



DELL EMC NETWORKING S5048F-ON

High-performance open networking top-of-rack switch with native 25G server ports and 100G network fabric connectivity

The Dell EMC S5048-ON switch is an innovative, future-ready Top-of-Rack (ToR) open networking switch providing excellent capabilities and cost-effectiveness for the enterprise, mid-market, Tier2 cloud and NFV service providers with demanding compute and storage traffic environments.

The S5048F-ON 25GbE switch is Dell's latest disaggregated hardware and software data center networking solution that provides backward compatible 25GbE server port connections, 100GbE uplinks, storage optimized architecture, and a broad range of functionality to meet the growing demands of today's data center environment now and in the future.

The compact S5048F-ON model design provides industry-leading density with up to 72 ports of 25GbE or up to 48 ports of 25GbE and 6 ports of 100GbE in a 1RU form factor.

Using industry-leading hardware and a choice of Dell's OS9 or select 3rd party network operating systems and tools, the S5048F-ON delivers non-blocking performance* for workloads sensitive to packet loss. The compact S5048F-ON model provides multi rate speed enabling denser footprints and simplifying migration to 25GbE server connections and 100GbE fabrics.

Priority-based flow control (PFC), data center bridge exchange (DCBX) and enhanced transmission selection (ETS) make the S5048F-ON an excellent choice for DCB environments.

Maximum performance and functionality

The Dell EMC Networking S-Series S5048F-ON is a high-performance, multi-function, 10/25/40/50/100 GbE ToR switch purpose-built for applications in high-performance data center, cloud and computing environments.

In addition, the S5048F-ON incorporates multiple architectural features that optimize data center network flexibility, efficiency, and availability, including IO panel to PSU airflow or PSU to IO panel airflow for hot/cold aisle environments, and redundant, hot-swappable power supplies and fans.

Key applications

- Organizations looking to enter the software-defined data center era with a choice of networking technologies designed to deliver the flexibility they need
- Native high-density 25 GbE ToR server access in high-performance data center environments
- 25 GbE backward compatible to 10G and 1G for future proofing and data center server migration to faster uplink speeds.
- Capability to support mixed 25G and 10G servers on front panel ports without any limitations

- iSCSI storage deployment including DCB converged lossless transactions
- Suitable as a ToR or Leaf switch in 100G Active Fabric implementations
- As a high speed VXLAN L2 gateway that connects the hypervisor-based overlay networks with non-virtualized infrastructure
- Emerging applications requiring hardware support for new protocols

Key features

- 1RU high-density 25/10/1 GbE ToR switch with up to forty eight ports of native 25 GbE (SFP28) ports supporting 25 GbE without breakout cables
- Multi-rate 100GbE ports support 10/25/40/50/100 GbE
- 3.6 Tbps (full-duplex) non-blocking, store and forward switching fabric delivers line-rate performance under full load*
- Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support
- L2 multipath support via Virtual Link Trunking (VLT) and multiple VLT (mVLT) multi-chassis link aggregation technology
- VRF-lite enables sharing of networking infrastructure and provides L3 traffic isolation across tenants
- Open Automation Framework adding automated configuration and provisioning capabilities to simplify the management of network environments
- Jumbo frame support for large data transfers
- 128 link aggregation groups with up to eight members per group, using enhanced hashing
- Redundant, hot-swappable power supplies and fans
- I/O panel to power supply airflow or power supply to I/O panel airflow
- Tool-less enterprise ReadyRails™ mounting kits reducing time and resources for switch rack installation
- Power-efficient operation up to 45°C helping reduce cooling costs in temperature-constrained deployments (Dell EMC Fresh Air 2.0 compliant)
- Converged network support for DCB and ECN capability
- Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems
- Fibre Channel, FCoE, FCoE transit (FIP Snooping) and NPIV Proxy Gateway (NPG), Fibre Channel Forwarding (FCF)

