

## LightStream 1010 T1/E1 ATM Port Adapter Module

The LightStream<sup>®</sup> 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<sup>™</sup> 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 (SP) of the LightStream 1010 and the port modules can be used in the Catalyst<sup>®</sup> 5500 multilayer LAN switch. In either platform, up to 32 T1/E1 ATM ports can be supported.

T1/E1 ATM Port Adapter Module



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 SP module. This feature 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 T1 and E1 ATM PAMs are ideal for intercampus, metropolitan, or wide-area links.

Each of the ports on this PAM can be configured to support the following clock options:

- Self timing based on ATM Switch Processor clock
- Loop timing from the received data stream—ideal for public network connections
- Time synchronized to a selected master clock port, required to distribute a single clock across a network

## 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: 10W

#### Components

- The 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

#### Interface Features

- Debugging: Multiple levels of port loopback
- Supports both cell-streaming mode and physical layer convergence procedure (PLCP) framing

#### Port LEDs

Receive and transmit 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.

### DS1(T1) ATM PAM

- Port capacity—Four T1 ports per module
- Media—Unshielded twisted-pair (UTP)
- Connector—RJ-48c
- Data rate—1.544 Mbps
- Line encoding—Alternate mark inversion (AMI) or B8ZS coding
- T1 framing—Extended Super Frame (ESF), Super Frame (SF)
- ATM framing—Add Drop Multilayer (ADM), PLCP
- Timing—Primary and secondary 8-kHz reference from internal (default) or network
- Loopbacks—Transmit and receive
- Impedance—100 ohms nominal

### E1 ATM PAM

- Port capacity—Four E1 ports per module
- Media—Shielded twisted-pair, coaxial cable
- Connector—RJ-48c or BNC
- Data rate—2.048 Mbps
- Line encoding—HDB3 coding
- E1 framing—BASIC frame, cyclic redundancy check (CRC) multiframe
- ATM framing—ADM, PLCP
- Timing—Primary and secondary 8-kHz reference from internal (default) or network
- Loopbacks—Transmit and receive
- Impedance—120 ohms nominal (RJ-48c), 75 ohm (BNC)



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