

## Cisco MGX 8850/B Advanced ATM Multiservice Switch

The Cisco® MGX® 8850/B Advanced ATM Multiservice Switch is a carrier-class solution for data and voice networks. It supports a full suite of ATM/FR Layer 2 multiservices, Packet Voice, and IP/Multiprotocol Label Switching (MPLS) for service provider applications.

### Product Overview

The Cisco MGX 8850/B Advanced ATM Multiservice Switch (Figure 1) inherits the proven architecture and reliability of the Cisco MGX 8850 to deliver mission-critical networking services. It offers a choice of switching options: 1.2Gbps for low-speed aggregation or 45Gbps for high-bandwidth applications. The physical interfaces supported range from T1/E1 to OC-48/STM-16, Ethernet to Gigabit Ethernet, and OC-12 Packet over SONET. The Cisco MGX 8850/B's multiple simultaneous control planes provide flexibility and scalability while providing standard Asynchronous Transfer Mode (ATM) with advanced traffic management capability, MPLS for IP services, frame relay for traditional Layer 2 data services, circuit emulation, and Packet Voice services. The Cisco MGX 8850/B is an upgraded version of the Cisco MGX 8850 and utilizes specially designed redundancy connectors (RCONs) to support 1:N redundancy without the use of the Cisco MGX Service Resource Module.

**Figure 1.** Cisco MGX 8850/B ATM Multiservice Switch



## Applications

- **Multiservice switching:** Deliver revenue-generating services at the edge of the service provider network. Layer 2 services such as ATM, Frame Relay, Circuit Emulation, Packet Voice, and IP/MPLS services can be offered in a single platform to reduce capital and operational expenses. The variety of narrowband and broadband interfaces ranging from T1/E1 to OC48/STM-16 enables service providers to offer multiple services for voice, data, and video, in the same network infrastructure.
- **Media gateway for voice over IP (VoIP) and voice over ATM (VoATM):** Deliver revenue-generating voice transport applications and services by supporting industry-standard VoIP and VoATM. The advanced capabilities of the Cisco MGX 8850/B allow for bandwidth-efficient transport of voice over a multiservice backbone network. The voice modules (VISM-PR and VXSM) of the Cisco MGX 8850/B, together with a compatible softswitch, support a number of call control protocols (such as Trunking Gateway Control Protocol [TGCP], Media Gateway Control Protocol [MGCP], H.323, and Session Initiation Protocol [SIP]) to provide a variety of Packet Voice applications.
- **Aggregation and backhaul for mobile networks:** The Cisco IP Radio Access Network (RAN) Transport solution allows mobile operators to optimize the critical transport segment for backhauling traffic using IP/MPLS from cell sites. This significantly reduces backhaul costs for 2G and 3G services and improves cell site maintenance.
- **Universal Mobile Telecommunications Systems (UMTS):** The Cisco MGX 8850/B supports a wide range of network interfaces between T3/E3 and OC-48/STM-16 for aggregation and switching and is ideal for UMTS RAN aggregation applications, where the Cisco MGX can be used to aggregate multiple T1 or E1 links from cell sites for transport over an optical backhaul network.

## Primary Features and Benefits

- **1.2-Gbps and 45-Gbps nonblocking switching capacity:** The Cisco MGX 8850/B provides flexibility for broadband multimedia applications that demand high switching throughput. The PXM45/C processor module provides a 45-Gbps switching fabric and management control. Alternatively, the PXM-1E module offers savings by combining both the 1.2-Gbps switching function, management control, and multiple network interfaces in one module. The PXM1 module is also supported. All PXM modules support redundancy configuration for high availability.
- **Flexible service mix:** Service modules may be installed with interfaces ranging from NxDS0 to OC-12/STM-4 to meet individual business needs. This includes the ATM Switching Service Module (AXSM-XG), with its superior traffic management capability for broadband networking. The full-height slots can be used with half-height modules to optimize the chassis for low-speed interface density. Multiprotocol service modules (MPSMs) provide support for ATM, FR, and CES in the same module, allowing for maximum deployment flexibility. The route processor modules (RPMs) run Cisco IOS® Software and provide full support for IP and MPLS networking. The Voice Interworking Service Module (VISM-PR) provides support for VoIP and VoATM functionality, and the Voice Service Switch Module (VXSM) provides high-capacity VoIP services.