*non-blocking performance is for packet sizes larger than 250B

Product	Description
S5048F-ON	S5048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, I/O Panel to PSU Airflow S5048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, PSU to I/O Panel Airflow S5048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, I/O Panel to PSU Airflow - TAA S5048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, PSU to I/O Panel Airflow - TAA S5048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x DC PSU, 4x Fans, PSU to I/O Panel Airflow – NEBS Level 3 Certified**
Redundant power supplies	S5048F, AC Power Supply, IO Panel to PSU Airflow S5048F, AC Power Supply, PSU to IO Panel Airflow S5048F, DC Power Supply, PSU to IO Panel Airflow**
Fans	S5048F fan module, IO Panel to PSU Airflow S5048F fan module, PSU to IO Panel Airflow
Optics	Transceiver, 100GbE, SR4 QSFP28 Transceiver, 100GbE, LR4 QSFP28 Transceiver, 100GbE, SWDM4 QSFP28 to LC duplex (**) Transceiver, 100GbE, PSM4 10Km QSFP28 (**) Transceiver, 100GbE, CWDM4 2Km QSFP28 (**) Transceiver, 100GbE, PSM4 500m QSFP28 (**) Transceiver 100GbE, ER4Lite QSFP28 (**) Transceiver, 40GbE, SR4 optic QSFP+ Transceiver, 40GbE, eSR4 optic QSFP+ Transceiver, 40GbE, LR4 optic QSFP+ Transceiver, 40GbE, ER4 optics QSFP+ Transceiver, 40GbE, PSM4 10Km, QSFP+ Transceiver, 40GbE, PSM4-LR MPO 10Km QSFP+ to LC Transceiver, 40GbE, LM4 / SM4/BiDi QSFP+ Transceiver, 25GbE, SR4 SFP28 Transceiver, 25GbE, eSR SFP28 Transceiver, 25GbE, LR4 SFP28 Transceiver, 25GbE, SR4 SFP28 NOF Transceiver, 10GbE, SR SFP+ Transceiver, 10GbE, LR SFP+ Transceiver, 10GbE, ER SFP+ Transceiver, 10GbE, ZR SFP+ Transceiver, 10GbE, 10GBASE-T SFP+, Copper Transceiver, 1GbE, SX SFP Transceiver, 1GbE, LX SFP Transceiver, 1GbE, ZX SFP Transceiver, 1GbE, BiDi SFP (10km/40km/80km) Transceiver, 1GbE, 1000BASE-T SFP, Copper
Cables	100GbE, 4x25GbE, QSFP28 to 4xSFP28, passive DAC 100GbE, QSFP28 to QSFP28, active optical 100GbE, QSFP28 to QSFP28, passive DAC 100GbE, 2x50GbE, QSFP28 to 2xQSFP28, passive DAC, breakout (**) 40GbE, QSFP+ to QSFP+, active optical 40GbE, QSFP+ to QSFP+, passive DAC 40GbE, MTP to 4xLC optical breakout 40GbE, 4x10GbE, QSFP+ to 4xSFP+, passive DAC 25GbE SFP28 to SFP28, passive DAC, 1M, 2M, 3M, 5M 25GbE SFP28 to SFP28, active optical cable, 7M, 10M, 15M, 20M 10GbE SFP+ to SFP+, passive DAC, 1M, 3M, 5M, 7M 10GbE SFP+ to SFP+, active optical cable, 2M, 3M, 5M, 7M, 10M, 15M, 20M

**future deliverable

Technical specifications

Physical

48 line-rate 25 Gigabit Ethernet SFP28 ports
6 line-rate 100 Gigabit Ethernet QSFP28 ports
1 RJ45 console/management port with RS232 signaling
1 Micro-USB type B optional console port
1 10/100/1000 Base-T Ethernet port used as management port
1 USB type A port for the external mass storage
Size: 1 RU, 1.72 h x 17.1 w x 18" d
(4.4 h x 43.4 w x 45.7 cm d)
Weight: 22lbs (9.98kg)
ISO 7779 A-weighted sound pressure level: 59.6 dBA at 73.4°F (23°C)
Power supply: 100–240 VAC 50/60 Hz
Max. thermal output: 1956 BTU/h
Max. current draw per system:
5.73A/4.8A at 100/120V AC
2.87A/2.4A at 200/240V AC
Max. power consumption: 573 Watts (AC)
Typ. power consumption: 288 Watts (AC) with all optics loaded
Max. operating specifications:
Operating temperature: 32° to 113°F (0° to 45°C)
Operating humidity: 10 to 90% (RH), non-condensing
Fresh Air Compliant to 45°C
Max. non-operating specifications:
Storage temperature: –40° to 158°F (–40° to 70°C)
Storage humidity: 5 to 95% (RH), non-condensing

