IRM/LM
LOCAL MANAGEMENT
FOR THE CABLETRON SYSTEMS
IRM

USER'S MANUAL

CABLETRON SYSTEMS, P.O. BOX 5005, ROCHESTER, NH 03867-5005

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CHAPTER 1

INTRODUCTION

Welcome to Cabletron Systems' **IRM/LM - Local Network Management for Cabletron Systems' IRM User's Manual**. We have designed this manual to serve as a simple reference guide for using IRM/LMIM™. Local Management is accessed through the Console Port on the IRM.

1.1 USING THIS MANUAL

Chapter 1, **Introduction**, discusses the capabilities of Cabletron Systems' Local Management for the IRM The chapter also includes a list of related user manuals.

Chapter 2, **Getting Started**, lists procedures for accessing Local Management for the IRM. This chapter includes procedures for entering the password as well as a list of the necessary terminal and cable configurations for communicating IRM/LM.

Chapter 3, **Using Local Management for the Cabletron Systems IRM**, provides general screen information and instructions for getting around IRM/LM.

Chapter 4, **Main Menu**, describes each field on the MMAC Main Screen.

Chapter 5, **Statistics Screens**, discusses the type of statistics available for both the Ethernet and Token Ring boards installed in your MMAC. There is also a description of each field on the screens.

Chapter 6, **Resetting System Parameters**, describes each field on the Reset System Parameter Screen as well as instructions on how to modify these fields.

Chapter 7, **Setting Alarm Limits**, details how to set alarm limits on the MMAC, e.g. the MMAC Alarm Limits on the Reset System Parameter Screen, the Board Alarm Limits on the Board Limits Screen, and the Port Alarm Limits on the Port Limits On Board X Screen.

Chapter 8, **Using the Redundancy Feature**, describes each field on the Cable Redundancy Screen-. Instructions are also included for setting up redundant links.

Chapter 9, **Setting Alternate MMAC Board Names**, describes each field on the MMAC Board Names Screen. Instructions are also included for changing these field names to names of your own choice.

Chapter 10, **Using the Port Status Function**, describes the fields on the Port Status Screen for both Ethernet and Token Ring boards.

Chapter 11, **Using the Link Status Function**, describes the Link Status Screen and its applications to Ethernet and Token Ring boards.

Chapter 12, **Using the Previous Counter Screens**, provides a description of the Previous Counters Screen.

Chapter 13, **Using Other Available Functions**, provides instructions on restarting and resetting the IRM counters, and enabling and disabling ports and boards.

We assume that you have a general working knowledge of Ethernet or IEEE 802.3 type data communications networks and their physical layer components.

1.2 GETTING HELP

If you need additional support related to Cabletron Systems' Local Management Network Control Management for the Cabletron Systems IRM, or if you have any questions, comments or suggestions related to this manual or any of our Ethernet products, feel free to contact Cabletron Systems' Technical Support at:

Cabletron Systems
P.O. Box 5005
Rochester, N.H. 03867-5005.
Phone: (603) 332-9400

1.3 LOCAL MANAGEMENT FOR THE CABLETRON SYSTEMS IRM

Cabletron Systems Local Management for the Cabletron Systems IRM provides unique network management and control capabilities for a Cabletron Systems Multi Media Access Center (MMAC) with an IRM installed. With Local Management, you have full control of your network.

Local Management provides the network manager with many tools to control and manage the MMAC and its attached segments. By setting various threshold values (Alarm Limits), you can be advised that a certain condition has been reached. When an alarm limit has been reached, an MMAC can be set to advise you that the condition has been reached or set to automatically reroute network traffic.

For example, if you want to know if the MMAC processes a specific number of good packets or collisions over a set period of time (e.g., 2000 packets in 1 second), an MMAC Limit can be set to notify you that this condition has been reached. Limits can also be set for each individual board (Board Limits) and for each individual port (Port Limits). These limits can be set to disable the MMAC, board, or port when the limit is reached.

If these limits are set to turn off the MMAC, board, or port, Local Management allows you to reroute network traffic automatically. This feature is called call redundancy. Redundancy keeps your network up and running at all times. For example, if a limit set for a port is reached and the port is set to turn off automatically, a backup port can be set to pick up network traffic automatically from the disabled port.

Local Management also gives you the ability to gather a vast amount of statistical information about the MMAC at three increasingly detailed levels: for the MMAC as a whole, for each board, and for each port.

Statistical information on the MMAC is broken down into three categories: packets, collisions and alarms. Totals for each of these categories are recorded at the MMAC, board, and port level. This data can be sampled at two user-defined intervals—a time-based interval calibrated to the second, and a total packet count interval calibrated to one packet. These statistics illustrate how packets, collisions, and alarms correlate over time.

1.4 RELATED MANUALS

The manuals listed below should be used to supplement the procedures and other technical data provided in this manual. Their procedures are referenced where appropriate, but are not repeated in this manual.

Cabletron Systems' **Intelligent Repeater Module (IRM/IRM-1) Installation Guide**

Cabletron Systems' **Local Management for the IRM Change Password Feature** Instruction Sheet

CHAPTER 2

GETTING STARTED

This chapter lists procedures for entering the password so you can access Local Management for the IRM. It also provides the terminal and cable configurations for setting up a terminal for accessing Local Management. Instructions are included for exiting Local Management.

2.1 TERMINAL CONFIGURATION

Local Management for the IRM is accessed through a VT™ 100 Series terminal, a Prime™ 200 Series terminal, or a compatible system running an emulation program. The terminal is attached to the port labeled CONSOLE on the IRM by an RS-232 cable. For instructions to set up your terminal, refer to the applicable node user's manual.

The terminal configurations must be set as follows so the terminal can communicate with Local Management.

2.1.1 VT100 Series Setup

If you have a VT100 series terminal, press **F3** to access the Setup Directory.

Display Set-up Menu

Columns	80 Columns
Controls	Interpret Controls
Auto Wrap	No Auto Wrap
Text Cursor	No Cursor

General Set-up Menu

Mode	(VT220) VT200, 7 Bit Control (VT320) VT300, 7 Bit Control
Cursor Keys	Normal Cursor Keys

Communications Set-up Menu

Transmit	Transmit=9600
Receive	Receive=Transmit
XOFF	any option
Bits Parity	8 bits, No Parity
Stop Bit	1 Stop Bit
Local Echo	No Local Echo
Port	(VT220) EIA Port, Data Leads Only
	(VT320) DEC-423 Data Leads Only
Transmit	any option

Keyboard Set-up Menu

Keys	Typewriter Keys
Auto Repeat	any option
Keyclick	any option
Margin Bell	No Margin Bell
Warning Bell	Warning Bell
Auto Answerback	No Auto Answerback

2.1.2 Prime 200 Series Setup

If you have a PRIME 200 series terminal, press SETUP to access the Setup Directory.

Cursor Type	any option
Brightness	any option
Screen Size	80 x 24
Screen Video	Normal
Control Representation	OFF
Line Feed Mode	ON
Line Truncate	OFF
Transmission	CHAR
Keyboard Repeat Rate	any option
N-key Rollover	any option
Margin Bell Volume	OFF
Key Click Volume	any option
Scroll	any option (hard is preferred)
Speed	any option
Kybd	U.S.
Char	U.S.
Menu	English

Online/Local	ON LINE
Host Stop Bits	1
Aux Stop Bits	any option
Host Baud Rate	9600
Host Parity	8-bit none, 7-bit space
Aux Baud Rate	any option
Aux Parity	any option

2.2 CABLE CONFIGURATION

Local Management is accessed by a modified RS-232 cable, available from Cabletron Systems. This cable connects the terminal to the IRM's Console port.

The pin out for a cable with a 25 pin connector at the terminal end of the cable, and a 9 pin connector at the MMAC end of the cable, should be configured as follows:

2.2.1 VT100 Series

9 Pin Male Connector (MMAC End)	**to**	**25 Pin Female Connector (Terminal End)**
Pin 1 (Receive)	to	Pin 2 (Transmit)
Pin 4 (Transmit)	to	Pin 3 (Receive)
Pin 5 (Ground)	to	Pin 7 (Ground)
Pin 6 (Request to Send)	to	Pin 5 (Clear to Send)
Pin 9 (Clear to Send)	to	Pin 4 (Request to Send)

2.2.2 Prime 200 Series

9 Pin Male Connector (MMAC End)	**to**	**25 Pin Female Connector (Terminal End)**
Pin 1 (Receive)	to	Pin 2 (Transmit)
Pin 4 (Transmit)	to	Pin 3 (Receive)
Pin 5 (Logic Ground)	to	Pin 7 (Logic Ground)
Pin 9 (Clear to Send)	to	Pin 4 (Request to Send)
	to	Pin 5 (Clear to Send)

Pins 6, 8, and 20 on the 25 pin connector are jumpered.

2.3 ACCESSING LOCAL MANAGEMENT

This section contains instructions for attaching the terminal to the IRM, and for accessing Local Management through the IRM's Console port. This procedure assumes that the special 9 to 25 pin RS-232 cable, provided by Cabletron Systems, is being used to connect the terminal to the IRM.

1. Plug the 9 pin end of the RS-232 cable into the RS232 port labeled CONSOLE on the IRM.
2. Plug the 25 pin end of the RS-232 cable into the COMM port on the terminal.
3. Turn the terminal on. The Terminal Type Menu Screen, Figure 2-1, will appear, prompting you to select the terminal type.

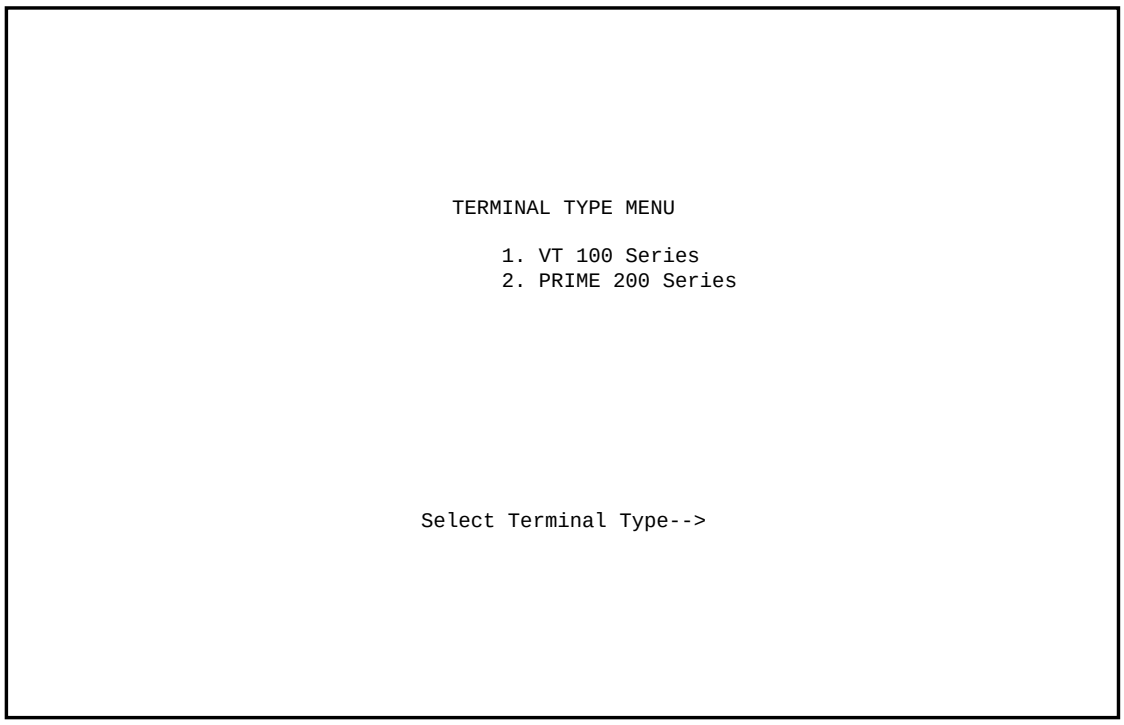

Figure 2-1 Terminal Type Menu Screen

4. Type 1 or 2, depending upon your terminal type. The MMAC Password Screen, Figure 2-2, will appear on the screen.
5. Type your password into the **Enter Password** field.
6. Press **Return**. The MMAC Main Screen, Figure 2-3, will appear on the terminal. Local Management is now ready for operation.

