8349	8354	8363
8368	8375	8380	8387	8392	8397	8428	8433	8440	8445	8453	8458	8465
8470	8480	8485	8492	8497	8510	8515	8522	8527	8537	8542	8549	8554
8572	8577	8584	8589	8595	8600	8607	8612	8620	8625	8632	8637	8644
8649	8656	8661	8666	8698	8703	8710	8715	8723	8728	8735	8740	8759
8764	8771	8776	8789	8794	8801	8806	8816	8821	8828	8833	8854	8859
8866	8871	8877	8882	8889	8894	8901	8906	8915	8920	8927	8932	8941

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8946	8953	8958	8967	8972	8978	8983	8990	8995	9018	9023	9031	9036
9045	9050	9057	9062	9071	9076	9083	9088	9097	9102	9110	9115	9124
9129	9136	9141	9148	9153	9158	9200	9205	9212	9217	9225	9230	9237
9242	9253	9258	9265	9270	9283	9288	9295	9300	9316	9321	9328	9333
9350	9355	9362	9367	9373	9378	9385	9390	9397	9402	9411	9416	9422
9427	9434	9439	9446	9451	9460	9465	9473	9478	9487	9492	9499	9504
9511	9516	9535	9540	9547	9552	9558	9563	9570	9575	9582	9587	9596
9601	9607	9612	9619	9624	9631	9636	9654	9659	9666	9671	9688	9693
9700	9705	9711	9716	9723	9728	9735	9740	9749	9754	9760	9765	9772
9777	9784	9789	9798	9803	9811	9816	9825	9830	9837	9842	9849	9854
9873	9878	9885	9890	9896	9901	9908	9913	9920	9925	9934	9939	9945
9950	9957	9962	9969	9974	9979	10024	10029	10036	10041	10049	10054	10061
10066	10077	10082	10089	10094	10107	10112	10119	10124	10134	10139	10146	10151
10164	10169	10176	10181	10204	10209	10216	10221	10227	10232	10239	10244	10251
10256	10265	10270	10276	10281	10288	10293	10300	10305	10314	10319	10327	10332
10341	10346	10353	10358	10365	10370	10399	10404	10411	10416	10422	10427	10434
10439	10446	10451	10460	10465	10471	10476	10483	10488	10495	10500	10519	10524
10531	10536	10559	10564	10571	10576	10582	10587	10594	10599	10606	10611	10620
10625	10631	10636	10643	10648	10655	10660	10669	10674	10682	10687	10696	10701
10708	10713	10720	10725	10753	10758	10765	10770	10776	10781	10788	10793	10800
10805	10814	10819	10825	10830	10837	10842	10849	10854	10863	10916	10921	10928
10933	10941	10946	10953	10958	10968	10973	10980	10985	10998	11003	11010	11015
11031	11036	11043	11048	11061	11066	11073	11078	11097	11102	11109	11114	11120
11125	11132	11137	11144	11149	11158	11163	11169	11174	11181	11186	11193	11198
11207	11212	11220	11225	11234	11239	11246	11251	11258	11263	11282	11287	11294
11299	11305	11310	11317	11322	11329	11334	11343	11348	11354	11359	11366	11371
11378	11383	11392	11397	11405	11410	11419	11424	11431	11436	11443	11448	11458
11463	11470	11475	11498	11503	11510	11515	11521	11526	11533	11538	11545	11550
11559	11564	11570	11575	11582	11587	11594	11599	11608	11613	11621	11626	11635
11640	11647	11652	11659	11664	11694	11699	11706	11711	11717	11722	11729	11734
11741	11746	11755	11760	11766	11771	11778	11783	11790	11795	11804	11809	11817
11822	11831	11836	11843	11848	11855	11860	11872	11915	11920	11927	11932	11940
11945	11952	11957	11970	11975	11982	11987	12000	12005	12012	12017	12027	12032
12039	12044	12057	12062	12069	12074	12097	12102	12109	12114	12120	12125	12132
12137	12144	12149	12158	12163	12169	12174	12181	12186	12193	12198	12207	12212
12220	12225	12234	12239	12246	12251	12258	12263	12293	12298	12305	12310	12316
12321	12328	12333	12340	12345	12354	12359	12365	12370	12377	12382	12389	12394
12403	12408	12416	12421	12430	12435	12442	12447	12454	12459	12471	12513	12518
12525	12530	12538	12543	12550	12555	12565	12570	12577	12582	12595	12600	12607
12612	12622	12627	12634	12639	12656	12661	12668	12673	12679	12684	12691	12696
12705	12710	12717	12722	12729	12734	12749	12754	12761	12766	12783	12788	12795
12800	12806	12811	12818	12823	12830	12835	12844	12849	12855	12860	12867	12872
12879	12884	12893	12898	12906	12911	12919	12924	12933	12938	12945	12950	12957
12962	12967	13008	13013	13020	13025	13033	13038	13045	13050	13061	13066	13073
13078	13091	13096	13103	13108	13124	13129	13136	13141	13158	13163	13170	13175
13181	13186	13193	13198	13205	13210	13219	13224	13230	13235	13242	13247	13254
13259	13278	13283	13290	13295	13301	13306	13313	13318	13325	13330	13339	13344
13350	13355	13362	13367	13374	13379	13385	13416	13421	13428	13433	13441	13446
13453	13458	13468	13473	13480	13485	13498	13503	13510	13515	13525	13530	13537
13542	13565	13570	13577	13582	13590	13595	13602	13607	13613	13618	13625	13630
13637	13642	13651	13656	13663	13668	13677	13682	13689	13694	13703	13708	13714
13719	13726	13731	13738	13743	13752	13757	13764	13769	13778	13783	13790	13795
13804	13809	13817	13822	13831	13836	13843	13848	13855	13860	13865	13886	13895
13900	13907	13912	13920	13925	13932	13937	13947	13952	13959	13964	13979	13984
13991	13996	14015	14020	14027	14032	14059	14066	14073	14080	14087	14093	
TSTSTS= 000001	1068#	4604#	4647#	4689#	4730#	4778#	4828#	4876#	5384#	5504#	5616#	6014#

