CUBIX

MM 2008
Documentation

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MM 2008
Chapter 1 - Introduction

Overview

The Cubix MM 2008 (also referred to as the Cubix MM Series or MM adapter), is a multiple modem communications adapter with an ISA bus connector. The MM adapters provide a state-of-the-art combination of high speed controller and modems offering system administrators fast and reliable shared modem resources for networks. Using multiple MM adapters in a communications system allows the system administrator to manage a "modem pool" of simultaneous dial-in and dial-out asynchronous connections.

Up to fifteen MM adapters may be placed in a single subsystem, provided sufficient slots and power are available. Each MM adapter requires one 16-bit ISA (or EISA) slot.

Cubix Corporation supplies MM Series device drivers that provide access to the MM modems for use with any serial port application.

The heart of the MM 2008 is an on board processor with code optimized to move data to and from the on-board modems quickly enough to allow the modems to operate at their maximum baud rating. The included modems contain buffers to ensure that there will be no missed data at full rated speed.

The MM Series adapter comes with a breakout module that has eight RJ-11 sockets to connect the modems to analog phone lines.

An integral line busy module is used to simulate an "off hook" (or line busy) signal when the controlling application is not ready for a call or a server or modem fails (for example, due to a power failure). When the telephone system senses that the line appears busy, it automatically routes the call to the next non-busy line.

Who Should Use this Manual?

This manual is intended for the network systems administrator, and provides the following information:

• Configuration and installation of the MM Series hardware

• Troubleshooting problems with the MM Series

• MM Series hardware specifications

• Cable information

• Eight-port Line Adapter Module installation

• Software drivers theory of operation and installation

MM 2008
Chapter 2 - **Hardware Configuration**

- This section describes how to configure and install the MM Series hardware.

All MM Series adapter boards have a single switch bank labeled SW1 on the top edge of the adapter, near the end bracket (Figure 2.1). This switch bank consists of eight switches, numbered one through eight. These switches should only be changed while no power is applied to the MM adapter.

The switches in bank SW1 set the input/output (I/O) port address and the logical board number to be used by the MM adapter. Switches 1 and 2 control the I/O port address, while switches 4-8 control the logical board number. **Switch 3 should always be ON.**

The default switch settings for SW1 are all ON.
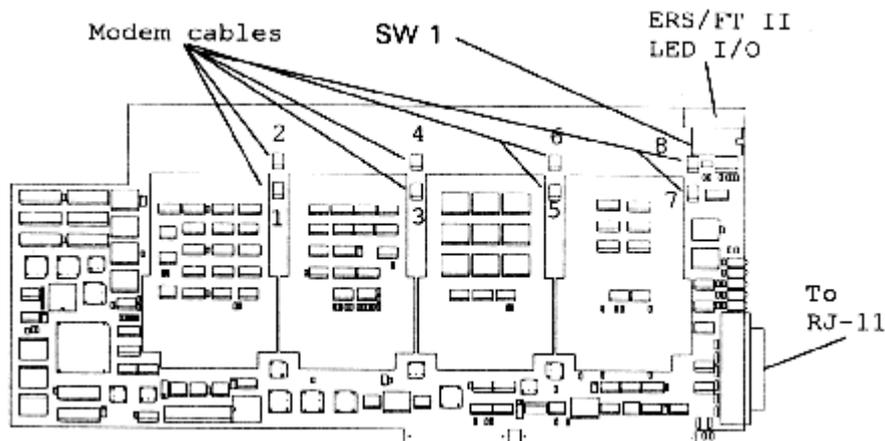
Base I/O Address Selection

The MM adapter boards require a series of 16 I/O locations to allow communications between the Cubix software driver and the hardware. Switches 1 and 2 of switch bank SW1 set the base I/O address to be used for this I/O address range. The MM boards support four different I/O address ranges (numbers given in hexadecimal):

Table 2 - 1, Base I/O Address Selection

Base I/O Address	Range	S-1	S-2
200	200-20F	ON	ON
210	210-21F	ON	OFF
300	300-30F	OFF	ON
310	310-31F	OFF	OFF

Select any base I/O address that does not conflict with other system hardware. Selecting a base I/O address other than the default may affect loading the software driver. Refer to **Chapter 5 - WorldDesk Dial Installation** for software installation details.

