Doc. No. 78-3471-02

Cisco 7200 Series Port Adapter Hardware Configuration Guidelines

Product Numbers: CISCO7206, CISCO7206-DC, CISCO7204, CISCO7204-DC

This document explains the port adapter hardware configuration guidelines for the Cisco 7200 series routers. It includes brief explanations of the Cisco 7200 series architecture, port adapter bandwidths, and port adapter slot numbering.

Note Use this configuration note in conjunction with the *Cisco 72xx Installation and Configuration Guide* that shipped with your Cisco 7200 series router.

The following section are included in this document:

- Additional Information, page 2
- Cisco 7200 Series Overview, page 3
- Configuration Guidelines, page 6
- Cisco Connection Online, page 8

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Additional Information

The Cisco Internetwork Operating System (Cisco IOS) software running your router contains extensive features and functionality. The effective use of many of these features is easier if you have more information at hand.

Cisco documentation and additional literature are available on a CD-ROM called Cisco Connection Documentation, Enterprise Series, which ships with your chassis. The CD is updated and shipped monthly, so it might be more up to date than printed documentation. To order additional copies of the Cisco Connection Documentation, Enterprise Series CD, contact a Cisco Sales or Customer Service representative. You can also access Cisco technical documentation on the World Wide Web URL http://www.cisco.com.

For additional information on configuring the Cisco 7200 series routers, the following documentation resources are available to you:

- Cisco Connection Documentation, Enterprise Series CD-ROM
- For systems with Cisco IOS Release 11.1(6), a Cisco-approved Release 11.1(6) beta software version, or a later Cisco IOS release, refer to the following modular configuration and modular command reference publications, as appropriate for your configuration:
  - *Configuration Fundamentals Configuration Guide*
  - *Configuration Fundamentals Command Reference*
  - *Wide-Area Networking Configuration Guide*
  - *Wide-Area Networking Command Reference*
  - *Network Protocols Configuration Guide*
  - *Network Protocols Command Reference*
  - *Bridging and IBM Networking Configuration Guide*
  - *Bridging and IBM Networking Command Reference*
  - *Configuration Builder Getting Started Guide*
  - *Troubleshooting Internetworking Systems*
- For hardware installation and maintenance information on the Cisco 7200 series routers, refer to the *Cisco 72xx Installation and Configuration Guide* that shipped with your router.
- To obtain general information about documentation, refer to the section “Cisco Connection Online,” on page 8, or call Customer Service at 800 553-6387 or 408 526-7208. Customer Service hours are 5:00 a.m. to 6:00 p.m. Pacific time, Monday through Friday (excluding Cisco-observed company holidays). You can also send e-mail to cs-rep@cisco.com. You can also refer to the *Cisco Information Packet* that shipped with your router.

Cisco 7200 Series Overview

The Cisco 7200 series consists of the four-slot Cisco 7204 and the six-slot Cisco 7206. The Cisco 7200 series routers support multiprotocol, multimedia routing and bridging with a wide variety of protocols and any combination of Ethernet, Fast Ethernet, Token Ring, Fiber Distributed Data Interface (FDDI), and serial media. Network interfaces reside on port adapters that provide a connection between the routers' three Peripheral Component Interconnect (PCI) buses and external networks. Port adapters can be placed in any available port adapter slot, in any desired combination.

The front of the Cisco 7200 series routers provides access to an Input/Output (I/O) controller and up to four or six network interface port adapters. The I/O controller has a local console port for connecting a data terminal (or data terminal equipment [DTE]) and an auxiliary port for connecting a modem (or other data communications equipment [DCE]) or other devices for configuring and managing the router; two Personal Computer Memory Card International Association (PCMCIA) slots for Flash memory cards; and an optional Fast Ethernet port. The Fast Ethernet port provides a 100-Mbps connection to the network. Figure 1 shows the Cisco 7204. Figure 2 shows the Cisco 7206.

Note The I/O controller is available with or without a Fast Ethernet port. Figure 1 and Figure 2 show an I/O controller with a Fast Ethernet port.