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TSSAU = 010021	6235#	6588#	7138#	7467#	7794#	8127#	8422#	8692#	9194#	10018#	10910#	11909#	12507#
TSSAUT = 010016	13002#	13410#	13883#										
TSSCLE = 010017	4528#	4532	4539										
TSSDU = 010020	4471#	4475											
TSSHAR = 010062	4485#	4489	4496										
TSSHW = 010000	4506#	4510	4517										
TSSINI = 010015	14216#	14231											
TSSMSG = 010012	1219#	1226											
	4406#	4458											
	2295#	2304	2308#	2318	2322#	2332	2336#	2352	2356#	2390	2394#	2428	2432#
	2442	2446#	2464	2468#	2498								
TSSPRO = 010014	4390#												
TSSRPT = 010013	4369#	4373	4380										
TSSSEG = 010000	4784#	4800#	4834#	4850#									
TSSOF = 010063	14256#	14267											
TSSSRV = 010023	4556#	4559	4576#	4586									
TSSSUB = 010043	6590#	6911	6915#	7108									
TSSSW = 010001	1237#	1245											
TSTES = 010061	4604#	4630	4647#	4673	4689#	4715	4730#	4756	4778#	4806	4828#	4856	4876#
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	5470	5482	5486	5504#	5515	5527	5570	5589	5593	5616#	5627	5639	5652
	5664	5694	5706	5722	5726	5751#	5762	5774	5787	5799	5825	5837	5868
	5880	5894	5922	5934	5965	5977	5991	5996	6014#	6025	6037	6050	6062
	6078	6090	6105	6117	6131	6148	6160	6175	6187	6201	6206	6235#	6246
	6258	6271	6283	6299	6311	6344	6356	6397	6409	6428	6466	6478	6519
	6531	6550	6557	6588#	6603	6615	6628	6640	6655	6667	6685	6697	6712
	6724	6746	6758	6769	6781	6793	6807	6818	6830	6842	6856	6869	6883
	6895	6907	6930	6940	6954	6966	6990	7002	7013	7025	7036	7048	7068
	7082	7111	7138#	7149	7161	7174	7186	7201	7213	7230	7242	7256	7268
	7290	7302	7313	7325	7337	7351	7362	7374	7386	7400	7412	7424	7436
	7440	7467#	7478	7490	7503	7515	7530	7542	7559	7571	7585	7597	7619
	7631	7642	7654	7666	7680	7691	7703	7715	7729	7741	7753	7765	7769
	7794#	7805	7817	7830	7842	7859	7871	7889	7901	7916	7928	7950	7962
	7973	7985	7997	8011	8022	8034	8046	8060	8074	8086	8098	8102	8127#
	8138	8150	8163	8175	8190	8202	8220	8232	8247	8259	8281	8293	8304
	8316	8328	8342	8354	8368	8380	8392	8396	8422#	8433	8445	8458	8470
	8485	8497	8515	8527	8542	8554	8577	8589	8600	8612	8625	8637	8649
	8661	8665	8692#	8703	8715	8728	8740	8764	8776	8794	8806	8821	8833
	8859	8871	8882	8894	8906	8920	8932	8946	8958	8972	8983	8995	9023
	9036	9050	9062	9076	9088	9102	9115	9129	9141	9153	9157	9194#	9205
	9217	9230	9242	9258	9270	9288	9300	9321	9333	9355	9367	9378	9390
	9402	9416	9427	9439	9451	9465	9478	9492	9504	9516	9540	9552	9563
	9575	9587	9601	9612	9624	9636	9659	9671	9693	9705	9716	9728	9740
	9754	9765	9777	9789	9803	9816	9830	9842	9854	9878	9890	9901	9913
	9925	9939	9950	9962	9974	9978	10018#	10029	10041	10054	10066	10082	10094
	10112	10124	10139	10151	10169	10181	10209	10221	10232	10244	10256	10270	10281
	10293	10305	10319	10332	10346	10358	10370	10404	10416	10427	10439	10451	10465
	10476	10488	10500	10524	10536	10564	10576	10587	10599	10611	10625	10636	10648
	10660	10674	10687	10701	10713	10725	10758	10770	10781	10793	10805	10819	10830
	10842	10854	10862	10910#	10921	10933	10946	10958	10973	10985	11003	11015	11036
	11048	11066	11078	11102	11114	11125	11137	11149	11163	11174	11186	11198	11212
	11225	11239	11251	11263	11287	11299	11310	11322	11334	11348	11359	11371	11383
	11397	11410	11424	11436	11448	11463	11475	11503	11515	11526	11538	11550	11564
	11575	11587	11599	11613	11626	11640	11652	11664	11699	11711	11722	11734	11746
	11760	11771	11783	11795	11809	11822	11836	11848	11860	11871	11909#	11920	11932
	11945	11957	11975	11987	12005	12017	12032	12044	12062	12074	12102	12114	12125

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		12137	12149	12163	12174	12186	12198	12212	12225	12239	12251	12263	12298	12310
		12321	12333	12345	12359	12370	12382	12394	12408	12421	12435	12447	12459	12470
		12507#	12518	12530	12543	12555	12570	12582	12600	12612	12627	12639	12661	12673
		12684	12696	12710	12722	12734	12754	12766	12788	12800	12811	12823	12835	12849
		12860	12872	12884	12898	12911	12924	12938	12950	12962	12966	13002#	13013	13025
		13038	13050	13066	13078	13096	13108	13129	13141	13163	13175	13186	13198	13210
		13224	13235	13247	13259	13283	13295	13306	13318	13330	13344	13355	13367	13379
		13384	13410#	13421	13433	13446	13458	13473	13485	13503	13515	13530	13542	13570
		13582	13595	13607	13618	13630	13642	13656	13668	13682	13694	13708	13719	13731
		13743	13757	13769	13783	13795	13809	13822	13836	13848	13860	13864	13883#	13886
		13900	13912	13925	13937	13952	13964	13984	13996	14020	14032	14092		
T1	025700RG	1180	4603#											
T10	032766RG	1189	5615#											
T11	033316RG	1190	5750#											
T12	034272RG	1191	6013#											
T13	035036RG	1192	6234#											
T14	036244RG	1193	6587#											
T14.1	036244R	6589#												
T14.2	037374R	6914#												
T15	040142RG	1194	7137#											
T16	041254RG	1195	7466#											
T17	042366RG	1196	7793#											
T18	043474RG	1197	8126#											
T19	044472RG	1198	8421#											
T2	025776RG	1181	4646#											
T20	045364RG	1199	8691#											
T21	047160RG	1200	9193#											
T22	052042RG	1201	10017#											
T23	055116RG	1202	10909#											
T24	060516RG	1203	11908#											
T25	062554RG	1204	12506#											
T26	064274RG	1205	13001#											
T27	065606RG	1206	13409#											
T28	067336RG	1207	13882#											
T3	026076RG	1182	4688#											
T4	026176RG	1183	4729#											
T5	026276RG	1184	4777#											
T6	026352RG	1185	4827#											
T7	026426RG	1186	4875#											
T8	032206RG	1187	5383#											
T9	032502RG	1188	5503#											
UAM =	000200 G	1320#												
UDBB	000262RG	1418#	1466	1471	1476	1481	1486	1491	1520	1525	4137	5684*	5814*	5815*
		5857*	5858*	5911*	5912*	5954*	5955*	6328*	6329*	6333*	6381*	6382*	6386*	6450*
		6451*	6455*	6503*	6504*	6508*	14009*	14010*						
UDB10A	012204RG	1812#	5669											
UDB11A	012234RG	1826#	5811	5854	5908	5951	6325	6378	6447	6500				
UDB28A	013174RG	2047#	14006											
UNAPRI	000240RG	1409#	5532											
UNIHLT=	000005 G	1370#												
UNIT	000242RG	1410#	4434*	4435*	4436	4439	4622	4665	4707	4748				
WTMODE	011232RG	1500#	6066	6136	6288	6644	7189	7518	7847	8179	8474	8748	8752	9246
		10070	10962	11963	12559	12742	13054	13462						
WTMOD1	011242RG	1504#	6943											
WTMULA	011152RG	1470#	10155	10510	11052	12048								
WTPHYA	011132RG	1460#	6701	7245	7574	7905	8236	8531	8810	9304	9642	10128	11019	11452