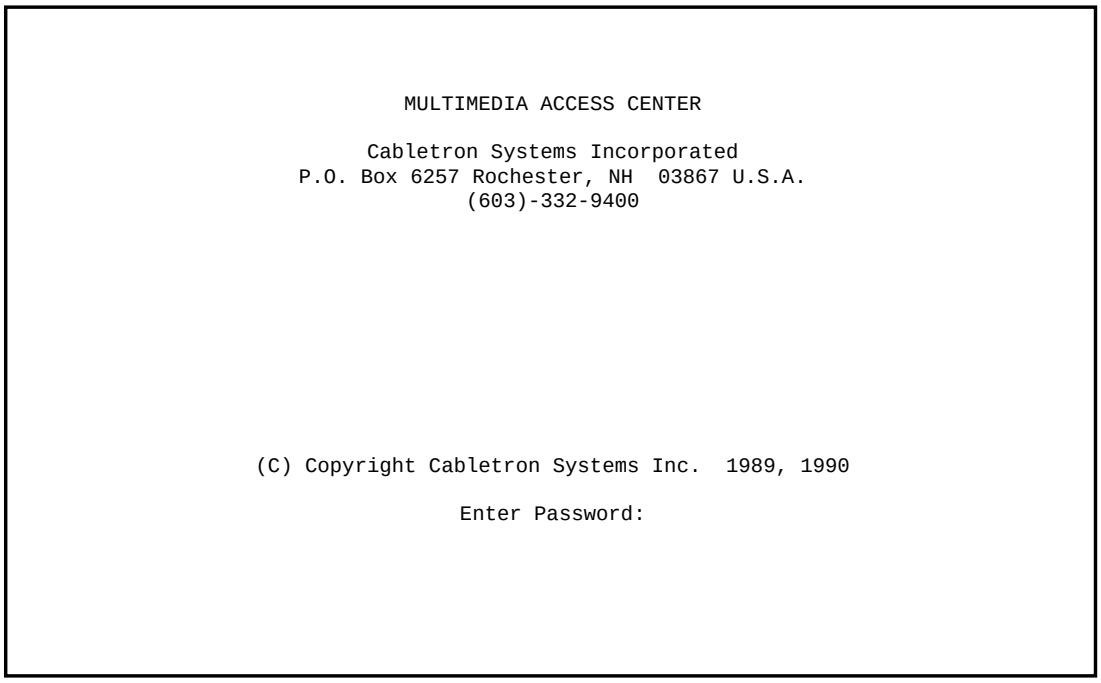

Figure 2-2 MMAC Password Screen

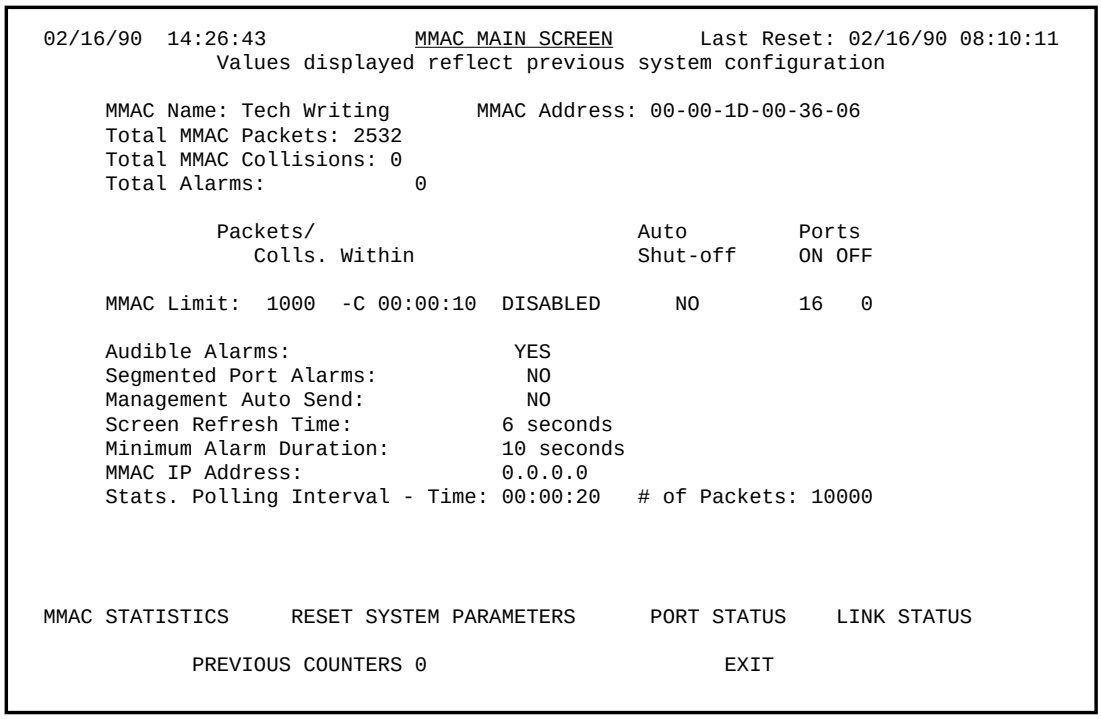

Figure 2-3 MMAC Main Screen

2.4 EXITING LOCAL MANAGEMENT

To exit Local Management:

1. Return to the MMAC Main Screen. If you are presently at the MMAC Main Screen, move to step #3. If you are at any other screen, highlight the **MAIN** option at the bottom of the screen using the arrow keys.
2. Press **Return**. The MMAC Main Screen will appear.
3. Highlight the **EXIT** option at the bottom of MMAC Main Screen.
4. Press **Return**. The MMAC Password Screen will appear.
5. Turn off the terminal.

***WARNING**: DO NOT disconnect the power cable from the MMAC. If you disconnect the power cable, you will disable communication on all network segments linked directly to the MMAC.*

CHAPTER 3

USING LOCAL MANAGEMENT FOR THE IRM

Local Management's screens can be easily accessed by manipulating the arrow keys on your terminal. This chapter explains how to move around Local Management for the MMAC (HUB).

3.1 GENERAL TIPS

- You have the option to return to the MMAC Main Screen by selecting **MAIN** at the bottom of the screen.
- Use the arrow keys on the mid bank of keys to move the cursor up, down, left, or right on the screen to select fields or options.
- The Tab key performs the same function as the right arrow key.
- To select a board or port at a command field, use the shift and plus to toggle the board or port number forward or the minus key to toggle the board or port number backward. For example, if you want to view STATS-BOARD 3 and the command field currently displays STATS-BOARD 1, press the **shift** and **plus** keys simultaneously two times until the command field reads STATS- BOARD 3. If you want to view Board 0, press the minus key once. The command field will now read STATS-BOARD 0.

CHAPTER 4

MAIN MENU

The Main Menu of Local Management for the IRM displays various parameters to which Local Management is set. A summary of network activity that has been detected by the MMAC is also displayed.

4.1 THE MMAC MAIN SCREEN

The MMAC Main Screen, Figure 4-1, is the first screen to appear after the correct password is entered. This screen displays general configuration information as well as current tallies of good packets that the MMAC has processed and collisions that the MMAC has detected. It also displays the number of times the MMAC has exceeded MMAC, Board, or Port Alarm Limits set for the MMAC. No fields can be edited at this screen.

```
02/16/90  14:26:43          MMAC MAIN SCREEN        Last Reset: 02/16/90 08:10:11
                Values displayed reflect previous system configuration

     MMAC Name: Tech Writing       MMAC Address: 00-00-1D-00-36-06
     Total MMAC Packets: 2532
     Total MMAC Collisions: 0
     Total Alarms:            0

              Packets/                            Auto         Ports
                 Colls. Within                    Shut-off     ON OFF

     MMAC Limit:  1000  -C 00:00:10  DISABLED      NO        16   0

     Audible Alarms:                   YES
     Segmented Port Alarms:             NO
     Management Auto Send:              NO
     Screen Refresh Time:            6 seconds
     Minimum Alarm Duration:         10 seconds
     MMAC IP Address:                0.0.0.0
     Stats. Polling Interval - Time: 00:00:20   # of Packets: 10000



MMAC STATISTICS      RESET SYSTEM PARAMETERS     PORT STATUS         LINK STATUS

            PREVIOUS COUNTERS 0                          EXIT
```

Figure 4-1 MMAC Main Screen MAIN MENU

4.1.1 MMAC Main Screen Fields

(Date/Time)
Displays the current date and time of the MMAC.

Last Reset:
Displays the date and time that the IRM counters of the MMAC were last reset to 0.

MMAC Name:
Displays the user-defined name given to the MMAC. The MMAC Name is the same name given to Board 0 (the IRM) at the MMAC Board Names Screen.

MMAC Address:
Displays the Ethernet address of the MMAC.

Total MMAC Packets:
Displays the total number of good packets the MMAC has processed.

Total MMAC Collisions:
Displays the total number of collisions the MMAC has detected.

Total Alarms:
Displays the total number of times the MMAC reached a user-defined MMAC, Board, or Port Alarm Limit.

MMAC Limit:
Displays the MMAC Alarm Limit set for the MMAC. The MMAC Alarm Limit is the number of good packets or collisions that can pass through the MMAC within a given time period before the limit is reached. For example, the MMAC Alarm Limit will be exceeded when more than 1000 collisions (Packets/Colls.) are detected by the MMAC in less than 10 seconds (Within).

The following indicates what the MMAC Alarm Limit is set to.

Packets/Colls. Displays the number of packet or collisions that must pass through the MMAC before the MMAC Alarm Limit is checked. To the right of the field is a -P or a -C. A -P indicates the entry is a certain number of good packets. A -C indicates that the entry is a certain number of collisions. If O -P or O -C is displayed in this field, the MMAC Alarm

	Limit will not be checked. The default entry in this field is 1000 -C.
Within	Displays the time period in which the number of packets or collisions, listed in the Packets/Colls. display, may occur before the MMAC Alarm Limit is reached. -TIME to the right of the entry indicates the entry is a time period. If 00:00:00 or DISABLED! is displayed in this field, the MMAC Alarm Limit will not be checked. The default entry in this field is 00:00: 10 -DISABLED.
Auto Shut-off	Indicates whether or not the MMAC will automatically shut off all of its ports when the MMAC Alarm Limit is reached. YES indicates that the MMAC will shut off automatically when the limit is reached. NO indicates that the MMAC will not shut off when the limit is reached. The default value for this field is NO.
Ports ON/OFF	Displays the number of ports on each MMAC that are ON (enabled or segmented) and the number of ports that are OFF (disabled).

Audible Alarms:
Indicates whether a beep will sound when an error, alarm, or status message appears on the terminal connected to the IRM's Console port. YES indicates that a beep will be generated by the terminal connected to the IRM's Console port when a message appears. NO indicates that no sound will be generated. The default value for this field is YES.

Segmented Port Alarms:
Indicates whether an alarm message will appear if a port is segmented from the MMAC. YES indicates that a message will appear at the top of the screen, listing which board and port was segmented. NO indicates that no alarm message will appear. The default value for this field is NO.

Management Auto Send:
Indicates whether an MMAC Management Packet will be generated when Local Management gathers statistics. YES indicates that a management packet will be generated when the MMAC has gathered statistics. NO indicates that a management packet will not be generated when the MMAC has gathered statistics. The default value for this field is NO.

Screen Refresh Time:
Display, in seconds, how often each screen on the terminal connected to the IRM's Console port is updated. The default value for this field is 10 seconds.

Minimum Alarm Duration:
Display, in seconds, how long an error, alarm, or status message will appear on the second line of the terminal's screen before being erased. The default value for this field is 10 seconds.

MMAC IP Address:
Displays the MMAC's IP (Internet Protocol) address.

Stats Polling Interval:
Displays the intervals at which MMAC statistics are being gathered. Statistics are gathered by time (i.e., every minute) and by the number of good packets (i.e., after every 1,000th good packet passes through the MMAC).

Time	Displays the time interval in which Timer Statistics are being gathered. If 00:00:00 is displayed, no time related statistics will be gathered. The default value for this field is 00:00:20 (20 seconds).
# of Packets	Displays the number of good packets that must pass through the MMAC before Counter Statistics are gathered. If 0 is displayed, no count related statistics will be gathered. The default value for this field is 10000 packets.

CHAPTER 5

STATISTICS SCREENS

The Statistic Function of Local Management gives you the ability to gather a vast amount of statistical information about your MMAC. Statistics are gathered at three increasingly detailed levels: for the MMAC as a whole, for each board, and for each port.