Figure 1 Cisco 7204—Front View

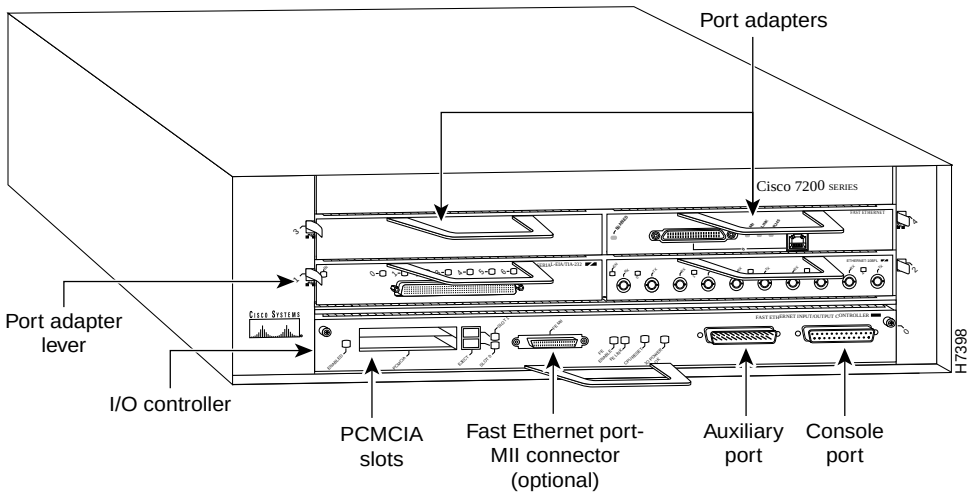
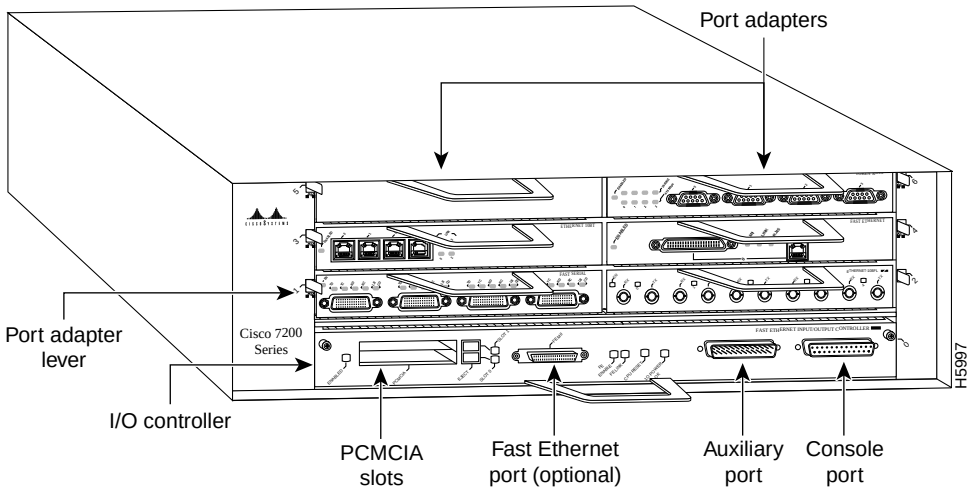


Figure 2 Cisco 7206—Front View

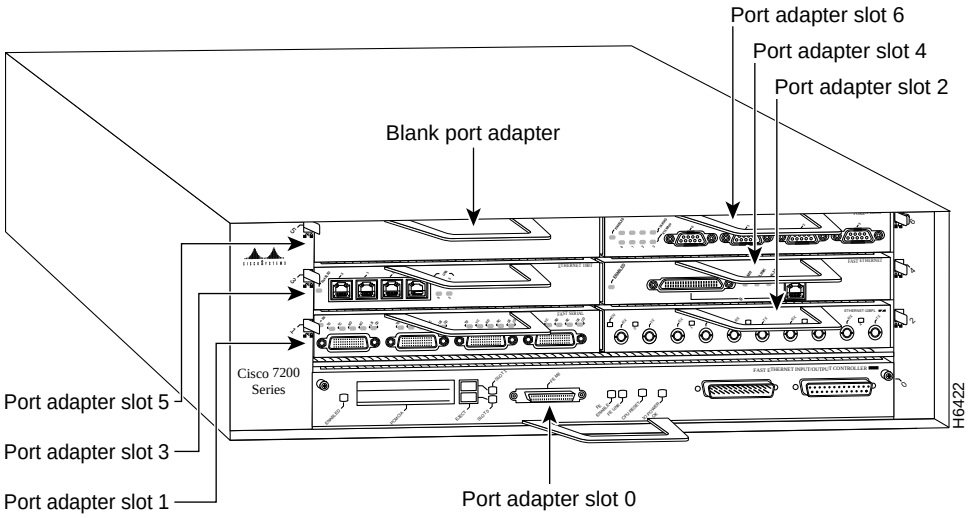


The port adapters installed in the Cisco 7200 series routers are of the same type as those installed on the second-generation Versatile Interface Processors (VIP2s) in the Cisco 7000 family routers. The port adapters installed in the Cisco 7200 series routers support online insertion and removal (OIR).