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WTRNGS	011172RG	12021	12616	12776	13112	13519													
		1480#	6671	7216	7545	7875	8206	8501	8780	9274	10098	10989	11991	12586					
		13082	13489																
XCRC	013202RG	2076#	2449	3615	4165														
XCRCB	013204RG	2077#	2448																
XDAT	013174RG	2073#	2435	3577*	3666*	3710*													
.WR	= 100000 G	1353#																	
XRDRB0	013142RG	2060#	2397	3112	4191														
XRDRB2	013144RG	2061#	2405																
XRDRB4	013146RG	2062#	2413																
XRDRB6	013150RG	2063#	2421																
XTDRB0	013162RG	2068#	2359	3263	4219														
XTDRB2	013164RG	2069#	2367																
XTDRB4	013166RG	2070#	2375																
XTDRB6	013170RG	2071#	2383																
X\$ALWA=	000000	1068#																	
X\$FALS=	000040	1068#																	
X\$OFFS=	000400	1068#																	
X\$TRUE=	000020	1068#																	
ZERO	= 000000 G	1382#	3703	4019	6138	6191													
\$PATCH	071164RG	14280#																	
.	= 071210R	1417#	1418#	1419#	1420#	1421#	1422#	1423#	1424#	1425#	1426#	1427#	1428#	1429#					
		1430#	1431#	1432#	1433#	1434#	1435#	1436#	1437#	2126#	2283#	4374	4490	4511					
		4533	4888	4900	4925	4940	4952	5360#	5396	5408	5420	5432	5447	5459					
		5471	5483	5516	5528	5571	5590	5628	5640	5653	5665	5695	5707	5723					
		5763	5775	5788	5800	5826	5838	5869	5881	5895	5923	5935	5966	5978					
		5992	6026	6038	6051	6063	6079	6091	6106	6118	6132	6149	6161	6176					
		6188	6202	6247	6259	6272	6284	6300	6312	6345	6357	6398	6410	6429					
		6467	6479	6520	6532	6551	6604	6616	6629	6641	6656	6668	6686	6698					
		6713	6725	6747	6759	6770	6782	6794	6808	6819	6831	6843	6857	6870					
		6884	6896	6908	6931	6941	6955	6967	6991	7003	7014	7026	7037	7049					
		7069	7083	7150	7162	7175	7187	7202	7214	7231	7243	7257	7269	7291					
		7303	7314	7326	7338	7352	7363	7375	7387	7401	7413	7425	7437	7479					
		7491	7504	7516	7531	7543	7560	7572	7586	7598	7620	7632	7643	7655					
		7667	7681	7692	7704	7716	7730	7742	7754	7766	7806	7818	7831	7843					
		7860	7872	7890	7902	7917	7929	7951	7963	7974	7986	7998	8012	8023					
		8035	8047	8061	8075	8087	8099	8139	8151	8164	8176	8191	8203	8221					
		8233	8248	8260	8282	8294	8305	8317	8329	8343	8355	8369	8381	8393					
		8434	8446	8459	8471	8486	8498	8516	8528	8543	8555	8578	8590	8601					
		8613	8626	8638	8650	8662	8704	8716	8729	8741	8765	8777	8795	8807					
		8822	8834	8860	8872	8883	8895	8907	8921	8933	8947	8959	8973	8984					
		8996	9024	9037	9051	9063	9077	9089	9103	9116	9130	9142	9154	9206					
		9218	9231	9243	9259	9271	9289	9301	9322	9334	9356	9368	9379	9391					
		9403	9417	9428	9440	9452	9466	9479	9493	9505	9517	9541	9553	9564					
		9576	9588	9602	9613	9625	9637	9660	9672	9694	9706	9717	9729	9741					
		9755	9766	9778	9790	9804	9817	9831	9843	9855	9879	9891	9902	9914					
		9926	9940	9951	9963	9975	10030	10042	10055	10067	10083	10095	10113	10125					
		10140	10152	10170	10182	10210	10222	10233	10245	10257	10271	10282	10294	10306					
		10320	10333	10347	10359	10371	10405	10417	10428	10440	10452	10466	10477	10489					
		10501	10525	10537	10565	10577	10588	10600	10612	10626	10637	10649	10661	10675					
		10688	10702	10714	10726	10759	10771	10782	10794	10806	10820	10831	10843	10855					
		10922	10934	10947	10959	10974	10986	11004	11016	11037	11049	11067	11079	11103					
		11115	11126	11138	11150	11164	11175	11187	11199	11213	11226	11240	11252	11264					
		11288	11300	11311	11323	11335	11349	11360	11372	11384	11398	11411	11425	11437					
		11449	11464	11476	11504	11516	11527	11539	11551	11565	11576	11588	11600	11614					
		11627	11641	11653	11665	11700	11712	11723	11735	11747	11761	11772	11784	11796					

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11810	11823	11837	11849	11861	11921	11933	11946	11958	11976	11988	12006	12018
12033	12045	12063	12075	12103	12115	12126	12138	12150	12164	12175	12187	12199
12213	12226	12240	12252	12264	12299	12311	12322	12334	12346	12360	12371	12383
12395	12409	12422	12436	12448	12460	12519	12531	12544	12556	12571	12583	12601
12613	12628	12640	12662	12674	12685	12697	12711	12723	12735	12755	12767	12789
12801	12812	12824	12836	12850	12861	12873	12885	12899	12912	12925	12939	12951
12963	13014	13026	13039	13051	13067	13079	13097	13109	13130	13142	13164	13176
13187	13199	13211	13225	13236	13248	13260	13284	13296	13307	13319	13331	13345
13356	13368	13380	13422	13434	13447	13459	13474	13486	13504	13516	13531	13543
13571	13583	13596	13608	13619	13631	13643	13657	13669	13683	13695	13709	13720
13732	13744	13758	13770	13784	13796	13810	13823	13837	13849	13861	13887	13901
13913	13926	13938	13953	13965	13985	13997	14021	14033	14143#	14243#	14281#	