5.1 MMAC STATISTICS SCREEN

The MMAC Statistics screen displays general statistical information for the MMAC as a whole, such as the number of good packets or collisions that have passed through the MMAC. No fields can be modified at this screen.

To access this screen:

1. Highlight the **MMAC STATISTICS** option at the bottom of the MMAC Main Screen.
2. Press **Return**. The MMAC Statistics screen, Figure 5-1, will appear.

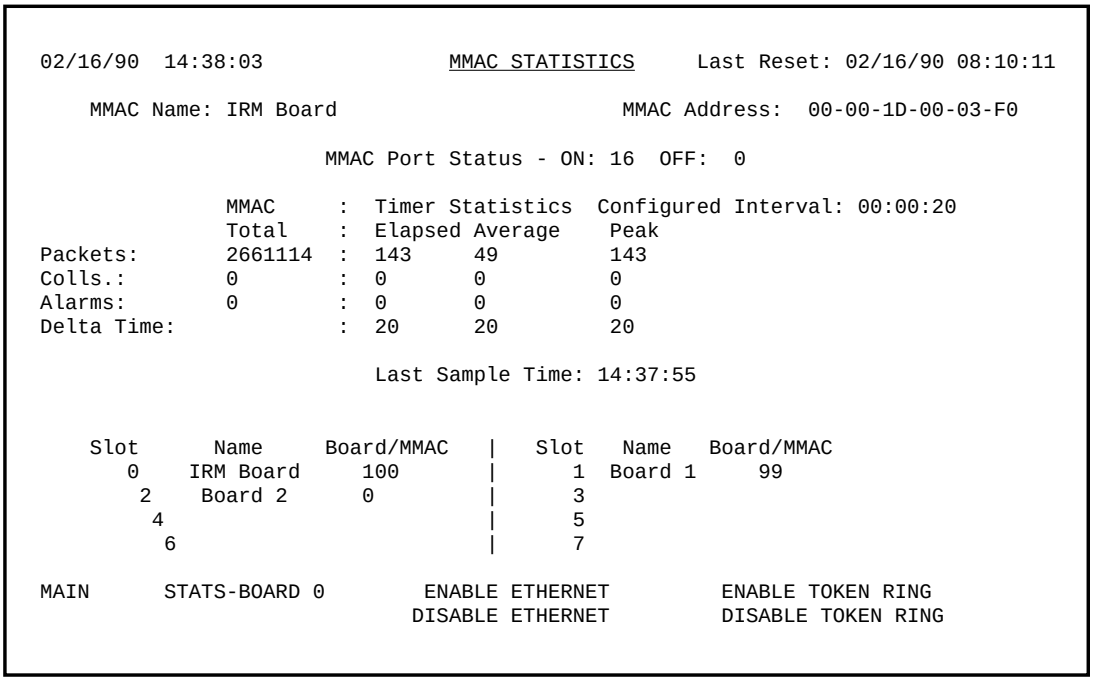

Figure 5-1 MMAC Statistics Screen

5.1.1 MMAC Statistics Screen Fields

MMAC Name
Displays the user-defined name assigned to the IRM at the MMAC Board Names Screen.

MMAC Address
Displays the Ethernet address of the MMAC.

MMAC Port Status - ON:xx OFF:xx
Displays the number of ports in the MMAC that are ON (enabled or segmented) and the number of ports that are OFF (disabled). This number includes Token Ring Station and Ring-in/Ring-out ports. (Each ring port is counted separately.) For a port to be considered ON, it must be enabled by management.

MMAC Total
The MMAC Total displays the number of good packets or collisions the MMAC has processed, and also displays the number of times the MMAC reached any alarm limit.

Packets	Displays the total number of good packets the MMAC has processed.
Colls.	Displays the total number of collisions the MMAC has processed.
Alarms	Displays the total number of times that the MMAC reached an MMAC, board, or port alarm limit.

Timer Statistics
Timer Statistics allow you to sample activity on the MMAC for a set time period. You can set this time period at the Stats Polling Intervals display on the System Parameter Screen. For example, if you set Time to 10 seconds, the figure under Elapsed - Packets will be the number of packets that the MMAC processes during that 10 second interval.

The Timer Statistics portion of the screen displays the following timer statistics for the MMAC as a whole:

Elapsed	Displays the number of good packets, collisions, or alarms the MMAC processed during the last sample checked.
Average	Displays the average number of good packets, collisions or alarms which occurred since the IRM counters were last reset.
Peak	Displays the peak number of good packets, collisions, or alarms since the IRM counters were last reset.

The elements that are monitored by the Timer Statistics portion of the screen are:

Packets	Displays statistics based on the number of good packets.
Colls.	Displays statistics based on the number of collisions.
Alarms	Displays statistics based on the number of alarms.
Delta Time	Displays the actual time between the gathering of Timer Statistics.

Configured Interval
Displays how often the MMAC is being polled or sampled. This value is set at the System Parameter Screen in the Stats Time Sampling Rate field. For example, if Time is set to 10 seconds, the figure under Elapsed - Packets will be the number of packets that the MMAC processes during that 10 second interval.

Last Sample Time: XX:XX:XX
Displays the last time that Timer Statistics were gathered.

Slot
Displays the slot number that the board occupies in the MMAC. Available board slot numbers are O through 2 for an MMAC-3, or O through 7 for an MMAC-8.

Name
Displays the user-defined name assigned to the board at the Board Names Screen.

Board/MMAC
Displays the percentage of activity for which each board is responsible, based on total MMAC activity.

5.2 BOARD STATISTICS SCREEN

The Board X Statistics Screen displays board level statistics for the MMAC. The Ethernet board statistics are broken down to Timer Statistics (statistics based on a time period) and counter statistics (statistics gathered based on a count of good MMAC packets).

For Token Ring boards, you can view the status of the ports on the board, including the number of ports enabled or wrapped. You can also see which ports are being used as Ring-in/Ring-out ports.

5.2.1 Ethernet Board Statistics Screen

To access this screen:

1. Highlight the STATS - BOARD X option at the bottom of the MMAC Statistics Screen.
2. Select the board you intend to access at this command field by pressing the shift and + keys or the - key until the appropriate board number appears.
3. Press **Return**. The Board X Statistics Screen (Ethernet), Figure 5-2, will appear.

5.2.1.1 Board Statistics Screen Fields (Ethernet)

MMAC Name
Displays the user-defined name assigned to the IRM at the Board Names Screen.

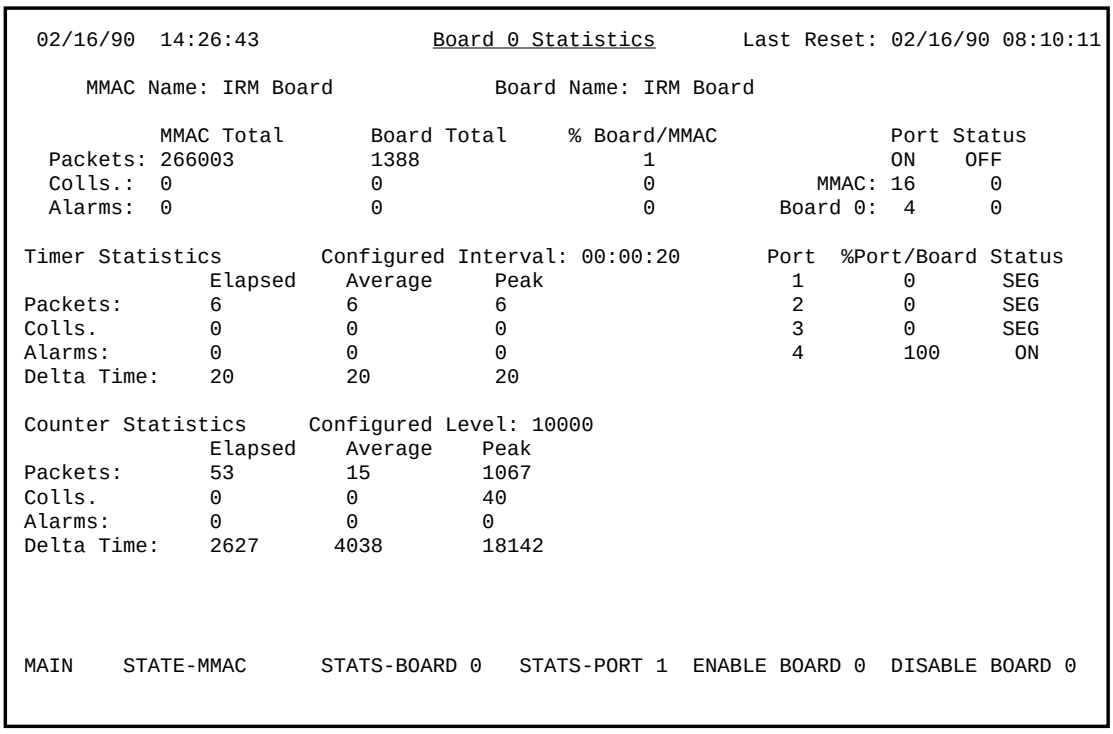

Figure 5-2 Board X Statistics Screen (Ethernet)

Board Name

Displays the user-defined name assigned to the board at the Board Names Screen.

MMAC Total

The MMAC Total displays the number of good packets or collisions the MMAC has processed, and also the number of times the MMAC has reached any alarm limit.

Packets — Displays the total number of good packets the MMAC has processed.

Colls. — Displays the total number of collisions the MMAC has processed.

Alarms — Displays the total number of times the MMAC reached an MMAC, board, or port alarm limit.

Board Total

The Board Total displays the number of good packets or collisions the board has processed, and also the number of times the board has reached a Board Alarm Limit.

Packets	Displays the total number of good packets the board has processed.
Colls.	Displays the total number of collisions the board has processed.
Alarms	Displays the total number of times the board reached a board alarm limit.

% Board/MMAC

The % Board/MMAC indicates the percentage of activity for which the board is responsible, based on total MMAC activity.

Packets	Displays the percentage of good packets for which the board is responsible, based on total MMAC activity.
Colls.	Displays the percentage of collisions for which the board is responsible, based on total MMAC activity.
Alarms	Displays the percentage of alarm limits for which the board has been responsible in the MMAC.

Port Status

MMAC	Displays the number of ports in the MMAC that are enabled or segmented (ON), and the number of ports that are disabled (OFF).
Board	Displays the number of ports on the board that are enabled or segmented (ON), and the number of ports that are disabled (OFF).

Timer Statistics

Timer Statistics allow you to sample activity on the board by a set time period. This time period is set at the Stats Polling Intervals display on the System Parameter Screen. For example, if Time is set to 10 seconds, the figure under Elapsed - Packets will be the number of packets the board processes during that 10 second interval.

The Timer Statistics portion of the screen displays the following timer statistics for the board:

Elapsed	Displays the number of good packets, collisions, or alarms the board processed during the last sample checked.
Average	Displays the average number of good packets, collisions, or alarms processed since the IRM counters were last reset.
Peak	Displays the peak number of good packets, collisions, or alarms processed since the IRM counters were last reset.

The elements that are monitored by the Timer Statistics portion of the screen are:

Packets	Displays statistics based on the number of good packets.
Colls.	Displays statistics based on the number of collisions.
Alarms	Displays statistics based on the number of alarms.
Delta Time	Displays the actual time between the gathering of Timer Statistics.

Configured Interval
Displays how often the board is being polled or sampled. This value is set at the System Parameter Screen in the Stats Time Sampling Rate field.

For example, if Time is set to 10 seconds, the figure under Elapsed - Packets will be the number of packets that the board processes during that 10 second interval.

% Port/Board
The % Port/Board displays the percentage of activity for which each port on a board is responsible, based on total board activity.

Port	Displays the Port number on the Board. Available port numbers are 1 through 12 for each board except the IRM, FOT-MIM-16, FOT-MIM-26 and the MT8-MIM. The port numbers for a FOT-MIM-16 and a FOT-MIM-26 are 1 through 6. The port numbers on an MT8-MIM are 1 through 8. The port numbers on an IRM are 1 through 4.
% Port/Board	Displays the percentage of activity for which each port is responsible, based on total board activity.
Status	Displays port status: enabled (ON), segmented (SEG), or disabled (OFF).

Counter Statistics

Counter Statistics allow you to sample activity on the board after a certain number of good packets have passed through the MMAC. This number is set at the Stats Polling Intervals display on the System Parameter Screen.

