Cisco 8-Port T1/E1 Multiprotocol Service Module

The Cisco® 8-Port T1/E1 Multiprotocol Service Module (MPSM-8-T1E1) offers ATM, Frame Relay, and Circuit Emulation services in the same module for the Cisco MGX® 8850/B and MGX 8830/B Advanced ATM Multiservice Switches.

Product Overview

The Cisco MPSM-8-T1E1 is an 8-port T1 or E1, single-height service module for the Cisco MGX 8830/B and MGX 8850/B Advanced ATM Multiservice Switches. The MPSM-8-T1E1 delivers connectivity from DS-0 to T1/E1 speeds and can be configured for ATM, Frame Relay, or Circuit Emulation service.

Key Features and Benefits

- Any service, any card (ASAC) functionality, which reduces operation and deployment costs by supporting ATM, Frame Relay, or Circuit Emulation service on the same hardware module
- Inverse Multiplexing over ATM (IMA) 1.0 and IMA 1.1 along with IMA restart capability
- Support for FRF 8.1 Frame Relay-to-ATM service interworking
- Acts as a replacement for the legacy 8-port Frame Relay Service Modules (FRSMs), ATM Service Modules (AUSMs), and Circuit Emulation Service Modules (CESMs). MPSM-8-T1E1 can reside within the same redundancy group with the legacy FRSM, AUSM, and CESM modules offering the ability to migrate seamlessly from legacy modules to the new MPSM.
- Independent Transport Clock (ITC) and Common Transmit Clocking (CTC) clocking modes
- Mixed-mode 1:N redundancy support to ease sparing requirements
- Built-in bit-error-rate-test (BERT) testing

Technical Specifications

Table 1 lists product specifications for the Cisco 8-Port T1/E1 Multiprotocol Service Module.

Table 1. Product Specifications

Description	Specification
Product compatibility	Compatible with Cisco MGX 8830/B, MGX 8830, MGX 8850/B, and MGX 8850 Advanced ATM Multiservice Switches
Software compatibility	Minimum software: MGX Switch Software Version 5.0.20
Cards/Ports	MPSM-8-T1E1: Front card Choice of 8-port backcards with RJ-48 connectors for T1 and E1 and SMB connectors for E1 (shares common backcards with legacy AUSM, FRSM, and CESM service modules)
Redundancy	1:N card redundancy using the Service Resource Module, similar to legacy FRSM, AUSM, and CESM service modules
Framing	ANSI T1.408 extended Super Frame format ITU-T G.704 16 frame multiframe line framing and clear channel
Line coding	T1: B8ZS or AMI E1: HDB3 or AMI

Description	Specification
ATM Layer	• Configurable for IMA trunk or User-Network Interface (UNI) application • Conformant to ATM Forum UNI 3.0 and 3.1 as well as ITU-T I.361 and I.432 specifications • Up to 16 classes of service (CoSs) and includes all ATM Forum traffic type services: available bit rate (ABR), unspecified bit rate (UBR), variable bit rate non-real-time (VBR-nrt), variable bit rate real-time (VBR-rt), constant bit rate (CBR); ABR supported for EFCI, RM marking, and ER stamping; support for IP quality of service (QoS) • ABR with virtual source/virtual destination (VS/VD) • Early packet discard (EPD) and partial packet discard (PPD) • Weighted Random Early Detection (WRED) • Per virtual circuit queuing for traffic scheduling • Per virtual circuit traffic shaping on egress • Per virtual circuit policing • Virtual path termination • Integrated Local Management Interface (ILMI) 4.0 • Complies with standard usage parameter control (UPC) per ATM Forum UNI 3.x, TM 4.0, and ITU-TI.371 • Virtual circuit connections (VCCs) and virtual path connections (VPCs) • Virtual path identifier (VPI) and virtual circuit identifier (VCI) range for VCCs and VPCs per UNI 3.1 • Virtual circuit merge for egress and multipoint connections • Usage policing supported on all interfaces
Frame Relay	• Supports ITU-T Q.933 Annex A, ANSI T1.617 Annex D, and Local Management Interface (LMI) local management, and enhanced LMI provides automatic configuration of traffic management parameters for attached Cisco routers • Frame Relay-to-ATM network interworking (FRF.5) and Frame Relay-to-ATM service interworking (FRF.8 and FRF.8.1), both transparent and translation modes, configured per permanent virtual circuit (PVC) • Standards-based committed information rate (CIR) policing and Discard Eligible tagging/discarding • End-to-end ForeSight rate-based flow-control option to improve trunk utilization • Capability to extend ForeSight closed-loop congestion management between two Cisco networks across Frame Relay-UNI or Frame Relay-NNI using ANSI T1.618 consolidated link-layer management (CLLM) messages • Each logical port independently configurable as Frame Relay UNI or Frame Relay NNI • Meets ANSI T1.618, using 2-octet headers • ATM Forum FUNI mode 1A supported • Supports CRC-16 and CRC-32 • ATM Adaptation Layer 5 (AAL5) mapping of user payload to ATM • Standards-based usage parameter control • End-to-end ForeSight and standard ABR rate-based flow-control license option
Circuit Emulation	• ATM Forum Circuit Emulation Service Version 2.0 (CESv2.0). • Choice of structured data transfer (SDT) or unstructured data transfer (UDT) per physical interface. • Any contiguous n x 64-kbps fractional T1/E1 channel can be mapped to any virtual circuit. • T1 card supports up to 192 DS-0 ports (24 channels x 8 lines) operating simultaneously with each interface configurable as a single port (UDT) or up to 24 ports (SDT) running at full line rate at n x 64 kbps. • E1 card supports up to 248 DS-0 ports (31 channels x 8 lines) operating simultaneously with each interface configurable as a single port (UDT) or up to 31 ports (SDT) running at full line rate at n x 64 kbps. • Synchronous clocking for both UDT and SDT. • Asynchronous clocking for UDT, with synchronous residual time stamp (SRTS) and adaptive clock recovery methods. • On/off hook detection and idle suppression using channel-associated signaling (CAS). • Support per virtual circuit partially filled AAL1 cell payload to improve cell delay. Type fill range (bytes): ◦ T1 structured: 25–47 ◦ T1 unstructured: 33–47 ◦ E1 structured: 20–47 ◦ E1 unstructured: 33–47
Physical dimensions	Height: 18.4 cm (7.25 in.) Depth: 39.8 cm (15.65 in.)