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ENDSUB	1#	1068#	6910	7107											
ENDSW	1#	1068#	1244												
ENDTST	1#	1068#	4629	4672	4714	4755	4805	4855	4954	5485	5592	5725	5995	6205	6556
	7110	7439	7768	8101	8395	8664	9156	9977	10861	11870	12469	12965	13383	13863	14091
EQUALS	1#	1068#	1260												
ERRDF	1#	1068#	4616	4659	4701	4742									
ERRHRD	1#	1068#	4792	4842	4881	4893	4918	4933	4945	5389	5401	5413	5425	5440	5452
	5464	5476	5509	5521	5558	5583	5621	5633	5646	5658	5688	5700	5716	5756	5768
	5781	5793	5819	5831	5862	5874	5888	5916	5928	5959	5971	5985	6019	6031	6044
	6056	6072	6084	6099	6111	6125	6142	6154	6169	6181	6195	6240	6252	6265	6277
	6293	6305	6338	6350	6391	6403	6422	6460	6472	6513	6525	6544	6597	6609	6622
	6634	6649	6661	6679	6691	6706	6718	6740	6752	6763	6775	6787	6801	6812	6824
	6836	6850	6863	6877	6889	6901	6924	6934	6948	6960	6984	6996	7007	7019	7030
	7042	7053	7062	7076	7087	7094	7101	7143	7155	7168	7180	7195	7207	7224	7236
	7250	7262	7284	7296	7307	7319	7331	7345	7356	7368	7380	7394	7406	7418	7430
	7472	7484	7497	7509	7524	7536	7553	7565	7579	7591	7613	7625	7636	7648	7660
	7674	7685	7697	7709	7723	7735	7747	7759	7799	7811	7824	7836	7853	7865	7883
	7895	7910	7922	7944	7956	7967	7979	7991	8005	8016	8028	8040	8054	8068	8080
	8092	8132	8144	8157	8169	8184	8196	8214	8226	8241	8253	8275	8287	8298	8310
	8322	8336	8348	8362	8374	8386	8427	8439	8452	8464	8479	8491	8509	8521	8536
	8548	8571	8583	8594	8606	8619	8631	8643	8655	8697	8709	8722	8734	8758	8770
	8788	8800	8815	8827	8853	8865	8876	8888	8900	8914	8926	8940	8952	8966	8977
	8989	9017	9030	9044	9056	9070	9082	9096	9109	9123	9135	9147	9199	9211	9224
	9236	9252	9264	9282	9294	9315	9327	9349	9361	9372	9384	9396	9410	9421	9433
	9445	9459	9472	9486	9498	9510	9534	9546	9557	9569	9581	9595	9606	9618	9630
	9653	9665	9687	9699	9710	9722	9734	9748	9759	9771	9783	9797	9810	9824	9836
	9848	9872	9884	9895	9907	9919	9933	9944	9956	9968	10023	10035	10048	10060	10076
	10088	10106	10118	10133	10145	10163	10175	10203	10215	10226	10238	10250	10264	10275	10287
	10299	10313	10326	10340	10352	10364	10398	10410	10421	10433	10445	10459	10470	10482	10494
	10518	10530	10558	10570	10581	10593	10605	10619	10630	10642	10654	10668	10681	10695	10707
	10719	10752	10764	10775	10787	10799	10813	10824	10836	10848	10915	10927	10940	10952	10967
	10979	10997	11009	11030	11042	11060	11072	11096	11108	11119	11131	11143	11157	11168	11180
	11192	11206	11219	11233	11245	11257	11281	11293	11304	11316	11328	11342	11353	11365	11377
	11391	11404	11418	11430	11442	11457	11469	11497	11509	11520	11532	11544	11558	11569	11581
	11593	11607	11620	11634	11646	11658	11693	11705	11716	11728	11740	11754	11765	11777	11789
	11803	11816	11830	11842	11854	11914	11926	11939	11951	11969	11981	11999	12011	12026	12038
	12056	12068	12096	12108	12119	12131	12143	12157	12168	12180	12192	12206	12219	12233	12245
	12257	12292	12304	12315	12327	12339	12353	12364	12376	12388	12402	12415	12429	12441	12453
	12512	12524	12537	12549	12564	12576	12594	12606	12621	12633	12655	12667	12678	12690	12704
	12716	12728	12748	12760	12782	12794	12805	12817	12829	12843	12854	12866	12878	12892	12905
	12918	12932	12944	12956	13007	13019	13032	13044	13060	13072	13090	13102	13123	13135	13157
	13169	13180	13192	13204	13218	13229	13241	13253	13277	13289	13300	13312	13324	13338	13349
	13361	13373	13415	13427	13440	13452	13467	13479	13497	13509	13524	13536	13564	13576	13589
	13601	13612	13624	13636	13650	13662	13676	13688	13702	13713	13725	13737	13751	13763	13777
	13789	13803	13816	13830	13842	13854	13894	13906	13919	13931	13946	13958	13978	13990	14014
	14026														
ERROR	1#	1068#													
ERRSF	1#	1068#													
ERRSOF	1#	1068#													
ERRTBL	1#	1068#	2090												
ESCAPE	1#	1068#	4886	4898	4923	4938	4950	5394	5406	5418	5430	5445	5457	5469	5481
	5514	5526	5569	5588	5626	5638	5651	5663	5693	5705	5721	5761	5773	5786	5798
	5824	5836	5867	5879	5893	5921	5933	5964	5976	5990	6024	6036	6049	6061	6077
	6089	6104	6116	6130	6147	6159	6174	6186	6200	6245	6257	6270	6282	6298	6310
	6343	6355	6396	6408	6427	6465	6477	6518	6530	6549	6602	6614	6627	6639	6654
	6666	6684	6696	6711	6723	6745	6757	6768	6780	6792	6806	6817	6829	6841	6855



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MSCOUN	1#	1068#	2297#	2310#	2324#	2338#	2345#	2358#	2366#	2374#	2382#	2396#	2404#	2412#	2420#
	2434#	2448#	2456#	2470#	2477#	2484#	2491#	14055#	14062#	14069#	14076#	14083#			
MSDATA	1#	1068#	1084#	1093	1095	1097	1099	1101	1103	1105	1107	1109	1111	1113	1115
	1117	1119	1121	1123#	1125	1127	1130	1133	1135	1137	1139	1141	1143	1145	1147
	1149	1151	1153	1155	1157	1159	1161	1163	1165	1167	2108#	2116#			
MSDECR	1#	1068#	1226#	1245#	2304#	2318#	2332#	2352#	2390#	2428#	2442#	2464#	2498#	4380#	4397#
	4458#	4475#	4496#	4517#	4539#	4559#	4586#	4630#	4673#	4715#	4756#	4800#	4806#	4850#	4856#
	4955#	5486#	5593#	5726#	5996#	6206#	6557#	6911#	7108#	7111#	7440#	7769#	8102#	8396#	8665#
	9157#	9978#	10862#	11871#	12470#	12966#	13384#	13864#	14092#	14230#	14266#	14290#			
MSDEFA	1#	1068#	14220#	14225#	14260#										
MSENDE	1#	1068#	1226#	1245#	2304#	2318#	2332#	2352#	2390#	2428#	2442#	2464#	2498#	4380#	4458#
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PARAMETER CODING  
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10-JAN-83

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12:46

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CROSS REFERENCE TABLE -- MACRO NAMES

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CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

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CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

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PARAMETER CODING  
CZUABA.MACMACY11 30(1046)  
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CROSS REFERENCE TABLE -- MACRO NAMES

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PARAMETER CODING  
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10-JAN-83

MACY11 30(1046)  
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CROSS PEFERENCE TABLE -- MACRO NAMES

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PARAMETER CODING MACY11 30(1046) 11-JAN-83 12:03 PAGE 341  
 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

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 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

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 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

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	8363#	8368#	8375#	8380#	8387#	8392#	8397#	8421#	8422#	8428#	8433#	8440#	8445#	8453#	8458#
	8465#	8470#	8480#	8485#	8492#	8497#	8510#	8515#	8522#	8527#	8537#	8542#	8549#	8554#	8572#
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	8666#	8691#	8692#	8698#	8703#	8710#	8715#	8723#	8728#	8735#	8740#	8759#	8764#	8771#	8776#
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 CZUABA.MAC      10-JAN-83 12:46      CROSS REFERENCE TABLE -- MACRO NAMES

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10587#	10594#	10599#	10606#	10611#	10620#	10625#	10631#	10636#	10643#	10648#	10655#	10660#	10669#	10674#
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10793#	10800#	10805#	10814#	10819#	10825#	10830#	10837#	10842#	10849#	10854#	10863#	10909#	10910#	10916#
10921#	10928#	10933#	10941#	10946#	10953#	10958#	10968#	10973#	10980#	10985#	10998#	11003#	11010#	11015#
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12823#	12830#	12835#	12844#	12849#	12855#	12860#	12867#	12872#	12879#	12884#	12893#	12898#	12906#	12911#
12919#	12924#	12933#	12938#	12945#	12950#	12957#	12962#	12967#	13001#	13002#	13008#	13013#	13020#	13025#
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14080#	14087#	14093#	14216#	14256#										

