

## Cisco 16-Port T1/E1 Multiprotocol Service Module

The Cisco® 16-Port T1/E1 Multiprotocol Service Module (MPSM-16-T1E1) is a multiprotocol service module that offers ATM and Frame Relay services for the Cisco MGX® 8850/B and MGX 8830/B Advanced ATM Multiservice Switches. The MPSM-16-T1E1 delivers high port density connectivity using DS-0, NxDS-0, and T1/E1 interfaces.

### Product Overview

The Cisco MPSM-16-T1E1 is a single-height service module for the Cisco MGX 8850/B and the Cisco MGX 8830/B Advanced ATM Multiservice Switches (Figure 1). The Cisco MPSM-16-T1E1 delivers connectivity from DS-0, NxDS-0, and T1/E1 speeds and provides Any Service, Any Port (ASAP) capability, which allows both Frame Relay and ATM services on any physical port in the service module.

**Figure 1.** Cisco MGX 8800 Series 16-Port T1/E1 Multiprotocol Service Module (Far Left) with Associated Backcards: Cisco MGX 16-Port T1/E1 Backcard with RBBN Connector, Cisco MGX 16-Port T1/E1 Redundancy Backcard, and Cisco MGX 16-Port E1 Backcard with MCC Connector



### Key Features and Benefits

- Any Service, Any Port functionality reduces operations and deployment costs by supporting both ATM and Frame Relay in a single service module.
- Multilink Point-to-Point Protocol (MLPPP) and PPP multiplexing (PPPMUX)
- Inverse Multiplexing over ATM (IMA) 1.0 and IMA 1.1 along with IMA restart capability
- FRF 8.1 Frame Relay/ATM service interworking
- 1:N service module redundancy
- Independent Transport Clock (ITC) and Common Transmit Clocking (CTC) clocking modes
- Built-in bit-error-rate-test (BERT) testing

## Technical Specifications

Table 1 lists product specifications for the Cisco MPSM-16-T1E1.

**Table 1.** Product Specifications

Description	Specification
<b>Product compatibility</b>	Compatible with Cisco MGX 8830/B, MGX 8830, MGX 8850/B, and MGX 8850 Advanced ATM Multiservice Switches
<b>Software compatibility</b>	Minimum software: MGX Switch Software Version 5.1.20
<b>Cards/Ports</b>	MPSM-16-T1E1: Front card Choice of backcards with RBBN connectors for T1 or E1, or with MCC connectors for E1, and a choice between 1:N redundancy, Y-cable 1:1 redundancy, or no redundancy RBBN-16-T1E1-1N: RBBN backcard for active service module in a 1:N card redundancy configuration MCC-16-E1-1N: MCC E1 backcard for active service module in a 1:N card redundancy configuration RED-16-T1E1: Backcard for standby service module in a 1:N card redundancy configuration RBBN-16-T1E1: RBBN backcard for Y-cable redundancy MCC-16-E1: MCC E1 backcard for Y-cable redundancy
<b>Redundancy</b>	1:N card redundancy using a 1-to-N redundancy connector 1:1 card redundancy using Y-cable
<b>Framing</b>	ANSI T1.408 extended Super Frame format line framing ITU-T G.704 16 frame multiframe line framing and clear channel
<b>Line coding</b>	T1: B8ZS or AMI E1: HDB3 or AMI
<b>ATM Layer</b>	<ul style="list-style-type: none"> <li>Configurable for IMA trunk or User-Network Interface (UNI) application</li> <li>Conformant to ATM Forum UNI 3.0 and 3.1 as well as ITU-T I.361 and I.432 specifications</li> <li>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 (VBR) real-time and non-real-time, constant bit rate (CBR)</li> <li>ABR supported for EFCT, RM marking, and ER stamping</li> <li>Standard ABR with virtual source/virtual destination (VS/VD)</li> <li>Early packet discard (EPD) and partial packet discard (PPD)</li> <li>Weighted Random Early Detection (WRED)</li> <li>Per virtual circuit queuing for traffic scheduling</li> <li>Per virtual circuit traffic shaping on egress</li> <li>Per virtual circuit policing</li> <li>Virtual path termination</li> <li>Integrated Local Management Interface (ILMI) 4.0</li> <li>Complies with standard usage parameter control (UPC) per ATM Forum UNI 3.x, TM 4.0, and ITU-TI.371</li> <li>Virtual circuit connections (VCCs) and virtual path connections (VPCs)</li> <li>Virtual path identifier (VPI) and virtual circuit identifier (VCI) range for VCCs and VPCs per UNI 3.1</li> <li>Virtual circuit merge for egress and multipoint connections</li> <li>Usage policing supported on all interfaces</li> </ul>
<b>Frame Relay</b>	<ul style="list-style-type: none"> <li>Supports ITU-T Q.933 Annex A, ANSI T1.617 Annex D, and Local Management Interface (LMI) local management, and the enhanced LMI provides automatic configuration of traffic management parameters for attached Cisco routers</li> <li>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)</li> <li>Standards-based committed information rate (CIR) policing and Discard Eligible tagging/discarding</li> <li>Standard ABR rate-based flow-control option to improve trunk utilization</li> <li>Each logical port independently configurable as Frame Relay UNI or Frame Relay NNI</li> <li>Meets ANSI T1.618, using 2-octet headers</li> <li>ATM Forum FUNI mode 1A</li> <li>Supports CRC-16 and CRC-32</li> </ul>

Description	Specification
<b>Physical dimensions</b>	Height: 18.4 cm (7.25 in.) Depth: 39.8 cm (15.65 in.)
<b>Power</b>	<ul style="list-style-type: none"> <li>Input power required: (48 VDC)</li> <li>Power consumption: 39 W</li> </ul>
<b>EMI/ESD compliance</b>	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
<b>Safety compliance</b>	UL/CSA/IEC/EN 60950-1 ACA TS001 AS/NZS 60950
<b>Telecom compliance</b>	–ITU-T G.703 –ANSI T1.102 –ANSI T1.107 –ANSI T1.105 –ITU-T G.957
<b>Telcordia NEBS</b>	GR-1089-CORE NEBS EMC and Safety GR-63-CORE NEBS Physical Protection SR-3580 NEBS Criteria Levels (Level 3)
<b>Telcordia CLEI</b>	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	Part Description
MPSM-16-T1E1	Cisco 16-Port T1/E1 MPSM
RBBN-16-T1E1-1N	16-port RBBN backcard for active service module in a 1:N card redundancy configuration
MCC-16-E1-1N	16-port MCC E1 backcard for active service module in a 1:N card redundancy configuration
RED-16-T1E1	16-port T1/E1 backcard for standby service module in a 1:N card redundancy configuration
RBBN-16-T1E1	16-port T1/E1 RBBN backcard for Y-cable redundancy
MCC-16-E1	16-port E1 MCC backcard for Y-cable redundancy

## For More Information

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



### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 527-0883

### Asia Pacific Headquarters

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
[www.cisco.com](http://www.cisco.com)  
Tel: +65 6317 7777  
Fax: +65 6317 7799

### Europe Headquarters

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
[www-europe.cisco.com](http://www-europe.cisco.com)  
Tel: +31 0 800 020 0791  
Fax: +31 0 20 357 1100

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