



CHAPTER 1

Overview

This chapter describes the PA-8B-ST port adapter and contains the following sections:

- [Port Adapter Overview, page 1-1](#)
- [LEDs, page 1-2](#)
- [Cables, Connectors, and Pinouts, page 1-3](#)
- [Port Adapter Slot Locations on the Supported Platforms, page 1-3](#)
- [Identifying Interface Addresses, page 1-7](#)

Port Adapter Overview

The PA-8B-ST, shown in [Figure 1-1](#), provides up to eight S/T-type BRI interfaces for connecting the Cisco 7100 series routers, Cisco 7200 series routers, Cisco 7200 VXR routers, Cisco 7301 router, or Cisco 7401ASR router to an ISDN WAN through an external network terminator (NT1) device. Each PA-8B-ST interface consists of two bearer (B) channels that can transmit and receive data at the rate of 64 kilobits per second (kbps), or 56 kbps in full-duplex mode, and one data (D) channel that can transmit and receive data at the rate of 16 kbps, full-duplex. The B channels are used for transmitting user data. The D channel is used for call setup control and network connection trade-in, and provides the communication from the router to the ISDN switch. The PA-8B-ST supports dial-on-demand routing (DDR).

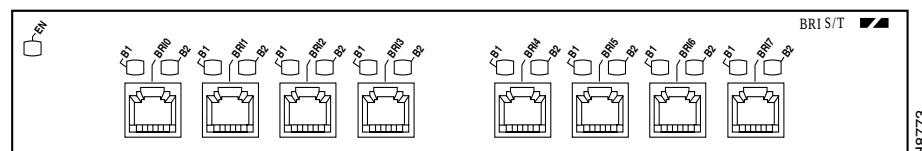
Each PA-8B-ST interface is an RJ-45 receptacle. A standard straight-through twisted-pair cable is available from Cisco Systems and other vendors for use with the PA-8B-ST.



Note

Cisco 7100 series routers, Cisco 7200 series routers, Cisco 7200 VXR routers, Cisco 7301 routers, and Cisco 7401ASR routers support the online insertion and removal (OIR) of all port adapter types.

Figure 1-1 *PA-8B-ST—Faceplate View*

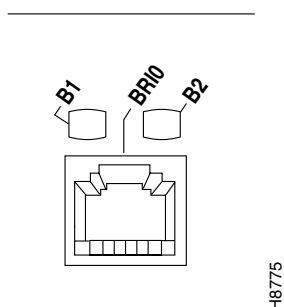


The PA-8B-ST can be installed in port adapter slot 3 in the Cisco 7120 series router, port adapter slot 4 in the Cisco 7140 series router, any of the available port adapter slots in the Cisco 7200 series routers and Cisco 7200 VXR routers, port adapter slot 1 in the Cisco 7301 router, and port adapter slot 1 in the Cisco 7401ASR router. See “[Port Adapter Slot Locations on the Supported Platforms](#)” section on [page 1-3](#) for more details.

LEDs

The PA-8B-ST has an ENABLED LED, standard on all port adapters, and two status LEDs for each port. (See [Figure 1-2](#).)

Figure 1-2 PA-8B-ST LEDs—Horizontal Orientation



After system initialization, the ENABLED LED goes on to indicate that the port adapter has been enabled for operation.

The following conditions must be met before the PA-8B-ST is enabled:

- The PA-8B-ST is correctly connected and is receiving power.
- A valid system software image for the port adapter has been downloaded successfully.
- The system recognizes the PA-8B-ST.

If any of the above conditions are not met, or if the initialization fails for other reasons, the ENABLED LED does not go on.

[Table 1-1](#) lists LED colors and indications.

