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 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)

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*non-blocking performance is for packet sizes larger than 250B*
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</table>
| **SS048F-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, I/O Panel to PSU Airflow  
S5048F, AC Power Supply, PSU to I/O Panel Airflow  
S5048F, DC Power Supply, PSU to I/O Panel Airflow** |
| **Fans**             | S5048F fan module, I/O Panel to PSU Airflow  
S5048F fan module, PSU to I/O 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, LRM4 / 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
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, 12.7 h x 17.1 w x 18” d
Weight: 22lbs (9.98kg)
ISO 7799 A-weighted sound pressure level: 59.6 dBA at 75°F (23°C)
Power supply: 100–240 VAC 50/60 Hz
Typ. power consumption: 288 Watts (AC) with all optics loaded
2.87A/2.4A at 200/240V AC
5.73A/4.8A at 100/120V AC
Max. current draw per system: 1956 BTU/h
Max. thermal output: 1956 BTU/h
Power supply: 100–240 VAC 50/60 Hz
at 73.4°F (23°C)
Weight: 22lbs (9.98kg)

Storage humidity: 5 to 95% (RH), non-condensing
Storage temperature: –40° to 158°F (–40° to 70°C)
Optics loaded

Operating humidity: 10 to 90% (RH), non-condensing
Operating temperature: 32° to 113°F (0° to 45°C)

Max. non-operating specifications:
Fresh Air Compliant to 45°C

Typical Applications
Networks
- OSPF (v2/v3)
- 802.11ab, 802.11ac
- IPv6 Stateless Address Autoconfiguration
- 802.1X
- LLDP
- VLT Virtual Link Trunking
- RPR
- SxOS
- VLT
- VLT

Performance
Switch fabric capacity: 3.6Tbps
Forwarding capacity: Up to 2.6Tbps
Packet buffer memory: 22MB (16MB supported in initial release)
CPU memory: 8GB
MAC addresses: 128K (in scaled-2-switch mode)
ARP table: 82K (in scaled-2-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
LAD Load Balancing: Based on layer 2, IPv4 or IPv6 header, or tunnel inner header contents
GoS data queues: 8
GoS control queues: 2
GoS: 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,
802.1Qbb PFC
802.1Qaz ETS
802.1s MSTP
802.1w RSTP
802.1X Network Access Control
802.3ab Gigabit Ethernet (10GBase-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,
802.3bi 100 Gigabit Ethernet
802.3u Fast Ethernet (100Base-TX) on mgmt
802.3x Flow Control
802.3z Gigabit Ethernet (1000Base-X) with QSA
802.3ab Gigabit Ethernet (10GBase-TX) on
802.3s Fast Ethernet (100Base-TX) on mgmt
802.1p L2 Prioritization
802.1Q VLAN Tagging
802.1s MSTP
802.1w RSTP
802.1t RPVST+
802.3ad Link Aggregation with LACP
802.3zd Link Aggregation with LACP
802.3ae 10 Gigabit Ethernet (10GBase-X)
802.3ba 40 Gigabit Ethernet (40GBase-SR4,
802.3bi 100 Gigabit Ethernet
802.3u Fast Ethernet (100Base-TX) on mgmt
802.3x Flow Control
802.3z Gigabit Ethernet (1000Base-X) with QSA
802.3af 802.3ad Link Aggregation with LACP

802.1Qaz ETS
802.1Q VLAN Tagging, Double VLAN Tagging,
802.1Qbb PFC
802.1Qaz ETS
802.1s MSTP
802.1w RSTP
802.1X Network Access Control
802.3ab Gigabit Ethernet (10GBase-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,
802.3bi 100 Gigabit Ethernet
802.3u Fast Ethernet (100Base-TX) on optical
ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000Base-X) with QSA
802.3af 802.3ad Link Aggregation with LACP

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

Networking
- Network Interfaces
- Management Interfaces
- Service Interfaces
- IP Routing
- IPv6 Stateless Address Autoconfiguration
- Static Routes
- IPv6 Route Flap Damping
- OSPF
- BGP
- PIM
- VRRP
- Link Aggregation
- QoS
- VLAN Tagging
- 802.1Q VLAN Tagging
- 802.3ad Link Aggregation with LACP

 RFC Compliance
768 UDP
793 TCP
854 Telnet
959 FTP
1521 MD5
1530 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 CDR
1542 BOOTP (relay)
1858 IP Fragment Filtering
2131 DHCP (server and relay)
5788 RRPP
3021 31-bit Prefixes
3046 DHCP Option 82 (Relay)
1812 Requirements for IPv4 Routers
1918 Address Allocation for Private Internets
2414 DiffServ Field in IPv4 and IPv6 Headers
2526 Assured Forwarding PHB Group
3195 Reliable Delivery for Syslog
3246 Expedited Assured Forwarding
4300 IPv6-Flush (IPv4-Flush with OSPF and BGP)

