


# MIX-Enabled T1/E1 Port Adapter for the Cisco 7200 VXR Series Routers



Cisco announces multiservice interchange (MIX)-enabled T1/E1 port adapters (PA-MCX-2TE1, PA-MCX-4TE1, PA-MCX-8TE1) for the Cisco 72xx VXR series routers. These port adapters provide high-capacity, large-scale voice and data aggregation across WAN interfaces, and interconnection to private branch exchanges (PBXs) and the Public Switched Telephone Network (PSTN).

This family of multipurpose MIX-enabled port adapters comprises three members—the PA-MCX-2TE1, PA-MCX-4TE1, and PA-MCX-8TE1; the port adapters come with built-in channel service units/data service units (CSUs/DSUs). These port adapters have the same feature set, and they differ only in the number of physical interfaces supported.

The MIX-enabled T1/E1 port adapters provide the ability to integrate voice and data on the same T1/E1 interface without the need for an external time-division multiplexing (TDM) device. With the “drop and insert” capability, DS0-level grooming is supported, thus providing cost-effective WAN access. Ports can be configured as voice, data, or both, depending on the application requirements.

The MIX-enabled T1/E1 port adapters maximize the use of digital-signal-processor (DSP) resources on the enhanced digital voice adapters, using the DSP farm capability across the MIX bus. The DSP resources on the enhanced digital voice port adapters are shared between their local interfaces and the PA-MCX, and can terminate 20 T1s or 18 E1s of voice traffic, thus providing a highly cost-effective solution.

For data applications that require T1 CSU and DSU functionality, the two-, four- and eight-port MIX-enabled T1 port adapters provide the right mix of integration and cost. For E1 applications, the MIX-enabled E1/G.703 interface allows direct connectivity to 120-ohm G.703 lines. The 128 channels of the MIX-enabled port adapter can be allocated among  $N * DS0$  ( $N \times 64K$ ) links, or ISDN Primary-Rate-Interface (PRI) links. A total of 30 ISDN PRIs can be supported on a Cisco 7206 VXR series router when using T1 links, and 24 ISDN PRIs can be supported when using E1 links.



## Features

The PA-MCX has the following features:

- **Universal ports**—Two, four, or eight interface ports per port adapter are configurable as either T1 (with integrated CSU/DSU) or E1 (with integrated G.703/G.704 120-ohm interface). Additionally, a port may be configured on a per-DS0 basis for voice termination, TDM pass-through (cross-connect), or data.
- **MIX support**—Voice channels can be time-division multiplexing (TDM) switched between port-adapter slots in the Cisco 7200 VXR chassis. This allows DSP resources to be shared between port adapters in the same chassis or for port-to-port DS0 cross-connect between port-adapter slots.
- **DS0 drop and insert**—Flexible TDM cross-connect capability between ports and the MIX bus is available.
- **Multiple clocking options**—Ports can be clocked internally from the network, or the network clock from one port can be sent to the other port on the card or to other cards across the MIX bus in the Cisco 7200 VXR chassis.

The following enhanced voice features are supported when the MIX-enabled T1/E1 port adapters are used in combination with the enhanced digital voice port adapter (PA-VXC-2TE1+, PA-VXB-2TE1+):

- **Voice-over-IP (VoIP) and Voice-over-Frame Relay (VoFR) termination**
- **Full-featured DSP firmware**—
  - Support for several standard-compression algorithms (G.711, G.729a/ab, G.723.1, G.726, G.728)
  - Echo cancellation
  - Full dual-tone-multifrequency (DTMF)/MF tone detection and generation, and dial pulse generation.
- **Silence suppression**
- **Flexible signaling support**—Channel-associated-signaling (CAS) and common-channel-signaling (CCS) support is available for both E1 and T1 applications.

## Signaling Supported

- T1 CAS (robbed-bit signaling)
- E1 CAS—R2
- PRI (user and network side)
- Transparent CCS
- Q.SIG
- FG-D
- Multi-D channel

## Network Management Support

- Simple Network Management Protocol (SNMP) compliant
- Manageable via a Management Information Base (MIB) browser
- CiscoView interface for configuration
- Cisco Voice Manager (CVM) supported
- Netsys supported

## Country Support

- Approved in most countries
- Software-configurable ring-cadence and call-progress tones

## Ordering Information

Part Number	Description
PA-MCX-2TE1	Two-port MIX multichannel T1/E1 port adapter with CSU/DSU
PA-MCX-2TE1=	Two-port MIX multichannel T1/E1 port adapter with CSU/DSU
PA-MCX-4TE1	Four-port MIX multichannel T1/E1 port adapter with CSU/DSU
PA-MCX-4TE1=	Four-port MIX multichannel T1/E1 port adapter with CSU/DSU
PA-MCX-8TE1	Eight-port MIX multichannel T1/E1 port adapter with CSU/DSU
PA-MCX-8TE1=	Eight-port MIX multichannel T1/E1 port adapter with CSU/DSU

## Orderability

Now

## First Shipment

Cisco IOS Release 12.1(5)T

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