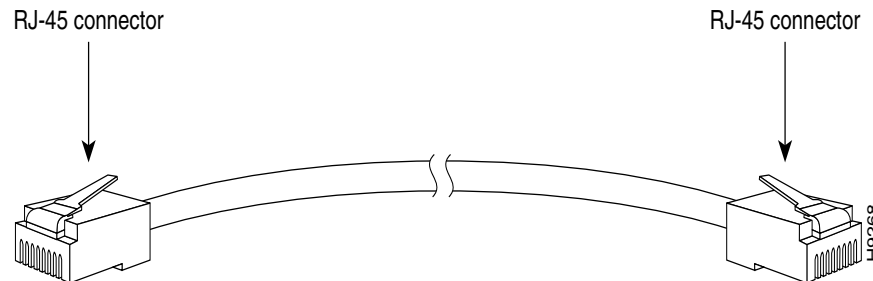
Table 1-1 PA-8B-ST LEDs

Enabled	Green	On	Port adapter is enabled for operation.
		Off	Indicates one of the following: • Port adapter is incorrectly connected to the midplane and is not receiving power. • Valid software image for the port adapter has not been successfully downloaded. • System does not recognize port adapter. • Initialization has failed for other reasons.
B1	Green	On	Indicates data traffic on channel B1.
B2	Green	On	Indicates data traffic on channel B2.

Cables, Connectors, and Pinouts

The eight S/T-type BRI interfaces on the PA-8B-ST support a standard, straight-through twisted-pair cable with an RJ-45 connector at the router (Cisco 7100 series routers, Cisco 7200 series routers, Cisco 7200 VXR routers, Cisco 7301 router, or Cisco 7401ASR router) end and at the network end. Cisco Systems does not provide the cable; it is widely available from other vendors. [Figure 1-3](#) shows the PA-8B-ST interface cable.

Figure 1-3 PA-8B-ST Interface Cable



[Table 1-2](#) lists the pinouts for PA-8B-ST interface ports.

Table 1-2 PA-8B-ST Interface Port Pinouts

8-Pin Interface Port ¹	TE ²	NT ³	Polarity
3	Transmit	Receive	+
4	Receive	Transmit	+
5	Receive	Transmit	–
6	Transmit	Receive	–

1. Pins 1, 2, 7, and 8 are not used.
2. TE refers to terminal terminating layer 1 aspects of TE1, TA, and NT2 functional groups.
3. NT refers to network terminating layer 1 aspects of NT1 and NT2 functional groups.

Port Adapter Slot Locations on the Supported Platforms

This section discusses port adapter slot locations on the supported platforms. The illustrations that follow summarize slot location conventions on each platform:

- [Cisco 7100 Series Routers Slot Numbering, page 1-4](#)
- [Cisco 7200 Series Routers and Cisco 7200 VXR Routers Slot Numbering, page 1-5](#)
- [Cisco 7301 Router Slot Numbering, page 1-6](#)
- [Cisco 7401ASR Router Slot Numbering, page 1-6](#)

Cisco 7100 Series Routers Slot Numbering

The PA-8B-ST can be installed in port adapter slot 3 in Cisco 7120 series routers, and in port adapter slot 4 in Cisco 7140 series routers. [Figure 1-4](#) shows the slot numbering on a Cisco 7120 series router. [Figure 1-5](#) shows the slot numbering on a Cisco 7140 series router.

