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 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 PowerSwitch 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 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 10/25/40/50 GbE; 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
- High-performance SDN/OpenFlow 1.3* enabled with ability to interoperate with industry standard OpenFlow controllers

*software feature in roadmap

Dell EMC PowerSwitch S4200-ON
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- 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)

- 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 (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 (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, 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

*software feature in roadmap

Product	Description
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 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
802.1s	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	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

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

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.

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