For example, if # of Packets is set to 1000 packets, the figure under Elapsed - Packets will be the number of packets the board has processed during that 1000 MMAC packet interval.

This portion of the screen displays the following Counter Statistics for the board:

Elapsed	Displays the number of good packets, collisions, or alarms that occurred during the last sample checked.
Average	Displays the average number of good packets, collisions, or alarms that have occurred since the IRM counters were last reset.
Peak	Displays the peak number of good packets, collisions, or alarms that have occurred since the IRM counters were last reset.

The elements that are monitored by the part of the screen are:

Packets	Displays statistics based on the number of good packets.

Colls.	Displays statistics based on the number of collisions.
Alarms	Displays statistics based on the number of alarms.
Delta Time	Displays the actual time between the gathering of Counter Statistics.

5.2.2 Token Ring Board Stats

To access the Token Ring Board Status screen:

1. Highlight the **STATS-BOARD X** option at the bottom of the MMAC Statistics Screen.
2. Select the board you intend to access at this command field by pressing the **shift** and + keys (or the - key) until the appropriate board number appears.
3. Press **Return**. The Token Ring Board X Status Screen, Figure 5-3, will appear. (If the board you have selected is not a Token Ring board, Figure 5-2, Board X Statistics Screen, will appear.)

```
02/16/90 14:26:43          Token Ring Board 0 Status  Last Reset: 02/16/90 08:10:11

       MMAC Name: IRM Board                              Board Name: Board 1
                                                            TR Port Status
                                                               ON   OFF
             Speed:  16 Mhz                              MMAC:   28   0
             AUTO MODE                                 BOARD 1:   12   0

     Board Connection Status          Port      Linked      Enabled      Status
    Left-Slot 2:  Right-IRM           1          NO          YES         ENABLED
    FAULTED       NOT A TR-MIM        2          NO          YES         ENABLED
    ***BOARD IS BYPASSED***           3          NO          YES         ENABLED
                                      4          NO          YES         ENABLED
                                      5          NO          YES         ENABLED
                                      6          NO          YES         ENABLED
                                      7          NO          YES         ENABLED
                                      8          NO          YES         ENABLED
                                      9          NO          YES         ENABLED
                                      10         NO          YES         ENABLED
                                      11         NO          YES         ENABLED
                                      12         NO          YES         ENABLED




MAIN      STATS-MMAC  ENABLE PORT 1    ENABLE BOARD        SET SPEED 4Mhz
STATS-BOARD 1         DISABLE PORT 1   DISABLE BOARD         DETACH BOARDS 1&2
```

Figure 5-3 Token Ring Board X Status Screen

5.2.2.1 Token Ring Board Status Screen Fields

TR Port Status

MMAC ON/OFF — Indicates the number of ports that are ON (enabled) or OFF (disabled) on all the boards on the MMAC. This number includes Token Ring station and ring-/ring-out ports. (Each ring port is counted separately.) For a port to be considered ON, it must be enabled by management.

BOARD ON/OFF — Indicates the number of ports that are ON (enabled) or OFF (bypassed) on the user-defined board.

Speed

Indicates the speed to which the board has been set. The default speed is dependent on the setting of the jumpers on the board. Consult the **IRM Installation Guide** for more information on the proper jumper settings.

Auto Mode

Indicates that the board will set up using the power-up defaults. The defaults are listed below:

- Speed is selected by jumper placement on the board
- All ports are enabled
- Any ring-in/ring-out ports are enabled
- The board is connected to all adjacent Token Ring boards running at the same speed

The board will remain in AUTO MODE until you use one of the Token Ring command options at the bottom of selected IRM screens (such as ENABLE or DISABLE TOKEN RING). After the first use of a command, the board will enter the MANAGEMENT MODE and will remain that way until AUTO MODE is restored at the RESET SYSTEM PARAMETERS screen or the firmware on the board is changed.

Board Connection Status

Displays the status of the boards in the slots to the immediate left and right of the Token Ring board in the MMAC. If the Token Ring board is the last board in the MMAC, no status is given for the board to the left.

There are five possible board connection status messages:

NO BOARD	The slot is empty.
NOT A TR-MIM	The board in the slot is not a Token Ring board.
DETACHED	Management has set this board so that it will not communicate with the Token Ring board in the associated slot. This message will only occur on boards in the MANAGEMENT MODE.
ATTACHED	Management has set this board to communicate with the Token Ring board in the associated slot and communication was successfully achieved.
FAULTED	Management has set this board to communicate with the Token Ring board in the associated slot, but communication was not achieved.

Board is Bypassed
Indicates that data is passing between the board on the left and the board on the right (if both are present), but the bypassed board is not seeing the data. This status will appear only if the condition is present.

Ring Speed Fault
Indicates that the board is operating at a different speed from the management configured speed.

Port
Indicates the number of the port on the board.

Linked
Indicates the Link status of both station and ring-in/ring-out ports.

Station	Indicates whether there is a station attached to this port. YES indicates that there is a station attached to this port. NO indicates that no station is attached to the port.
Ring /Ring-out	Displays the port type. The two port types are ring-in or ring-out.

Enabled
Indicates that the port has been enabled by management.

Station	YES indicates the port has been enabled by management. NO indicates that the port has not been enabled by management.
Ring-in/Ring-out	YES indicates the port has been enabled by management. NO indicates that the port is wrapped.

Status
Indicates the current state of the station and the ring-in/ring-out ports on the board.

Station Ports
The four possible status messages for station ports are:

ENABLED	The ports has been enabled by management, and there is a station linked to the port.
BYPASSED	The port has been disabled by management, and there is no station linked to the port.
LINKED	The port has been disabled by management, and there is a station linked to the port.
INSERTED	The port is enabled by management, and there is a station linked to the port.

There are four possible station port status message combinations:

Linked	Enabled	Status
NO	NO	BYPASSED
NO	YES	ENABLED
YES	NO	LINKED
YES	YES	INSERTED

Ring-in/Ring-out Ports
The three possible status messages for ring-in/ring-out ports are:

WRAPPED	There has been a termination of data communication at the port, and data has been re- routed into the ring.

USING BACKUP	The port is active and the backup path of the port is being used.
ACTIVE	The port has been activated by management.

The four possible combinations of status messages for each ring-in/ ring-out pair are:

Linked	Enabled	Status
RING-IN	NO	WRAPPED
RING-OUT	NO	WRAPPED
RING-IN	YES	USING BACKUP
RING-OUT	NO	WRAPPED
RING-IN	NO	WRAPPED
RING-OUT	YES	USING BACKUP
RING-IN	YES	ACTIVE
RING-OUT	YES	ACTIVE

5.3 PORT STATISTICS SCREEN (ETHERNET)

The Port X Statistics Screen displays port level statistics for the MMAC. These port statistics are broken down to Timer Statistics (statistics based on a time period) and counter statistics (statistics gathered based on a count of good MMAC packets).

To access this screen:

1. Highlight the **STATS - PORT X** option at the bottom of the Board X Statistics Screen.
2. Select the port you wish to access by pressing the **shift** and **+** keys or the **-** key until the appropriate port appears.
3. Press **Return**. The Port X Statistics Screen, Figure 5-4, will appear.

```
  02/16/90 14:44:13              Port 4 Statistics      Last Reset: 02/16/90 08:10:11

      MMAC Name: IRM Board                          Board 0: IRM Board

          MMAC Total  Board Total  Port Total  % Board/MMAC  % Port/Board  % Port/MMAC
Packets: 266712      1448            1448            1           100            1
Colls.:  0           0               0               0            0             0
Alarms:  0           0               0               0            0             0

Timer Statistics            Configured Interval: 00:00:20
              Elapsed       Average     Peak                          Port Status
Packets:      6             0           12                            ON   OFF
Colls.:       0             0           0                        MMAC: 16      0
Alarms:       0             0           0                    Board 0:  4      0
Delta Time:  20            20          20                    Port:     SEG

Counter Statistics            Configured Interval: 10000
              Elapsed       Average     Peak
Packets:      54            45          1067
Colls.:       0             0           0
Alarms:       0             0           0
Delta Time:   2627          4038        18142




   MAIN        STATS-MMAC        STATS-BOARD 0        ENABLE PORT 1     DISABLE PORT 1
```

Figure 5-4 Port X Statistics Screen

5.3.1 Port Statistics Screen Fields

MMAC Name

Displays the user-defined name assigned to the IRM at the Board Names Screen.

Board

Displays the slot number that the board occupies in the MMAC. Available board slot numbers are O through 2 for an MMAC-3, or O through 7 for an MMAC-8.

Board Name

Displays the user-defined name assigned to the board at the Board Names Screen.

MMAC Total

The MMAC Total displays the number of good packets or collisions the MMAC has processed, and also the number of times the MMAC has reached an alarm limit.

Packets — Displays the total number of good packets the MMAC has processed.

Colls. — Displays the total number of collisions the MMAC has processed.

Alarms — Displays the total number of times the MMAC reached an MMAC, board, or port alarm limit.

Board Total

The Board Total displays the number of good packets or collisions the board has processed, and also the number of times the board has reached a board alarm limit.

Packets — Displays the total number of good packets the board has processed.

Colls. — Displays the total number of collisions the board has processed.

Alarms — Displays the total number of times the board has reached a board alarm limit.

Port Total

The Port Total displays the number of good packets or collisions the port has processed, and also the number of times the port has reached a port alarm limit.

Packets — Displays the total number of good packets the port has processed.

Colls. — Displays the total number of collisions the port has processed.

Alarms — Displays the total number of times that the port has reached a port alarm limit.

% Board/MMAC

% Board/MMAC indicates the percentage of activity for which the board is responsible, based on total MMAC activity.

Packets	Displays the percentage of good packets for which the board is responsible, based on total MMAC activity.
Colls.	Displays the percentage of collisions for which the board is responsible, based on total MMAC activity.
Alarms	Displays the percentage of alarm limits for which the board has been responsible in the MMAC.

% Port/Board

% Port/Board indicates the percentage of activity for which the port is responsible, based on total board activity.

Packets	Displays the percentage of good packets for which the port is responsible, based on total board activity.
Colls.	Displays the percentage of collisions for which the port is responsible, based on total board activity.
Alarms	Displays the percentage of alarm limits for which the port has been responsible, based on total board activity.

% Port/MMAC

% Port/MMAC indicates the percentage of activity for which the port is responsible, based on total MMAC activity.

Packets	Displays the percentage of good packets for which the port is responsible, based on total MMAC activity.
Colls.	Displays the percentage of collisions for which the port is responsible, based on total MMAC activity.
Alarms	Displays the percentage of alarm limits for which the port has been responsible on the MMAC.

Timer Statistics

Timer Statistics allow you to sample activity on the port by a set time period. You can set this time period at the Stats Polling Intervals display on the System Parameter Screen. For example, if Time is set to 10 seconds, the figure under Elapsed - Packets will be the number of packets that the port processes during that 10 second interval.

The Timer Statistics portion of the screen displays the following timer statistics for the port:

Elapsed	Displays the number of good packets, collisions, or alarms that occurred during the last sample checked.
Average	Displays the average number of good packets, collisions, or alarms that have occurred since the IRM counters were last reset.
Peak	Displays the peak number of good packets, collisions, or alarms since the IRM counters were last reset.

The elements that are monitored by the Timer Statistics portion of the screen are:

Packets	Displays statistics based on the number of good packets.
Colls.	Displays statistics based on the number of collisions.
Alarms	Displays statistics based on the number of alarms.
Delta Time	Displays the actual time between the gathering of Timer Statistics.

Counter Statistics

Counter Statistics allow you to sample activity on the port after a certain number of good packets have passed through the MMAC. This number is set at the Stats Polling Intervals display on the System Parameter Screen. For example, if # of Packets is set to 1000 packets, the figure under Elapsed - Packets will be the number of packets that the port processes during that 1000 packet interval.

This portion of the screen displays the following Counter Statistics for the board.

Elapsed	Displays the number of good packets, collisions, or alarms that occurred during the last sample checked.
Average	Displays the average number of good packets, collisions, or alarms that have occurred since the IRM counters were last reset.
Peak	Displays the peak number of good packets, collisions or alarms since the IRM counters were last reset.

The elements that are monitored by this part of the screen are:

Packets	Displays statistics based on the number of good packets.
Colls.	Displays statistics based on the number of collisions.
Alarms	Displays statistics based on the number of alarms.
Delta Time	Displays the actual time between the gathering of Counter Statistics.