Figure 1-4 Port Adapter Slots in the Cisco 7120 Series Router

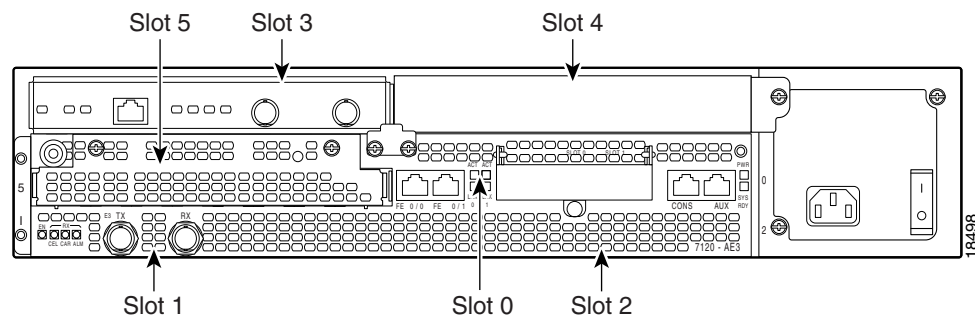
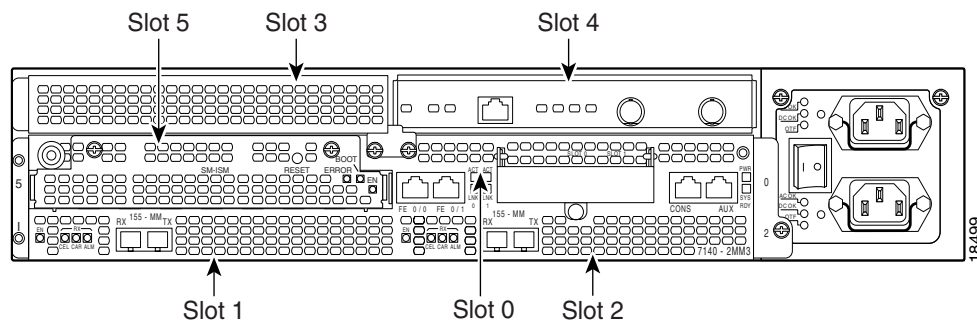


Figure 1-5 Port Adapter Slots in the Cisco 7140 Series Router



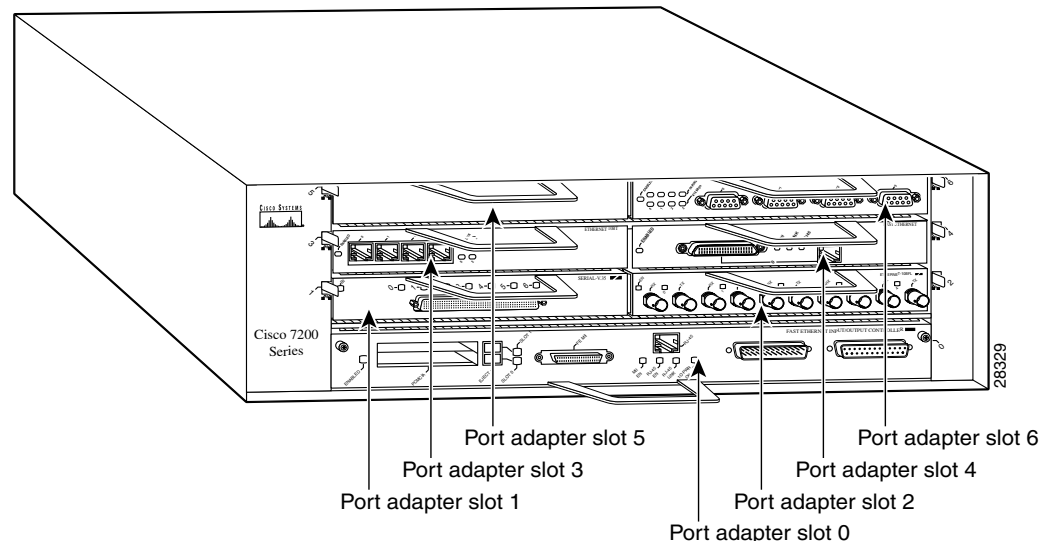
Cisco 7200 Series Routers and Cisco 7200 VXR Routers Slot Numbering

Cisco 7202 routers have two port adapter slots. The slots are numbered from left to right. You can place a port adapter in either of the slots (slot 1 or slot 2). The Cisco 7202 router is not shown.

Cisco 7204 routers and Cisco 7204VXR routers have four slots for port adapters, and one slot for an input/output (I/O) controller. The slots are numbered from the lower left to the upper right, beginning with slot 1 and continuing through slot 4. You can place a port adapter in any of the slots (slot 1 through slot 4). Slot 0 is always reserved for the I/O controller. The Cisco 7204 router and Cisco 7204VXR are not shown.

