DELL Technologies

S4200 SPEC SHEET

DELL EMC POWERSWITCH S4200-ON

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

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

Key applications

- Organizations 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 performance
- 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 10/25/40/50GbE; 40GbE ports support 10GbE; 10GbE ports support 1GbE
- 800Gbps (half-duplex)/1.6Tbps (full-duplex) switching fabric
- Deep buffering capability of up to 6GB packet buffering
- Supports virtual output queue (VoQ) architecture and deep packet buffering to eliminate head of line blocking
- Supports up to 2 million IPv4 route entries
- 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

Key features with Dell SmartFabric 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)
- Dell EMC SmartFabric OS10 software enables Dell Technologies'

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 (OCPSAI)
- 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

	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, 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 (QSA) 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

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Technical specifications

Physical

40 10 Gigabit Ethernet SFP+ ports
2 40 Gigabit Ethernet QSFP+ ports
6 100 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
Thermal dissipation: 1433 BTU/hr (S4248FB-ON); 1604 BTU/hr (S4248FBL-ON)
Max. current draw per system: 6A/5A at 100/120V AC 3A/2.5A at 200/240V AC
Typical power consumption (S4248FB-ON): 150W
Max power consumption (S4248FB-ON): 420W
Typical power consumption (S4248FBL-ON): 180W
Max power consumption (S4248FBL-ON): 470W
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-ON: 8GB
S4248FBL-ON: 32GB
Link aggregation: 32 links per group, 128 groups
Layer 2 VLANs: 4K
MSTP: 64 instances
LAG load balancing: Based on layer 2, IPv4 or IPv6 headers

	S4248FB-ON	S4248FBL-ON
MAC scale	750K	750K
IPv4 hosts	96K	96K
PVST instance	128	128
Ingress ACL	8192	8192
Egress ACL	2048	2048
L3 VLAN	500	500
IPv4 routes	130K	2 Million
IPv6 routes	64K	400K

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, GVRP
802.1Qbb PFC
802.1Qaz ETS
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 RPVST+
802.3ad Link Aggregation with LACP

VLT (Virtual Link Trunking)

Minloss Upgrades
VLT Proxy Gateway
RPVST 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
2597 Assured Forwarding PHB Group
3195 Reliable Delivery for Syslog
3246 Expedited Forwarding PHB
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, 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), Partial Support

Multicast

2236 IGMPv2 Snooping

BGP

1997 Communities
2385 MD5
2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
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

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MIBS
IP MIB
IP Forward MIB
Host Resources MIB
IF MIB
LLDP MIB
Entity MIB
LAG MIB
Dell-Vendor MIB
TCP MIB
UDP MIB
SNMPv2 MIB
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

Data center bridging
802.1Qbb Priority-Based Flow Control
802.1Qaz Enhanced Transmission Selection (ETS)
Explicit Congestion Notification
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
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

Dell Technologies Services

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Consulting
Dell Technologies Consulting Services provides industry professionals with a wide range of tools and the experience your need to design and execute plans to transform your business.

Deployment
Accelerate technology adoption with ProDeploy Enterprise Suite. Trust our experts to lead deployments through planning, configuration and complex integrations.

Management
Regain control of operations with flexible IT management options. Our Residency Services help you adopt and optimize new technologies and our Managed Services allow you to outsource portions of your environment to us.

Support
Increase productivity and reduce downtime with ProSupport Enterprise Suite. Expert support backed by proactive and predictive artificial intelligence tools.

Education
Dell Technologies Education Services help you develop the IT skills required to lead and execute transformational strategies. Get certified today.

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