Port Status

Port Status displays the number of ports on the MMAC and the Board that are ON (enabled or segmented) and the number of ports that are OFF (disabled). The status of the selected port is also displayed.

MMAC	Displays the number of ports in the MMAC that are ON (enabled or segmented) and the number of ports that are OFF (disabled).
Board	Displays the number of ports on the board that are ON (enabled or segmented) and the number of ports that are OFF (disabled).
Port	Displays if the port is enabled (ON), segmented (SEG), or disabled (OFF).

CHAPTER 6

SETTING SYSTEM PARAMETERS

From the Reset System Parameter Screen, you can set or change various parameters for the terminal connected to the IRM's Console port.

6.1 RESET SYSTEM PARAMETERS SCREEN

The Reset System Parameters Screen allows you to alter Local Management's system parameters that appear on the MMAC Main Screen.

To access this screen:

1. Highlight the **RESET SYSTEM PARAMETERS** option at the bottom of the MMAC Main Screen.
2. Press **Return**. The Reset System Parameters Screen, Figure 6-1, will appear.

```
02/16/90  14:26:43          RESET SYSTEM PARAMETERS    Last Reset: 02/16/90 08:10:11

     Unit Name: Tech Writing                    MMAC Address: 00-00-1D-00-36-06
     Current Date: 07/15/89
     Current Time: 14:28:20


               Packets/                                   Auto          Parts
               Colls.          Within                   Shut-off       ON  OFF
   MMAC Limit:  1000           -C 00:00:10 DISABLED!       NO          16   0

   Audible Alarms:             YES
   Segmented Port Alarms:      NO
   Management Auto Send:       NO
   Screen Refresh Time:        10 seconds
   Minimum Alarm Duration:     10 seconds
   MMAC IP Address:            0.0.0.0
   Stats. Polling Intervals  -  Time: 00:00:20   # of Packets: 10000




MAIN   SAVE   BOARD NAMES   BOARD LIMITS    CHANGE PASSWORD    CABLE REDUNDANCY
RESET AUTO MODE BOARD 1    RESET IRM COUNTERS    CLEAR REDUNDANCY    RESTART IRM
```

Figure 6-1 Reset System Parameters Screen

6.1.1 Reset System Parameters Screen Fields

Unit Name:
Displays the user-defined name given to the MMAC. The MMAC Name is the same name given to Board 0, the IRM, and the MMAC Board Names Screen for the MMAC.

MMAC Address:
Displays the Ethernet address of the MMAC.

Current Date:
Displays the date to which the MMAC is set.

Current Time:
Displays the time entered at this field.

MMAC Limit:
Allows you to set the MMAC Alarm Limit on the MMAC. Refer to Chapter 6, Setting Alarm Limits, for a description on setting the MMAC Alarm Limit.

Audible Alarms:
Indicates whether a beep will sound when an error, alarm, or status message appears on the screen of the terminal connected to the IRM's Console port. YES indicates that a beep will be generated by the terminal connected to the IRM's Console port when a message appears. NO indicates that no sound will be generated. The default value for this field is YES.

Segmented Port Alarms:
Indicates whether alarms for segmented ports will be generated and recorded at the MMAC Main Screen. YES indicates that a message will appear at the top of the MMAC Main Screen, listing which board and port was segmented. NO indicates that no message will be generated. The default for this field is NO.

Management Auto Send:
Indicates whether an MMAC' Management Packet will be generated when Local Management gathers statistics. YES indicates that a management packet will be generated when the MMAC has gathered statistics. NO indicates that a management packet will not be generated when the MMAC has gathered statistics. The default value for this field is NO.

Screen Refresh Time:
Displays, in seconds, how often each screen on a terminal connected to the IRM's Console port will be updated. The default value for this field is 10 seconds.

Minimum Alarm Duration:
Displays, in seconds, how long an error, alarm, or status message will appear on the second line of the terminal's screen. The default value for this field is 10 seconds.

MMAC IP Address:
Displays the MMAC IP (Internet Protocol) Address. The IP routing function is disabled when the value is 0.0.0.0.

Stats. Polling Intervals:
Displays the interval by which statistics are being gathered. Statistics are gathered by time (i.e. every minute) and by the number of good packets (i.e. after every 1,000th good packet passes through the MMAC).

Time	Displays the time interval by which Timer Statistics are being gathered. If 00:00:00 is displayed, no time related statistics will be gathered. The default value for this field is 00:00:20 (20 seconds).
# of Packets	Displays the number of good packets that must pass through the MMAC before Counter Statistics are gathered. If 0 is displayed, no count-related statistics will be gathered. The default value for this field is 10000 packets.

6.1.2 Editing the Reset System Parameters Screen

6.1.2.1 Setting the Current Date

To set the current date:

1. Using the arrow keys, highlight the **Current Date** field.
2. Enter the new data in one of these formats: MM/DD/YY or MMDDYY. For example: 08/01/88 or 080188.

3. Press **Return**. If an invalid date is entered, the error message, ILLEGAL DATE ENTERED, will appear at the top left corner of the screen.

6.1.2.2 Setting the Current Time

To set the current time:

1. Using the arrow keys, highlight the **Current Time** field.
2. Enter the new time into the field as follows: HH:MM:SS or HHMMSS. For example 16:29 or 111629.
3. Press **Return**. If an invalid time is entered, the error message, ILLEGAL TIME ENTERED, will appear at the top left corner of the screen.

6.1.2.3 Setting the Audible Alarms Option

To set the Audible Alarms option:

1. Using the arrow keys, highlight the **Audible Alarm** field.
2. Press **Return** to toggle the field to Yes or No. YES indicates that a beep will sound if a message appears on the terminal. NO indicates that no sound will be generated.

6.1.2.4 Setting the Segmented Port Alarms Option

To set the Segmented Port Alarms option:

1. Using the arrow keys, highlight the Segmented Port Alarms field.
2. Press **Return** to toggle the field to Yes or No. YES indicates that a message will appear alerting the user if a port becomes segmented. NO indicates that no message will be generated.

6.1.2.5 Setting the Management Auto Send Option

To set the Management Auto Send option:

1. Using the arrow keys, highlight the **Management Auto Send** field.
2. Press **Return** to toggle the field to Yes or No. YES indicates that a management packet will be generated when the MMAC has gathered statistics. NO indicates that a management packet will not be generated when the MMAC has gathered statistics.

6.1.2.6 Setting the Screen Refresh Time

To set the Screen Refresh Time:

1. Using the arrow keys, highlight the **Screen Refresh Time** field.
2. Enter the new time into the field. A time of 2 to 99 seconds may be entered.
3. Press **Return**. If the MMAC Screen Refresh is set to 1 second, the error message, NUMERIC ENTRY MUST BE GREATER THAN OR EQUAL TO 2, will appear on the second line of the screen.

6.1.2.7 Setting the Minimum Alarm Duration Time

To set the Minimum Alarm Duration Time:

1. Using the arrow keys, highlight the **Minimum Alarm Duration** field.
2. Enter the new time into the field. This time can be set anywhere from 0 to 99 seconds.
3. Press **Return**.

6.1.2.8 Setting the MMAC IP Address

To set the MMAC IP Address:

1. Using the arrow keys, highlight the **MMAC IP Address** field.
2. Enter the address into the field. The format for this entry is XXX.XXX.XXX, with values from 0-9.
3. Press **Return**.

6.1.2.9 Setting the Stats Polling Interval Time

To set the Stats Polling Interval Time:

1. Using the arrow keys, highlight the **Stats Polling Interval Time** field.
2. Enter the new time in one of these formats: HH:MM:SS or HHMMSS. For example: 00:00:10 or 000010.
3. Press **Return**. If an invalid time is entered, the error message, ILLEGAL TIME ENTERED, will appear in the upper left hand corner of the screen.

6.1.2.10 Setting the Stats Polling Interval # of Packets

To set the Stats Polling Interval # of Packets:

1. Using the arrow keys, highlight the **Stats Polling Interval # of Packets** field.
2. Enter the new value into the field.
3. Press **Return**. The number can be set anywhere from 0 to 999999999 packets.

6.1.3 Saving System Parameters

When you have finished changing the system parameters, you must save all changes before going to another screen.

To save the new system parameters:

1. Using the arrow keys, highlight the **SAVE** command field.
2. Press **Return**. The message, MMAC SYSTEM PARAMETERS HAVE BEEN SAVED! BY IRM OPERATOR, will appear in the upper left hand corner of the screen.

The new system parameters are now saved.

CHAPTER 7
SETTING ALARM LIMITS

The alarm limit function of Local Management allows you to set alarm limits for the MMAC as a whole, for each individual board or for each individual port. Alarm limits can be set to notify you that a limit has been reached, or to disable an MMAC, board, or port when a limit is reached.

7.1 RESET SYSTEM PARAMETERS SCREEN

The MMAC Alarm Limit can be set to advise you that a certain number of good packets or collisions have passed through the MMAC within a given time period. For example, an MMAC Alarm Limit can be set to indicate that more than 1,000 collisions have passed through the MMAC in 10 seconds. This limit can be set to turn off the MMAC when the limit is reached.

The MMAC Alarm Limit is set at the Reset System Parameters Screen (See Figure 7-1). You can also configure your MMAC at this screen by setting parameters that will affect various functions and screens of Local Management. In this section, however, we deal only with setting alarm limits. Refer to Chapter 5 for details regarding System Parameters of the MMAC.

MMAC Limit:
Displays the MMAC Alarm Limit set for the MMAC. The MMAC Alarm Limit is the number of good packets or collisions that can pass through the MMAC within a given time period before the limit is reached. For example, the MMAC Alarm Limit will be exceeded when more than 1,000 collisions (Packets/Colls.) are detected at the MMAC in less than 10 seconds (Within).

```
02/16/90  14:28:20          RESET SYSTEM PARAMETERS    Last Reset: 02/16/90 14:29:40

     Unit Name: TECH WRITING                        MMAC Address: 00-00-1D-00-36-06
     Current Date: 07/15/89
     Current Time: 14:28:20


                Packets/                                    Auto          Parts
                Colls.          Within                   Shut-off       ON  OFF
   MMAC Limit:  1000            -C 00:00:10 DISABLED!       NO          16   0

   Audible Alarms:              YES
   Segmented Port Alarms:       NO
   Management Auto Send:        NO
   Screen Refresh Time:         10 seconds
   Minimum Alarm Duration:      10 seconds
   MMAC IP Address:             0.0.0.0
   Stats. Polling Intervals   -  Time: 00:00:20   # of Packets: 10000




MAIN   SAVE   BOARD NAMES   BOARD LIMITS    CHANGE PASSWORD    CABLE REDUNDANCY
                    RESET IRM COUNTERS    CLEAR REDUNDANCY    RESTART IRM
```

Figure 7-1 Reset System Parameters Screen

The following indicates the MMAC Alarm Limit settings:

Packets/Colls. — Displays the number of packets that must pass through the attached MMAC before the MMAC Alarm Limit is checked. To the right of the field is a -P or a -C. A -P to the right of the entry indicates the entry is a certain number of good packets. A-C indicates that the entry is a certain number of collisions. If O -P or O -C is displayed in this field, the MMAC Alarm Limit will not be checked. The default entry in this field is 1000 -C.

Within — Displays the time period in which the number of packets, listed in the Packets/Colls. display, may occur before the MMAC Alarm Limit is reached. -TIME to the right of the entry indicates the entry is a time period. If 00:00:00 or DISABLED! is displayed in this field, the MMAC Alarm Limit will not be checked. The default entry in this field is 00:00:10 - DISABLED.

Auto Shut-off	Indicates whether or not the MMAC will shut off automatically when the MMAC Alarm Limit is reached. YES indicates that the MMAC will shut off automatically when the limit is reached. NO indicates that the MMAC will not shut off when the limit is reached. The default value for this field is NO.

For instructions on setting the MMAC Alarm Limit, refer to Section 7.4, **Setting An Alarm Limit**.

7.2 SET BOARD ALARM LIMITS SCREEN

Board Alarm Limits allow you to set alarm limits for each board in the MMAC. They can be configured to advise you that a certain number of good packets or collisions have passed through the board within a certain time period, or that a specified number of good packets or collisions have passed through the board based on a certain number of packets the MMAC has processed. For example, a Board Alarm Limit can be set to advise you when more than 1,000 good packets have passed through the board in 10 seconds. This limit can be set to disable the board when the limit is reached.