- High-availability features: The Cisco MGX 8850/B can be optionally configured with 1:1 redundancy for all common components (switch fabrics, control processors, clock interfaces, and power supplies). The switching capacity remains unaffected by the redundancy configuration.
- Service reliability: All Cisco MGX products support the use of 1+1 Automatic Protection Switching (APS) for optical interface modules; 1:1 redundancy for T1/E1, T3/E3, and optical modules; and 1:N redundancy for T1/E1 modules; all of which are crucial for maintaining service uptime.
- Common element manager: For the ease of end-to-end operation and operational cost saving, all Cisco MGX products can be managed by the same Cisco WAN Manager. The Cisco Wan Manager is a proven management tool; it has a work-flow simplifying graphical user interface (for day-to-day maintenance and task monitoring) and offers a highly scalable network discovery capability, high-performance flow-through provisioning interfaces, and distributed statistics collection capability.

## Product Specifications

Table 1 shows product specifications.

**Table 1.** Product Specifications

Description	Specification
<b>Product compatibility</b>	<p>Utilizing a PXM45/C switching module, the supported service modules are:</p> <p>High density broadband ATM services: the 16-port OC3/STM1 AXSM-16-155-XG, the 8-port OC12/STM-4 AXSM-8-622-XG, the 2-port OC12/STM-4 AXSM-2-622-E and the 16-port T3/E3 AXSM-16-T3E3-E service module</p> <p>Multi-Protocol Service Modules: MPSM-8-T1E1, MPSM-16-T1E1 for T1 and E1, and MPSM-T3E3-155 for DS0 to OC-3/STM-1 channelization for Frame Relay, and T1/E1 to OC-3/STM-1 channelization for ATM.</p> <p>IP and MPLS services: Router Processor Modules (RPM-PR and RPM-XF) for Ethernet, Fast Ethernet, Gigabit Ethernet and Packet over SONET interfaces</p> <p>Narrowband service modules: 8-port ATM AUSM/B, Frame Relay FRSM, Circuit Emulation CESM service modules.</p> <p>High Speed Frame relay FRSM module: FRSM-2-T3/E3, FRSM-2CT3, and the FRSM-HS2/B.</p> <p>Voice services: 8-port voice interface service modules MGX-VISM-PR-T1 and MGX-VISM-PR-E1</p> <p>1:N card redundancy switching, bulk distribution and diagnostics features for 8-port service modules: Latest enhanced version of Service Resource Module SRME/B</p> <p>See the individual service modules datasheets for additional details.</p>
	<p>Utilizing a PXM1E switching module, the supported service modules are:</p> <p>Multi-Protocol Service Modules: MPSM-8-T1E1, MPSM-16-T1E1 for T1 and E1, and MPSM-T3E3-155 for DS0 to OC-3/STM-1 channelization for Frame Relay, and T1/E1 to OC-3/STM-1 channelization for ATM.</p> <p>IP and MPLS services: Router Processor Modules (RPM-PR) for Ethernet, Fast Ethernet.</p> <p>Narrowband service modules: 8-port ATM AUSM/B, Frame Relay FRSM, Circuit Emulation CESM service modules.</p> <p>High Speed Frame relay FRSM module: FRSM-2-T3/E3, FRSM-2CT3, and the FRSM-HS2/B.</p> <p>Voice services: 8-port voice interface service modules MGX-VISM-PR-T1 and MGX-VISM-PR-E1</p> <p>1:N card redundancy switching, bulk distribution and diagnostics features for 8-port service modules: Latest enhanced version of Service Resource Module SRME/B</p> <p>See the individual service modules datasheets for additional details.</p>
<b>Software compatibility</b>	<p>Minimum software: Cisco MGX Switch Software 5.2, Cisco IOS Software 12.3 for RPM, and Cisco WAN Manager 15.1.50, and Cisco Transport Manager 6.0.</p>
<b>Slots</b>	<p>Service Module Slots: 12 full-height slots usable as 24 half-height slots</p> <p>Service Resource Module Slots: 2 single height or 4 half-height slots for primary and secondary</p> <p>Control Processor Slots: 2 fixed full-height slots for primary and secondary</p>
<b>Redundancy</b>	<p>1+1 APS for OC-3/STM-1, OC-12/STM-4 modules</p> <p>1:1 card redundancy using Y-cable for T3/E3, OC-3/STM-1, OC-12/STM-4 modules, Switch module and service resource module</p> <p>1:N card redundancy for T1/E1 modules</p>

