



## CHAPTER 3

# Mobile Access Router Card

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The Mobile Access Router Card is one component of the Cisco 3200 Series Mobile Access Router. It includes the host processor, memory, and headers for the Fast Ethernet, console, and auxiliary signals for the router. Additional components provide power and link interfaces to the MARC. For example, the 4-port Serial Mobile Interface Card (SMIC) provides up to four Smart Serial interfaces. The exact configuration of your router will vary, depending on how your vendor configured it.



### Note

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This section provides basic information about the MARC hardware for the purpose of performing simple troubleshooting tasks, such as reconnecting a loose cable. To solve more difficult problems, please contact your vendor.

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The key features of the MARC include the following:

- MPC8250 processor running 210 MHz at the CPU core, 150 MHz at the CPM core, and 60 MHz on the Motorola 60x bus.
- 32 MB of flash memory.
- 128 MB of synchronous DRAM.
- 10/100 Fast Ethernet, full-duplex connection with autonegotiation.
- Console connection with hardware/software flow control.
- Asynchronous, EIA/TIA-232 serial connection with a 5 V auxiliary power supply for Global Positioning System (GPS) and auxiliary (AUX) devices.
- The AUX port speed can be configured as 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bps. Use the **line aux linenumber speed** command to modify the speed of the port.
- A 32-bit PCI bus, version 2.1, running at 25 MHz.
- Supports Zeroization when this feature is configured on the router.



### Caution

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Zeroization is a feature that erases all potentially sensitive information from the router. Zeroization is configured through the command-line interface (CLI) and activated through an actuator attached to the AUX port, such as a push button. Zeroization is disabled by default on the Cisco 3200 Series router.

When Zeroization is not configured on the router, the AUX port functions as a modem port or a terminal port. When declassification is enabled through the CLI, we recommend that you do not use the AUX port for any other function than declassification. This is because there is no way for the router to reliably determine if a device attached to the AUX port is an actuator; therefore, any device attached to the AUX port could potentially trigger declassification.

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The PCI bus connector supports communication between the Serial Mobile Interface Card (SMIC), the Fast Ethernet Switch Mobile Interface Card (FESMIC), and the Mobile Access Router Card. The Wireless Mobile Interface Card (WMIC) communicates with the router through an internal Fast Ethernet port and is configured through an independent console port; the WMIC only draws power from the bus.

## MARC Component Systems

The industry-standard architecture (ISA) buses and peripheral component interconnect (PCI) buses on the Cisco 3200 Series Mobile Access Router cards provide power to the components on the cards. Both buses comply with the *PC/104-Plus* standard. The ISA bus allows *PC/104-Plus* ISA signals to pass through the card bus, but the Cisco cards do not use any of the signals.

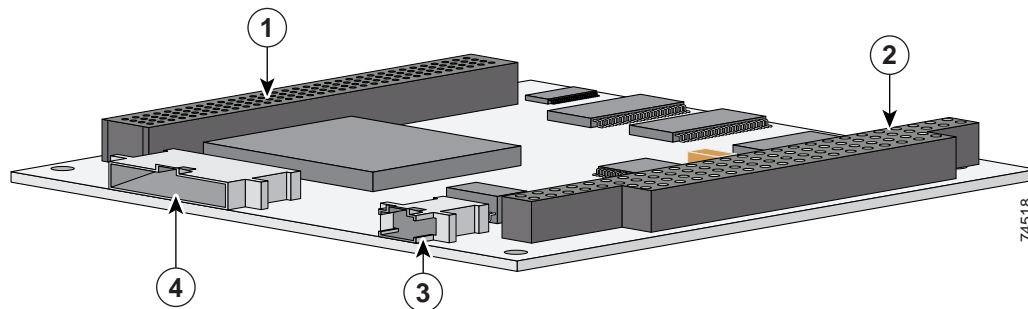


### Caution

If you add non-Cisco cards that generates signal on the PCI bus, the router might shut down. Please do not add non-Cisco cards that generate signals on the PCI bus.

