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

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 GoS 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
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</table>
| **SS048F-ON**    | SS048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, I/O Panel to PSU Airflow  
SS048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, PSU to I/O Panel Airflow  
SS048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, I/O Panel to PSU Airflow – TAA  
SS048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x AC PSU, 4x Fans, PSU to I/O Panel Airflow – TAA  
SS048F, 48x 25GbE SFP+, 6x 100GbE QSFP28, 2x DC PSU, 4x Fans, PSU to I/O Panel Airflow – NEBS Level 3 Certified** |
| **Redundant power supplies** | SS048F, AC Power Supply, IO Panel to PSU Airflow  
SS048F, AC Power Supply, PSU to IO Panel Airflow  
SS048F, DC Power Supply, PSU to IO Panel Airflow** |
| **Fans**         | SS048F fan module, IO Panel to PSU Airflow  
SS048F 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 -xSFP28, 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 RUII45 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 17.2 x 17.1 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

Power
Power supply: 100–240 VAC 50/60 Hz
Max. thermal output: 1956 BTU/h
Typ. power consumption: 288 Watts (AC) with all optics loaded
5.73A/4.8A at 100/120V AC
2.87A/2.4A at 200/240V AC
Max. current draw per system: 12A/9.6A at 100/120V AC
2.87A/2.4A at 200/240V AC

Performance
Forwarding capacity: Up to 2,678 Mpps
Switch fabric capacity: 3.6Tbps
Packet buffer memory: 22MB (16MB supported in initial release)
CPU memory: 8GB
CPU: 1 RU
GPU: 1 RU

Layer 2
Layer 2 VLANs: 4K
MSTP: 64 instances
LACoS 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 (10GBASE-T) or breakout
802.5ac Frame Extensions for VLAN Tagging
802.5ad Link Aggregation with LACP

Layer 3
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
802.3af Power over Ethernet (PoE)

Layer 2 Protocols
4501 Security Architecture for IPSec
4502 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

RIP
714 IPv4
792 ICMP
826 ARP
1027 Proxy ARP
1035 DNS (client)
1042 Ethernet Transmission
1911 Fast MTU Discovery
1305 NTPv4
1519 CDR
1542 BOOTP (relay)
1658 IP Fragment Filtering
2131 DHCP (server and relay)
5789 VRPP
3021 31-bit Prefixes
3046 DHCP Option 82 (Relay)
1872 Requirements for IPv4 Routers
1918 Address Allocation for Private Internets
2474 Differentiated Services
2698 Two Rate Three Color Marker
3164 Syslog
4254 SSHv2

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IPv6
1215 SNMP Traps
1305 NTPv4
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1542 BOOTP (relay)
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IPv4 Management support (telnet, FTP, TACACS, RADIUS, SSH, RDP)
RIP
714 IPv4
792 ICMP
826 ARP
1027 Proxy ARP
1035 DNS (client)
1042 Ethernet Transmission
1911 Fast MTU Discovery
1305 NTPv4
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BGP
1997 Communities
2385 MDS
2439 Route Flap Damping
2545 BGP-4 Multiprotocol Extensions for IPv6

Network Management
1613 SNMP
1157 SNMPv3
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 SMv2
2579 Textual Conventions for SMv2
2580 Conformance Statements for SMv2
2698 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)
3415 SNMP Applications
3414 User-based Security Model (USM) for SNMPv3
3415 VACM for SNMPv3
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

4250, 4251, 4252, 4253, 4254 SSHv2 Security Model

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 MIBv1

Dell_ITA.Rev_1_1 MIB

ANSI/TIA-1057 LLDP-MED MIB

IEEE 802.1AB LLDP MIB

IEEE 802.1AB LLDP DOT1 MIB

IEEE 802.1AB LLDP DOT3 MIB

sFlow.org sFlowv5 MIB (version 1.3)

DELL-NETWORKING-BGP4-V2-MIB

DELL-NETWORKING-BMP-MIB

DELL-NETWORKING-OPENFLOW-MIB

DELL-NETWORKING-DCB-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-tacascs-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

802.10bb  Priority-Based Flow Control

802.1Qaz  Enhanced Transmission Selection (ETS)*

Data Center Bridging eXchange (DCBx)

DCBx Application TLV (SCSI, 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 61000-4-6 Surge

EN 61000-4-6 Low Frequency Conducted Immunity

NEBS

GR-63-Core

GR-1089-Core

EN 61000-4-2 ESD

EN 61000-4-3 Radiated Immunity

EN 61000-4-4 EFT

EN 61000-4-6 Surge

EN 61000-4-6 Low Frequency Conducted Immunity

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/Networking