Description	Specification
<b>Protocols</b>	ATM SPVC, SPVP, SVC, SVP, Hierarchical PNNI v1.0, AINI v1.0, BICI, UNI 3.0, 3.1 and 4.0, ILMI 3.0 IMA v1.0 and v1.1 Frame Relay FRF.5 and FRF.8, Multilink Frame Relay FRF.16 Circuit Emulation for T1, E1, T3, and E3 with optional structured data IP routing with 802.1Q VLAN, MPLS, PPP over POS, Ethernet, Fast Ethernet or Gigabit Ethernet interface Voice services with proxy signaling interface using TGCP, MGCP, H.323 and SIP, compressed voice using G.711, G.723, G.726 and G.729AB, multi frequency support for E911 and operator services.
<b>Connectivity</b>	T1/E1, nx64kbits, T3/E3, OC-3/STM1, STM-1 Electrical Interface, OC-12/STM-3, POS, Ethernet, Fast Ethernet, Gigabit Ethernet.
<b>Quality of service</b>	Service types supported include Constant bit rate (CBR), real-time variable bit rate (VBR-rt), non-real-time variable bit rate (VBR-nrt), Available bit rate (ABR), and Unspecified bit rate (UBR). IP differentiated services using IP Type of Service (ToS) and DiffServ code point (DSCP) MPLS DiffServ Low-latency queuing (LLQ), Weighted Random Early Detection (WRED), Class-Based Weighted Fair Queuing (CB-WFQ) Connection Admission Control to support overbooking.
<b>Synchronization</b>	Clock source from internal Stratum-3, primary and secondary external building integration timing supply (BITS) interface, or derived from optical interfaces
<b>Network management interfaces</b>	RJ-45 Ethernet port for management interface at the node, and In-band ATM connection to reach remote node for management connectivity. Miniature D serial port for IOS control port. DB-15 for visual and audible alarm port. Command Language Interface (CLI) for local management, Simple Network Management Protocol (SNMP) for network management system interface, Secure File Transfer Protocol (SFTP) for file transfer, and Secure Shell (SSHv1 and SSHv2) for remote CLI access.
<b>Physical dimensions</b>	Height: 27.75 in (75.6 cm) Width: 17.72 in (45 cm) Depth: 21.5 in (54.6 cm) Standalone or rack-mounted for 19 in (48.4 cm) rack or 23 in (58.4 cm) EIA/REMA and ETSI rack
<b>Power</b>	DC input voltage range 42-56 VDC, maximum 30A and 1050W input AC input voltage range 100-120 and 200-240 VAC, maximum 12A at 100VAC, 7A at 200VAC, 1200W input at a frequency of 50-60Hz
<b>Operating environment</b>	Temperature: 32 to 104°F (0 to 40°C) Altitude: -60 to 4000 meters (-197 to 13,124 feet) Relative Humidity: up to 85% (non-condensing)
<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 (30A/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

Description	Specification
<b>Safety compliance</b>	UL/CSA/IEC/EN 60950-1 IEC/EN 60825-1 Laser safety ACA TS001 AS/NZS 60950 FDA—Code of Federal Regulations laser safety
<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

To place an order, visit the [Cisco Ordering Homepage](#).

Table 2 gives ordering information.

**Table 2.** Ordering Information

Product Name	Part Number
Cisco MGX 8850/B chassis back plane and fan tray	MGX8850/B

## To Download the Software

To download Cisco MGX Software, visit:

<http://www.cisco.com/kobayashi/sw-center/wan/wan-planner.shtml>.

## Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco Services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

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**Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
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  
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  
Tel: +31 0 800 020 0791  
Fax: +31 0 20 357 1100

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