MSIOSE  
 MSLDRO  
 MSMASK  
 MSMCHI  
 MSMCLO  
 MSMASK1  
 MSPOP  
 MSPRIN  
 MSPUSH

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 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

MSPUT	4730	4777#	4778	4784#	4827#	4828	4834#	4875#	4876	5383#	5384	5503#	5504	5615#	5616
	5750#	5751	6013#	6014	6234#	6235	6587#	6588	6589#	6590	6914#	6915	7137#	7138	7466#
	7467	7793#	7794	8126#	8127	8421#	8422	8691#	8692	9193#	9194	10017#	10018	10909#	10910
	11908#	11909	12506#	12507	13001#	13002	13409#	13410	13882#	13883	14216#	14256#			
	1#	1068#	2297#	2310#	2324#	2338#	2345#	2358#	2366#	2374#	2382#	2396#	2404#	2412#	2420#
	2434#	2448#	2456#	2470#	2477#	2484#	2491#	4605#	4648#	4690#	4731#	5532#	14055#	14062#	14069#
MSPUT1	14076#	14083#													
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	2340	2345#	2346	2347	2358#	2359	2360	2361	2366#	2367	2368	2369	2374#	2375	2376
	2377	2382#	2383	2384	2385	2396#	2397	2398	2399	2404#	2405	2406	2407	2412#	2413
	2414	2415	2420#	2421	2422	2423	2434#	2435	2436	2437	2448#	2449	2450	2451	2454#
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	4605#	4606	4607	4608	4648#	4649	4650	4651	4690#	4691	4692	4693	4731#	4732	4733
	4734	5532#	5533	5534	5535	14055#	14056	14057	14062#	14063	14064	14069#	14070	14071	14076#
	14077	14078	14083#	14084	14085										
MSRADI	1#	1068#	14220#	14225#	14260#										
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MSRNRO	1#	1068#	4439#	4441											
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	4834#	4876#	5384#	5504#	5616#	5751#	6014#	6235#	6588#	6590#	6915#	7138#	7467#	7794#	8127#
	8422#	8692#	9194#	10018#	10910#	11909#	12507#	13002#	13410#	13883#	14216#	14256#			
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	2453	2456#	2461	2464#	2465	2470#	2474	2477#	2481	2484#	2488	2491#	2495	2498#	2499
	4373#	4380#	4381	4411#	4412	4416#	4417	4421#	4422	4426#	4427	4439#	4440	4456#	4458#
	4459	4475#	4476	4489#	4496#	4497	4510#	4517#	4518	4532#	4539#	4540	4605#	4609	4617
	4622#	4623	4625#	4627#	4628	4630#	4631	4648#	4652	4660	4665#	4666	4668#	4670#	4671
	4673#	4674	4690#	4694	4702	4707#	4708	4710#	4712#	4713	4715#	4716	4731#	4735	4743
	4748#	4749	4751#	4753#	4754	4756#	4757	4784#	4793	4800#	4801	4806#	4807	4834#	4843
	4850#	4851	4856#	4857	4882	4887#	4894	4899#	4919	4924#	4934	4939#	4946	4951#	4955#
	4956	5390	5395#	5402	5407#	5414	5419#	5426	5431#	5441	5446#	5453	5458#	5465	5470#
	5477	5482#	5486#	5487	5510	5515#	5522	5527#	5532#	5536	5539#	5540	5549	5564#	5565
	5567#	5568	5570#	5575#	5576	5578#	5579	5584	5589#	5593#	5594	5622	5627#	5634	5639#
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	5774#	5782	5787#	5794	5799#	5820	5825#	5832	5837#	5863	5868#	5875	5880#	5889	5894#
	5917	5922#	5929	5934#	5960	5965#	5972	5977#	5986	5991#	5996#	5997	6020	6025#	6032
	6037#	6045	6050#	6057	6062#	6073	6078#	6085	6090#	6100	6105#	6112	6117#	6126	6131#
	6143	6148#	6155	6160#	6170	6175#	6182	6187#	6196	6201#	6206#	6207	6241	6246#	6253
	6258#	6266	6271#	6278	6283#	6294	6299#	6306	6311#	6339	6344#	6351	6356#	6392	6397#
	6404	6409#	6423	6428#	6461	6466#	6473	6478#	6514	6519#	6526	6531#	6545	6550#	6557#
	6558	6589#	6590	6598	6603#	6610	6615#	6623	6628#	6635	6640#	6650	6655#	6662	6667#
	6680	6685#	6692	6697#	6707	6712#	6719	6724#	6741	6746#	6753	6758#	6764	6769#	6776
	6781#	6788	6793#	6802	6807#	6813	6818#	6825	6830#	6837	6842#	6851	6856#	6864	6869#
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	7161#	7169	7174#	7181	7186#	7196	7201#	7208	7213#	7225	7230#	7237	7242#	7251	7256#
	7263	7268#	7285	7290#	7297	7302#	7308	7313#	7320	7325#	7332	7337#	7346	7351#	7357
	7362#	7369	7374#	7381	7386#	7395	7400#	7407	7412#	7419	7424#	7431	7436#	7440#	7441
	7473	7478#	7485	7490#	7498	7503#	7510	7515#	7525	7530#	7537	7542#	7554	7559#	7566
	7571#	7580	7585#	7592	7597#	7614	7619#	7626	7631#	7637	7642#	7649	7654#	7661	7666#
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PARAMETER CODING  
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7884	7889#	7896	7901#	7911	7916#	7923	7928#	7945	7950#	7957	7962#	7968	7973#	7980
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8081	8086#	8093	8098#	8102#	8103	8133	8138#	8145	8150#	8158	8163#	8170	8175#	8185
8190#	8197	8202#	8215	8220#	8227	8232#	8242	8247#	8254	8259#	8276	8281#	8288	8293#
8299	8304#	8311	8316#	8323	8328#	8337	8342#	8349	8354#	8363	8368#	8375	8380#	8387
8392#	8396#	8397	8428	8433#	8440	8445#	8453	8458#	8465	8470#	8480	8485#	8492	8497#
8510	8515#	8522	8527#	8537	8542#	8549	8554#	8572	8577#	8584	8589#	8595	8600#	8607
8612#	8620	8625#	8632	8637#	8644	8649#	8656	8661#	8665#	8666	8698	8703#	8710	8715#
8723	8728#	8735	8740#	8759	8764#	8771	8776#	8789	8794#	8801	8806#	8816	8821#	8828
8833#	8854	8859#	8866	8871#	8877	8882#	8889	8894#	8901	8906#	8915	8920#	8927	8932#
8941	8946#	8953	8958#	8967	8972#	8978	8983#	8990	8995#	9018	9023#	9031	9036#	9045
9050#	9057	9062#	9071	9076#	9083	9088#	9097	9102#	9110	9115#	9124	9129#	9136	9141#
9148	9153#	9157#	9158	9200	9205#	9212	9217#	9225	9230#	9237	9242#	9253	9258#	9265
9270#	9283	9288#	9295	9300#	9316	9321#	9328	9333#	9350	9355#	9362	9367#	9373	9378#
9385	9390#	9397	9402#	9411	9416#	9422	9427#	9434	9439#	9446	9451#	9460	9465#	9473
9478#	9487	9492#	9499	9504#	9511	9516#	9535	9540#	9547	9552#	9558	9563#	9570	9575#
9582	9587#	9596	9601#	9607	9612#	9619	9624#	9631	9636#	9654	9659#	9666	9671#	9688
9673#	9700	9705#	9711	9716#	9723	9728#	9735	9740#	9749	9754#	9760	9765#	9772	9777#
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PARAMETER CODING  
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10-JAN-83

