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 MXG 8800 Series 16-Port T1/E1 Multiprotocol Service Module (Far Left) with Associated Backcards: Cisco MXG 16-Port T1/E1 Backcard with RBBN Connector, Cisco MXG 16-Port T1/E1 Redundancy Backcard, and Cisco MXG 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

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
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<tbody>
<tr>
<td><strong>Product compatibility</strong></td>
<td>Compatible with Cisco MGX 8830/B, MGX 8830, MGX 8850/B, and MGX 8850 Advanced ATM Multiservice Switches</td>
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<tr>
<td><strong>Software compatibility</strong></td>
<td>Minimum software: MGX Switch Software Version 5.1.20</td>
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<tr>
<td><strong>Cards/Ports</strong></td>
<td>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</td>
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<tr>
<td><strong>Redundancy</strong></td>
<td>1:N card redundancy using a 1-to-N redundancy connector 1:1 card redundancy using Y-cable</td>
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<tr>
<td><strong>Framing</strong></td>
<td>ANSI T1.408 extended Super Frame format line framing ITU-T G.704 16 frame multiframe line framing and clear channel</td>
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<tr>
<td><strong>Line coding</strong></td>
<td>T1: B8ZS or AMI E1: HDB3 or AMI</td>
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<tr>
<td><strong>ATM Layer</strong></td>
<td>• 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 (VBR) real-time and non-real-time, constant bit rate (CBR) • ABR supported for EFCl, RM marking, and ER stamping • Standard 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</td>
</tr>
<tr>
<td><strong>Frame Relay</strong></td>
<td>• 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 • 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 tag/discard option • Standard ABR rate-based flow-control option to improve trunk utilization • 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 • Supports CRC-16 and CRC-32</td>
</tr>
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</table>
### Description

<table>
<thead>
<tr>
<th>Physical dimensions</th>
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<tbody>
<tr>
<td>Height: 18.4 cm (7.25 in.)</td>
<td></td>
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<tr>
<td>Depth: 39.8 cm (15.65 in.)</td>
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### Power

- Input power required: (48 VDC)
- Power consumption: 39 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
- ACA TS001
- AS/NZS 60950

### 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](https://www.cisco.com).

#### Table 2.  Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Description</th>
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<tbody>
<tr>
<td>MPSM-16-T1E1</td>
<td>Cisco 16-Port T1/E1 MPSM</td>
</tr>
<tr>
<td>RBBN-16-T1E1-1N</td>
<td>16-port RBBN backcard for active service module in a 1:N card redundancy configuration</td>
</tr>
<tr>
<td>MCC-16-E1-1N</td>
<td>16-port MCC E1 backcard for active service module in a 1:N card redundancy configuration</td>
</tr>
<tr>
<td>RED-16-T1E1</td>
<td>16-port T1/E1 backcard for standby service module in a 1:N card redundancy configuration</td>
</tr>
<tr>
<td>RBBN-16-T1E1</td>
<td>16-port T1/E1 RBBN backcard for Y-cable redundancy</td>
</tr>
<tr>
<td>MCC-16-E1</td>
<td>16-port E1 MCC backcard for Y-cable redundancy</td>
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For More Information

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