Board Alarm Limits are set at the Set Board Limits Screen. To access this screen:

1. Using the arrow keys, highlight the **BOARD LIMITS** option at the bottom of the Reset System Parameter Screen.
2. Press **Return**. The Set Board Limits Screen, Figure 7-2, will appear.

7.2.1 Set Board Limits Screen Fields

MMAC Name

Displays the user-defined name given to the MMAC. The MMAC name is the same name given to the IRM at the MMAC Board Names Screen.

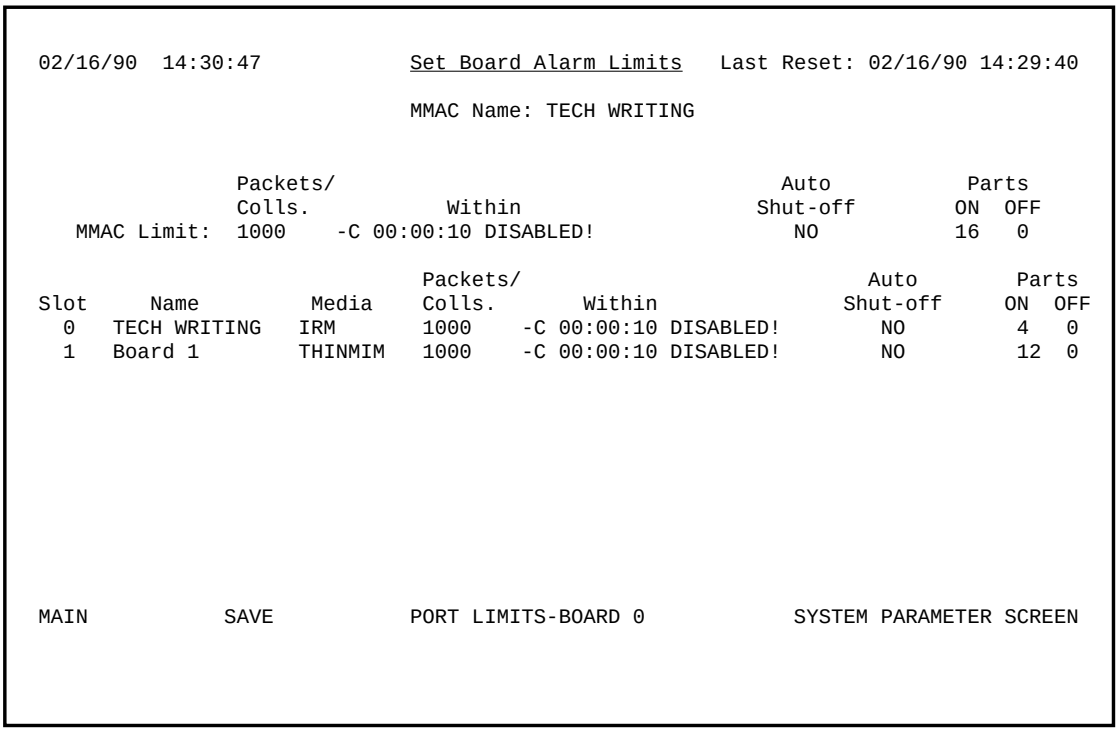

Figure 7-2 Set Board Alarm Limits Screen

MMAC Limit

Displays the MMAC Alarm Limit. The MMAC Alarm Limit is the number of good packets or collisions that can pass through the MMAC within a given time period before the MMAC Alarm Limit is reached.

Refer to Section 7.1, **Reset System Parameters Screen**, for a description of each individual field under the MMAC Alarm Limit.

Slot

Displays the number of the slot the MIM occupies in the MMAC. Available board slot numbers are O through 2 for an MMAC-3, or O through 7 for an MMAC-8.

Name

Displays the user-defined name assigned to the board at the MMAC Board Names Screen.

Media

Indicates the media type of the board.

The following fields relate to setting the Board Alarm Limit. For instructions on setting a Board Alarm Limit, refer to Section 7.4, Setting An Alarm Limit.

Packets/Colls.
Allows you to indicate the number of packets that must pass through the board before the Board Alarm Limit is checked. To the right of this field is a -P or -C. A -P indicates that the entry is a certain number of good packets. -C indicates that the entry is a certain number of collisions. If 0 -P or 0 -C is displayed in the field, the Board Alarm Limit will not be checked. The default value for this field is 1000 -C.

Within
Displays time or count parameters in which the number of packets entered in the Packets/Colls. display may occur before the Board Alarm Limit is reached. When -TIME is to the right of the field, Within can be within a time period. When -M-PACKET is to the right of the field, Within can be within a certain number of MMAC packets. For example, if Within is a certain time period, an alarm will be triggered when more than 1000 packets (Packets/Colls. 1000 -P) pass through the board in 10 seconds (Within 00:00:10 -TIME).

If Within is a certain number of MMAC packets, an alarm will be triggered if the board processes more than 1000 good packets (Packets/Colls. 1000 -P) for every 2000 MMAC packets (Within 2000 -M-PACKET). If 00:00:00 -TIME, 0 -M-PACKET or DISABLED! is selected, the Board Alarm Limit will not be checked. The default value for this field is 00:00:10 DISABLED!.

Auto Shut-off
Allows you to choose whether or not the board will shut off automatically when a Board Alarm Limit is reached. YES indicates that the board will shut off automatically when the limit is reached. NO indicates that the board will not shut off automatically when the limit is reached. The default value for this field is NO.

Ports ON OFF
Displays the number of ports on each board that are enabled or segmented (ON), and the number of ports that are disabled (OFF).

7.3 SET PORT ALARM LIMITS SCREEN

Port Alarm Limits allow you to set an alarm limit for each port on a board. These alarm limits can be configured to advise you that a certain number of good packets or collisions have passed through the port within a given time period, within a specified count of good packets or collisions processed by the MMAC, or by a specified count of good packets or collisions processed by a board. For example, a Port Alarm Limit can be set to advise you when more than 1,000 good packets have passed through the port in 10 seconds. This limit can be set to disable the port when the limit is reached.

Port Alarm Limits are set at the Set Port Alarm Limits Screen. To access this screen:

1. Highlight the **PORT LIMITS - BOARD X** option at the bottom of the Board Limits Screen.
2. Press **Return**. The Set Port Alarm Limits Screen, Figure 7-3, will appear.

```
02/16/90  14:32:01          Set Port Alarm Limits       Last Reset: 02/16/90 14:29:40

       MMAC Name: TECH WRITING                      Board 0 Name: TECH WRITING

                Packets/                                    Auto          Parts
                Colls.              Within                Shut-off       ON  OFF
   MMAC Limit:  1000        -C 00:00:10 DISABLED!            NO           16   0
Board 0 Limit:  1000        -C 00:00:10 DISABLED!            NO            4   0



 Port     Packets/Colls.            Within            Auto Shut-off      Status
  1          100           -C 00:00:10 DISABLED!          NO              SEG
  2          100           -C 00:00:10 DISABLED!          NO              SEG
  3          100           -C 00:00:10 DISABLED!          NO              SEG
  4          100           -C 00:00:10 DISABLED!          NO              ON


MAIN          SAVE          BOARD LIMITS SCREEN           SYSTEM PARAMETER SCREEN
```

Figure 7-3 Set Port Alarm Limits Screen

7.3.1 Set Port Alarm Limits Screen Fields

MMAC Name
Displays the user-defined name given to the MMAC. The MMAC name is the same name given to the IRM at the MMAC Board Names Screen.

Board X Name
Displays the user-defined name assigned to the board at the MMAC Board Names Screen.

MMAC Limit
Displays the MMAC Alarm Limit. The MMAC Alarm Limit is the number of good packets or collisions that can pass through the MMAC within a given time period before the MMAC Alarm Limit is reached. (Refer to Section 7.2, **Reset System Parameters Screen** for a description of each individual field under the MMAC Alarm Limit.)

Board X Limit
Displays the Board Alarm Limit for the selected board. The Board Alarm Limit is the number of good packets or collisions that can pass through the board, in a set time period or by a count of good packets or collisions processed by the MMAC before the Board Alarm Limit is reached. (Refer to Section 7.1, Set Board Limits Screen, for a description of each individual field under the Board Alarm Limit.)

Port
Displays the number of the port on the board.

Packets/Colls.
Allows you to indicate the number of packets that must pass through the port before the Port Alarm Limit is checked. To the right of this field is a -P or -C. A -P indicates that the entry is a certain number of good packets. A -C indicates that the entry is a certain number of collisions. The default value for this entry is 100 -C.

Within
Allows you to set time or count parameters in which the number of packets entered in the Packets/Colls_ display may occur before the Port Alarm Limit is reached. When -TIME is to the right of the field, Within can be within a time period. When -M-PACKET is to the right of the field, Within can be within a certain number of MMAC packets. If -B-PACKET is to the right of the field, Within can be a certain number of board packets.

For example, if Within is a time period, an alarm will be triggered when more than 1000 packets (Packets/Colls. 1000 -P) pass through the port in 10 seconds (Within 00:00:10 -TIME). If Within is a certain number of MMAC packets, an alarm will be triggered when the port has processed 100 packets (Packets/Colls. 100 -P) for every 2000 MMAC packets (Within 2000 -M-PACKET). If Within is a certain number of board packets, an alarm will be triggered when the port processes more than 100 packets (Packets/Colls. 100 -P) for every 1000 board packets (Within 1000 -B-PACKET). If 00:00:00 -TIME, 0 - M-PACKET, 0 -B-PACKET, or DISABLED! is selected, the Port Alarm Limit will not be checked. The default value for this field is 00:00:10 DISABLED!.

Auto Shut-off
Allows you to choose whether or not the port will shut off automatically when a Port Alarm Limit is reached. YES indicates that the port will shut off automatically when the limit is reached. NO indicates that the port will not shut off automatically when the limit is reached. This field can be changed by pressing Return. The default value for this field is NO.

Status
Displays whether the port is enabled (ON), segmented (SEG), or disabled (OFF).

For instructions on setting a Port Alarm Limit, refer to Section 7.4, **Setting An Alarm Limit**.

7.4 SETTING AN ALARM LIMIT

To set an Alarm Limit:

1. Use the arrow keys to highlight the **Packets/Colls.** field.
2. Enter the desired number of packets or collisions.

3. Press **Return**.
4. Highlight the next field, **-P** or **-C**.
5. Press **Return** to toggle the field from -P to -C. The field should be set to **-P** if the entry made in step 2 is packets. If the entry was collisions, the field should be **-C**.
6. Highlight the **Within** field.
7. If you are setting a MMAC Alarm Limit, enter a time into the field in one of the following formats: 00:00:10, 000010. If you are setting a Board or Port Alarm Limit and the limit is going to be set based on a timeperiod, enter a time into the field in 00:00:10 or 000010 format. If the limit is going to be set based on a count of packets, enter the count of packets.
8. Press **Return**. If an invalid time is entered, the error message, ILLEGAL TIME ENTERED), will appear on the second line of the screen.
9. Highlight the next field, -B-PACKET (Port Alarm Only), **-M-PACKET** (Board and Port Alarm Only), **-TIME**, or **DISABLED**!.
10. Press **Return** to toggle the field from **-B-PACKET**, **-M- PACKET**, **-TIME,** or **DISABLED**!. If you are setting a MMAC Alarm Limit, the field should be set to -TIME. If you are setting a Board Alarm Limit, the field should be set to -M-PACKET if the Board Alarm Limit will be based on the count of packets that the MMAC processes, or -TIME if the limit will be based on a period of time. If you are setting a Port Alarm Limit, the field should be set to -B-PACKET if the Port Alarm Limit will be based on the count of packets that the Board processes, -M-PACKET if the Port Alarm Limit will be based on the count of packets the MMAC processes, or -TIME if the Limit will be based on a period of time. If DISABLED! is selected, the Alarm Limit will not be checked.
11. Highlight the **Auto Shut-off** field.

***WARNING**: Setting an MMAC limit with Auto Shut-off selected to YES can be very dangerous. When the MMAC alarm limit is reached, all ports on the MMAC will be disabled.*

12. Press **Return** to toggle the field from YES or NO.
13. Highlight the **SAVE** option at the bottom of the screen.
14. Press **Return**. The Alarm Limit is now saved and active.

CHAPTER 8

USING THE REDUNDANCY FUNCTION

Cabletron Systems' Local Management Redundancy feature is designed to keep your network up and running in the event that a critical data path fails. Local Management allows you to set up alternate data paths (redundant segments) for critical data paths on the network. This is called cable redundancy.

