

Cisco Four-Port Channelized E1 Frame Relay Port Adapter for LS1010, Catalyst 8510, and Catalyst 8540

The Cisco four-port channelized E1 Frame Relay port adapter is designed for use with the LS1010 and Catalyst 8500 MSR editions. This 4xChannelized E1 Port Adapter Module (PAM) provides four E1 interfaces for full-duplex communications at up to 2.048 Mbps. Each E1 line supports up to 31 channels (logical ports) for a total of 124 channelized Frame Relay ports on a single, half-slot port adapter module. Each E1 line consists of an RJ48C along with LED indicators for line status.

Fractional E1 ports as well as unchannelized E1 are supported on this PAM in order to provide a high degree of bandwidth flexibility to meet the growing capacity requirements of service carriers. Standards-based adaptation technology, a high degree of configuration flexibility, and advanced quality of service (QoS) and traffic management features in a moderately dense port configuration, combine to make the 4xChannelized E1 Frame Relay PAM a very cost-effective solution.

Ordering Information

C85MS-4E1-FRRJ 48	Four-Port Channelized E1 Frame Relay Port Adapter
C85M-4E1-FRRJ4 8	Four-Port Channelized E1 Frame Relay Port Adapter spare

Highlights

This PAM supports both Frame Relay UNI and Frame Relay NNI service interfaces, which can be configured on a per-port basis. Frame Relay to ATM network interworking (FRF.5) and Frame

Relay to ATM service interworking (FRF.8) are fully supported and can be configured on a per-permanent virtual circuit (PVC) basis.

Traffic is mapped between these Frame Relay service interfaces and the ATM backplane of the LS1010, Catalyst 8510, or Catalyst 8540 using standards-compliant adaptation. Per VC queuing and intelligent Cisco QoS management features provide flexible and cost-effective per-VC control for connection-based service-level agreements (SLAs).

The four-port channelized E1 Frame Relay PAM is supported by standards-based management tools, including Simple Network Management Protocol (SNMP), Trivial File Transfer Protocol (TFTP), and the advanced Cisco IOS[®] command-line interface (CLI).

Features

Physical Layer

E1 Interfaces

- Four E1 (2.048 Mbps +/-50 bps or 32 ppm) lines
- HDB3 or AMI line coding
- ITU G.704 16-frame multiframe line framing and clear channel E1
- Each interface configurable as a single port or up to 31 ports running at full line rate at 56 or n x 64 kbps
- LOS, OOF, AIS, RAI alarms
- Loop up, loop-down pattern generation verification
- Transmitter loop-timed to receiver or synchronized to switch
- 7E flags used to delineate frames (with bit stuffing to prevent false flags) and for interframe gaps

- One flag between frames is considered valid upon receipt

Frame Relay

- Each logical port can be configured independently to run Frame Relay UNI or Frame Relay NNI
- Meets ANSI T1.618 (two-octet headers)
- Interpreted CCITT-16 CRC at EOF
- Supports ITU-T Q.933 Annex A, ANSI T1.617 Annex D, and (Cisco Enhanced) LMI local management for semipermanent virtual circuits (UNI/NNI)
- Standards-based CIR policing and DE tagging/discarding
- Frame Relay to ATM network interworking (FRF.5) and Frame Relay to ATM service interworking (FRF.8), both transparent and translation modes are supported and configured on per PVC basis (Cisco enhancements to Frame Relay to ATM service interworking to allow interworking for a wider group of protocols)
- Support for Frame Relay MIB (RFC 1604)

Card Specific

Indicators

- Per card:
- Per interface:

Maintenance Features

- Hot swappable port adapter module
- Internal problem isolation loopbacks

Reliability

- 160,000 hours MTBF (approximately 18 years)

Dimensions

- Carrier Module (CAM): H x W x D 1.2 in. x 14.4 in. x 16 in.

(LS1010 or Catalyst 8510 MSR supports up to four CAMs, each supporting up to two PAMs for a total of eight PAMs per switch)

- Super Carrier Module (SuperCAM): H x W x D 1.2 in. x 14.4 in. x 16 in. (The Catalyst 8540 MSR supports up to eight SuperCAMs, each supporting up to two PAMs for a total of 16 PAMs per switch)
- PAM: H x W x D 1.2 in. x 6.5 in. x 10 in.

Power Requirements

- -48 VDC, 30W

Temperature Range

- 0-50 C (32-122 F)

Electrical and Safety Compliance

- E1: G.703, G.823, G.704
- FCC Part 15 Class A
- VCCI Class B
- ETSI300386-1
- CTR 12, CTR 13
- UL 1950 second edition
- NEBS GR-63-CORE, GR-1089-CORE
- EN 60950 second edition (includes EN41003)
- IEC 950
- CE marking
- TS001



Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems Europe s.a.r.l.
Parc Evolic, Batiment L1/L2
16 Avenue du Quebec
Villebon, BP 706
91961 Courtaboeuf Cedex
France
<http://www-europe.cisco.com>
Tel: 33 1 69 18 61 00
Fax: 33 1 69 28 83 26

Americas

Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-7660
Fax: 408 527-0883

Asia Headquarters

Nihon Cisco Systems K.K.
Fuji Building, 9th Floor
3-2-3 Marunouchi
Chiyoda-ku, Tokyo 100
Japan
<http://www.cisco.com>
Tel: 81 3 5219 6250
Fax: 81 3 5219 6001

Cisco Systems has more than 200 offices in the following countries. Addresses, phone numbers, and fax numbers are listed on the Cisco Connection Online Web site at <http://www.cisco.com/offices>.

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • China • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE Finland • France • Germany • Greece • Hong Kong • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Singapore Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela