

Metro Ethernet Switch Supplier - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION AND MARKET POSITIONING

Apex Telecom Solutions presents the ApexEdge 8000 Series, the definitive Metro Ethernet Switch Supplier solution for carrier-grade and large-scale enterprise edge networks. Engineered to bridge the gap between high-capacity core routing and cost-effective access aggregation, the ApexEdge 8000 delivers non-blocking Layer 2 switching and advanced Layer 3 routing with sub-50ms protection switching. As a strategic platform for smart cities, mobile backhaul, and business VPN services, it assures operational simplicity without compromising on resiliency, timing synchronization, or environmental hardiness.



SYSTEM HARDWARE TOPOLOGY AND CHASSIS ARCHITECTURE

The ApexEdge 8000 Series is built on a 2RU modular, fanless-ready chassis with front-to-back airflow optimization. The hardware topology separates the data plane, control plane, and management plane onto isolated physical subsystems to guarantee service continuity. The passive backplane supports up to 8 pluggable interface modules and dual redundant supervisor engines. Each module connects via a 240 Gbps full-mesh backplane fabric, eliminating blocking conditions under any traffic profile.

Key chassis features include:

- Hot-swappable fan trays with N+1 redundancy
- Dual AC/DC power bays supporting 1+1 power redundancy
- Alarm and console ports on the front panel for easy field maintenance
- Hardware-based timestamping and SyncE/IEEE 1588v2 PTP support

DATA AND CONTROL PLANE CAPABILITIES

The distributed forwarding architecture leverages a Terabit-scale ASIC pipeline enabling wire-speed processing of jumbo frames (up to 9,216 bytes). The central supervisor engine runs a hardened, real-time operating system hosting routing protocols (OSPF, IS-IS, BGP, RIP) and MPLS (LDP, RSVP-TE, VPLS, VPWS).

Control plane policing (CoPP) ensures that management and routing protocol traffic is always prioritized, even under denial-of-service conditions. The data plane supports VLAN-based QoS, hierarchical shaping, dual-rate policing, and an extensive access control list (ACL) capacity of 16,000 entries per system.

COMPONENT BREAKDOWN AND KEY FEATURES

- Supervisory Engine: Dual-core 1.6 GHz CPU, 8 GB DDR4 RAM, 16 GB eMMC flash
- Switching Fabric: 480 Gbps non-blocking fabric capacity
- Interface Module Options: 24x1G SFP, 12x10G SFP+, 4x40G QSFP+, or 2x100G QSFP28
- Timing Module: Integrated GNSS receiver (optional), 1588v2 TC/BC, SyncE
- Security Hardware: Trusted Platform Module (TPM) 2.0, MACsec on 10G/40G/100G ports

OPERATIONAL SPECS MATRIX

Parameter	Specification
Form Factor	2RU Rack-mount (88.1mm x 442mm x 400mm)
Switching Capacity	480 Gbps (non-blocking)

Power Supply	1+1 Redundant AC (100-240V) or DC (-40 to -72V)
Operating Temperature	-40°C to +65°C (NEBS compliant)
Forwarding Rate	357 Mpps (wire-speed for all packet sizes)
MAC Address Table	128,000 entries
VLANs Supported	4,096 active VLANs (Q-in-Q up to 4,096 x 4,096)
Jumbo Frame Support	9,216 bytes
MTBF (40°C)	350,000 hours (Telcordia SR-332)
Power Consumption (Typical)	185W (fully loaded with 8 modules and dual PSUs)

REGULATORY COMPLIANCE AND CERTIFICATIONS

The ApexEdge 8000 Series meets or exceeds global telecom standards for deployment in Central Offices, street cabinets, and uncontrolled temperature shelters.

- Safety: IEC 62368-1, UL/CSA 60950-1, EN 60825-1 (Laser Safety)
- EMC: EN 55032 Class A, FCC Part 15 Class A, CISPR 32
- Environmental: NEBS GR-63-CORE Level 3, ETSI EN 300 019 (Class 1.2 & 3.2)

- Carrier Ethernet: MEF 22.1, MEF 26.2, MEF 48 (Service OAM)
- Timing: ITU-T G.8262 (SyncE), IEEE 1588-2008 (PTP), G.8275.1



LIFECYCLE ASSURANCE AND ORDERING SKU GUIDE

All ApexEdge 8000 systems ship with a 5-year hardware warranty and lifetime software updates for the core operating system. MTBF exceeds 350,000 hours (Telcordia SR-332, 40°C). The following base SKUs are available for immediate procurement:

- AEX-8000-CH: Empty chassis with backplane, fans, and alarm panel
- AEX-8000-SUP: Supervisor Engine module (dual required for HA)
- AEX-8K-24T: 24x1G SFP interface module
- AEX-8K-12X: 12x10G SFP+ interface module
- AEX-8K-2C: 2x100G QSFP28 uplink module

- AEX-8000-PSU-AC: 300W AC power supply
- AEX-8000-PSU-DC: 300W DC power supply (-48V)

For turnkey deployment, reference design packages (AEX-8000-MBH for mobile backhaul, AEX-8000-METRO for metro aggregation) include pre-configured modules, optics, and rack-mounting accessories.