Cable redundancy allows you to avoid failures that can occur over your network, such as cable shorts, software failures, and power failures. This redundancy scheme is based on the ability of an MMAC to communicate directly with one or more user defined MMACs over a primary port. If the MMAC loses its ability to communicate over this port, a user defined backup port is enabled to reestablish communications with the selected MMAC(s).

A cable redundancy is set up by connecting several cables either to a backbone cable or directly to other devices. If the current cable being used is faulted, then the MMAC switches communications to another cable that is not faulted. (A segment is considered faulted if it cannot support communications.)

8.1 CABLE REDUNDANCY SCREEN

The Cable Redundancy Screen allows you to create a cable redundancy scheme that will insure continued communication flow across your network in the event of a network failure.

To access this screen.

1. Highlight the **CABLE REDUNDANCY** option at the bottom of the Reset System Parameters Screen.

2. Press **Return**. The ('able Redundancy Screen, Figure 8-1, will appear.

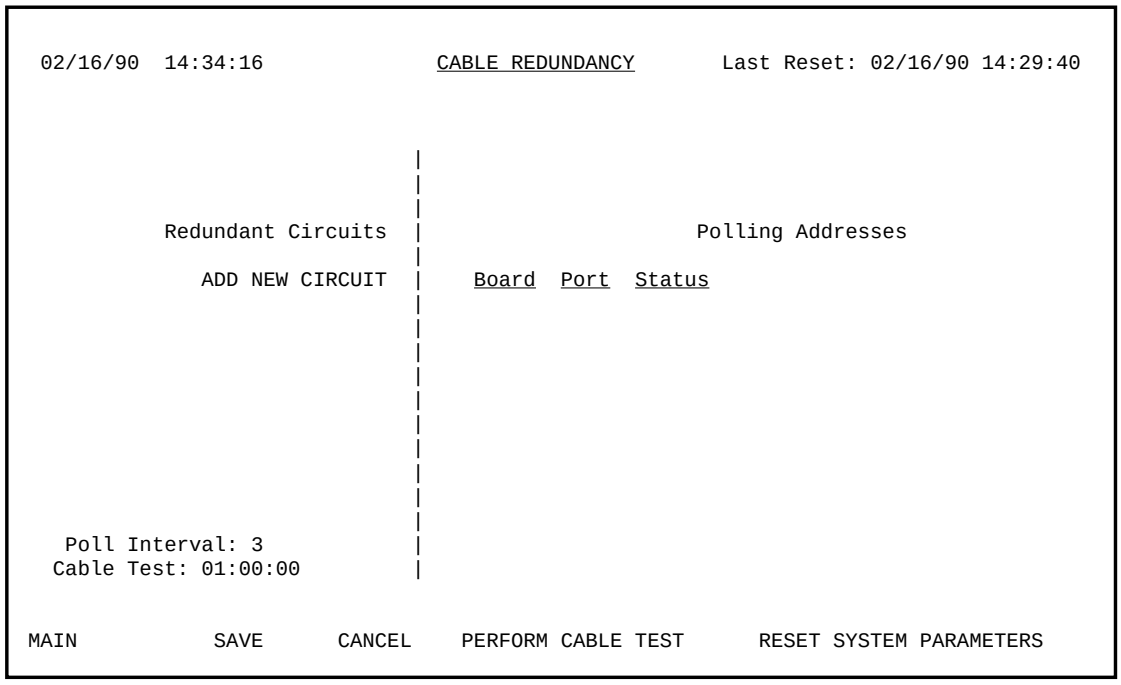

Figure 8-1 Cable Redundancy Screen

8.1.1 Cable Redundancy Screen Fields

Redundant Circuits
Displays the user defined names of the point-to-point cable connections.

Board
Displays the board where the primary or backup port can be found.

Port
Displays the Primary, Active, or Inactive port that provides the physical link to the distant MMAC.

Status
Displays the status of the port. The port will be designated as P for Primary, A for Active, or I for Inactive. A Primary port is the board and port functioning as the main communications link in your redundancy scheme. You may name only one port as the Primary. An Active port is the port that is currently supporting communications. You may name only one port as the Active. An Inactive port is a port that is currently not supporting communications but will function as a backup. You may name more than one port as the Inactive port.

Polling Addresses
Displays a list of MMAC Ethernet addresses associated with the selected circuit.

Polling Interval
Displays the time in seconds that the primary sends out an individual management packet to the addresses listed in the Polling Address field. This field is common to all redundant circuits created.

Cable Test
Displays the test time interval in which the primary MMAC polls all the elements in the circuit configuration to test which redundant circuits have a good link or a bad link. A good link is one that can support communication. A bad link is one that cannot support communications. This test will run once every 24 hours (default time is 1:00 A.M.) at a preset user-defined time. This test can also run automatically if it is determined that a cable check needs to be done at a time other than the user-defined one.

8.1.2 Setting Up A Cable Redundancy

To set up a cable redundancy:

1. Using the up arrow key, highlight the **Cable Test** text box.
2. Enter a new **Cable Test** time interval using the format HH:MM:SS. (Press the **up arrow** key to accept the current time interval.)
3. Press the **up arrow** key. The Poll Interval text box will be highlighted.
4. Enter a new **Polling Interval**. (Press the **up arrow** key to accept the current Polling Interval.)
5. Press the **up arrow** key. The **ADD NEW CIRCUIT** option will be highlighted.
6. Press **Return**. The Name option will appear with a highlighted text box.
7. Enter the name of the Redundancy circuit.

8. Press **Return**. The Retry Count text box will be highlighted.
9. Enter the new **Retry Count**. (Press the **down arrow** key to accept the current Retry Count.)
10. Press **Return**. The **ADD NEW POLL ADDR** option will be highlighted.
11. Press **Return**. The **ADD NEW POLL ADDR** text box will appear.
12. Enter the address of the MMAC you want to poll to establish the redundant communication circuit.
13. Press **Return**. If you wish to add an additional MMAC address, press Return again, and repeat steps 11 and 12.
14. Press the **down arrow** key. The text box under Board will be highlighted.
15. Enter the **Board number** of the Primary port.
16. Press **Return**. (If you wish to delete a number you have entered, use the appropriate arrow key.)
17. Enter the number of the Primary port.
18. Press **Return**. The text box under Status will be highlighted.
19. Press the **down arrow** key to accept the designation as the Primary port. (If you wish to designate this Board/Port as Inactive (I) or Active (A), enter the appropriate letter and Press **Return**. Remember that you must have one Board/Port designated as the Primary.) The text block under Board will be highlighted.
20. Enter the **Board number** of the Inactive port.
21. Press **Return**. The text box under Port will be highlighted.
22. Enter the number of the Inactive Port.
23. Press **Return**. The text box under Status will be highlighted.

24. Press the **down arrow** to accept the designation as the Inactive port. (If you wish to designate this Board/Port Primary (P) or Active (A), enter the appropriate letter and Press **Return**. Remember that you must have at least one Board/Port designated as the Inactive.) The **ADD NEW BOARD PORT** option will be highlighted.

25. Press **Return** to continue to add additional Board/Ports to the circuit, or press the down arrow key to accept the cable redundancy you have entered. The Main command button at the bottom of the screen will be highlighted.

26. Press the **right arrow** key once. The SAVE command button will be highlighted.

27. Press **Return**. The message, REDUNDANCY HAS BEEN SAVED BY IRM OPERATOR, will appear in the upper left hand corner of the screen.

CHAPTER 9

SETTING ALTERNATE MMAC BOARD NAMES

With the Alternate Board Name function of Local Management, user-defined names can be assigned to the various boards in the MMAC.

9.1 MMAC BOARD NAMES SCREEN

At the MMAC Board Name Screen, you can assign your own names to the boards in the MMAC. For example, if one board is used to connect the computers in your sales department to the network, you can rename that board Sales Department.

To name or rename a board in your MMAC:

1. Highlight the BOARD NAMES option at the bottom of the System Parameters Screen.

2. Press **Return**. The MMAC Board Names Screen, Figure 9-1, will appear.

```
07/15/89  14:35:44            MMAC Board Names      Last Reset: 07/15/89  08:10:11

                                                          Ports
                      Name          Media Type            ON  OFF

 Slot 0:         TECH WRITING     IRM                     4    0

 Slot 1:         Board 1          THINMIM                 12   0

 Slot 2:

 Slot 3:

 Slot 4:

 Slot 5:

 Slot 6:

 Slot 7:

 Total:                                                   16   0


 MAIN                         SAVE                  SYSTEM PARAMETER SCREEN
```

Figure 9-1 MMAC Board Names Screen

9.2 MMAC BOARD NAMES SCREEN FIELDS

Slot X
Displays the number of the slot the board occupies in the MMAC. Available board slot numbers are O through 7.

Name
Displays the name assigned to the board. The name given to Board O will also be the MMAC Name. If you change the name for Board 0, the MMAC name automatically changes as well.

Media Type
Displays the media type of the board, e.g., TR_12, THINMIM.

Ports ON OFF
Displays the number of ports on each board that are ON (enabled or segmented) and the number of ports that are OFF (disabled).

Total
Displays the total number of ports in the MMAC that are ON (enabled or segmented) or OFF (disabled).

9.3 ASSIGNING BOARD NAMES

To name or rename a board:

1. Using the arrow keys, highlight the **Name** field for the board to be renamed.
2. Enter the new name, up to 20 characters in length, in the field.
3. Press **Return**.
4. Highlight the **SAVE** option at the bottom of the screen.
5. Press **Return**. The new name will be saved.

CHAPTER 10

PORT STATUS SCREEN

The Port Status option allows you to see the state of all the ports on the boards in your MMAC. You can find which Ethernet ports are on or off, and which Token Ring ports are enabled or wrapped. In addition, you can quickly view a summary of total ports enabled.

10.1 PORT STATUS SCREEN

At the Port Status screen, you can discover which ports on the Ethernet boards in your MMAC are on, off, or segmented. You can see the status of each port on the Token Ring boards. (For any Token Ring board that is in a Ring Speed fault state, the total number of active ports will be displayed in reverse video.)

To access the Port Status Screen:

1. Using the arrow keys, highlight the **PORT STATUS** option at the bottom of the MMAC Main Screen.
2. Press **Return**.

The Port Status Screen, Figure 10-1, will appear.

```
07/15/89  14:35:44              Port Status           Last Reset: 07/15/89  08:10:11

       Slot 0  Slot 1  Slot 2  Slot 3  Slot 4  Slot 5  Slot 6  Slot 7

Port    IRM     TR_12   TR_12

  1     SEG      ENB     INS
  2     SEG      ENB     INS
  3     SEG      ENB     INS

  4     ON       ENB     INS
  5              ENB     INS
  6     SEG      ENB     INS
  7     SEG      ENB     INS
  8     SEG      ENB     INS
  9     SEG      ENB     INS

  10    SEG      ENB     INS
  11    SEG      ENB     INS
  12    SEG      ENB     INS

 Total
 ON:    4        12      12
 MAIN     ENABLE BOARD 0      ENABLE ETHERNET      ENABLE TOKEN RING
          DISABLE BOARD 0     DISABLE ETHERNET     DISABLE TOKEN RING
```

Figure 10-1 Port Status Screen

10.1.1 Port Status Screen Fields

Slot X
Indicates the type of board installed in each slot of the MMAC, e.g., TR_12, THINMIM.

Port
Indicates the status of each port on the boards in the MMAC. There are different status conditions for the Ethernet and Token Ring ports.

Ethernet Ports
There are three possible status conditions for Ethernet ports:

ON	A port is considered ON only after the port has received one good packet.
OFF	A port is considered OFF if it has not been enabled.
SEG	A port is considered SEG (Segmented) when it has been turned on but has not received a good packet.

Token Ring Ports
Within Token Ring, there are different status conditions between the station ports and the ring-in/ring-out ports:

Station Ports	The status of the port is determined by its administrative state (enabled or disabled) and its link state (linked or bypassed).

There are four possible status conditions for Station ports:

BYP	A port is considered BYP (Bypassed) if it has been disabled by management and no station is linked to the port.
LNK	A port is considered LNK (Linked) if it is disabled by management and there is a station linked to the port.
ENB	A port is considered ENB (Enabled) if it has been enabled by management and there is no station linked to the port.

