



DELL POWERSWITCH S3048-ON

1GbE top-of-rack open networking switch

High density 1000BASE-T switch

The Dell 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 Open-Flow 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 SmartFabric OS10 and Dell 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

Product	Description
S3048-ON	S3048-ON 1000BASE-T, 48 x 1000BASE-T, 4 x SFP+, 1 x AC PSU, 3 x Fans, IO I/O Panel to PSU Airflow S3048-ON 1000BASE-T, 48 x 1000BASE-T, 4 x SFP+, 1 x AC PSU, 3 x Fans,, PSU to I/O Panel Airflow S3048-ON 1000BASE-T, 48 x 1000BASE-T, 4 x SFP+, 1 x AC PSU, 3 x Fans, I/O Panel to PSU Airflow, TAA S3048-ON 1000BASE-T, 48 x 1000BASE-T, 4 x SFP+, 1 x AC PSU, 3 x Fans, PSU to I/O Panel Airflow, TAA
Redundant power supplies	S3048-ON 1000BASE-T, AC Power Supply, I/O Panel to PSU Airflow S3048-ON 1000BASE-T, AC Power Supply, PSU to IO I/O Panel Airflow
Fans	S3048-ON 1000BASE-T fan module, I/O Panel to PSU Airflow S3048-ON 1000BASE-T fan module, PSU to I/O SR4 Panel Airflow
Optics	Transceiver, SFP, 100BASE-FX, 1310nm wavelength, up to 2km reach Transceiver, SFP, 1000BASE-T Transceiver, SFP, 1000BASE-SX, 850nm wavelength, up to 550m reach Transceiver, SFP, 1000BASE-LX, 1310nm wavelength, up to 10km reach Transceiver, SFP, 1000BASE-ZX, 1550nm wavelength, up to 80km reach Transceiver, SFP+, 10GbE, LRM, 1310nm wavelength, up to 220m reach Transceiver, SFP+, 10GbE, SR, 850nm wavelength, up to 300m reach Transceiver, SFP+, 10GbE, LR, 1310nm wavelength, up to 10km reach Transceiver, SFP+, 10GbE, ER, 1550nm wavelength, up to 40km reach Transceiver, SFP+, 10GbE, ZR, 1550nm wavelength, up to 80km reach
Cables	Dell Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m Dell Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 1m Dell Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 3m Dell Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 5m Dell Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 7m Dell Networking Cable, SFP+ to SFP+, 10GbE, Active Optical Cable, 15m
Software	Dell OS9, Dell SmartFabric OS10*

Note: In-field change of airflow direction not supported.

*Ordered separately

Technical specifications

Physical

48 line-rate 1000BASE-T ports
 4 line-rate 10GbE SFP+ ports
 1 RJ45 console/management port with RS232 signaling
 Size: 1 RU, 1.71" h x 17.09" w x 12.6" d (4.4 h x 43.4 w x 32.0 cm d)
 Weight: 12.8 lbs (5.84 kg) with 1 power supply, 14.8 lbs (6.74kg) with 2 power supplies
 ISO 7779 A-weighted sound pressure level: <36 dBA at 78.8°F (26°C)
 Power supply: 90–264 VAC 50/60 Hz
 1) AC forward airflow
 2) AC reverse airflow
 Max. thermal output: 290 BTU/h
 Max. current draw per system: <1A at 100/120V VAC <0.5A at 200/240VAC
 Max. power consumption: 87W
 Typ. power consumption: 65 Watts
 Max. operating specifications:
 Operating temperature: 32° to 113°F (0° to 45°C)
 Operating humidity: 5 to 85% (RH), non-condensing
 Operating altitude: 0ft to 10,000ft above sea level
 Max. non-operating specifications:
 Storage temperature: –40° to 158°F (–40° to 70°C)
 Storage humidity: 5 to 95% (RH), non-condensing

Redundancy

Hot swappable redundant power supplies
 Hot swappable redundant fans
 User port stacking up to 6 units

Performance

MAC addresses: up to 80k
 IPv4 routes: 16K
 IPv6 routes: 8K (shared CAM space with IPv4)
 Switch fabric capacity: 260Gbps (full-duplex)
 130 Gbps (half-duplex)
 Forwarding capacity: 131 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
 Line-rate Layer 3 routing: IPv4 and IPv6
 IPv4 host table size up to 40k max
 IPv6 host table size 8K
 IPv4 Multicast table size 8K
 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
 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)
 ANSI/TIA-1057 LLDP-MED
 Force10 PVST+
 MTU 12,000 bytes

RFC and I-D compliance General Internet protocols

768 UDP
 793 TCP
 854 Telnet
 959 FTP
General IPv4 protocols
 791 IPv4
 792 ICMP
 826 ARP
 1027 Proxy ARP
 1035 DNS (client)
 1042 Ethernet Transmission
 1305 NTPv3
 1519 CIDR
 1542 BOOTP (relay)
 1812 Requirements for IPv4 Routers
 1918 Address Allocation for Private Internets
 2474 Diffserv Field in IPv4 and Ipv6 Headers
 2596 Assured Forwarding PHB Group
 3164 BSD Syslog
 3195 Reliable Delivery for Syslog
 3246 Expedited Assured Forwarding
 4364 VRF-lite (IPv4 VRF with OSPF, BGP, IS-IS, and v4 multicast)
 VRRP

