



# DELL EMC NETWORKING S4200-ON

## 10/40/100 GbE top-of-rack multi-function open networking switch

The Dell EMC Networking S4200-ON switch is Dell EMC's latest disaggregated hardware and software data center networking solution, providing a broad range of functionality to meet the growing demands of today's data center environment. The S4200 is a performance-optimized open networking switch that provides deep buffering capability and enhanced hardware table capacities for internet routing or high density flow tables for software defined networking applications.

Using industry-leading hardware and a choice of leading network operating systems and tools, the S4200-ON delivers non-blocking performance for High Performance Computing (HPC), big data and other workloads sensitive to packet loss. It also provides optimum bandwidth for demanding environments with support for 10/40/100GE ports for top of rack deployment in data centers.

Based on configuration options, the S4200-ON can be a full-functioned data center switch, low-cost WAN switch for internet routing, or scalable 10GbE SDN switch for access and aggregation layers of a SDN data center fabric.

The Dell EMC S4200-ON supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems.

### 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
- Multi-functional 10/40/100 GbE switching/routing in HPC clusters, big data clusters, Hadoop clusters, video distribution networks, storage networks or other business-sensitive deployments that require the highest bandwidth
- High-density 10GbE ToR server aggregation in loss sensitive data center (DC) environments
- Innovative cloud providers, financial companies and Web 2.0 companies
- Deep tables for handling of full Internet routes and scalable SDN flow rules for enterprise data centers
- SaaS providers and carriers looking for best-of-breed SDN solutions

### Key features

- 1RU high-density 10/40/100 GbE ToR switch with forty ports of 10GbE (SFP+), two ports of 40 GbE (QSFP+), and six ports of 100GbE (QSFP28)
- There are two variants of S4200-ON:
  - S4248FB-ON: with deep-buffering only
  - S4248FBL-ON: with deep-buffering and additional TCAM for expanded FIB and ACL tables and flows
- Multi-rate 100GbE ports support 10/25/40/50 GbE; 40GbE ports support 10GbE; 10GbE ports support 1GbE
- 800Gbps (half-duplex)/1.6Tbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load
- Deep buffering capability of up to 6GB packet buffering
- Supports greater than 1 million IPv4 route entries
- High-performance SDN/OpenFlow 1.3 enabled with ability to interoperate with industry standard OpenFlow controllers
- IO panel to PSU airflow or PSU to IO panel airflow
- Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems
- Redundant, hot-swappable power supplies and fans
- 1588v2 support in hardware only\*

### Key features with Dell EMC Networking OS10

- Consistent DevOps framework across compute, storage and networking elements
- Standard networking features, interfaces and scripting functions for legacy network operations integration
- Standards-based switching hardware abstraction via Switch Abstraction Interface (SAI)
- Pervasive, unrestricted developer environment via Control Plane Services (CPS)
- Open and programmatic management interface via Common Management Services (CMS)

\* future release

- OS10 Enterprise Edition software enables Dell EMC Layer 2 and 3 switching and routing protocols with integrated IP services, quality of service, manageability and automation features
- Platform agnostic via standard hardware abstraction layer (OCP-SAI)
- Unmodified Linux kernel and unmodified Linux distribution
- Leverage common open source tools and best-practices (data models, commit rollbacks)
- Increase VM Mobility region by stretching L2 VLAN within or across two DCs with unique VLT capabilities
- Scalable L2 and L3 Ethernet Switching with QoS, ACL and a full complement of standards based IPv4 and IPv6 features including OSPF, BGP and PBR
- Enhanced mirroring capabilities including local mirroring, Remote Port Mirroring (RPM), and Encapsulated Remote Port Mirroring (ERPM)
- Converged network support for Data Center Bridging, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV

	S4248FB-ON	S4248FBL-ON
<b>Buffer</b>	6GB	6GB
<b>CPU memory</b>	8GB DDR3	32GB DDR3
<b>SSD</b>	16GB mSATA	64GB mSATA

Product	Description
<b>S4200-ON</b>	S4248FB, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, I/O Panel to PSU Airflow S4248FB, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, PSU to I/O Panel Airflow S4248FBL, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, I/O Panel to PSU Airflow S4248FBL, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, PSU to I/O Panel Airflow
<b>Redundant power supplies</b>	S4200, AC Power Supply, IO Panel to PSU Airflow S4200, AC Power Supply, PSU to IO Panel Airflow S4248, DC Power Supply, I/O Panel to PSU Airflow S4248, DC Power Supply, PSU to I/O Panel Airflow
<b>Fans</b>	S4200 fan module, IO Panel to PSU Airflow S4200 fan module, PSU to IO Panel Airflow
<b>Optics</b>	Transceiver, 100GbE, SR4 QSFP28 Transceiver, 100GbE, LR4 QSFP28 Transceiver, 100GbE, LR4Lite QSFP28 Transceiver, 100GbE, PSM4 10Km QSFP28 (*) Transceiver, 100GbE, CWDM4 2Km QSFP28 (*) Transceiver, 100GbE, PSM4 500m 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 Duplex QSFP+ Transceiver, 40GbE QSFP+ to SFP+/SFP Adapter (GSA) Transceiver, 10GbE, SR SFP+, short reach Transceiver, 10GbE, LR SFP+, long reach Transceiver, 10GbE, ER SFP+, extended reach Transceiver, 10GbE, ZR SFP+ extra extended reach
<b>Cables</b>	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

