



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
Buffer	6GB	6GB
CPU memory	8GB DDR3	32GB DDR3
SSD	16GB mSATA	64GB mSATA

Product	Description
S4200-ON	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
Redundant power supplies	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
Fans	S4200 fan module, IO Panel to PSU Airflow S4200 fan module, PSU to IO Panel Airflow
Optics	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
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

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
 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
 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

Learn more at Dell.com/Networking