Redundancy

Two hot swappable redundant power supplies
Hot swappable redundant fans

Performance

Switch fabric capacity: 3.6Tbps
Forwarding capacity: Up to 2,678 Mpps
Packet buffer memory: 22MB (16MB supported in initial release)
CPU memory: 8GB
MAC addresses: 132K (in scaled-I2-switch mode)
ARP table: 82K (in scaled-I3-hosts mode)
IPv4 routes: Up to 128K
IPv6 routes: Up to 64K (20k currently supported)
Multicast hosts: Up to 8K
Link aggregation: 128 groups, 32 members per LAG group
Layer 2 VLANs: 4K
MSTP: 64 instances
LAG Load Balancing: Based on layer 2, IPv4 or IPv6 header, or tunnel inner header contents
QoS data queues: 8
QoS control queues: 12
QoS: 1024 entries per Tile
Ingress ACL: 1024 entries per Tile
Egress ACL: 1k entries per Tile
Pre-Ingress ACL: 1k entries per Tile

IEEE Compliance

802.1AB LLDP
802.1D Bridging, STP
802.1p L2 Prioritization
802.1Q VLAN Tagging, Double VLAN Tagging, GVRP
802.1Qbb PFC
802.1Qaz ETS
802.1s MSTP
802.1w RSTP
802.1X Network Access Control
802.3ab Gigabit Ethernet (1000BASE-T) or breakout
802.3ac Frame Extensions for VLAN Tagging
802.3ad Link Aggregation with LACP

802.3ae 10 Gigabit Ethernet (10GBase-X)
802.3ba 40 Gigabit Ethernet (40GBase-SR4, 40GBase-CR4, 40GBase-LR4, 100GBase-SR10, 100GBase-LR4, 100GBase-ER4) on optical ports
802.3bj 100 Gigabit Ethernet
802.3u Fast Ethernet (100Base-TX) on mgmt ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000Base-X) with QSA
ANSI/TIA-1057 LLDP-MED
Force10 PVST+
Jumbo MTU support 9,416 bytes

Layer2 Protocols

4301 Security Architecture for IPSec*
4302 IPsec Authentication Header*
4303 ESP Protocol*
802.1D Compatible
802.1p L2 Prioritization
802.1Q VLAN Tagging
802.1s MSTP
802.1w RSTP
802.1t RPVST+
802.3ad Link Aggregation with LACP
VLT Virtual Link Trunking

RFC Compliance

768 UDP
793 TCP
854 Telnet
959 FTP
1321 MD5
1350 TFTP
2474 Differentiated Services
2698 Two Rate Three Color Marker
3164 Syslog
4254 SSHv2

General IPv4 Protocols

791 IPv4
792 ICMP
826 ARP
1027 Proxy ARP
1035 DNS (client)
1042 Ethernet Transmission
1191 Path MTU Discovery
1305 NTPv4
1519 CIDR
1542 BOOTP (relay)
1858 IP Fragment Filtering
2131 DHCP (server and relay)
5798 VRRP
3021 31-bit Prefixes
3046 DHCP Option 82 (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
3195 Reliable Delivery for Syslog
3246 Expedited Assured Forwarding
4364 VRF-lite (IPv4 VRF with OSPF and BGP)*

General IPv6 Protocols

1981 Path MTU Discovery*
2460 IPv6
2461 Neighbor Discovery*
2462 Stateless Address AutoConfig
2463 ICMPv6
2675 Jumbo grams
3587 Global Unicast Address Format
4291 IPv6 Addressing
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
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)