Port adapter slots in the Cisco 7200 series are numbered from left to right, beginning with port adapter slot 1 and continuing through port adapter slot 4 for the Cisco 7204, and slot 6 for the Cisco 7206. Port adapter slot 0 is the Fast Ethernet port on the I/O controller. Figure 3 shows the port adapter slot numbering for the Cisco 7206.

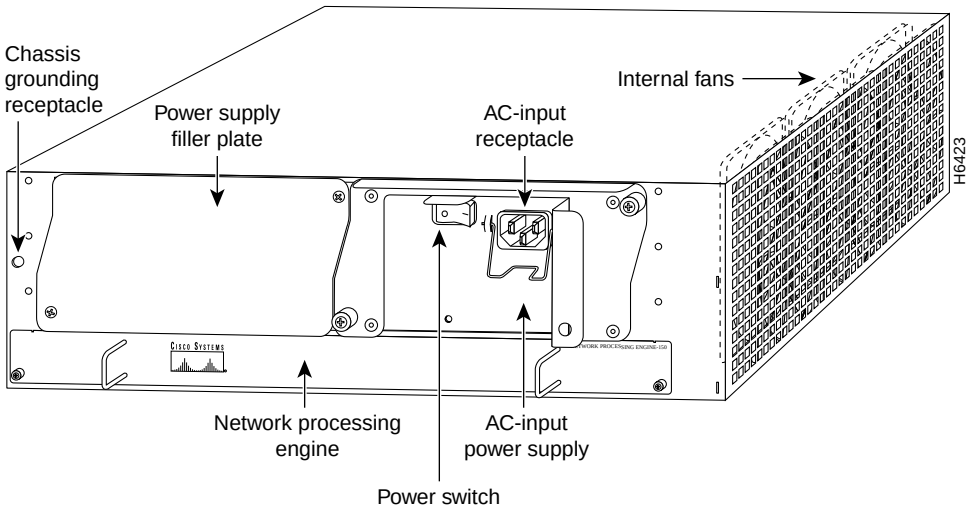
Note In Figure 3, a blank port adapter is installed in port adapter slot 5. To ensure adequate airflow across the router's internal components, ensure that each port adapter slot is filled with either a port adapter or a blank port adapter.

Figure 3 Port Adapter Slot Numbering—Cisco 7206 Shown



The rear of the Cisco 7200 series routers provides access to the network processing engine and up to two 280W, AC-input or DC-input power supplies (refer to Figure 4).

Figure 4 Cisco 7200 Series Router—Rear View



The network processing engine has no external connectors or LEDs. There are two handles for removing and installing the network processing engine and two captive installation screws for securing it to the chassis.

A fully configured Cisco 7200 series router operates with only one installed power supply; however, a second, optional power supply provides hot-swappable, load-sharing, redundant power. The power supply has the router's main power switch and either an AC-input power receptacle, or a hardwired DC-input power cable (depending on the type of installed power supply). Adjacent to the power supply bays there is a 10 x 32-inch chassis ground receptacle that provides a chassis ground connection for ESD equipment or a grounding wire (refer to Figure 4).

Note The Cisco 7200 routers come equipped with either one 280W AC-input or one 280W DC-input power supply; a second 280W AC-input or DC-input power supply is available for the router. Figure 4 shows the rear of a Cisco 7200 series router that is configured with a single 280W AC-input power supply. (A power supply filler plate is installed over the second power supply bay.)

Three internal fans draw cooling air into the chassis interior and across internal components to maintain an acceptable operating temperature (refer to Figure 4). The three fans are enclosed in a tray that is located in the subchassis.

The I/O controller, port adapters, power supplies, and network processing engine slide into their respective chassis slots and connect directly to the router's midplane; there are no internal cables to connect. The midplane distributes DC power from the power supplies to the I/O controller, port adapters, fan tray, and network processing engine.

