

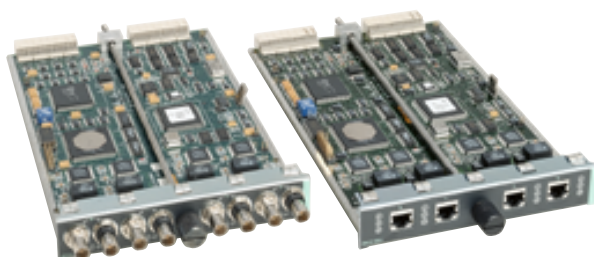
LightStream 1010 T1/E1 Circuit Emulation Port Adapter Module

The LightStream® 1010 is the first member of Cisco Systems' midrange Asynchronous Transfer Mode (ATM) switches for multiservice applications—from the ATM workgroup and campus backbone to metropolitan-area networks and alternative service provider backbones.

Building upon the Cisco IOS™ software as well as supporting the latest ATM Forum specifications and Tag Switching, the LightStream 1010 offers the most complete feature set of any switch in its class. It delivers the performance, scalability, and robustness required for production ATM deployment.

The LightStream 1010 uses a five-slot, modular chassis featuring the option of dual, fault-tolerant, load-sharing power supplies and can support up to eight hot-swappable port adapter modules (PAMs). The 5-Gbps, shared memory, fully nonblocking switch processor of the LightStream 1010 and the port modules can be used in the Catalyst 5500 multilayer LAN switch. In either platform, up to thirty-two T1/E1 Circuit Emulation Ports can be supported.

T1/E1 Circuit Emulation PAM



Unlike other switch architectures, the shared-memory architecture of the LightStream 1010 allows all the advanced traffic management and other mechanisms of the switch to be implemented not on the port modules, but on the field-replaceable feature card on the switch processor module. This scenario lowers the costs of the interface modules and facilitates the upgrading of switch features without impacting the port modules. Future members of the LightStream family of switches use all the current PAMs, preserving investments and facilitating the sharing of spares.

The circuit emulation service T1 and E1 PAMs are ideal for links that require constant bit rate (CBR) services such as interconnecting private branch exchanges (PBXs), time-division multiplexers, and videoconferencing equipment over campus and metropolitan, public, or private networks.

T1 and E1 circuit emulation service modules are compatible with ATM Forum interoperability agreement "AF-SAA-0032.000" Circuit Emulation Service Interoperability Specification. These modules also support both structured and unstructured CBR processing.

Specifications

Hardware

Physical Dimensions

- Carrier Module (CAM) H x W x D: 1.2 x 14.4 x 16.0 in. (3.0 x 36.6 x 40.6 cm)
- PAM H x W x D: 1.2 x 6.5 x 10 in. (3.0 x 16.5 x 25.4 cm)
- PAM power budget: low

Components

- LightStream 1010 or the Catalyst 5500 supports up to four CAMs, each supporting up to two PAMs, for a total of eight PAMs per switch

Port LEDs Alarm

Alarm LEDs on each port give quick visual indications of port status and operation, while support for comprehensive statistics gathering and alarm monitoring capabilities, building on the sophisticated manageability mechanisms of the T1/E1 interface, allow for detailed network management.

Circuit Emulation Service T1 and E1 PAM Features

- Structured and unstructured CBR processing
- Four modes of clocking:
 - Adaptive as defined in AF-SAA-0032.000
 - SRTS as defined in T1.630 and I.363
 - Synchronous timing for CBR traffic
 - Global network clock synchronization (Nettime)
- Clear channel and channelized with Channel Associated Signaling (CAS) for on hook/off hook detection on CBR ports
- Clear channel circuit emulation
- Dynamic ATM addressing for CBR channel groups
- Debugging: Multiple levels of port loopback

DS1(T1) CES Module

- Port Capacity—Four T1 ports per module
- Media—Unshielded twisted-pair
- Rate—1.544 Mbps
- Connector—RJ-48c
- Line Encoding—Alternate mark inversion (AMI) or B8ZS coding
- Timing
 - Adaptive +/- 130-ppm, T1.403-1989
 - SRTS
 - Internal oscillator
 - Network timing mode (synchronous)
- Loopbacks—Transmit and receive
- Impedance—100 ohms nominal

E1 CES Module

- Port Capacity—Four E1 ports per module
- Media—Shielded twisted-pair, coaxial cable
- Rate—2.0448 Mbps
- Connector—RJ-48c, BNC
- Line Encoding—HDB3 coding
- Timing
 - Adaptive (+/- 50-ppm, G.703)
 - SRTS
 - Internal oscillator
 - Network timing mode (synchronous)
- Loopbacks—Transmit and receive
- Impedance—120 ohms nominal (RJ-48c), 75 ohm (BNC)



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 6918 61 00
Fax: 33 1 6928 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>.

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • China (PRC) • Colombia • Costa Rica • Czech Republic • Denmark
England • France • Germany • Greece • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia
Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Russia • Saudi Arabia • Scotland • Singapore
South Africa • Spain • Sweden • Switzerland • Taiwan, ROC • Thailand • Turkey • United Arab Emirates • United States • Venezuela