RIP

1058 RIPv1
2453 RIPv2

OSPF (v2/v3)

1587 NSSA (not supported in OSPFv3)
1745 OSPF/BGP interaction
1765 OSPF Database overflow
2154 MD5
2328 OSPFv2
2370 Opaque LSA
3101 OSPF NSSA
3623 OSPF Graceful Restart (Helper mode)*

BGP

1997 Communities
2385 MD5
2439 Route Flap Damping
2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
2796 Route Reflection
2842 Capabilities
2858 Multiprotocol Extensions
2918 Route Refresh
3065 Confederations
4271 BGP-4
4360 Extended Communities
4893 4-byte ASN
5396 4-byte ASN Representation
5492 Capabilities Advertisement

Multicast

1112 IGMPv1
2236 IGMPv2
3376 IGMPv3
MSDP
PIM-SM
PIM-SSM

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-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)
 DELL-NETWORKING-BGP4-V2-MIB
 (draft-ietf-idr-bgp4-mibv2-05)
 DELL-NETWORKING-IF-EXTENSION-MIB
 DELL-NETWORKING-LINK-AGGREGATION-MIB
 DELL-NETWORKING-COPY-CONFIG-MIB
 DELL-NETWORKING-PRODUCTS-MIB
 DELL-NETWORKING-CHASSIS-MIB
 DELL-NETWORKING-SMI
 DELL-NETWORKING-TC
 DELL-NETWORKING-TRAP-EVENT-MIB
 DELL-NETWORKING-SYSTEM-COMPONENT-MIB
 DELL-NETWORKING-FIB-MIB
 DELL-NETWORKING-FPSTATS-MIB
 DELL-NETWORKING-ISIS-MIB
 DELL-NETWORKING-FIPSNOOPING-MIB
 DELL-NETWORKING-VIRTUAL-LINK-TRUNK-MIB
 DELL-NETWORKING-DCB-MIB
 DELL-NETWORKING-OPENFLOW-MIB
 DELL-NETWORKING-BMP-MIB
 DELL-NETWORKING-BPSTATS-MIB

Security
 draft-grant-tacacs-02 TACACS+
 2404 The Use of HMACSHA-1-96 within ESP and AH
 2865 RADIUS
 3162 Radius and IPv6
 3579 RADIUS support for EAP
 3580 802.1X with RADIUS
 3768 EAP
 3826 AES Cipher Algorithm in the SNMP User Base Security Model
 4250, 4251, 4252, 4253, 4254 SSHv2
 4301 Security Architecture for IPSec
 4302 IPSec Authentication Header
 4807 IPsecv Security Policy DB MIB

Data center bridging
 802.1Qbb Priority-Based Flow Control
 802.1Qaz Enhanced Transmission Selection (ETS)*
 Data Center Bridging eXchange (DCBx)
 DCBx Application TLV (iSCSI, FCoE*)

*Future release

**Packet sizes over 147 Bytes

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
 IEC 62368-1
 FDA Regulation 21 CFR 1040.10 and 1040.11

Emissions & Immunity

FCC Part 15 (CFR 47) (USA) Class A
 ICES-003 (Canada) Class A
 EN55032: 2015 (Europe) Class A
 CISPR32 (International) Class A
 AS/NZS CISPR32 (Australia and New Zealand) Class A
 VCCI (Japan) Class A
 KN32 (Korea) Class A
 CNS13438 (Taiwan) Class A
 CISPR22
 EN55022
 EN61000-3-2
 EN61000-3-3
 EN61000-6-1
 EN300 386
 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

NEBS

GR-63-Core
 GR-1089-Core
 ATT-TP-76200
 VZ.TPR.9305

RoHS

RoHS 6 and China RoHS compliant

Certifications

Japan: VCCI V3/2009 Class A
 USA: FCC CFR 47 Part 15, Subpart B:2009, Class A

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 EMC 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 EMC 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.

Learn more at
Dell.com/lifecycle services

Learn more at Dell.com/Networking