Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module

Product Overview

The Cisco MGX® 8950 Multiservice Switch allows service providers to scale networks by providing 180 Gbps of redundant switching with up to 10-Gbps ATM interfaces. The Cisco® MGX 8950 offers service providers outstanding choice and control over extensions of existing infrastructure and provides a seamless path to future services.

The Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module is a line card for use in the Cisco MGX 8950 in combination with the Cisco MGX 8850 PXM-45 Processor Switch Module and the Cisco MGX 8950 XM-60 Switching Module. This 1-port ATM switch service module delivers 10 Gbps for service providers that require both high-bandwidth trunking and high network availability. Up to 12 Cisco OC-192c/STM-64 ATM Switch Service Modules can reside in the Cisco MGX 8950.

The Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module meets service providers' demand for carrier-class availability by offering hot-standby 1+1 card redundancy with SONET/SDH automatic protection switching (APS). (See Figure 1.)

Figure 1. Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module

Key Features

The main features of the Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module are listed here.

- Full nonblocking, full-duplex line-rate throughput
- High reliability with hot-standby 1+1 ATM switch service module card redundancy
- Per-virtual-path and per-virtual-circuit traffic shaping and available bit rate (ABR) with virtual source and virtual destination
- Up to 4 million cell buffers
- Up to 16 classes of service (CoS) that can be used to support IP or ATM services
- Support for standards-based Private Network-to-Network Interface (PNNI), switched virtual circuit (SVC) and switched virtual path (SVP), soft permanent virtual connection (SPVC) and soft permanent virtual path (SPVP), and Multiprotocol Label Switching (MPLS) services

Technical Specifications

Table 1 lists the specifications for the Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module.

Table 1. Product Specifications

<table>
<tr><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td>Chassis Compatibility</td><td colspan="3">Cisco MGX 8950</td></tr>
<tr><td>Software Compatibility</td><td colspan="3">Cisco MGX Software Release 4.0.15 and above</td></tr>
<tr><td>Protocols</td><td colspan="3">ATM and SONET/SDH</td></tr>
<tr><td>Port Density</td><td colspan="3">1 port</td></tr>
<tr><td>Layer 1 (Physical Layer) Feature Summary</td><td colspan="3">• User-Network Interface (UNI) 3.0, 3.1, and 4.0 physical layer specifications
• Compliance with the following SONET standards:
◦ Bellcore GR-253-CORE
◦ ANSI T1.105
• Compliance with the following SDH standards:
◦ ITU-T G.707, G.708, G.709, and G.783
◦ ITU-T G.957 and G.958
Additional Physical Layer Specifications for Ports and Optics</td></tr>
<tr><td></td><td>Connection Options</td><td>SMF-SR[1]</td><td>SMF-LR[2]</td></tr>
<tr><td></td><td>Port speed</td><td>10 Gbps</td><td>10 Gbps</td></tr>
<tr><td></td><td>Number of ports per 10-Gbps ATM switch service module</td><td>1</td><td>1</td></tr>
<tr><td></td><td>Port media</td><td>SMF</td><td>SMF</td></tr>
<tr><td></td><td>Port connector</td><td>SC</td><td>SC</td></tr>
<tr><td></td><td>Optics (nanometers)</td><td>Laser 1310 nm</td><td>Laser 1550 nm</td></tr>
<tr><td></td><td>Transmit power level (decibels per milliwatt [dBm])</td><td>–10 minimum and –3 maximum</td><td>–2 minimum and 3 maximum</td></tr>
<tr><td></td><td>Receive power level (dBm)</td><td>–23 minimum and –8 maximum</td><td>–18 minimum and –3 maximum</td></tr>
<tr><td></td><td>Typical reach (kilometers)</td><td>2 km</td><td>40 km</td></tr>
<tr><td></td><td>Redundancy</td><td>1+1 APS</td><td>1+1 APS</td></tr>
<tr><td></td><td colspan="3">[1]Single-mode fiber, short reach
[2]Single-mode fiber, long reach</td></tr>
</table>

