

ISDN Port Adapters for Cisco 7000 Family Routers

Today's global enterprise and service-provider networks require diverse networking solutions to meet both economic and evolving connectivity needs. As corporate intranets expand to include more regional - or branch - offices and increased numbers of remote and mobile users, yet maintain network requirements for high-availability, scalable solutions, and improved price/performance, the demand for high-density, cost-effective solutions increases. ISDN is internationally recognized as a solution for these needs.

The ISDN port adapters for the Cisco 7200 and 7500 Series routers provide network administrators with flexible solutions that encompass a broad range of organizational networking needs, allowing them to maximize router efficiency and economy for ISDN applications.

BRI Port Adapters

For network administrators who require Basic Rate Interface (BRI) access to ISDN communications, Cisco offers BRI port adapters for the Cisco 7200 Series routers. The BRI port adapters come in two versions: one with four ports, the other with eight. The four-port BRI port adapter supports U-interfaces by including an on-board NT-1 device for network termination. The eight-port version supports S/T interfaces, and used in environments where NT-1 support is not required; This relaxed requirement enables the doubling of port density.

Both port adapters offer basic "two-B-plus-D" connectivity, supporting 2 B-channels, each operating at 64 or 56 Kbps for a maximum data rate of 128 Kbps. A single D-channel is supported for signaling. BRI port adapters are particularly useful for aggregating traffic from relatively low-speed ISDN networks into high-end routers, as well as providing back-up functionality for high-speed links in the case of network failure. Cisco's BRI port adapters are designed for use with the Cisco 7200 Series router only, and are not supported on the Cisco 7500 Series routers.



Benefits

- Cost-effective ISDN connectivity
 - Up to 48 BRI ports per Cisco 7206 chassis
 - Provides cost-effective BRI concentration for Cisco 7500 Series routers
- Two versions, supporting either four- or eight-ports utilizing standard U- and S/T-interfaces to meet international connectivity requirements, and provide density options.
- Flexible functionality
 - Supports hardware- and software-based compression
 - Supports ISDN, X.25, HDLC, Frame Relay, LAPB, and PPP encapsulation
 - Supports load sharing across B-channels using Multilink-PPP
 - Support for use of B-channels as leased-lines on a port-by-port basis
- Supports ISDN MIBs
- Supports On-line Insertion/Removal (OIR)
- Supports full Cisco IOS™
- Mechanically-keyed to prevent incorrect slot-installation

Specifications

- BRI port adapter ordering information
 - Eight-port BRI port adapter, S/T interface: PA-8B-S/T
 - Four-port BRI port adapter, U interface: PA-4B-U
- Network interfaces
 - Supports ISDN, PPP, X.25, HDLC, Frame Relay, and LAPB functionality
- Electrical interfaces
 - 2B+D channels per physical port
 - Support for either 56 Kbps or 64 Kbps (software configurable)
 - Integrated NT1 on U-interface port adapter (PA-4B-U)
- Physical Interface Connectors
 - 4 (U-interface) or 8 (S/T interface) RJ45 connectors per port-adapter
 - Up to 48 BRI ports per Cisco 7206 chassis
- Diagnostics
 - Indicator LEDs
 - 4-port, U-interface version: 3 LEDs per port: B1 & B2 call establishment, and NT1 status
 - 8-port, S/T-interface version: 2 LEDs per port: B1 & B2 call establishment
 - 3 Loopback modes:
 - System Loopback allowing field tests of ports with or without physical connection
 - NT Loopback loops BRI ports back to the line interface (i.e. to a Network Termination device)
 - Plug Loopback physically accomplished via an external plug connecting transmit to receive transformers. Plug Loopback is supported on the S/T interfaces only.
- Clock interface
 - Support for local or network synchronization; Established connections defer to network for clock
 - Master clock can be derived from any single port
 - Watchdog function can detect and recover from loss-of-clock
- Regulatory
 - CCITT Recommendation I.430, 1992

PRI Port Adapters

For network administrators who require the higher performance provided by a Primary Rate Interface (PRI) ISDN connection, Cisco offers two options for both the Cisco 7200 and 7500 Series routers: a two-port channelized-T1 port adapter, and a two-port channelized-E1 port adapter.

