

100G data center switch cost - Official Technical Overview & Hardware Datasheet

PRODUCT OVERVIEW & STRATEGIC POSITIONING

Entering the era of high-density 100G fabric, the cost-optimized 100G data center switch represents a paradigm shift for cloud providers, enterprise data centers, and carrier colocation facilities. This platform achieves line-rate 100 Gigabit Ethernet (GbE) per port while preserving a total cost of ownership (TCO) profile suitable for brownfield upgrades and greenfield hyperconverged deployments. Designed for leaf-spine and simplified collapsed-core architectures, the switch balances forwarding capacity, power efficiency, and capital expenditure (CAPEX) without compromising on hardware reliability.



SYSTEM ARCHITECTURE & CHASSIS DESIGN

The switch employs a fixed-form-factor 1RU or 2RU chassis leveraging merchant silicon with a cut-through forwarding architecture. The internal backplane provides non-blocking switching capacity across all front-panel ports. Redundant power supply units (PSU) and N+1 fan trays are integrated into a front-to-back or side-to-side airflow scheme, enabling hot/cold aisle containment in hyperscale environments.

Key hardware differentiators include:

- 48 x 100G QSFP28 downlink ports supporting 100G, 40G, or split into 4x25G or 4x10G.
- 6 x 400G uplink ports (QSFP-DD) for future spine interconnect or stacking.
- Centralized management port: 1 x RJ45 10/100/1000 out-of-band (OOB) + 1 x USB console.
- Hardware-based line-rate ACLs, sFlow, and telemetry streaming.

HARDWARE FEATURES & FORWARDING PLANE

The platform integrates a 12.8 Tbps switching fabric with a maximum forwarding rate of 10.2 Bpps (billion packets per second). Internal memory allocation supports up to 256K MAC entries, 512K IPv4 routes, and 128K IPv6 routes. The shared packet buffer of 32 MB provides deep burst absorption for

incast traffic patterns typical in storage or AI/ML clusters. The switch supports jumbo frames (up to 9216 bytes) and lossless priority flow control (PFC) for converged Ethernet (RoCEv2).

COMPLIANCE & STANDARDS

- IEEE 802.3bj (100GBASE-SR4/LR4/CR4)
- IEEE 802.3ba (40GbE) and IEEE 802.3cd (25GbE)
- Energy-Efficient Ethernet (EEE) 802.3az
- RoHS, CE, FCC, VCCI, and REACH compliance
- NEBS Level 3 (optional ruggedized variant)

TECHNICAL SPECIFICATIONS

Parameter	Specification
Form Factor	1RU Rack-mountable (19")
Switching Capacity	12.8 Tbps full duplex
Forwarding Rate	10.2 Bpps (line-rate for 64B packets)
Port Configuration	48 x 100G QSFP28 + 6 x 400G QSFP-DD
Power Supply	2x 1300W AC (1+1 redundant), input 100-240V ~ 50/60Hz
Typical/Max Power	450W typical / 850W maximum (with

	48xSR4 optics)
Operating Temperature	0°C to +45°C (standard); -5°C to +55°C (ruggedized)
Packet Buffer	32 MB shared buffer
Latency (100G)	< 600 ns (store-and-forward, 64B)
Weight	9.1 kg (20.1 lbs) fully loaded

ORDERING OPTIONS & PROCUREMENT MODEL

Standard SKU: SW100G-48Y6C (1RU, 48x100G + 6x400G) with dual 1300W AC PSUs, 6 fan modules, rack mount kit.

Cost-optimized SKU: SW100G-48Y6C-LITE (single PSU, 4 fans, reduced temperature range).

Ruggedized SKU: SW100G-48Y6C-R (extended temp -5°C to +55°C, conformal coating for industrial edge).

All SKUs include 3-year hardware warranty with advanced replacement; optional 24/7 4-hour on-site support.

The platform supports both ONIE (Open Network Install Environment) for NOS selection (SONiC, Pica8, Cumulus Linux) and a traditional OEM CLI based on a

carrier-hardened Linux kernel.



LIFECYCLE ASSURANCE (MTBF & SUSTAINABILITY)

Calculated MTBF exceeds 280,000 hours (Telcordia SR-332, Ground Benign, 40° C). The power supply efficiency peaks at 94% (80 PLUS Titanium certified under AC input). Idle power draw is 180W; full load with 48x100G active optics stays under 850W, directly impacting OPEX reduction for large-scale deployments.

Target deployment architectures: 2-tier leaf-spine (128x100G servers), collapsed core for 2,000+ rack units, and high-frequency trading environments requiring deterministic sub-microsecond port-to-port latency.

For a detailed cost analysis calculator or to request a commercial quotation,

contact your regional sales engineering team. This datasheet supersedes all previous revisions.