Description	Specification
Layer 2 (ATM) Feature Summary	• Configurable for trunk, Network-to-Network Interface (NNI), or UNI application • Conformant to ATM Forum UNI 3.0, 3.1, and 4.0 and ITU-T I.361 and I.432 specifications • Supports up to 16 CoS queues for IP and ATM traffic and includes all ATM Forum traffic-type services: ABR, unspecified bit rate (UBR), non-real-time variable bit rate (VBR-nrt), real-time variable bit rate (VBR-rt), constant bit rate (CBR); ABR supported with explicit forward congestion indicator (EFCI), RM marking, and explicit-rate stamping; supports ABR virtual source and destination • Supports Integrated Local Management Interface (ILMI) 4.0 • Complies with standard usage parameter control (UPC) as specified by ATM Forum UNI 3.0 and 4.0, TM 4.1, and ITU-T I.371 • Supports early packet discard (EPD), Weighted Random Early Detection (WRED), and partial packet discard (PPD) • Supports virtual circuit connections (VCCs) and virtual path connections (VPCs) • Supports up to 128,000 connections • Supports virtual path identifier (VPI) and virtual circuit identifier (VCI) range for VCCs and VPCs per UNI 3.1 • Supports per-virtual-circuit and per-virtual-path shaping and multipoint connections Virtual trunks • Supports a maximum of 128 virtual interfaces per module; the interfaces can be ports, trunks, or virtual trunks; each virtual interface supports 16 CoS queues Cell buffering • Supports 4 million cells of buffering to accommodate large traffic bursts and avoid network congestion and cell discard; suitable for TCP/IP traffic Support for dynamic routing using PNNI 1.0 • Offers an automatic end-to-end connection management mechanism • Deterministically allocates bandwidth and reroutes connections autonomously over optimum network paths • Preserves service integrity during network failure • Offers E.164 and network-service-access-point (NSAP) addressing • Offers support for SVC and SVP and for SPVC and SPVP • Offers quality-of-service (QoS) based routing Enhanced call admission control • A user-programmable Enhanced Call Admission Control (E-CAC) feature determines whether to admit or deny connections based on the requested QoS. Statistics • Statistics supported per connection • Diagnostic statistics available per interface and CoS queues Operation, administration, and management • F4 to F5 fault propagation • In-band diagnostics support using loopback cells • In-band continuity check and automatic fault reporting for PVCs • Loopback facility support for diagnostics and self-test purposes
Network Management	• Managed by Cisco WAN Manager software suite • Based on Simple Network Management Protocol (SNMP)
Power	• Input power required: –48 VDC • Power consumption: 205W
Physical Dimensions	H x D: 15.83 x 15.65 in. (40.20 x 39.75 cm)
Weight	6.5 lb (2.95 kg)
Environmental Conditions	• Storage temperature: –40 to 158°F (–40 to 70°C) • Operating temperature: ◦ Normal: 41 to 104°F (5 to 40°C) ◦ Short term: 23 to 122°F (–5 to 50°C) • Relative humidity: ◦ Normal: 5 to 85% ◦ Short term: 5 to 90% but not to exceed 0.024 kg (0.048 lb) of water per kg (lb) of dry air Short term refers to a period of not more than 96 consecutive hours and a total of not more than 15 days in 1 year.

Approvals and Compliance

Table 2 lists regulatory information.

Table 2. Compliance and Agency Approvals

Compliance Type	Description
Safety standards	• UL/CSA/IEC/EN 60950-1 • IEC/EN 60825 Laser Safety • ACA TS001 • AS/NZS 60950 • FDA-Code of Federal Regulations Laser Safety
EMI	• FCC Class 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
Immunity (basic standards)	• IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8 kV Contact and 15 kV Air) • IEC/EN-61000-4-3: Radiated Immunity (10 V/m) • IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2 kV AC Power and 1 kV DC Power) • IEC/EN-61000-4-5: Surge AC Port (2 kV CM and 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
Network Equipment Building Systems (NEBS)	This product is designed to meet the following requirements (qualification in progress): • SR-3580: NEBS Criteria Levels (Level 3) • GR-1089-CORE: NEBS EMC and Safety • GR-63-CORE: NEBS Physical Protection
Telcordia CLEI	• GR-485-CORE – CLEI coding • GR-383-CORE – CLEI code product label • GR-209-CORE – PCN process

Ordering Information

Table 3 lists ordering information for the Cisco MGX 8950 OC-192c/STM-64 ATM Switch Service Module.

Table 3. Ordering Information

Part Number	Product Name
AXSM-1-9953-XG	1-Port OC-192c/STM-64, Dble-height ATM Service Module
SMFSR-1-9953	1-Port SMF, Short-Range Dble-height Back Card
SMFLR-1-9953	1-Port SMF, Long-Range, Double-height Back Card
CAB-SMF-SC-10	10ft Single Mode Fiber Cable (SC term.)
CAB-SMF-Y-SC	Single Mode Fiber Y Cable (SC Term)

For More Information

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