The channelized T1 port adapter can support up to 23 B-channels per port, for an aggregate data rate of 1.536 Mbps per port. When configured to operate in channelized mode, all 24 channels are available per port.

The channelized E1 port adapter can support up to 30 B-channels per port, for an aggregate data rate of 1.984 Mbps per port. When configured to operate in channelized mode, up to 31 channels are available per port. The E1 port adapter is also available in two versions: one supporting 75W-unbalanced interfaces, and another supporting 120W-balanced interfaces.

The PRI port adapters enable applications that require remote and branch office locations to be cost efficiently terminated on a single router in a corporate enterprise network. Coupled with Cisco's BRI port adapters (4 and 8 port versions), the PRI/Channelized port adapters can be used cost effectively to provide high-density terminations of multiple remote-site routers on either the Cisco 7200 or 7500 Series routers.

All PRI port adapters support two ports on a single-wide port adapter, and allow concurrent operation of both ports. Because of their ability to provide router access for high-speed ISDN networking connections, PRI port adapters are ideal for applications involving regional office connections into central corporate locations. Cisco's PRI port adapters are supported on both the Cisco 7200 Series routers and the Cisco 7500 Series routers with Versatile Interface Processors.

Benefits

- High-speed, high-volume ISDN connectivity
 - Two physical ports per port-adapter
 - Support for up to 62 WAN channels per port adapter
- Two versions, supporting either T1 or E1 interfaces
- Flexible functionality
 - Support for channel concatenation of logical channels into one logical superclean.
 - Supports load sharing across B-channels
 - Supports ISDN, X.25, HDLC, Frame Relay, LAPB, and PPP encapsulation across different channels
- Supports On-line Insertion/Removal (OIR)
- Mechanically-keyed to prevent incorrect slot-installation
- Supports ISDN MIBs
- Supports full Cisco IOS
- Supports hardware- and software-based compression

Specifications

- PRI port adapter ordering information
 - Two-port channelized T1/PRI port adapter: PA-2CT1/PRI
 - Two-port channelized E1/PRI port adapter, 75 Ohm: PA-2CE1/PRI-75
 - Two-port channelized E1/PRI port adapter, 120 Ohm: PA-2CE1/PRI-120
- Network interfaces
 - Supports ISDN, PPP, X.25, HDLC, Frame Relay, and LAPB functionality
- Electrical interfaces
 - DSX-1 Line Interface (T1)
- Physical Interface Connectors
 - Two shielded DB15 connectors (T1 and E1)
 - Support for either 120 ohm termination for twisted pair cable or 75 ohm termination for coax cable (E1 only)
- Channel Density
 - T1: 24 per physical port, 48 per port-adapter (Software selectable support for Superframe (SF) and Extended Superframe (ESF))
 - E1: 31 per physical port, 62 per port-adapter (Software selectable support for CRC4 and Non-CRC4)
- Line Codes
 - T1: AMI, B8ZS
 - E1: AMI, HDB3
- Indicator LEDs (3 per port, for a total of 6 LEDs per Port Adapter)
 - Local Alarms: Asserted when local receive-signal indicates an error
 - Remote Alarms: Asserted when remote source indicates an error
 - Loopback: Asserted when Line or Local loopback is enabled
- Clock interface
 - Support for Master or Slave clocking (per-port basis)
 - Support for local or network synchronization
- Regulatory
 - CCITT Specifications Volume III, Recommendation I.431, G.604, G.703, G.704, G706, G.823.
 - IEC 801-2-6
 - ANSI T1.107-1988
 - ANSI T1-403-1989
 - ANSI T1-408-1990
 - FCC15J Class A (T1)
 - C108.8 Class A (T1)
 - VDE 0878
 - NFC98020
 - SS447-2-22
 - EN55022 Class B
 - CISPR-22 Class B
 - VCCI Class 2 (T1)



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