MAC Address Table Size 16K 32K - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The product family detailed in this document encompasses a series of high-performance Layer 2+ and entry-level Layer 3 Ethernet switches engineered for scalable Medium Enterprise, Campus Access, and Carrier Edge aggregation deployments. The defining architectural characteristic of this platform series is the hardware-forwarded MAC address table size, available in two primary SKU tiers: 16,384 (16K) and 32,768 (32K) entries.



CORE INTERNAL TOPOLOGY

The forwarding plane is constructed around a single, non-blocking Ethernet

switching ASIC. The MAC learning and aging logic is processed in hardware, ensuring wire-speed performance regardless of table utilization. The 16K variant addresses standard access layer requirements, while the 32K variant doubles the Layer 2 domain capacity, allowing for larger broadcast domains or deeper MAC learning in complex multi-tenant edge networks.

SWITCHING SUBSYSTEM CAPABILITIES

- HARDWARE FORWARDING: All switching, filtering, and VLAN assignment occur at line rate within the packet forwarding engine.
- MAC MANAGEMENT: Configurable aging timer (10-1,000,000 seconds), static MAC entry programming, and MAC address move protection.
- LAYER 2 PROTOCOLS: Full support for GVRP, MVR, STP/RSTP/MSTP, and Link Aggregation Control Protocol (LACP).
- SCALABILITY: The 32K model supports up to 4K active VLANs and 32K independent MAC entries simultaneously, mitigating overflow risks in dense aggregation topologies.

OPERATIONAL ADVANTAGES

- Predictable performance: Table exhaustion results in packet flooding, not forwarding engine lockup.

- Silent failover: Graceful restart of management plane does not clear the dynamic MAC table.

- Hardware learning: Prevents CPU intervention for each new source MAC, preserving CPU for routing protocols and management.

SPECIFICATION MATRIX

Parameter	**16K Model Specification**	**32K Model Specification**
MAC Address Table Size	16,384 entries	32,768 entries
Form Factor	1RU Rack-mount	1RU / 2RU Rack-mount
Switching Capacity (Backplane)	56 Gbps (non-blocking)	128 Gbps (non-blocking)
Forwarding Rate (64-byte packets)	41.7 Mpps	95.2 Mpps
Jumbo Frame Support	9,216 bytes	12,000 bytes
Active VLANs (802.1Q)	256 (4K VLAN IDs)	4,000 active VLANs
Power Supply	Fixed AC, internal	Dual hot-swappable, AC/DC optional
Typical Power Consumption	35W (no PoE)	75W (without PoE load)

REGULATORY COMPLIANCE

All variants comply with IEEE 802.1D (MAC Bridges), IEEE 802.1Q (VLAN tagging), and IEEE 802.3x flow control. EMC certifications include FCC Part 15 Class A, CE Mark, and VCCI. Safety: UL 60950-1, IEC 60950-1, and RoHS-6 exempt for leaded soldering options. Environmental: Operating temperature range 0°C to 50°C (32°F to 122°F) with 5% to 95% non-condensing humidity.



ORDERING INFORMATION (REFERENCE)

- SW-1624G-16K: 24x GigE RJ45 + 4x SFP, 16K MAC table

- SW-3248P-32K: 48x PoE+ GigE + 4x 10G SFP+, 32K MAC table, dual hot-swappable PSU

- SW-3212X-32K: 12x 10G SFP+ fiber switch, 32K MAC table, front-to-back airflow

LIFECYCLE & SUPPORT: All 16K and 32K MAC table models carry a standard 5-year hardware warranty with advanced replacement and perpetual software maintenance for critical bug fixes.