INS	A port is considered INS (Inserted) if it has been enabled by management and there is a station linked to the port.
Ring-in/Ring-out	The status of Ring-in/Ring-out ports is determined by the Ring-out administrative state of both of the ports (wrapped or active).

There are four possible conditions for each pair of Ring-in/Ring-out ports:

RI-WRP, RO-WRP	Both the Ring-in and Ring-out ports are wrapped.
RI-WRP, RO-BAK	The Ring-in port is wrapped, the Ring-out port is active. The backup path of the ring-out port is being used for the ring-in path.
RI-BAK, RO-WRP	The Ring-in port is active and the Ring-out port is wrapped. The backup path of the ring-in port is being used for the ring-out path.
RI-ACT, RO-ACT	Both the Ring-in and the Ring-out ports are active.

<—>, x—>, x—x, or <—x

Indicates that two adjacent, active Token Ring boards are connected across a flexible network bus (FNB). If one or more of the arrow heads is an 'x', the board on that side of the arrow is in the bypass mode. (This field will appear only if the described condition exists.)

Total ON

Ethernet	Displays the total number of enabled and segmented ports on each board.
Token Ring	Displays the total number of enabled station ports and active ring-in/ring-out ports.

CHAPTER 11

PORT LINK STATUS OPTION

With the Link Status option, you can quickly view the link status of each port on the boards that generate a link status. These boards include the Cabletron Systems' 10BASE-T Twisted Pair Media Interface Modules, Fiber Optic Media Interface Boards, and Token Ring Media Interface Boards. (For all Token Ring boards, the Port Status and Link Status screens are functionally the same. The differences between administrative and link statuses apply only to Ethernet boards.)

11.1 LINK STATUS SCREEN

At the Link Status Screen, you can view the link status of those boards that broadcast a link status. You can also view the type of board installed in each slot of the MMAC and the total number of ports that are ON and SEG.

To access the Link Status Screen:

1. Using the arrow keys, highlight the **LINK STATUS** option at the bottom of the MMAC Main Screen.
2. Press **Return**.

The Link Status Screen, Figure 11-1, will appear.

11.1.1 Link Status Screen Fields

Slot X
Indicates the type of board installed in each slot of the MMAC, e.g., TR_12, THINMIM.

Port
Indicates the link status of each port on the boards in the MMAC that generate a link status.

```
08/31/90  13:44:45              Link Status           Last Reset: 08/31/90  13:37:20

       Slot 0  Slot 1  Slot 2  Slot 3  Slot 4  Slot 5  Slot 6  Slot 7

Port    IRM     TR_12   TR_12

  1     N/A      ENB     INS
  2     N/A      ENB     INS
  3     N/A      ENB     INS

  4     N/A      ENB     INS
  5              ENB     INS
  6              ENB     INS
  7              ENB     INS
  8              ENB     INS
  9              ENB     INS

  10             ENB     INS
  11             ENB     INS
  12             ENB     INS

 Total
 ON:    4        12      12
 MAIN     ENABLE BOARD 0      ENABLE ETHERNET      ENABLE TOKEN RING
          DISABLE BOARD 0     DISABLE ETHERNET     DISABLE TOKEN RING
```

Figure 11-1 Link Status Screen

There are three possible Link Status messages for Ethernet boards:

LNK — Link OK (LNK) indicates that a link is established between that applicable port on the module and the device at the other end of the 10BASE-T Twisted Pair or Fiber Optic segment.

N/LNK — No Link (NLNK) indicates that either a link has not been established between the applicable port on the module and the device at the other end of the 10BASE-T Twisted Pair or Fiber Optic segment, or that a 10BASE-T Twisted Pair or Fiber Optic segment is not connected to the port.

N/A — Not Available (N/A) indicates that this port is not a 10BASE-T Twisted Pair or Fiber Optic Link port.

There are four possible Link Status messages for Token Ring boards:

ENB — A port is considered Enabled (ENB) if it has been enabled by management, and there is no station linked to the port.

BYP	A port is considered Bypassed (BYP) if it has been disabled by management, and there is no station linked to the port.
LNK	A port is considered Linked (LNK) if the port has been disabled by management, and there is a station linked to the port.
INS	A port is considered Inserted (INS) if the port has been enabled by management, and there is a station linked to the port. This is the only state with a station inserted into the ring successfully.

Total ON

Ethernet	Displays the total number of enabled and segmented ports on each Ethernet board.
Token Ring	Displays the total number of enabled station ports and active ring-in/ring-out ports.

CHAPTER 12

USING THE PREVIOUS COUNTER SCREENS

Local Management also has the capability for storing statistical information that the MMAC has gathered before the last two IRM resets. This information can be accessed at a later time so that you can evaluate and analyze the impact of network activity on the MMAC.

12.1 PREVIOUS COUNTER SCREENS

The Previous Counter X Screen, which displays counter statistics, is labeled either O or 1(0 for the last IRM Counter Reset; 1 for the first IRM Counter Reset). See Figure 12-1. No fields are modifiable at this screen.

```
02/15/90  14:50:44       Previous Counters 0        Last Reset:  02/15/90  08:10:11

                       Previous Rest:  07/15/89  08:10:11
                                    MMAC Totals

                Packets:     19752            Ports ON:     16
                Collisions:  0                Ports OFF     0

             Totals    % B/MMAC     ON                         Totals    % B/MMAC    ON
IRM Packets  530          3          4    Board 1 Packets     19222         97      12
     Colls.  0            0                        Colls.     0             0




                                        MAIN
```

Figure 12-1 Previous Counter X screen

To access this screen:

1. Highlight the **PREVIOUS COUNTER X** option at the bottom of the MMAC Main Screen.
2. Press the **shift** and + keys or - key to move between screens 0 and 1.
3. Press **Return**. The Previous Counter X screen, Figure 12-1, will appear.

The Previous Counter X screens work on a "first in, first out" basis. That is, when the third IRM Counter Reset occurs, the first reset, stored as number 1, will be deleted from the MMAC's memory.

12.2 PREVIOUS COUNTER X SCREEN FIELDS

Previous Reset
Displays the Date and Time that the reset associated with this screen occurred.

MMAC Tools
The MMAC Totals list the following information:

Packets	Displays the total number of packets the MMAC processed before the reset occurred.
Colls.	Displays the total number of collisions the MMAC processed before the reset occurred.
Ports ON	Displays the total number of ports in the MMAC that were enabled or segmented when the reset occurred.
Ports OFF	Displays the total number of ports in the MMAC that were disabled when the reset occurred.

Board Total
Displays the number of good packets or collisions that each board has processed.

Name
Displays the user-defined name assigned to the board at the Board Names Screen.

Packets/Totals
Displays the total number of good packets the board processed before the last reset occurred.

Colls./Totals
Displays the total number of collisions the board processed before the last reset occurred.

Packets/% B/MMAC
Displays the percentage of packets for which the board was responsible, based on total MMAC activity before the last reset occurred.

Colls./% B/MMAC
Displays the percentage of collisions for which the board was responsible, based on total MMAC activity before the last reset occurred.

ON
Displays the number of ports on the board that were enabled or segmented when the last reset occurred.

CHAPTER 13

USING OTHER AVAILABLE FUNCTIONS

Other functions available with Local Management include Restarting the IRM, Resetting IRM Counters, and Enabling and Disabling Ports and Boards.

13.1 RESTARTING THE IRM

The Restart IRM function allows you to reset all configurable variables (except Redundancy) to the default values resident on your Local Management firmware. With this command, you can reset configurable variables to their defaults, or you can reset variables at the System Parameters Screen.

Restart IRM Counters from the Reset System Parameters Screen as follows:

1. Using the arrow keys, highlight the **RESTART IRM** option at the bottom of the screen.
2. Press **Return**. The message, MULTI MEDIA ACCESS CENTER RESTARTED, will appear, indicating that the IRM has been restarted.

13.2 RESETTING IRM COUNTERS

The Reset IRM Counters function allows you to reset all statistics gathered by Local Management back to zero. After you have reset IRM counters, Local Management starts gathering statistics again.

Reset IRM Counters from the Reset System Parameter Screen by:

1. Using the arrow keys, highlight the **RESET IRM COUNTERS** option at the bottom of the screen.
2. Press **Return**. The message, ALL MMAC COUNTERS HAVE BEEN RESET BY IRM OPERATOR, will appear indicating that the IRM counters have been reset. A summary of statistical information will be saved and can be accessed at the Previous Counters X Screen.

13.3 RESETTING AUTO MODE (TOKEN RING)

You can reset your Token Ring boards to Auto Mode at the Reset System Parameters Screen. (For more information on Auto Mode and its associated settings, please refer to Chapter 5.)

To reset your Token Ring boards to Auto Mode:

1. Using the arrow keys, highlight the **RESET AUTO MODE BOARD 1** option at the bottom of the screen.
2. Use the **Shift I (or -)** key to toggle to the desired Board number.
3. Press **Return**. The message, TOKEN RING BOARD 1 AUTO MODE RESET BY IRM OPERATOR, will appear indicating that the designated Token Ring board has been reset to Auto Mode.

13.4 ENABLING AND DISABLING ALL ETHERNET OR TOKEN RING PORTS

You can enable or disable all your Ethernet or Token Ring ports at the following screens:

- MMAC Statistics
- Port Status
- Link Status

13.4.1 Enabling and Disabling All Ethernet Ports

To enable or disable the Ethernet boards at the Port Status or Link Status Screens:

1. 1. Use the arrow keys to highlight the **ENABLE ETHERNET** or **DISABLE ETHERNET** option at the bottom of the screen.
2. Press **Return**. The message ALL PORTS ENABLED (DISABLED) BY IRM OPERATOR will appear.

13.4.2 Enabling and Disabling All Token Ring Ports

1. Use the arrow keys to highlight the **ENABLE TOKEN RING** or **DISABLE TOKEN RING** option at the bottom of the screen.
2. Press **Return**. The message ALL PORTS ENABLED (DISABLED) BY IRM OPERATOR will appear.

13.4.3 Enabling and Disabling All Ports on Individual Ethernet Boards

You can turn all ports connected to an individual board on or off from the Board X Statistics Screen.

1. Use the arrow keys to highlight the **ENABLE BOARD X** or **DISABLE BOARD X** option at the bottom of the screen.
2. Press the **shift** and **+** key, or the **-** key, until the number of the board you intend to enable or disable appears.
3. Press **Return**. The appropriate message, ALL PORTS ON BOARD X (ENABLED, DISABLED) BY IRM OPERATOR, will appear on the second line of the screen.

13.4.4 Enabling and Disabling All Ports on Individual Token Ring Boards

You can turn all ports connected to an individual board on or off from the specific Token Ring Board X Status Screen.

1. Use the arrow keys to highlight the **ENABLE BOARD** or **DISABLE BOARD** option at the bottom of the screen. (You can only enable or disable the ports on the Token Ring board listed at the top of the screen. There is no toggle function similar to the one for Ethernet boards.)
2. Press **Return**. The appropriate message, ALL PORTS ON BOARD X (ENABLED, DISABLED) BY IRM OPERATOR, will appear on the second line of the screen.

13.4.5 Enabling and Disabling Individual Ethernet and Token Ring Ports

You can turn individual ports connected to an individual board in the MMAC on or off from the appropriate Port X Statistics Screen (Ethernet) or the Token Ring Board X Status Screen.

To enable or disable an individual port from the Port X Statistics Screen or the Token Ring Board X Status Screen:

1. Use the arrow keys to highlight the **ENABLE PORT X** or **DISABLE PORT X** option at the bottom of the screen.
2. Press the **shift** and **+** key, or the **-** key, until the number of the board you intend to enable or disable appears.
3. Press **Return**. The appropriate message, PORT X ON BOARD X (ENABLED, DISABLED) BY IRM OPERATOR, will appear on the second line of the screen.

13.5 ATTACHING AND DETACHING TOKEN RING BOARDS

You can attach or detach the boards to the immediate left and right of the board specified in the Token Ring Board X Status Screen. See Chapter 5 for more information on attaching and detaching boards.

1. Use the arrow keys to highlight the **DETACH (ATTACH) BOARDS 1 & 2** option at the bottom of the screen.
2. Press **Return**. The appropriate message, BOARDS 1 AND 2 DETACHED (ATTACHED) BY IRM OPERATOR, will appear.

13.6 CHANGING THE PASSWORD

Refer to Cabletron Systems' **Local Management for the MMAC (HUB) Change Password Feature** Instruction Sheet.