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12:46

11-JAN-83 12:03 PAGE 347  
CROSS REFERENCE TABLE -- MACRO NAMES

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9099	9100	9110#	9111	9112	9113	9124#	9125	9126	9127	9136#	9137	9138	9139	9148#
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9237#	9238	9239	9240	9253#	9254	9255	9256	9265#	9266	9267	9268	9283#	9284	9285
9286	9295#	9296	9297	9298	9316#	9317	9318	9319	9328#	9329	9330	9331	9350#	9351
9352	9353	9362#	9363	9364	9365	9373#	9374	9375	9376	9385#	9386	9387	9388	9397#
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9446#	9447	9448	9449	9460#	9461	9462	9463	9473#	9474	9475	9476	9487#	9488	9489
9490	9499#	9500	9501	9502	9511#	9512	9513	9514	9535#	9536	9537	9538	9547#	9548
9549	9550	9558#	9559	9560	9561	9570#	9571	9572	9573	9582#	9583	9584	9585	9596#
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9654#	9655	9656	9657	9666#	9667	9668	9669	9688#	9689	9690	9691	9700#	9701	9702
9703	9711#	9712	9713	9714	9723#	9724	9725	9726	9735#	9736	9737	9738	9749#	9750
9751	9752	9760#	9761	9762	9763	9772#	9773	9774	9775	9784#	9785	9786	9787	9798#
9799	9800	9801	9811#	9812	9813	9814	9825#	9826	9827	9828	9837#	9838	9839	9840
9849#	9850	9851	9852	9873#	9874	9875	9876	9885#	9886	9887	9888	9896#	9897	9898
9899	9908#	9909	9910	9911	9920#	9921	9922	9923	9934#	9935	9936	9937	9945#	9946
9947	9948	9957#	9958	9959	9960	9969#	9970	9971	9972	10024#	10025	10026	10027	10036#
10037	10038	10039	10049#	10050	10051	10052	10061#	10062	10063	10064	10077#	10078	10079	10080
10089#	10090	10091	10092	10107#	10108	10109	10110	10119#	10120	10121	10122	10134#	10135	10136
10137	10146#	10147	10148	10149	10164#	10165	10166	10167	10176#	10177	10178	10179	10204#	10205
10206	10207	10216#	10217	10218	10219	10227#	10228	10229	10230	10239#	10240	10241	10242	10251#
10252	10253	10254	10265#	10266	10267	10268	10276#	10277	10278	10279	10288#	10289	10290	10291
10300#	10301	10302	10303	10314#	10315	10316	10317	10327#	10328	10329	10330	10341#	10342	10343
10344	10353#	10354	10355	10356	10365#	10366	10367	10368	10399#	10400	10401	10402	10411#	10412
10413	10414	10422#	10423	10424	10425	10434#	10435	10436	10437	10446#	10447	10448	10449	10460#
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10519#	10520	10521	10522	10531#	10532	10533	10534	10559#	10560	10561	10562	10571#	10572	10573
10574	10582#	10583	10584	10585	10594#	10595	10596	10597	10606#	10607	10608	10609	10620#	10621
10622	10623	10631#	10632	10633	10634	10643#	10644	10645	10646	10655#	10656	10657	10658	10669#
10670	10671	10672	10682#	10683	10684	10685	10696#	10697	10698	10699	10708#	10709	10710	10711
10720#	10721	10722	10723	10753#	10754	10755	10756	10765#	10766	10767	10768	10776#	10777	10778
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10980#	10981	10982	10993#	10998#	10999	11000	11001	11010#	11011	11012	11013	11031#	11032	11033
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PARAMETER CODING MACY11 30(1046) 11-JAN-83 12:03 PAGE 352  
 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

11193#	11194	11195	11196	11207#	11208	11209	11210	11220#	11221	11222	11223	11234#	11235	11236
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11296	11297	11305#	11306	11307	11308	11317#	11318	11319	11320	11329#	11330	11331	11332	11343#
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11392#	11393	11394	11395	11405#	11406	11407	11408	11419#	11420	11421	11422	11431#	11432	11433
11434	11443#	11444	11445	11446	11458#	11459	11460	11461	11470#	11471	11472	11473	11498#	11499
11500	11501	11510#	11511	11512	11513	11521#	11522	11523	11524	11533#	11534	11535	11536	11545#
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11708	11709	11717#	11718	11719	11720	11729#	11730	11731	11732	11741#	11742	11743	11744	11755#
11756	11757	11758	11766#	11767	11768	11769	11778#	11779	11780	11781	11790#	11791	11792	11793
11804#	11805	11806	11807	11817#	11818	11819	11820	11831#	11832	11833	11834	11843#	11844	11845
11846	11855#	11856	11857	11858	11915#	11916	11917	11918	11927#	11928	11929	11930	11940#	11941
11942	11943	11952#	11953	11954	11955	11970#	11971	11972	11973	11982#	11983	11984	11985	12000#
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12057#	12058	12059	12060	12069#	12070	12071	12072	12097#	12098	12099	12100	12109#	12110	12111
12112	12120#	12121	12122	12123	12132#	12133	12134	12135	12144#	12145	12146	12147	12158#	12159
12160	12161	12169#	12170	12171	12172	12181#	12182	12183	12184	12193#	12194	12195	12196	12207#
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12258#	12259	12260	12261	12293#	12294	12295	12296	12305#	12306	12307	12308	12316#	12317	12318
12319	12328#	12329	12330	12331	12340#	12341	12342	12343	12354#	12355	12356	12357	12365#	12366
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12553	12565#	12566	12567	12568	12577#	12578	12579	12580	12595#	12596	12597	12598	12607#	12608
12609	12610	12622#	12623	12624	12625	12634#	12635	12636	12637	12656#	12657	12658	12659	12668#
12669	12670	12671	12679#	12680	12681	12682	12691#	12692	12693	12694	12705#	12706	12707	12708
12717#	12718	12719	12720	12729#	12730	12731	12732	12749#	12750	12751	12752	12761#	12762	12763
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12820	12821	12830#	12831	12832	12833	12844#	12845	12846	12847	12855#	12856	12857	12858	12867#
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13047	13048	13061#	13062	13063	13064	13073#	13074	13075	13076	13091#	13092	13093	13094	13103#
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13170#	13171	13172	13173	13181#	13182	13183	13184	13193#	13194	13195	13196	13205#	13206	13207
13208	13219#	13220	13221	13222	13230#	13231	13232	13233	13242#	13243	13244	13245	13254#	13255
13256	13257	13278#	13279	13280	13281	13290#	13291	13292	13293	13301#	13302	13303	13304	13313#
13314	13315	13316	13325#	13326	13327	13328	13339#	13340	13341	13342	13350#	13351	13352	13353
13362#	13363	13364	13365	13374#	13375	13376	13377	13416#	13417	13418	13419	13428#	13429	13430
13431	13441#	13442	13443	13444	13453#	13454	13455	13456	13468#	13469	13470	13471	13480#	13481
13482	13483	13498#	13499	13500	13501	13510#	13511	13512	13513	13525#	13526	13527	13528	13537#
13538	13539	13540	13565#	13566	13567	13568	13577#	13578	13579	13580	13590#	13591	13592	13593
13602#	13603	13604	13605	13613#	13614	13615	13616	13625#	13626	13627	13628	13637#	13638	13639
13640	13651#	13652	13653	13654	13663#	13664	13665	13666	13677#	13678	13679	13680	13689#	13690
13691	13692	13703#	13704	13705	13706	13714#	13715	13716	13717	13726#	13727	13728	13729	13738#
13739	13740	13741	13752#	13753	13754	13755	13764#	13765	13766	13767	13778#	13779	13780	13781
13790#	13791	13792	13793	13804#	13805	13806	13807	13817#	13818	13819	13820	13831#	13832	13833
13834	13843#	13844	13845	13846	13855#	13856	13857	13858	13886#	13895#	13896	13897	13898	13907#
13908	13909	13910	13920#	13921	13922	13923	13932#	13933	13934	13935	13947#	13948	13949	13950
13959#	13960	13961	13962	13979#	13980	13981	13982	13991#	13992	13993	13994	14015#	14016	14017
14018	14027#	14028	14029	14030	14220#	14225#	14260#	14286	14287					