NOTE! - ALL MM SERIES ADAPTER BOARDS IN THE SYSTEM MUST USE THE SAME BASE I/O ADDRESS.
Further, I/O addresses used by the MM adapter board must not conflict with the I/O addresses in use by any other system hardware.

Logical Board Number Selection

Each MM Series adapter installed in a server must be assigned a unique logical board number. The logical board number is used (along with a port number) to identify individual ports when the software driver is loaded. If two MM Series adapters attempt to use the same logical board number, driver failure will result.

Any board number from one to fourteen may be selected for use by a board. Assign board numbers sequentially, beginning with board number one. Switch bank SW1 switches 4-8 are used to set the board number for the hardware. The MM Series software dynamically detects the assigned board numbers. The switch settings for the logical board numbers are listed in Table 2-2.

Table 2 - 2, Board Number Selection

Logical Board	S-4	S-5	S-6	S-7	S-8
default 1	ON	ON	ON	ON	OFF
2	ON	ON	ON	OFF	ON
3	ON	ON	ON	OFF	OFF
4	ON	ON	OFF	ON	ON
5	ON	ON	OFF	ON	OFF
6	ON	ON	OFF	OFF	ON
7	ON	ON	OFF	OFF	OFF
8	ON	OFF	ON	ON	ON
9	ON	OFF	ON	ON	OFF
10	ON	OFF	ON	OFF	ON
11	ON	OFF	ON	OFF	OFF
12	ON	OFF	OFF	ON	ON
13	ON	OFF	OFF	ON	OFF
14	ON	OFF	OFF	OFF	ON
15	ON	OFF	OFF	OFF	OFF

Installation

Before installing an MM adapter board in the system, be sure to turn the system off and disconnect it from the power source. Inserting the MM adapter board into a live server may damage the hardware and injure the installer.

The MM adapter board must be installed in a 16-bit ISA or 32-bit EISA compatible slot. Be sure to observe the overall system power limitations (refer to *Chapter 3 - Hardware Specifications* for the MM 2008 power requirements).

After installation in an available slot, use a screwdriver to secure the end bracket of the MM adapter board to the system chassis. Firm installation of the adapter board helps to ensure that loose connections do not cause system unreliability or hardware damage.

Connect the provided communications cable (DB-25M to DB-25F) between the MM adapter and the RJ-11 breakout box (fig. 2-2a,b).

Verify the installation and configuration of the MM hardware before powering on the system and proceeding to software installation and configuration.

Mount the RJ-11 breakout box (below) to the System 1010 cabinet. Note that each breakout box can support up to three MM2008 boards.
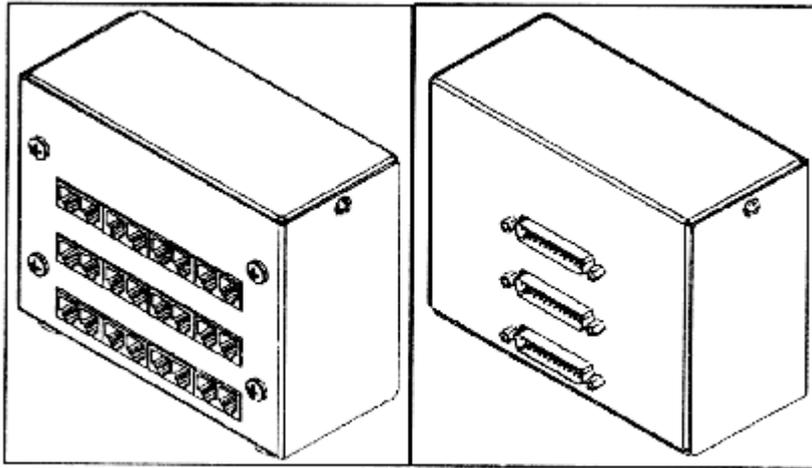