Configuration Guidelines

The port adapters in the Cisco 7200 series routers provide the connection between the routers' three Peripheral Component Interconnect (PCI) buses, called mb0, mb1, and mb2, and external networks. Bus mb0 is for the optional Fast Ethernet port on the I/O controller, bus mb1 is for port adapter slots 1, 3, and 5, and bus mb2 is for port adapter slots 2, 4, and 6. The port adapters are categorized as high, medium, and low bandwidth. The high and medium bandwidth port adapters should be evenly distributed between bus mb1 and bus mb2.

Note The configuration guidelines explained in this section are based on average network data traffic patterns. You can configure your Cisco 7200 series router with a higher density of interfaces to match your network data traffic patterns; however, we do not recommend exceeding the confiuration guidelines explained in this section.

Figure 3 shows the port adapter slot numbering for the Cisco 7206. Figure 5 shows the port adapter slot numbering for the Cisco 7204. Table 1 lists port adapter types and bandwidths.

Figure 5 Port Adapter Slot Numbering—Cisco 7204 Shown

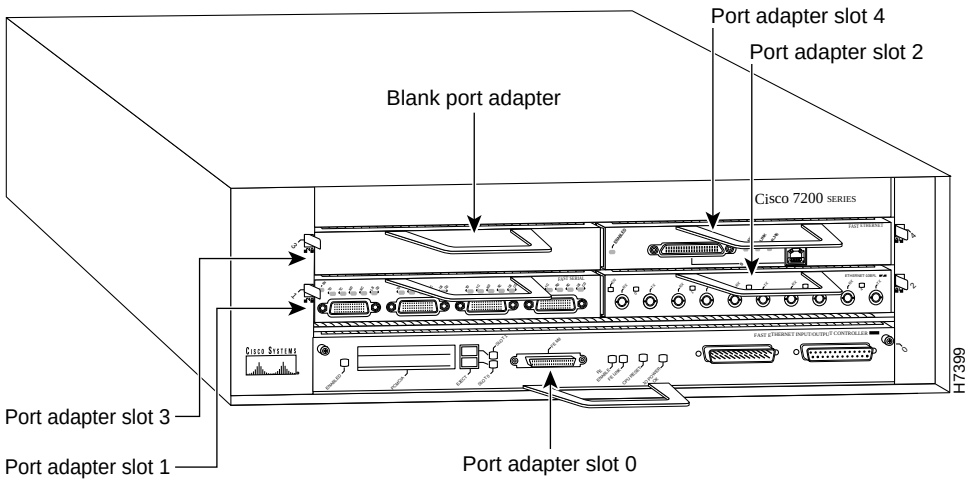


Table 1 Port Adapter Types and Bandwidths

Port Adapter Type	Product Name	Bandwidth
Fast Ethernet 100BASE-TX	PA-FE-TX	High
Fast Ethernet 100BASE-FX	PA-FE-FX	High
Multimode FDDI	PA-FDDI-MM	High
Single -mode FDDI	PA-FDDI-SM	High
2-port High-Speed Serial	PA-2H	High
1-port High-Speed Serial	PA-H	High
8-port Ethernet 10BASE-T	PA-8E	Medium
5-port Ethernet 10BASE-FL	PA-5EFL	Medium
4-port Ethernet 10BASE-T	PA-4E	Medium
4-port Token Ring	PA-4R	Medium
4-port Synchronous Serial	PA-4T	Low

To ensure your Cisco 7200 series port adapter configuration is sufficient for average network data traffic patterns, follow these guidelines (keeping in mind that the Fast Ethernet port on the I/O controller, if present, is considered a high bandwidth port adapter):

- Keep the total number of installed high-bandwidth port adapters to three
- Keep the total number of installed high-bandwidth and medium-bandwidth port adapters to five
- When installing port adapters, fill slot 1 through slot 6, in order, starting with high bandwidth port adapters, then medium bandwidth port adapters, and finishing with low bandwidth port adapters

The system will prompt you with a message if your port adapter configuration does not follow the above guidelines. You may choose to redistribute the port adapters in your Cisco 7200 series router according to the guidelines in this document, or carry on with your current port adapter configuration. A Cisco 7200 series router will operate with an unbalanced port adapter configuration; however, we recommend balancing your configuration.

Cisco Connection Online

Cisco Connection Online (CCO), formerly Cisco Information Online (CIO), is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional content and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously—a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com.
- WWW: http://www-europe.cisco.com.
- WWW: http://www-china.cisco.com.
- Telnet: cco.cisco.com.
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with the *Cisco 7204 Installation and Configuration Guide* and the *Cisco 7206 Installation and Configuration Guide* publications.

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