Cisco 7206 routers and Cisco 7206VXR routers (including the Cisco 7206 and Cisco 7206VXR routers as router shelves in a Cisco AS5800 Universal Access Server) have six slots for port adapters, and one slot for an input/output (I/O) controller. The slots are numbered from the lower left to the upper right, beginning with slot 1 and continuing through slot 6. You can place a port adapter in any of the six slots (slot 1 through slot 6). Slot 0 is always reserved for the I/O controller. [Figure 1-6](#) shows the slot numbering on a Cisco 7206 router. The Cisco 7206VXR router is not shown.

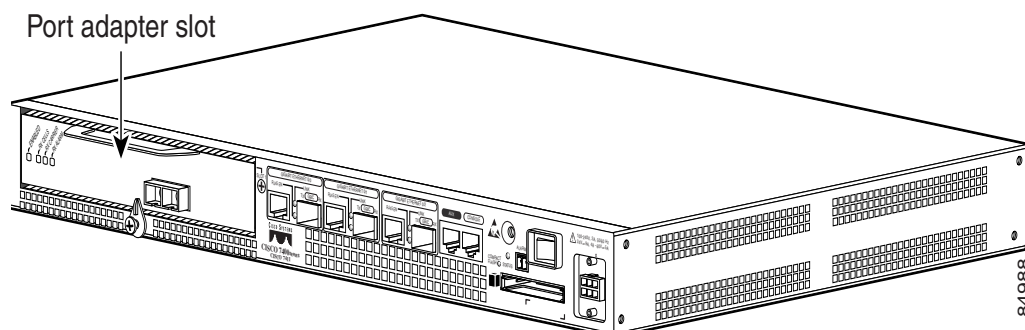
Figure 1-6 Port Adapter Slots in the Cisco 7206 Router



Cisco 7301 Router Slot Numbering

Figure 1-7 shows the front view of a Cisco 7301 router with a port adapter installed. There is only one port adapter slot (slot 1) in a Cisco 7301 router.

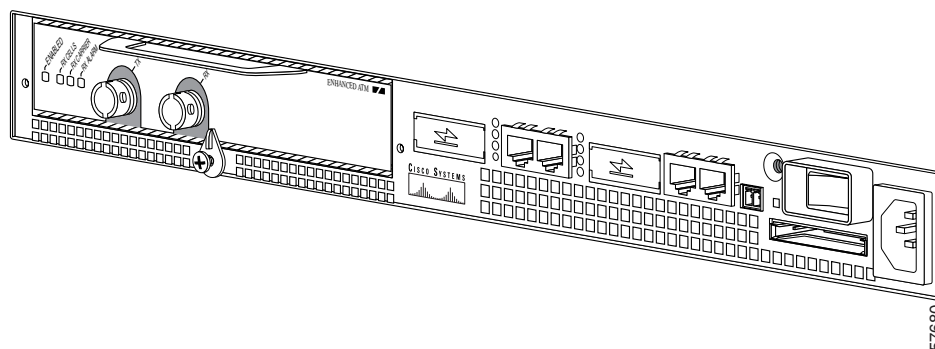
Figure 1-7 Port Adapter Slot in the Cisco 7301 Router



Cisco 7401ASR Router Slot Numbering

Figure 1-8 shows the front view of a Cisco 7401ASR router with a port adapter installed. There is only one port adapter slot (slot 1) in a Cisco 7401ASR router.

Figure 1-8 Port Adapter Slot in the Cisco 7401ASR Router



Identifying Interface Addresses

This section describes how to identify interface addresses for the PA-8B-ST in supported platforms. Interface addresses specify the actual physical location of each interface on a router or switch.

Interfaces on a PA-8B-ST installed in a router maintain the same address regardless of whether other port adapters are installed or removed. However, when you move a port adapter to a different slot, the first number in the interface address changes to reflect the new port adapter slot number.

Interfaces on a PA-8B-ST installed in a VIP or FlexWAN module maintain the same address regardless of whether other interface processors or modules are installed or removed. However, when you move a VIP or FlexWAN module to a different slot, the interface processor or module slot number changes to reflect the new interface processor or module slot.



Note

Interface ports are numbered from left to right starting with 0.