Figure 2.2 - Tabletop/Rackmount breakout box, front and back

LEDS

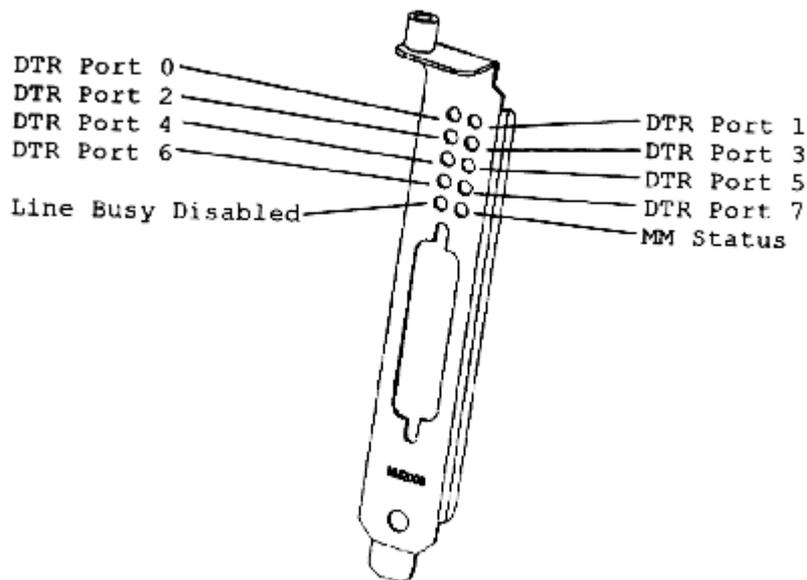The MM adapter provides several indicator LEDs on the L-bracket.

Figure 2.3

The Line Busy Disabled lamp lights amber when the line busy feature has been disabled. This can be done by placing a shunt on JP2 (just under switch SW 1).

The MM Status lamp states are:

OFF SOLID Indicates that the driver is not present; it has not yet been loaded or has been unloaded.

FLASHING Indicates that the driver is present and operating normally.

ON SOLID Indicates that the board failed self-test or that the software load was unsuccessful.

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Chapter 3 - **Hardware Specifications**

Hardware

CPU	80C286 (20 MHz)
Modems	8 V.34 PCMCIA
Modem connectors	RJ-11 connectors, via 25-pin male D-connectors
Modem signals	Tip, Ring
System bus	16-bit ISA slot; full length
Read buffers	eight 8192 Bytes each, SRAM
Write buffers	eight 8192 Bytes each, SRAM
Local program memory	16KBytes, zero wait states
Supported I/O ranges	200-20F, 210-21F, 300-30F, 310-31F
Supported IRQs	7, 10, 11, 15
Memory ranges required	None
DMA lines required	None

Power requirements

+5 volts	4.0 amps maximum
+12 volts	0.2 amps maximum
-12 volts	0.2 amps maximum

Environmental

Temperature	
.... Operation	0 to 40° C
.... Storage	0 to 70° C
Non-condensing Humidity	10 to 95%
FCC certifications	Class A, Part 68

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Chapter 4 - Cable Specifications

DB-25 Cables

The Cubix MM package includes a cable that runs between the DB-25 D-connector on the MM 2008 and the Line Adapter module. The pin-outs for the DB-25 connections are as follows:

1	Tip 1	14	Ring 1
2	Tip 2	15	Ring 2
3	Tip 3	16	Ring 3
4	Tip 4	17	Ring 4
5	Tip 5	18	Ring 5
6	Tip 6	19	Ring 6
7	Tip 7	20	Ring 7
8	Tip 8	21	Ring 8
9	Line Busy 1	22	Line Busy 2
10	Line Busy 3	23	Line Busy 4
11	Line Busy 5	24	Line Busy 6
12	Line Busy 7	25	Line Busy 8
13	Ground		

MM 2008
Chapter 5 - **Cubix WorldDesk Dial**

Cubix WorldDesk Dial is a remote node dial-in and dial-out server software package designed for Novell and Microsoft networks. When used in combination with a processor in a Cubix fault tolerant subsystem running Windows NT, WorldDesk Dial provides dial-in remote access to the company local area network (LAN) plus dial-out modem pooling capabilities enabling users to access various information services.

MM 2008 adapters can be used to provide up to 56 high speed modems for a single WorldDesk Dial server when installed in a Cubix ERS/FT II subsystem. Additionally, MM 2008 drivers are automatically loaded as part of the WorldDesk Dial server setup process.

To learn more about WorldDesk Dial features and how to install and manage a WorldDesk Dial server, refer to the following Cubix WorldDesk documents.

- DOC 823, WorldDesk Quick Start Guide for Comlink Servers

- · DOC 817, WorldDesk System Administrators Guide