MSXFER 1# 1068#  
 OPEN 1# 1068#  
 POINTE 1# 1068# 1080

PARAMETER CODING MACY11 30(1046) 11-JAN-83 12:03 PAGE 353  
 CZUABA.MAC 10-JAN-83 12:46 CROSS REFERENCE TABLE -- MACRO NAMES

PRINTB	1#	1068#	2296	2309	2323	2337	2344	2357	2365	2373	2381	2395	2403	2411	2419
	2433	2447	2455	2469	2476	2483	2490	14054	14061	14068	14075	14082			
PRINTF	1#	1068#													
PRINTS	1#	1068#													
PRINTX	1#	1068#													
READBU	1#	1068#													
REDEF	1#	1068#	4410	4415	4420	4425									
RFLAGS	1#	1068#													
SETPRI	1#	1068#	5538	5566	5577										
SETVEC	1#	1068#	4604	4647	4689	4730	5531								
SLASH	1#	1068#													
STARS	1#	1068#													
SVC	1#	1068#													
XFER	1#	1068#	4373#	4489#	4510#	4532#	13886#								
XFERF	1#	1068#													
XFERT	1#	1068#													

. ABS. 000000 000  
 071210 001

ERRORS DETECTED: 0  
 DEFAULT GLOBALS GENERATED: 0

CZUABA.OBJ,CZUABA.LST/CRF/SOL/NL:TOC=SVC34R.P11,CZUABA.MAC  
 RUN-TIME: 82 96 11 SECONDS  
 RUN-TIME RATIO: 305/189=1.6  
 CORE USED: 34K (68 PAGES)

LNKX11 V023 12-JAN-83 2:00

#CZUABA.BIN/B:2000,CZUABA.MAP=CZUABA/E

LOAD MAP

TRANSFER ADDRESS: 000001

LOW LIMIT: 002000

HIGH LIMIT: 073210

\*\*\*\*\*

MODULE SECTION	PARAME ENTRY	ADDRESS	SIZE
<. ABS.>		000000	000000
	ADR	000020	
	BIT0	000001	
	BIT00	000001	
	BIT01	000002	
	BIT02	000004	
	BIT03	000010	
	BIT04	000020	
	BIT05	000040	
	BIT06	000100	
	BIT07	000200	
	BIT08	000400	
	BIT09	001000	
	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	
	BOE	000400	
	BUFL	100000	
	CMODE1	175015	
	DNI	004000	
	DTYPE	002540	
	EF.CON	000036	
	EF.NEW	000035	
	EF.PWR	000034	
	EF.RES	000037	
	EF.STA	000040	
	ENP	000400	
	ERRS	040000	
	EVL	000004	
	FATI	000400	
	GETCMD	000002	
	GETPCB	000001	
	GOODST	000000	

HOE 100000  
 IBE 010000  
 ICAB 040000  
 IDU 000040  
 IER 020000  
 INITH 000000  
 INL 000100  
 INTR 000200  
 ISR 000100  
 IXE 004000  
 LOE 040000  
 LOT 000010  
 NIHLT 000006  
 NIUNI 000007  
 ONES 177777  
 OWN 100000  
 PCEI 040000  
 PCTO 000200  
 PDMD 000010  
 PNOP 000006  
 PNT 001000  
 POLYH 120001  
 PRI 002000  
 PRILD 000001  
 PRI00 000000  
 PRI01 000040  
 PRI02 000100  
 PRI03 000140  
 PRI04 000200  
 PRI05 000240  
 PRI06 000300  
 PRI07 000340  
 RCBI 002000  
 READY 000002  
 RESET 000000  
 RMTC 000010  
 RSET 000040  
 RUN 000003  
 RXI 020000  
 SERI 100000  
 SIZ4K 020000  
 SIZ8K 040000  
 SLFT 000003  
 SMASK 177770  
 START 000004  
 STMASK 140377  
 STOP 000017  
 STP 001000  
 TDRMSK 007777  
 TIMASK 177400  
 TXI 010000  
 UAM 000200  
 UN!HLT 000005  
 XPWR 100000  
 ZERO 000000

071210

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 ADR21 014306  
 ADR21C 014314  
 BTMSG 072274

BTMSG0	072553
BTMSG1	072611
BTMSG2	072644
BTMSG3	072710
BTTBL	072414
CHKDNI	024546
CHKOWN	024634
CHKRCE	024666
CHKRDR	024754
CHKRXI	025054
CHKSER	025374
CHKSTR	025142
CHKTDR	025220
CHKTXI	025306
CLRCNT	013212
CLRDNI	025434
CLRRCE	025502
CLRRXI	025550
CLRSER	025664
CLRSTA	013262
CLRTXI	025616
CMPCRC	026012
CMPDAT	025732
CMPMEM	026062
CMPRNT	026142
CRCBLK	026222
CRCH	014202
CRC14A	014712
CRC15H	014716
CRC15L	014720
CRC16H	014722
CRC16L	014724
CRC20A	014726
CRC21A	014732
CRC21B	014736
CRC22A	014742
CRC22B	015012
CRC23B	015062
CRC25B	015066
CRC27A	015072
DEFADR	072343
DEFHDR	072300
DEST	002244
DFPTBL	002216
DMPMEM	013272
DNIFLG	015212
DPA	072260
ECODE	015206
ECRC	015176
ECRCB	015200
EDAT	015172
EPCSR0	015126
EPCSR1	015130
ERDRB0	015132
ERDRB2	015134
ERDRB4	015136
ERDRB6	015140
ERRBLK	015234
ERRMSG	015232

1

ERRNBR	015230
ERRTYP	015226
ERR001	017762
ERR002	020012
ERR003	020050
ERR004	020106
ERR005	020162
ERR006	020206
ERR007	020254
ERR008	020343
ERR009	020422
ERR010	020506
ERR011	020571
ERR012	020637
ERR013	020720
ERR014	020751
ERR015	021017
ERR016	021050
ERR017	021116
ERR018	021216
ERR019	021316
ERR020	021376
ERR021	021457
ERR022	021540
ERR023	021607
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ERR025	021676
ERR026	021730
ERR027	021777
ERR028	022104
ERR029	022212
ERR030	022317
ERR031	022424
ERR032	022532
ERR033	022637
ERR034	022726
ERR035	023016
ERR036	023105
ERR037	023173
ERR038	023262
ERR039	023350
ERR040	023451
ERR041	023554
ERR042	023607
ERR043	023650
ERR044	023712
ERR045	024003
ERR046	024070
ERR047	024162
ERR048	024256
ERR049	024310
ERR050	024357
ERR051	024447
ETDRB0	015152
ETDRB2	015154
ETDRB4	015156
ETDRB6	015160
FRM001	015330
FRM002	015365