General IPv6 Protocols
1981 Path MTU Discovery*
2328 IPv6 Neighbor Discovery*
2496 IPv6 Stateless Address Autoconfiguration
5095 Deprecation of Type 0 Routing-Headers in IPv6
IPv6 Management support (telnet, FTP, TACACS, RADIUS, SSH, NTP)

BGP
4213 Basic Transition Mechanisms for IPv6 Hosts
and Routers
4291 IPv6 Addressing Architecture
4881 Neighbor Discovery for IPv6
4892 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
1789 OSPF Database overflow
2154 MD5
2328 OSPFv2
2370 IGP/EGP
3010 OSPF NSSA
3623 OSPF Graceful Restart (Helper mode)*

Network Management
1356 SNMP
1363 SNMPv3
3273 RMON High Capacity MIB
2863 Interfaces MIB
2819 RMON MIB (groups 1, 2, 3, 9)
2787 VRRP MIB
2674 Extended Bridge MIB
2579 Textual Conventions for SNMPv2
2580 Conformance Statements for SNMPv2
2698 RADIUS Authentication MB
2665 Ethernet-Like Interfaces MB
2674 Extended Bridge MB
2787 VRRP MB
2819 RMON MB (groups 1, 2, 3, 9)
2863 Interfaces MB
3273 RMON High Capacity MB
3410 SNMPv3
3411 SNMPv3 Management Framework
3412 Message Processing and Dispatching for the
Simple Network Management Protocol (SNMP)
3415 SNMP Applications
3414 User-based Security Model (USM) for
SNMPv3
3415 VACM for SNMP
3418 SNMPv2
**Packet sizes over 147 Bytes

Future release

DCBx Application TLV (iSCSI, FCoE*)

Data Center Bridging eXchange (DCBx)

802.1Qaz Enhanced Transmission Selection (ETS)*

802.1Qbb Priority-Based Flow Control

Data center bridging

4807 IPsecv Security Policy DB MIB

4302 IPSec Authentication Header

4301 Security Architecture for IPSec

3826 AES Cipher Algorithm in the SNMP User Base

3768 EAP

3580 802.1X with RADIUS

3579 RADIUS support for EAP

3162 Radius and IPv6

2865 RADIUS

2404 The Use of HMACSHA-1-96 within ESP and AH

draft-ietf-idr-bgp4-mibv2-05 BGP MIB

DELL-NETWORKING-TC

DELL-NETWORKING-SMI

DELL-NETWORKING-DLLP-MIB

DELL-NETWORKING-IF-EXTENSION-MIB

DELL-NETWORKING-DCB-MIB

DELL-NETWORKING-VIRTUAL-LINK-TRUNK-MIB

DELL-NETWORKING-OPENFLOW-MIB

DELL-NETWORKING-BMP-MIB

DELL-NETWORKING-BPSTATS-MIB

draft-ietf-idr-bgp4-mib-06 BGP MIB

draft-ietf-idr-bgp4-mibv2-06 BGP MIB

IEEE 802.1AB LLDP DOT3 MIB

IEEE 802.1AB LLDP MIB

IEEE 802.1AB LLDP DOT1 MIB

sFlow.org sFlowv5 MIB

sFlow.org sFlowv5

IEEE 802.1AB LLDP DOT1 MIB

IEEE 802.1AB LLDP MIB

draft-ietf-idr-bgp4-mib-06 BGP MIB

DELL-NETWORKING-BGP4-V2-MIB

sFlow.org sFlowv5 MIB

IEEE 802.1AB LLDP DOT1 MIB

IEEE 802.1AB LLDP MIB

draft-ietf-idr-bgp4-mibv2-05 BGP MIB

DELL-NETWORKING-TC

DELL-NETWORKING-SMI

DELL-NETWORKING-DLLP-MIB

DELL-NETWORKING-IF-EXTENSION-MIB

DELL-NETWORKING-DCB-MIB

DELL-NETWORKING-VIRTUAL-LINK-TRUNK-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

4250, 4251, 4252, 4253, 4254 SSHv2

4501 Security Architecture for IPSec

4301 Security Architecture for IPSec

4302 IPSec Authentication Header

4807 IPsecv Security Policy DB MIB

Data center bridging

802.10bb Priority-Based Flow Control

802.10az Enhanced Transmission Selection (ETS)*

Data Center Bridging eXchange (DCBx)

DCBx Application TLV (iSCSI, FCoE*)

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


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

CNS15438 (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

AT-TTP-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

Learn more at Dell.com/Lifecycleservices

Learn more at Dell.com/Networking

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/Lifecycleservices

Learn more at Dell.com/Networking

*Future release

**Packet sizes over 147 Bytes