Figure 3-1 shows the MARC header and bus locations.

**Figure 3-1** MARC Header and Bus Locations



1	PCI bus	2	ISA bus
3	Ethernet header	4	Multifunction header



### Note

The *PC/104-Plus* standard requires that the PCI Bus and the ISA bus use keying features in the standard stacking headers to guarantee proper module installation. On the PCI bus, pin D30 is removed and the D30 opening is plugged. On the ISA bus, pin C19 and B10 are removed, and the C19 and B10 openings are plugged.

## MARC Power Requirements

The MARC uses +3.3-V, +5-V, and +12-V power sources. Internal on-board DC-to-DC conversion circuitry generates 1.8 V/1.5 A from the +3.3-V power source.

*Table 3-1* MARC *Voltages*

Voltage	Current	Power
+5.0 V	0.3 A	1.5 W
+12.0 V	0.1 A	1.2 W
+3.3 V	2.0 A	6.6 W

## MARC Router Signals

Cisco 3200 Series router cards do not support any ISA bus signals. The PCI bus connector supports communication between Cisco 3200 Series Mobile Access Router cards.



**Note**

Non-Cisco MIC cards cannot use PCI signals. The use of PCI signals by non-Cisco cards causes unpredictable results. You cannot add third-party devices that might attempt to communicate with the SMIC through the ISA or PCI bus.

The signals are delivered through the shared, 34-pin multifunction header and the 10-pin Ethernet header. LED signals and 5 V of power are also provided through the shared, 34-pin multifunction header.

## Fast Ethernet Signals on the MARC

There is one fixed Fast Ethernet port on the MARC. A Cisco router identifies a Fast Ethernet interface address by its slot number and port number, in the format slot/port. The slot/port address of a Fast Ethernet interface on the MARC is 0/0.

The Fast Ethernet port signals are in compliance with IEEE 802.3. They are provided through the 10-pin Ethernet header, which supports the following:

- Autonegotiation and parallel detection MII interface with extended register capability for 10/100BASE-TX connection
- Full-duplex and half-duplex modes
- 3.3-V operation low power consumption (300 mW typical)
- Low-power sleep mode
- 10BASE-T and 100BASE-TX using a single Ethernet connection
- Robust baseline-wander correction performance
- 100BASE-FX fiber-optic capabilities
- Standard carrier signal multiple access collision detect (CSMA/CD) or full-duplex operation
- Integrated, programmable LED drivers

The FastEthernet 0/0 port on the MARC is a Fast Ethernet *router* port. The FastEthernet ports on the 4-port FESMIC and the 2-port FESMIC are Fast Ethernet *switch* ports. The routing features supported on the MARC cannot be configured on the FESMIC ports.

## Console and Auxiliary Signals

You can configure the console interface by using Cisco IOS command line interface (CLI) commands. The console interface and the AUX port can be accessed simultaneously. Also, the console port and the AUX port can be accessed simultaneously. For example, you can connect a terminal to the console interface and an external modem or a GPS modem to the AUX port.

The console port signals are provided through the multifunction header:

- Asynchronous serial DCE
- 1.2-kbps, 2.4-kbps, 4.8-kbps, 9.6-kbps, 19.2-kbps, 38.4-kbps, 57.6-kbps, and 115.2-kbps baud rates
- Support full modem control DTR, DSR, RTS, and CTS signals

The AUX port is a serial asynchronous port that works at speeds of 1.2 kbps, 2.4 kbps, 4.8 kbps, 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, and 115.2 kbps.

The AUX port supports the following:

- Asynchronous serial DTE
- Baud rates range from 1,200 to 115,000
- 5 to 8 data bits
- 1, 1.5, or 2 stop bits
- Odd, even, or no parity
- Flow control by using RTS, CTS, DTR, and CDC signals



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**Note**

When zeroization is enabled, it is activated through the polling of pin 25 on the AUX port.

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A +5-V power supply is provided for a device connected to an AUX port. Typically the +5-V power supply current to GPS modems should be limited to less than 200 mA.