FRM003 015446  
 FRM004 015507  
 FRM005 015547  
 FRM006 015634  
 FRM007 015721  
 FRM008 016006  
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 FRM010 016160  
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 FRM015 016555  
 FRM016 016562  
 FRM017 016633  
 FRM018 016661  
 FRM019 016715  
 FRM020 016751  
 FRM021 017005  
 FRSTIM 015214  
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 HEXDPA 026320  
 HEXH 026402  
 HEXL 026440  
 HEXTBL 072367  
 HEXVAL 072277  
 INTVEC 002236  
 ISRDNI 027652  
 ISRNXM 027642  
 LDBUF 026466  
 LDBUFC 026530  
 LDDEST 026602  
 LDMEM 013302  
 LDPCBB 026630  
 LDPCSR 026660  
 LDRDRB 026676  
 LDTDRB 026734  
 LDTDRX 026772  
 LDUDBB 027030  
 LDXCRC 027064  
 LDXRDR 027110  
 LDXTDR 027140  
 LPMSG 072272  
 LPMSG0 072456  
 LPMSG1 072515  
 LPTBL 072410  
 LSMA 013102  
 LSACP 002110  
 LSAPT 002036  
 LSAU 027634  
 LSAUT 002070  
 LSAUTO 027616  
 LSCCP 002106  
 LSCLEA 027620  
 LSCO 002032  
 L\$DEPO 002011  
 L\$DESC 015244  
 L\$DESP 002076  
 L\$DEVP 002060

L\$DISP	002124
L\$DLY	002116
L\$DTP	002040
L\$DTYP	002034
L\$DU	027626
L\$DUT	002072
L\$DVTY	015236
L\$EF	002052
L\$EN :	002044
L\$ERRT	015226
L\$ETP	002102
L\$EXP1	002046
L\$EXP4	002064
L\$EXP5	002066
L\$HARD	072774
L\$HIME	002120
L\$HPCP	002016
L\$HPTP	002022
L\$HW	002216
L\$ICP	002104
L\$INIT	027416
L\$LADP	002026
L\$LAST	073210
L\$LOAD	002100
L\$LUN	002074
L\$MREV	002050
L\$NAME	002000
L\$PRIO	002042
L\$PROT	027410
L\$PRT	002112
L\$REPP	002062
L\$REV	002010
L\$RPT	027402
L\$SOFT	073106
L\$SPC	002056
L\$SPCP	002020
L\$SPTP	002024
L\$STA	002030
L\$SW	002224
L\$TEST	002114
L\$TML	002014
L\$UNIT	002012
MEM10A	014214
MEM11A	014244
MEM13A	014246
MODE15	015076
MODE17	015100
MODE20	015102
MODE21	015104
MODE24	015106
MODE25	015110
MODE26	015112
MSG001	017042
MSG002	017066
MSG003	017114
MSG004	017146
MSG005	017220
MSG006	017362
MSG007	017524

MSG008	017556
MSG009	017640
MULTL	014322
MULTLC	014416
NEXMEM	015210
NOPF	013072
NORXI	027170
PATRN1	015216
PCBB	002252
PCSR0	002226
PCSR1	002230
PCSR2	002232
PCSR3	002234
RBUF	007072
RBUF2	007472
RBUF3	010072
RBUF4	010472
RBUF5	011072
RBUF6	011472
RBUF7	012072
RBUF8	012472
RDCNT	013202
RDDEFA	013112
RDMODE	013222
RDMULA	013142
RDPHYA	013122
RDRB	002632
RDRB1A	013342
RDRB1B	013402
RDRB2A	013442
RDRB3A	013502
RDRNGS	013162
RDR14A	014622
RDR15A	014632
RDR17A	014642
RDR17B	014652
RDR20A	014662
RDR20B	014672
RDR20C	014702
RDSTA	013252
RFRMT	013312
RFRMTX	013326
RREV	072266
SETBUF	027230
SFPTBL	002224
SMSG00	031060
SMSG01	031110
SMSG02	031137
SMSG03	031152
SMSG04	031211
SMSG05	031240
SMSG06	031303
SMSG07	031336
SMSG10	031354
SMSG11	031406
SMSG12	031421
SMSG13	031436
SMSG14	031452
SMSG15	031466

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SMSG16	031502
SMSG17	031516
SMSG20	031532
SMSG21	031555
SMSG22	031571
SMSG23	031605
SMSG24	031621
SMSG25	031635
SMSG26	031651
SMSG27	031665
SMSG30	031701
SMSG31	031756
SMSG32	032030
SMSG33	032103
SMSG34	032147
SMSG35	032220
SMSG36	032263
SMSG37	032334
SMSG40	032377
SMSG41	032467
SMSG42	032554
SMSG43	032642
SMSG44	032721
SMSG45	033005
SMSG46	033063
SMSG47	033077
SMSG50	033113
SMSG51	033201
SMSG52	033264
SMSG53	033350
SMSG54	033425
SMSG55	033507
SMSG56	033563
SMSG57	033577
SMSG60	033613
SMSG61	033626
SMSG62	033651
SMSG63	033665
SMSG64	033714
SMSG65	033730
SMSG66	033751
SMSG67	033765
SMSG70	034001
SMSG71	034022
SMSG72	034055
SMSG73	034101
SMSG74	034115
SMSG75	034131
SMSG76	034145
SMSG77	034161
STMSG	030656
STTBL	030660
SWADDR	015124
SWHDR	072424
SWPACK	072270
TBUF	003072
TBUF2	003472
TBUF3	004072
TBUF4	004472

TBUF5	005072
TBUF6	005472
TBUF7	006072
TBUF8	006472
TDRB	002572
TDRBXX	014002
TDRB1A	013542
TDRB1B	013602
TDRB1C	013642
TDRB2A	013702
TDRB3A	013742
TDRX	002672
TDR14A	014512
TDR15A	014522
TDR18A	014532
TDR18B	014542
TDR20A	014552
TDR20B	014562
TDR20C	014572
TDR21X	014602
TDR25A	014612
TINIT	027334
T1	027700
T10	034766
T11	035316
T12	036272
T13	037036
T14	040244
T15	042142
T16	043254
T17	044366
T18	045474
T19	046472
T2	027776
T20	047364
T21	051160
T22	054042
T23	057116
T24	062516
T25	064554
T26	066274
T27	067606
T28	071336
T3	030076
T4	030176
T5	030276
T6	030352
T7	030426
T8	034206
T9	034502
UDBB	002262
UDB10A	014204
UDB11A	014234
UDB28A	015114
UNAPRI	002240
UNIT	002242
WTMODE	013232
WTMOD1	013242
WTMULA	013152

WTPHYA 013132  
WTRNGS 013172  
XCRC 015202  
XCRCB 015204  
XDAT 015174  
XRDRB0 015142  
XRDRB2 015144  
XRDRB4 015146  
XRDRB6 015150  
XTDRB0 015162  
XTDRB2 015164  
XTDRB4 015166  
XTDRB6 015170  
SPATCH 073164

RUN-TIME: 3 SECONDS  
5K CORE USED