The following subsections describe the interface address formats for the supported platforms:

- [Cisco 7100 Series Routers Interface Addresses, page 1-8](#)
- [Cisco 7200 Series Routers and Cisco 7200 VXR Routers Slot Numbering, page 1-5](#)
- [Cisco 7301 Router Interface Addresses, page 1-8](#)
- [Cisco 7401ASR Router Interface Addresses, page 1-8](#)

Table 1-3 summarizes the interface address formats for the supported platforms.

Table 1-3 **Identifying Interface Addresses**

Platform	Interface Address Format	Numbers	Syntax
Cisco 7120 series router	Port-adapter-slot-number/interface-port-number	Port adapter slot—always 3 Interface port—0 through 7	3/1
Cisco 7140 series router	Port-adapter-slot-number/interface-port-number	Port adapter slot—always 4 Interface port—0 through 7	4/0
Cisco 7200 series routers and Cisco 7200 VXR routers	Port-adapter-slot-number/interface-port-number	Port adapter slot—1 through 6 (depends on the number of slots in the router) ¹ Interface port—0 through 7	1/0
Cisco 7301 router	Port-adapter-slot-number/interface-port-number	Port adapter slot—always 1 Interface port—0 through 7	1/0
Cisco 7401ASR router	Port-adapter-slot-number/interface-port-number	Port adapter slot—always 1 Interface port—0 through 7	1/0

1. Port adapter slot 0 is reserved for the Fast Ethernet port on the I/O controller (if present).

Cisco 7100 Series Routers Interface Addresses

In Cisco 7120 series router, port adapters are installed in port adapter slot 3. See [Figure 1-4](#). In the Cisco 7140 series router, port adapters are installed in port adapter slot 4. See [Figure 1-5](#).

The interface address is composed of a two-part number in the format *port-adapter-slot-number/interface-port-number*. See [Table 1-3](#). For example, if an eight-port PA-8B-ST is installed on a Cisco 7120 router, the interface addresses would be 3/0 through 3/7 (port adapter slot 3, and interfaces 0, 1, 2, 3, 4, 5, 6, and 7). If an eight-port PA-8B-ST is installed on a Cisco 7140 router, the interface addresses would be 4/0 through 4/7 (port adapter slot 4, and interfaces 0, 1, 2, 3, 4, 5, 6, and 7).

Cisco 7200 Series Routers and Cisco 7200 VXR Routers Interface Addresses

In Cisco 7200 series routers and Cisco 7200 VXR routers, port adapter slots are numbered from the lower left to the upper right, beginning with slot 1 and continuing through slot 2 for the Cisco 7202, slot 4 for the Cisco 7204 and Cisco 7204VXR, and slot 6 for the Cisco 7206 and Cisco 7206VXR. Port adapters can be installed in any available port adapter slot from 1 through 6 (depending on the number of slots in the router). (Slot 0 is reserved for the I/O controller.) See [Figure 1-6](#).

The interface address is composed of a two-part number in the format *port-adapter-slot-number/interface-port-number*. See [Table 1-3](#). For example, if an eight-port PA-8B-ST is installed in slot 1 of a Cisco 7200 series router, the interface addresses would be 1/0 through 1/7 (port adapter slot 1 and interfaces 0 through 7).

Cisco 7301 Router Interface Addresses

In the Cisco 7301 router, only one slot accepts port adapters and it is numbered as slot 1. See [Figure 1-7](#).

The interface address is composed of a two-part number in the format *port-adapter-slot-number/interface-port-number*. See [Table 1-3](#). For example, if an eight-port PA-8B-ST is installed in a Cisco 7301 router, the interface addresses would be 1/0 through 1/7.

Cisco 7401ASR Router Interface Addresses

In the Cisco 7401ASR router, only one slot accepts port adapters and it is numbered as slot 1. See [Figure 1-8](#).

The interface address is composed of a two-part number in the format *port-adapter-slot-number/interface-port-number*. See [Table 1-3](#). For example, if an eight-port PA-8B-ST is installed in a Cisco 7401ASR router, the interface addresses would be 1/0 through 1/7.