Description	Specification
Power	Input power required: (48 VDC) Power consumption: 25 W
EMI/ESD compliance	FCC Class A / TIA-968-A ICES 003 Class A AS/NZS 3548 Class A CISPR 22 (EN55022) Class A VCCI Class A BSMI Class A IEC/EN 61000-3-2: Power Line Harmonics IEC/EN 61000-3-3: Voltage Fluctuations and Flicker IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8-kV Contact, 15-kV Air) IEC/EN-61000-4-3: Radiated Immunity (10 V/m) IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2-kV Power, 1-kV Signal) IEC/EN-61000-4-5: Surge AC Port (2-kV CM, 2-kV DM) IEC/EN-61000-4-5: Signal Ports (1 kV) IEC/EN-61000-4-5: Surge DC Port (1 kV) IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10 Vrms) IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m) IEC/EN-61000-4-11: Voltage DIPS, Short Interruptions, and Voltage Variations EN300 386: Telecommunications Network Equipment (EMC) EN55022: Information Technology Equipment (Emissions) EN55024: Information Technology Equipment (Immunity) EN50082-1/EN-61000-6-1: Generic Immunity Standard
Safety compliance	UL/CSA/IEC/EN 60950-1 IEC/EN 60825-1 Laser safety ACA TS001 AS/NZS 60950 FDA—Code of Federal Regulations laser safety
Telecom compliance	ITU-T G.703 ANSI T1.102 ANSI T1.107 ANSI T1.105 ITU-T G.957
Telcordia NEBS	GR-1089-CORE NEBS EMC and Safety GR-63-CORE NEBS Physical Protection SR-3580 NEBS Criteria Levels (Level 3)
Telcordia CLEI	GR-485-CORE – CLEI coding GR-383-CORE – CLEI code label GR-209-CORE – PCN Process

Ordering Information

Table 2 lists ordering information. To place an order, visit the Cisco Ordering Home Page.

Table 2. Ordering Information

Part Number	Product Name
MPSM-8-T1E1	Cisco 8-Port T1/E1 MPSM
AX-RJ48-8E1	8-port E1 RJ-48 backcard
AX-R-RJ48-8E1	Redundant backcard, supporting 8-port RJ48 E1
AX-SMB-8E1	8-port E1 Subminiature (SMB) backcard
AX-R-SMB-8E1	Redundant backcard, supporting 8-port SMB E1
AX-RJ48-8T1	8-port T1 RJ-48 backcard
AX-R-RJ48-8T1	Redundant backcard, supporting 8-port T1

For More Information

For more information about Cisco service and support programs and benefits, go to: http://www.cisco.com.

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