

## Multichannel E3 Port Adapter for Cisco 7200 and 7500 Series Routers

CISCO'S NEW FAMILY OF MULTICHANNEL PORT ADAPTERS HERALD A NEW ERA FOR COST-EFFECTIVE AND FLEXIBLE WAN CONNECTIVITY.

The family of multichannel interfaces decrease cost and increase manageability of WAN links by:

- Eliminating the need for any external CSU/DSUs or multiplexers
- Providing up to 128 software configurable WAN connections per single-wide port adapter
- Supporting both clear channel T1/E1 connections and channelized T1/E1 connections on the same card
- Handling all major encapsulations including ISDN and Frame Relay

With these capabilities, the family of multichannel interfaces eliminate the need for separate interface types for separate connection types. At a cost per

T1/E1 port less than that of a standard serial port with external CSU/DSU, Cisco's family of multichannel interfaces are cost-effective for all WAN connectivity.

In Cisco's multichannel interface family are versions to support physical connectivity to T3 lines, E3 lines,

T1 lines and E1 lines. For direct termination to E3 lines,

Cisco's multichannel E3 card terminates 16 E1 lines multiplexed onto a single 75 ohm G.703 E3 interface.

The 128 channels of this multichannel E3 port adapter can be allocated among clear channel E1 links, Nx64K links, or ISDN PRI links. For a single clear channel E1 link, only one of the 128 channels is consumed. For each Nx64K connection, a single channel is consumed. In channelized E1 mode, multiple NxDS0 connections can be supported on a single E1. Fractional E1 mode is also supported where Nx64K of bandwidth consumes an entire E1 link. Each E1 used as ISDN PRI consumes either 30 channels respectively, one per

B channel and one for the D channel.



