Cisco MGX 8830/B Advanced ATM Multiservice Switch

The Cisco® MGX® 8830/B Advanced ATM Multiservice Switch is a small form factor 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 and enterprise network applications.

Product Overview

The Cisco 8830/B Advanced ATM Multiservice Switch inherits the proven carrier-class architecture and reliability of the Cisco MGX product family to deliver mission-critical networking services. It offers a choice of switching options: 1.2Gbps for low-speed aggregation or 45Gpbs for high-bandwidth applications. The physical interfaces range from T1/E1 to OC-48/STM-16, Ethernet to Gigabit Ethernet, and OC-12 Packet over SONET. The Cisco MGX 8830/B offers 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 8830/B platform shares interface modules with the rest of the Cisco MGX Multiservice Switch family, allowing for common sparing, reduced training, and rapid service deployment. It is an ideal solution for extending services to locations where space is a premium, without compromising the mix of high-speed and low-speed interfaces and flexibility of services.

Figure 1. Cisco MGX 8830/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 VoIP and VoATM. The advanced capabilities of the Cisco MGX 8830/B allow for bandwidth-efficient transport of voice over a multiservice backbone network. The voice module (VISM-PR) of the Cisco MGX 8830/B, together with a compatible softswitch, supports 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 network: 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 will significantly reduce backhaul costs for 2G and 3G services and improve cell site maintenance.
- Universal Mobile Telecommunications Systems (UMTS) Radio Access Network (RAN) aggregation: Cisco MGX 8830/B's small form factor and support for wide range of network interfaces from T1/E1 to OC-48/STM-16 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.
- Enterprise/corporate network: The proven reliability and redundant architecture of the Cisco MGX 8830/B are ideal for enterprise customers for their mission-critical corporate infrastructure and converged services delivery. The Cisco MGX 8830/B meets the crucial requirement of enterprises with its wide range of physical network interfaces for user access and for wide area network traffic backhaul.

Primary Features and Benefits

- 1.2-Gbps and 45-Gbps nonblocking switching capacity: The Cisco MGX 8830 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. Both PXM modules support redundancy configuration for high availability.
- Compact chassis design: The compact chassis is ideal for locations where space and power are at a premium, but require a full mix of narrowband and broadband service modules.
- Flexible service mix: Service modules for interfaces ranging from NxDS0 to OC-48/STM-16 may be used in any slot as required for business needs. The double-height slots can be partitioned into two single-height slots to optimize the chassis for low-speed interface density. ATM Switching Service Modules (AXSM-XG) are supported and offer superior traffic management capability for broadband networking. 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. Voice Interworking Service Modules (VISM-PR) provides support for VoIP and VoATM functionality.
- High-availability features: The Cisco MGX 8830/B can be optionally configured with 1:1 redundancy of all common components (switch fabrics, control processors, power supplies, and clock interfaces). The switching capacity remains unaffected by the redundancy configuration. All Cisco MGX service modules maintain crucial service uptime by providing support protection schemes for network interfaces through the use of 1+1 Automatic Protection Switching (APS) for optical interface modules, 1:1 redundancy for T3/E3 and optical modules, and 1:N redundancy for T1/E1 modules.
- Common Element Manager: For the ease of end-to-end operation and operational cost savings, all Cisco MGX products can be managed by the same Cisco WAN Manager, which supports highly scalable network discovery capability, work-flow simplifying graphical

user interface for day-to-day maintenance and monitoring tasks, high-performance flow-through provisioning interfaces, and distributed statistics collection capability.

Product Specifications

Table 1 provides product specifications.

