

Enterprise Campus Network Core Switch Selection - Official Technical Overview & Hardware Datasheet

PRODUCT OVERVIEW & MARKET POSITIONING

The modern enterprise campus network demands a core switching platform that simultaneously delivers carrier-grade reliability, wire-speed performance, and future-ready scalability. The [MODEL_CORE_SWITCH] series has been architected to serve as the unified fabric for high-density campus environments, consolidating Gigabit-to-100G Ethernet access layers, security services, and network virtualization overlays without compromise.



ARCHITECTURE & CHASSIS DESIGN

Based on a non-blocking Clos switching fabric, the [MODEL_CORE_SWITCH]

deploys a distributed forwarding architecture with hardware-based VXLAN routing and inline encryption offload. The modular chassis supports hot-swappable supervisor engines, line cards, power supplies, and fan trays—all accessible from the front or rear (reversible airflow option). Key design pillars include:

- 4.8 Tbps to 25.6 Tbps switching capacity (depending on line card population)
- Sub-microsecond port-to-port latency for all frame sizes
- Hardware-assisted In-Service Software Upgrade (ISSU) with zero packet loss
- Support for 400 GbE downlink/uplink optical interfaces

HARDWARE FEATURES & PERFORMANCE CAPABILITIES

The switching engine integrates a programmable pipeline ASIC supporting P4 language extensions. Feature highlights:

- MAC address table: 512K entries
- IPv4/IPv6 route table (FIB): 1M routes
- ACL rules: 32K ingress + 16K egress
- Jumbo frame support up to 12K bytes
- 1+1 route processor redundancy with sub-100 ms failover
- N+1 fabric module redundancy for fully distributed forwarding

TECHNICAL SPECIFICATIONS

Parameter	Specification
Form Factor	5-slot or 8-slot modular chassis, 7RU/13RU respectively
Switching Capacity	4.8 Tbps (5-slot) to 25.6 Tbps (8-slot, fully loaded)
Forwarding Rate	3.6 Bpps to 19.2 Bpps (64-byte packets)
Power Supply	1+1 or 2+2 redundant, AC (3000W) or DC (2400W)
Operating Temperature	0°C to 45°C (long term), -5°C to 55°C (short term)
Humidity	5% to 95% non-condensing
MTBF	>300,000 hours (Telcordia SR-332, 40°C)
Management Interfaces	1x RJ45 console, 1x USB-C console, 1x 10/100/1000 MGMT, 1x 1G SFP MGMT
Layer 3 Features	OSPF, BGP, IS-IS, VRRP, PIM-SM, VXLAN EVPN, SR-MPLS
Security	MACsec 256 (line-rate on all ports),

	hardware ACL, CPU rate-limiting
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COMPLIANCE & STANDARDS

The platform satisfies comprehensive industry regulatory and interoperability mandates:

- IEEE 802.1Q, 802.1ad, 802.1Qbu/802.3br (TSN)
- ITU-T G.8032 Ethernet Ring Protection
- MEF 42 (Carrier Ethernet 2.0)
- Energy Efficient Ethernet (IEEE 802.3az)
- RoHS, REACH, WEEE compliance
- NEBS Level 3 (GR-63-CORE, GR-1089-CORE)
- EMC: FCC Part 15 Class A, EN 55032 Class A, CISPR 32
- Safety: UL 62368-1, IEC 62368-1, EN 62368-1

ORDERING OPTIONS & SKU GUIDE

- [MODEL_CORE_SWITCH]-8SLOT – 8-slot modular chassis (includes fabric module slots)
- [MODEL_CORE_SWITCH]-5SLOT – 5-slot modular chassis

- SUP-[YEAR] – Supervisor engine module with 64GB DRAM, 64GB eMMC
- LINE-CARD-48x25G-SFP – 48x25G SFP28 + 8x100G QSFP28 line card
- LINE-CARD-32x100G-QSFP28 – 32x100G QSFP28 line card
- PWR-AC-3000W – 3000W AC power supply, 1+1/2+2 redundancy
- PWR-DC-2400W – -48V DC power supply, 1+1 redundancy
- FAN-TRAY-REV – Reversible airflow fan tray kit

DEPLOYMENT TOPOLOGY EXAMPLE

Typical deployment: Two [MODEL_CORE_SWITCH] units in a Virtual Port Channel (vPC) / StackWise Virtual configuration, each connecting to distribution switches (10G/25G uplinks) and downstream access switches (1G/10G). Core links operate at 40G/100G to aggregation routers and firewall clusters. L2/L3 gateway services, VXLAN EVPN multi-tenancy, and MACsec on all inter-switch links complete the architecture.



LIFECYCLE ASSURANCE & SUPPORT

- MTBF (Mean Time Between Failures): > 300,000 hours (Telcordia SR-332, 40°C)
- MTTR (Mean Time To Repair): <2 hours (fully modular, all FRUs hot-swappable)
- Standard limited lifetime warranty + Next-Business-Day (NBD) advanced hardware replacement
- Optional 24/7 mission-critical support with 4-hour on-site response

This datasheet contains preliminary information. Final specifications subject to change without notice. Contact your authorized sales representative for exact model configuration and custom factory integration.