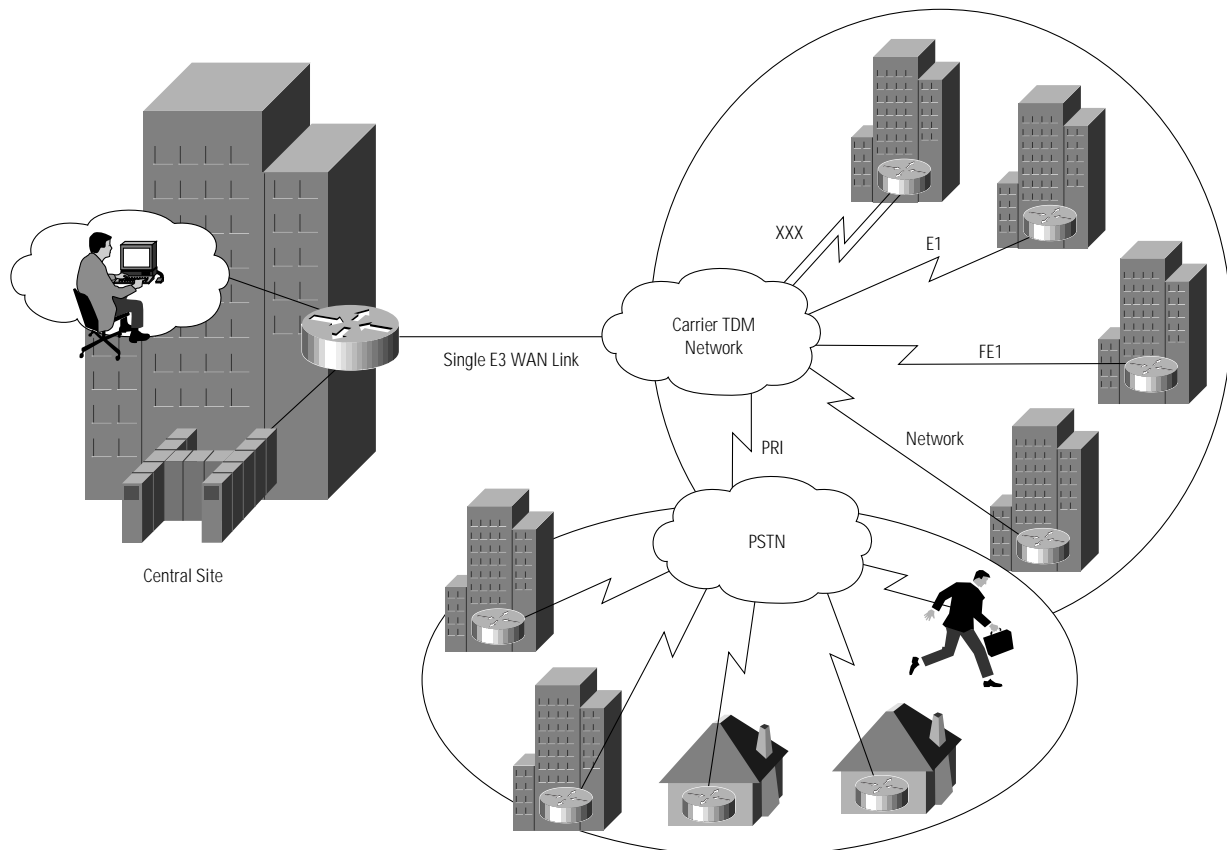
## Ordering Information

Part Number	Port Adapter Description
PA-MC-E3	1 port multichannel E3 with integrated E3 G.703 75 ohm interface

### Features

- 16 E1 ports multiplexed onto a single E3 connection
- Channelized E1, fractional E1, clear channel E1, and ISDN PRI supported
  - Up to 128 usable Nx64K channels (where N is 1 to 31) that can be allocated among the 16 E1 ports
- Internal or network clocking selectable on the E3 and each E1
- 6 status LEDs
- ISDN D-channel support via VIP/NPE
- Line and Payload Loopback capabilities:
  - Local and network line loopback at the E1 and E3 levels

- Full bit error rate testing capabilities on any E1:
  - Programmable pseudo-random pattern up to 24 bits in length including  $2^{11}-1$ ,  $2^{15}-1$ ,  $2^{20}-1$ ,  $2^{20}-1$  QRSS,  $2^{33}-1$ , all zeros, all ones, alternating ones and zeros
  - 32-bit error count registers
  - Detect test patterns with bit error rates up to  $10^2$
- Alarm detection: AIS, Remote Alarm, FEBE, OOF, CRC Multiframe OOF, Frame errors, CRC errors
- On-board processor for alarm integration and performance monitoring
- Support for the following serial encapsulation protocols:
  - Frame Relay
  - PPP
  - HDLC
  - SMDS DXI
  - ISDN PRI
- Support for the following networking protocols:
  - IP
  - IPX
  - DecNet



#### E3 Features

- Line Rate: 34.368Mbps ( 20ppm)
- Line Code: HDB3 (High Density Bipolar 3)
- Pulse Shape: Conforms to G.703
- Input signal: 100 mV to 1.2V (22db dynamic range)
- Output signal: 1.0V transformer coupled into 75 ohm coax cable
- E3 line and local loopback paths
- Software configurable national bit

#### E1 Features

- Unframed E1 or G.704 framing modes
- Data rate to 2.048Mbps (unframed mode) or 1.984Mbps (framed mode) per E1 port
- Internal and loop (recovered from network) clocking
- Software configurable E1 national bits
- Programmable pattern for unused timeslots

#### Compliance (Partial List)

- ITU-T G.703 Physical/electrical characteristics of hierarchical digital interfaces
- ITU-T G.704 Synchronous frame structures used at 1544, 6312, 2048, 8488 and 44736 kbit/s
- ITU-T G.742 Second order digital multiplex equipment operating at 8448 kbit/s
- ITU-T G.751 Digital multiplex equipments operating at the third order bit rate of 34368 kbit/s
- ITU-T G.823 Control of Jitter within Digital Networks
- ETS1prTBR 24 (Europe, E3)
- BAPT 221 ZV MU 11 (Germany, E3)
- BE/SP-134 (Belgium E3)
- T 14-09E (Netherlands E3)
- Germany (TUV GS)
- Germany (VDE 0878 part 3 and 30)
- France (NFC98020)
- France (EN60950, EN41003)
- Europe (EN55022 Class B, EN55102-1, EN55102-2)



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