Table 1. Product Specifications

Description	Specification
Product compatibility	With Switching module PXM45/C, the supported service modules are: High density broadband ATM services: AXSM XG for OC-3/STM-1 and OC-12/STM-4; AXSM-E for OC-12/STM-4, T3/E3; AXSM/B for OC-48/STM-16 interface. 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. IP and MPLS services: Route processor Modules (RPM-PR and RPM-XF) for Ethernet, Fast Ethernet, Gigabit Ethernet and Packet over SONET interfaces Narrowband service modules: 8-port ATM AUSM/B, Frame Relay FRSM, Circuit Emulation CESM service modules. High Speed Frame relay FRSM module: FRSM-2-T3/E3, FRSM-2CT3, and the FRSM-HS2/B. Voice services: 8-port voice interface service modules MGX-VISM-PR-T1 and MGX-VISM-PR-E1 1:N card redundancy switching, bulk distribution and diagnostics features for 8-port service modules: Latest enhanced version of Service Resource Module SRME/B See the individual service modules datasheets for more details.
	With Switching module PXM1E, the supported service modules are: 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. IP and MPLS services: Route processor Modules (RPM-PR) for Ethernet, Fast Ethernet. Narrowband service modules: 8-port ATM AUSM/B, Frame Relay FRSM, Circuit Emulation CESM service modules. High Speed Frame relay FRSM module: FRSM-2-T3/E3, FRSM-2CT3, and the FRSM-HS2/B. Voice services: 8-port voice interface service modules MGX-VISM-PR-T1 and MGX-VISM-PR-E1 1:N card redundancy switching, bulk distribution and diagnostics features for 8-port service modules: Latest enhanced version of Service Resource Module SRME/B See the individual service modules datasheets for more details.
Software compatibility	Minimum software: Cisco MGX Switch Software 5.2, IOS 12.3 for RPM, and Cisco WAN Manager 15.1.50, and Cisco Transport Manager 6.0.
Slots	Service Module Slots: 4 double-height slots or 8 single-height slots Service Resource Module Slots: 2 single-height slots for primary and secondary Control Processor Slots: 2 fixed double-height slots for primary and secondary
Redundancy	1+1 APS for OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 Modules 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 1:N card redundancy for T1/E1 modules
Protocols	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 signaling interface using TGCP, MGCP, H.323 and SIP, compressed voice using G.711, G.723, G.726 and G.729AB, CAS, ISDN/PRI and multi frequency support for E911 and operator services.
Connectivity	T1/E1, T3/E3, OC-3/STM1, STM-1 Electrical Interface, OC-12/STM-4 POS, Ethernet, Fast Ethernet, Gigabit Ethernet.

Description	Specification
Quality of service	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.
Synchronization	Clock source from internal Stratum-3, primary and secondary external building integration timing supply (BITS) interface, or derived from optical interfaces
Network management interfaces	RJ-45 Ethernet port for management interface at the node, and In-band ATM connection to reach remote node for management connectivity. 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.
Physical dimensions	Height: 12.25 in (31.1 cm) or 7 RU Width: 17.72 in (45 cm) Depth: 23.5 in (59.7 cm) Height of optional AC tray: 1.75 in (4.5 cm) Standalone or rack-mounted for 19 in (48.4 cm) rack or 23 in (58.4 cm) EIA/REMA and ETSI rack
Power	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 frequency of 50-60Hz
Operating environment	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)
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 (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
Safety compliance	UL/CSA/IEC/EN 60950-1 IEC/EN 60825-1Laser safety ACA TS001 AS/NZS 60950 FDA—Code of Federal Regulations laser safety
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

Description	Specification
System capacity	ATM interface: 144 T1/E1 or 64 T3/E3 or 64 OC-3/STM-1 or 32 OC-12/STM-4 or 4 OC-48/STM-16 Frame Relay: 128 T1/E1 or 24 T3/E3 or 8 OC-3/STM-1 Circuit Emulation: 64 T1/E1 and 3 channelized T3/E3 or 1 channelized OC-3/STM-1 Voice interface: 64 T1/E1 and 3 channelized T3/E3 or 1 channelized OC-3/STM-1 IP Interfaces: 20 Ethernet or Fast Ethernet or Gigabit Ethernet, or 8 OC-12 Packet Over SONET

Table 2 provides ordering information.

Table 2. Ordering Information

Part Number	Product Name
MGX(R)8830/B	Cisco MGX 8830/B chassis back plane and fan tray

For More Information

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

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Printed in USA C78-406926-00 05/07

