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

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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<tbody>
<tr>
<td>S4200-ON</td>
<td>S4248FB, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, I/O Panel to PSU Airflow</td>
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<tr>
<td></td>
<td>S4248FB, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, PSU to I/O Panel Airflow</td>
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<tr>
<td></td>
<td>S4248FBL, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, I/O Panel to PSU Airflow</td>
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<tr>
<td></td>
<td>S4248FBL, 40x 10GbE SFP+, 2x QSFP+, 6x 100GbE QSFP28, 2x AC PSU, 5x fan modules, PSU to I/O Panel Airflow</td>
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<table>
<thead>
<tr>
<th>Redundant power supplies</th>
<th>Description</th>
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<tbody>
<tr>
<td></td>
<td>S4200, AC Power Supply, I/O Panel to PSU Airflow</td>
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<td></td>
<td>S4200, DC Power Supply, PSU to I/O Panel Airflow</td>
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<tr>
<td></td>
<td>S4248, DC Power Supply, I/O Panel to PSU Airflow</td>
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<tr>
<th>Fans</th>
<th>Description</th>
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<tr>
<td></td>
<td>S4200 fan module, I/O Panel to PSU Airflow</td>
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<tr>
<td></td>
<td>S4200 fan module, PSU to I/O Panel Airflow</td>
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<thead>
<tr>
<th>Optics</th>
<th>Description</th>
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<tbody>
<tr>
<td></td>
<td>Transceiver, 100GbE, SR4 QSFP28</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, LR4 QSFP28</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, LR4Lite QSFP28</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, PSM4 10Km QSFP28 (*)</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, CWDM4 2Km QSFP28 (*)</td>
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<td></td>
<td>Transceiver, 100GbE, PSM4 500m QSFP28 (*)</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, SR4 optic QSFP+ Transceiver, 40GbE, eSR4 optic QSFP+</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, LR4 optic QSFP+</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, ER4 optics QSFP+</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, PSM4 10Km, QSFP+</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, PSM4-LR MPO 10Km QSFP+ to LC</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE, LM4 / SM4 Duplex QSFP+</td>
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<tr>
<td></td>
<td>Transceiver, 40GbE QSFP+ to SFP+/SFP Adapter (QSA)</td>
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<tr>
<td></td>
<td>Transceiver, 10GbE, SFP+, short reach</td>
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<tr>
<td></td>
<td>Transceiver, 10GbE, LR SFP+, long reach</td>
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<tr>
<td></td>
<td>Transceiver, 10GbE, ER SFP+, extended reach</td>
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<tr>
<td></td>
<td>Transceiver, 10GbE, ZR SFP+ extra extended reach</td>
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<table>
<thead>
<tr>
<th>Cables</th>
<th>Description</th>
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<tbody>
<tr>
<td></td>
<td>100GbE, 4x25GbE, QSFP28 to 4xSFP28, passive DAC</td>
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<tr>
<td></td>
<td>100GbE, QSFP28 to QSFP28, active optical</td>
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<tr>
<td></td>
<td>100GbE, QSFP28 to QSFP28, passive DAC</td>
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<tr>
<td></td>
<td>100GbE, 2x50GbE, QSFP28 to 2xQSFP28, passive DAC, breakout (*)</td>
</tr>
<tr>
<td></td>
<td>40GbE, QSFP+ to QSFP+, active optical</td>
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<tr>
<td></td>
<td>40GbE, QSFP+ to QSFP+, passive DAC</td>
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<tr>
<td></td>
<td>40GbE, MTP to 4xLC optical breakout</td>
</tr>
<tr>
<td></td>
<td>40GbE, 4x10GbE, QSFP+ to 4xSFP+, passive DAC</td>
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</tbody>
</table>
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, 17.2" x 17.1" x 18.2" d
(44.4 x 43.4 x 46.2 cm d)
Weight: 22 lbs (9.99 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/6A 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°F to 104°F (0°C to 45°C)
- Operating humidity: 5% to 90% (RH), non-condensing
Max. non-operating specifications:
- Storage temperature: −40°F to 158°F (−40°C 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
802.1T LLDTP-MED
802.1s MSTP
802.1w RSTP
802.3ad Gigabit Ethernet (100Base-T)
802.3ad Link Aggregation with LACP
802.3ae Gigabit Ethernet (10GBase-X)
802.3az Gigabit Ethernet (1000Base-X)
802.3x Flow Control
802.3y Manchester encoding
802.3z Gigabit Ethernet (1000Base-X) with QSA
802.3u Fast Ethernet (100Base-TX)
802.3z Gigabit Ethernet (1000Base-X)
802.1D Bridging, STP
802.1p L2 Prioritization
802.10 VLAN Tagging, Double VLAN Tagging, GVRP
802.10bb FFC
802.10az 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)
802.3aa 40 Gigabit Ethernet (40GBase-SR4, 40GBase-CR4, 40GBase-LR4, 100GBase-SR10, 100GBase-LR4, 100GBase-ER4) on optical ports
802.3bj 10 Gigabit Ethernet
802.3u Fast Ethernet (100Base-TX) on mgmt ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000Base-X) with QSA ANS/TIA-1057 LLDP-MED
Jumbo MTU support 9,416 bytes
Layer 2 Protocols
802.1Q VLAN Tagging
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)
VLT Enhancements
Minloss Upgrades
VLT Proxy Gateway
RVSTP over VLT
DCB, FSB, iSCSI over VLT
RSPAN over VLT
RFC Compliance
768 UDP
793 TCP
854 Telnet
958 FTP
1321 MUD
1350 TFTP
2474 Differentiated Services
2698 Two Rate Three Color Marker
3164 Syslog
4254 IPv6
General IPv4 Protocols
791 IPv4
792 ICMP
826 ARP
1027 Proxy ARP
1035 DNS (client)
1043 Ethernet Transmission
1191 Path MTU Discovery
1305 NTP
1519 CIDR
1812 Routers
1858 IP Fragment Filtering
2151 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
4564 VRF-lite (IPv4 VRF with OSPF and BGP)
COPP: Control Plane Policing
Policy Based Routing
General IPv6 Protocols
1981 Path MTU Discovery
2400 IPv6
2461 Neighbor Discovery
2462 Stateless Address AutoConfig
2463 ICMPv6
2464 Ethernet Transmission
2675 Jumbo grams
3587 Global Unicast Address Format
4291 IPv6 Addressing
4264 Transmission of IPv6 Packets over Ethernet Networks
2711 IPv6 Router Alert Option
4007 IPv6 Scoped Address Architecture
4213 Basic Transition Mechanisms for IPv6
2431 IPv6 Addressing
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
2528 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 SSHy2
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
4560 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/v2
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
Immunity
EN 300 386 V1.4.1:2008 EMC for Network Equipment
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 V5/2009 Class A
USA: FCC CFR 47 Part 15, Subpart B:2009, Class A

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