High density 1000BASE-T switch

The Dell EMC PowerSwitch S3048-ON 1000BASE-T top-of-rack (ToR) switch is the industry’s first 1GbE enterprise switching platform to deliver both an industry hardened OS and support for open networking, providing freedom to run third-party operating systems (OS).

This open networking platform is built for high-performance, software-defined data centers and provides the features to run traditional workloads and the flexibility to deploy new workloads such as Hadoop, SDS and Big Data. The S3048-ON offers the flexibility to run OS options optimized for diverse deployment needs on a common hardware platform and architecture.

The S3048-ON features a non-blocking switching architecture coupled with OS9.X software, delivering line-rate L2/L3 features for maximized network performance. The S3048-ON design provides (48) 1000BASE-T ports that support 10MbE/100MbE/1GbE and four 10GbE SFP+ uplinks. Each 10GbE interface can be used as uplinks to the network spine/core, as stack ports to connect up to six units in a stacked configuration, or a combination of both, depending on network architecture and uplink/stack bandwidth requirements.

The S3048-ON incorporates multiple architectural features that optimize data center network flexibility, efficiency and availability including:

- I/O panel to PSU airflow or PSU to I/O panel airflow for hot/cold aisle environments
- Redundant, hot-swappable power supplies and fans with color coded touch points for ease of identification/removal
- Dell ReadyRails for efficient installation of the switch into data center cabinets

The S3048-ON also supports Dell Technologies’ Embedded Open Automation Framework, which provides advanced network automation and virtualization capabilities for virtual data center environments. Embedded Open Automation Framework is a suite of network management apps that can be used together or independently to provide a network that is flexible, available and manageable while helping to reduce operational expenses.

Key applications

- High-density 1000BASE-T ToR server aggregation in high-performance data centers environments
- Active Fabric™ designs with the S- or Z-Series core switch to create a two tier, 1/10/40GbE data center network architecture
- Enterprise, Web 2.0 and cloud service providers’ data center networks for ToR applications
- High-performance SDN/OpenFlow 1.3 enabled with ability to inter-operate with industry standard OpenFlow controllers

Key features

- Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF, BGP and PBR (Policy Based Routing) support
- Four SFP+ 10GbE ports for maximum flexibility and investment protection
- I/O panel to PSU airflow or PSU to I/O panel airflow
- Redundant, hot-swappable power supplies and fans
- Supports ONIE for zero-touch installation of alternate network operating systems
- Open Networking offers choice of OS, such as Dell EMC Smart-Fabric OS10 and Dell EMC Networking OS9, for inherent stability and feature richness, or the flexibility of a third-party OS
- VRF-lite enables sharing of networking infrastructure and provides L3 traffic isolation across tenants (including support for multicast and IPv6 routing)
- Enhanced automation capabilities (puppet agent, REST API extensions)
- Supports jumbo frames for high-end performance in virtualized environments and IP storage/server communication
- Increase VM Mobility region by stretching L2 VLAN within or across two DCs with unique VLT capabilities like Routed VLT, VLT Proxy Gateway
- User port stacking support for up to six units managed as one logical device
- Embedded Open Automation Framework adds VM awareness automated configuration and provisioning capabilities to simplify the management of virtual network environments
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<td>S3048-ON</td>
<td>S3048-ON 1000BASE-T, 48 x 1000BASE-T, 4 x SFP+, 1 x AC PSU, 3 x Fans, I/O I/O Panel to PSU Airflow</td>
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<td>S3048-ON 1000BASE-T fan module, I/O Panel to PSU Airflow</td>
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<td>Optics</td>
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<td>Transceiver, SFP+, 10GbE, LRM, 1310nm wavelength, up to 220m reach</td>
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<td>Transceiver, SFP+, 10GbE, SR, 850nm wavelength, up to 300m reach</td>
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<td>Transceiver, SFP+, 10GbE, LR, 1310nm wavelength, up to 10km reach</td>
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<td>Transceiver, SFP+, 10GbE, ER, 1550nm wavelength, up to 40km reach</td>
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<td>Transceiver, SFP+, 10GbE, ZR, 1550nm wavelength, up to 80km reach</td>
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<td>Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m</td>
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<td>Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 1m</td>
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<td>Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 3m</td>
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<td>Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 5m</td>
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<td>Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 7m</td>
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<tr>
<td>Software</td>
<td>Dell EMC Networking OS9, Dell EMC SmartFabric OS10*</td>
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Note: In-field change of airflow direction not supported.