General IPv6 protocols

1981 Path MTU Discovery Features
 2460 Internet Protocol, Version 6 (IPv6) Specification
 2464 Transmission of IPv6 Packets over Ethernet Networks
 2711 IPv6 Router Alert Option
 4007 IPv6 Scoped Address Architecture
 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
 4291 IPv6 Addressing Architecture
 4443 ICMP for IPv6
 4861 Neighbor Discovery for IPv6
 4862 IPv6 Stateless Address Autoconfiguration
 5095 Deprecation of Type 0 Routing Headers in IPv6
 IPv6 Management support (telnet, FTP, TACACS, RADIUS, SSH, NTP)
 VRF-Lite (IPv6 VRF with OSPFv3, BGPv6, and IS-IS)

RIP

1058 RIPv1 2453 RIPv2

OSPF (v2/v3)

1587 NSSA 4552 Authentication/OSPF Digital Signatures
 2154 OSPFv2 OSPFv3
 2328 Opaque LSA 5340 OSPF for IPv6
 2370

IS-IS

5301 Dynamic hostname exchange mechanism for IS-IS
 5302 Domain-wide prefix distribution with two-level IS-IS
 5303 Three way handshake for IS-IS point-to-point adjacencies
 5308 IS-IS for IPv6

BGP

1997 Communities
 2385 MD5
 2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
 2439 Route Flap Damping
 2796 Route Reflection
 2842 Capabilities
 2858 Multiprotocol Extensions
 2918 Route Refresh
 3065 Confederations
 4360 Extended Communities
 4893 4-byte ASN
 5396 4-byte ASN representations
 draft-ietf-idr-bgp4-20 BGPv4
 draft-michaelson-4byte-as-representation-05 4-byte ASN Representation (partial)
 draft-ietf-idr-add-paths-04.txt ADD PATH

Multicast

1112 IGMPv1
 2236 IGMPv2
 3376 IGMPv3
 MSDP
 draft-ietf-pim-sm-v2-new-05 PIM-SMw

Network management

1155 SMIv1
 1157 SNMPv1
 1212 Concise MIB Definitions
 1215 SNMP Traps
 1493 Bridges MIB
 1850 OSPFv2 MIB
 1901 Community-Based SNMPv2
 2011 IP MIB
 2096 IP Forwarding Table MIB
 2578 SMIv2
 2579 Textual Conventions for SMIv2
 2580 Conformance Statements for SMIv2
 2618 RADIUS Authentication MIB
 2665 Ethernet-Like Interfaces MIB
 2674 Extended Bridge MIB
 2787 VRRP MIB
 2819 RMON MIB (groups 1, 2, 3, 9)
 2863 Interfaces MIB
 3273 RMON High Capacity MIB
 3410 SNMPv3
 3411 SNMPv3 Management Framework
 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
 3413 SNMP Applications
 3414 User-based Security Model (USM) for SNMPv3
 3415 VACM for SNMP
 3416 SNMPv2
 3417 Transport mappings for SNMP
 3418 SNMP MIB
 3434 RMON High Capacity Alarm MIB
 3584 Coexistence between SNMP v1, v2 and v3
 4022 IP MIB
 4087 IP Tunnel MIB
 4113 UDP MIB
 4133 Entity MIB

4292 MIB for IP
 4293 MIB for IPv6 Textual Conventions
 4502 RMONv2 (groups 1,2,3,9)
 5060 PIM MIB
 ANSI/TIA-1057 LLDP-MED MIB
 Dell_ITA.Rev_1_1 MIB
 draft-grant-tacacs-02 TACACS+
 draft-ietf-idr-bgp4-mib-06 BGP MIBv1
 IEEE 802.1AB LLDP MIB
 IEEE 802.1AB LLDP DOT1 MIB
 IEEE 802.1AB LLDP DOT3 MIB
 sFlow.org sFlowv5
 sFlow.org sFlowv5 MIB (version 1.3)
 FORCE10-BGP4-V2-MIB Force10 BGP MIB
 (draft-ietf-idr-bgp4-mibv2-05)
 FORCE10-IF-EXTENSION-MIB
 FORCE10-LINKAGG-MIB
 FORCE10-COPY-CONFIG-MIB
 FORCE10-PRODUCTS-MIB
 FORCE10-SS-CHASSIS-MIB
 FORCE10-SMI
 FORCE10-TC-MIB
 FORCE10-TRAP-ALARM-MIB
 FORCE10-FORWARDINGPLANE-STATS-MIB
 3376 IGMPv3
 MSDP
 draft-ietf-pim-sm-v2-new-05 PIM-SMw

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
 EN 60825-1 Safety of Laser Products Part 1:
 Equipment Classification Requirements
 and User's Guide
 EN 60825-2 Safety of Laser Products Part 2:
 Safety of Optical Fibre Communication
 Systems
 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
 Europe: EN 55022: 2006+A1:2007 (CISPR 22: 2006),
 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 55024: 1998 + A1: 2001 + A2: 2003
 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

IT Lifecycle Services for Networking

Experts, insights and ease

Our highly trained experts, with innovative tools and proven processes, help you transform your IT investments into strategic advantages.



Plan & Design

Let us analyze your multivendor environment and deliver a comprehensive report and action plan to build upon the existing network and improve performance.



Deploy & Integrate

Get new wired or wireless network technology installed and configured with ProDeploy. Reduce costs, save time, and get up and running fast.



Educate

Ensure your staff builds the right skills for long-term success. Get certified on Dell Networking technology and learn how to increase performance and optimize infrastructure.



Manage & Support

Gain access to technical experts and quickly resolve multivendor networking challenges with ProSupport. Spend less time resolving network issues and more time innovating.



Optimize

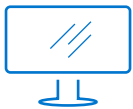
Maximize performance for dynamic IT environments with Dell Optimize. Benefit from in-depth predictive analysis, remote monitoring and a dedicated systems analyst for your network.



Retire

We can help you resell or retire excess hardware while meeting local regulatory guidelines and acting in an environmentally responsible way.

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