## Technical specifications

### Physical

40 line-rate 10 Gigabit Ethernet SFP+ ports  
2 line-rate 40 Gigabit Ethernet QSFP+ ports  
6 line-rate 100 Gigabit Ethernet QSFP28 ports

1 RJ45 console/management port with RS232 signaling

Size: 1 RU, 1.72 h x 17.1 w x 18.2" d  
(4.4 h x 43.4 w x 46.2 cm d)

Weight: 22 lbs (9.98 kg)

ISO 7779 A-weighted sound pressure level: 59.6 dBA at 73.4°F (23°C)

Power supply: 100–240 VAC 50/60 Hz

DC power supply: -36V to -72V

Max. thermal output: 2047 BTU/h

Max. current draw per system:

6A/5A at 100/120V AC 3A/2.5A at 200/240V AC

Max. power consumption (AC): 600W

Max. power consumption (DC): 600W

Typ. power consumption: 300W

Max. operating specifications:

Operating temperature: 32° to 104°F (0° to 45°C)

Operating humidity: 5 to 90% (RH), non-condensing

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

Hot swappable redundant fans

### Performance

Switch fabric capacity:

1.6Tbps (full-duplex)

800Gbps (half-duplex)

Forwarding capacity: 720 Mpps

Packet buffer memory: 6GB

CPU memory:

S4248FB: 32GB

S4248FBL: 8GB

Link aggregation: 16 links per group, 128 groups

Layer 2 VLANs: 4K

MSTP: 64 instances

LAG load balancing: Based on layer 2, IPv4 or IPv6 headers

Mac scale:

S4248FB: 400K

S4248FBL: 700K

IPv4 HOST table:

S4248FB: 100K

S4248FBL: 200K

IPv6 HOST table:

S4248FB: 16K

S4248FBL: 50K

PVST: 256

Queues per port: 8

### IEEE Compliance

802.1AB LLDP

TIA-1057 LLDP-MED

802.1s MSTP

802.1w RSTP

802.3ab Gigabit Ethernet (1000Base-T)

802.3ad Link Aggregation with LACP

802.3ae 10 Gigabit Ethernet (10GBase-X)

802.3ba 40 Gigabit Ethernet (40GBase-X)

802.3i Ethernet (10Base-T)

802.3u Fast Ethernet (100Base-TX)

802.3z Gigabit Ethernet (1000BaseX)

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

PVST+

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

Jumbo MTU support 9,416 bytes

### Layer2 Protocols

802.1D Compatible

802.1p L2 Prioritization

802.1Q VLAN Tagging

802.1s MSTP

802.1w RSTP

802.1t RVPST+

802.3ad Link Aggregation with LACP

### VLT (Virtual Link Trunking)

VLT Enhancements

Minloss Upgrades

VLT Proxy Gateway

RVPST over VLT

DCB, FSB, iSCSI over VLT

RSPAN over VLT

### 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

1812 Routers

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)\*

COPP: Control Plane Policing

Policy Based Routing

### General IPv6 Protocols

1981 Path MTU Discovery\*

2460 IPv6

2461 Neighbor Discovery\*

2462 Stateless Address AutoConfig

2463 ICMPv6

2464 Ethernet Transmission

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

5095 Deprecation of Type 0 Routing Headers in IPv6

IPV6 Management support (telnet, FTP, TACACS, RADIUS, SSH, NTP)

### OSPF

1587 NSSA

1745 OSPF/BGP interaction

1765 OSPF Database overflow

2154 MD5

2328 OSPFv2

2370 Opaque LSA

3101 OSPF NSSA

3623 OSPF Graceful Restart (Helper mode)\*

### Security

2865 RADIUS

3162 Radius and IPv6

4250, 4251, 4252, 4253, 4254 SSHv2

4301 Security Architecture for IPsec\*

4302 IPsec Authentication Header\*

4303 ESP Protocol\*

### BGP

1997 Communities

2385 MD5

2439 Route Flap Damping

2796 Route Reflection

2842 Capabilities

2918 Route Refresh

3065 Confederations

4271 BGP-4

4360 Extended Communities

4893 4-byte ASN

5396 4-byte ASN Representation

5492 Capabilities Advertisement

### Linux Distribution

Debian Linux version 8.4

Linux Kernel 3.16

## MIBS

IP MIB– Net SNMP  
IP Forward MIB– Net SNMP  
Host Resources MIB– Net SNMP  
IF MIB – Net SNMP  
LLDP MIB  
Entity MIB  
LAG MIB  
Dell-Vendor MIB  
TCP MIB – Net SNMP  
UDP MIB – Net SNMP  
SNMPv2 MIB – Net SNMP

## Network Management

SNMPv1/2  
SSHv2  
FTP, TFTP, SCP  
Syslog  
Port Mirroring  
RADIUS  
802.1X  
Support Assist (Phone Home)  
Netconf APIs  
XML Schema  
CLI Commit (Scratchpad)  
sFlow

## Automation

Control Plane Services APIs  
Linux Utilities and Scripting Tools

## Quality of Service

Access Control Lists  
Prefix List  
Route-Map  
Rate Shaping (Egress)  
Rate Policing (Ingress)  
Scheduling Algorithms  
    Round Robin  
    Weighted Round Robin  
    Deficit Round Robin  
    Strict Priority  
Weighted Random Early Detect

## 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: 2009, 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:2009, 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

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

## 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](http://Dell.com/lifecycle services)

Learn more at [Dell.com/Networking](http://Dell.com/Networking)