*Ordered separately
Physical
48 line-rate 1000BASE-T ports
4 line-rate 10GBE SFP+ ports
1 RJ45 console/management port with RS232
Size: 1 RU, 17.17" h x 17.06" w x 2.12" d (44.9 h x 43.4 w x 32.0 cm d)
Weight: 12.8 lbs (5.9 kg) with 1 power supply, 14.8 lbs (6.7 kg) with 2 power supplies
ISO 7779 A-weighted sound pressure level: <36 dBA at 78.8°F (26°C)
Max. thermal output: 290 BTU/h
1) AC forward airflow
2) AC reverse airflow
Max. power consumption: <1A at 100/120V VAC <0.5A at 200/240VAC
Packet buffer memory: 4MB
SFP+
Latency 3.7 μsec for 1000BASE-T, ~1.8 μsec for 10GBase-T
LAG load balancing: based on Layer 2, IPv4 or IPv6
Operating altitude: 0ft to 10,000ft above sea level
Operating humidity: 5 to 85% (RH), non-condensing
Storage humidity: 5 to 95% (RH), non-condensing
Hot swappable redundant fans
Hot swappable redundant power supplies
Redundancy
Hot swapable redundant power supplies
Hot swapable redundant fans
User port stacking up to 6 units
Performance
MAC addresses: up to 80k
IPv4 routes: 8k (shared CAM space with IPv4)
IPv6 routes: 240K
Switch fabric capacity: 260Gbps (full-duplex)
130 Gbps (half-duplex)
Forwarding capacity: 151 Mpps
Link aggregation: 16 links per group, 128 groups per stack
Queues per port: 8 queues
Layer 2 VLANs: 4K
MSTP: 64 instances
VRF-lite: 64 instances
Line-rate Layer 2 switching: all protocols, including IPv4 and IPv6
IPv4 packet size up to 40k max
IPv6 packet size up to 8K
IPv4 Multicast table size 24K
LAG load balancing: based on Layer 2, IPv4 or IPv6 headers
Latency 3.7 μsec for 1000BASE-T, <1.8 μsec for SFP+
Packet buffer memory: 4MB
CPU memory: 2GB
IEEE compliance
802.1AB LLDP
802.1D Bridging, STP
802.1p L2 Prioritization
802.1Q VLAN Tagging, Double VLAN Tagging, GVRP
802.1s MSTP
802.1w RSTP
802.1X Network Access Control
802.3ab Gigabit Ethernet (1000BASE-T)
802.3ac Frame Extensions for VLAN Tagging
802.3ad Link Aggregation with LACP
802.3ae 10 Gigabit Ethernet (10GBASE-X) on optical ports
802.3az Energy Efficient Ethernet (EEE)
802.3u Fast Ethernet (100BASE-TX) on mgmt ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000BASE-X)
ANS/TIA-1157 LLDP-MED
Force10 PVST+
MTU 12,000 bytes
RFC and I-D compliance
General Internet protocols
IPv4
IPv6
OSPF
RIP
RIP
RIP
RIPv2
RIPv2
RIPv2
IPv6
IPv4 Multicast table size 8K
Layer 2 VLANs: 4K
Queues per port: 8 queues
Layer 2 VLANs: 4K
MSTP: 64 instances
VRF-lite: 64 instances
Line-rate Layer 2 switching: all protocols, including IPv4 and IPv6
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802.3ad Link Aggregation with LACP
802.3ae 10 Gigabit Ethernet (10GBASE-X) on optical ports
802.3az Energy Efficient Ethernet (EEE)
Regulatory compliance

Safety
UL/CSA 60950-1, Second Edition
EN 60950-1, Second Edition
IEC 60950-1, Second Edition Including All National Deviations and Group Differences
FDA Regulation 21 CFR 1040.10 and 1040.11

Emissions
Australia/New Zealand: AS/NZS CISPR 22: 2006, Class A
Canada: ICES-003, Issue-4, Class A
Japan: VCCI V3/2009 Class A
USA: FCC CFR 47 Part 15, Subpart B:2011, Class A

Immunity
EN 300 386 V1.4.1:2008 EMC for Network Equipment
EN 61000-3-2: Harmonic Current Emissions
EN 61000-3-3: Voltage Fluctuations and Flicker
EN 61000-4-2: ESD
EN 61000-4-3: Radiated Immunity
EN 61000-4-4: EFT
EN 61000-4-5: Surge
EN 61000-4-6: Low Frequency Conducted Immunity

RoHS
All S Series components are EU RoHS compliant.

Certifications
Available with US Trade Agreements Act (TAA) compliance
USGv6 Host and Router Certified on Dell Networking OS 9.7 and greater
IPv6 Ready for both Host and Router
UCR DoD APL (core and distribution ASLAN switch)
Tested to meet or exceed Hi Pot and Ground Continuity testing per UL 60950-1

Warranty
1 year return to depot