DELL POWERSWITCH S4100-ON

High-performance open networking top-of-rack switches with multirate Gigabit Ethernet and unified ports

The S4100-ON 10GbE switches comprise Dell Technologies' latest disaggregated hardware and software data center networking solutions, providing state-of-the-art 100GbE uplinks and a broad range of functionality to meet the growing demands of today's data center environment. These innovative, next-generation top-of-rack open networking switches offer optimum flexibility and cost-effectiveness for the enterprise, midmarket and tier 2 cloud service providers with demanding compute and storage traffic environments.

The compact S4100-ON models provide industry-leading density with up to 48 ports of 10GbE or up to 48 ports of 10GBaseT ports, 2 ports of 40GbE and 4 ports of 100GbE in a 1RU form factor. The S4112-ON is a half-rack width model that supports up to 12 ports of 10GbE or 12 ports 10GBaseT, and 3 ports of 100GbE.

Using industry-leading hardware and a choice of Dell SmartFabric OS10 or select 3rd party network operating systems and tools, the S4100-ON Series offers flexibility by provision of configuration profiles and delivers non-blocking performance for workloads sensitive to packet loss. The compact S4100-ON models provide multirate speed, enabling denser footprints and simplifying migration to 100Gbps. Also unique to the S4100-ON series is the ability to meet the demands of converged and virtualized data centers by offering hardware support for L2 and L3 VXLAN gateway. Priority-based flow control (PFC), data center bridge exchange (DCBX) and enhanced transmission selection (ETS) make the S4100-ON ideally suited for DCB environments. Dell PowerSwitch S4100-ON switches support the open source Open Network Install Environment (ONIE) for zero touch installation of Dell SmartFabric OS10 networking operating system, as well as of alternative network operating systems.

Maximum performance and functionality

The S4100-ON series are high-performance, multifunction, 1/10/25/40/50/100 GbE top-of-rack (ToR) switches purpose-built for applications in high-performance data center, cloud and computing environments. Architectural features to optimize data center network flexibility, efficiency and availability include IO panel to PSU airflow or PSU to IO panel airflow for hot/cold aisle environments and redundant, hot-swappable power supplies and fans.

Key applications

- Organizations looking to enter the software-defined data center era with a choice of networking technologies designed to maximize flexibility

- Multi-functional 1/10/25/40/50/100 GbE switching in High Performance Computing Clusters or other business-sensitive deployments requiring the highest bandwidth. High-density 1/10 GbE ToR server access in high-performance data center environments

- iSCSI storage deployment, including DCB converged lossless transactions

- Small-scale data center fabric implementation via the S4100-ON switch in leaf and spine along with S-Series 1/10GbE ToR switches

- VXLAN layer 2/layer 3 gateway support

Key features

- 1RU high-density 10/40/100 GbE ToR switches with up to 48 10GbE (SFP+) or 10GBaseT ports, and up to 4 ports of 100GbE (QSFP28)

- The S4112 is a 1RU, half-rack width 10/100GbE ToR switch with up to 12 ports of 10GbE (SFP+) or up to 12 ports of 10GBaseT ports, and up to 3 ports of 100GbE (QSFP28)

- Multi-rate 100GbE ports support 10/25/40/50 GbE. 40GbE ports support 10GbE. 10GbE ports support 1GbE. Up to 4 different simultaneous speeds are possible in a given profile

* Not line rate

- 1.76Tbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load on S4148F-ON and S4148T-ON

- 960Gbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load on S4128F-ON and S4128T-ON

- 840Gbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load on S4112F-ON and S4112T-ON

- VXLAN gateway functionality support for bridging and routing the non-virtualized and the virtualized overlay networks with line rate performance

- Converged Network support with DCB

- IO panel to PSU airflow or PSU to IO panel airflow

- Redundant, hot-swappable power supplies and fans (S4112-ON has redundant, fixed power supplies and fans)

- IEEE 1588v2 supported on 48 port models

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)

- OS10 Enterprise Edition software enables Dell Technologies layer 2 and 3 switching and routing protocols with integrated IP services, quality of service, manageability and automation features

- OS10 supports Precision Time Protocol (PTP, IEEE 1588v2) to synchronize clocks on network devices.

- 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 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

	S4112F-ON	S4112T-ON	S4128F-ON	S4128T-ON	S4148F-ON	S4148T-ON
Ports	12xSFP+ 3xQSFP28	12x10GbT 3xQSFP28	28xSFP+ 2xQSFP28	28x10GbT 2x QSFP28	48xSFP+ 2xQSFP+ 4xQSFP28	48x10GbT 2xQSFP+ 4xQSFP28
Max 10GbE density	24 (12 SFP+ and 12 via QSFP28 breakout)	24 (12 10GbT and 12 via QSFP28 breakout)	36 (28 SFP+ and 8 via QSFP28 breakout)	36 (28 10GbT and 8 via QSFP28 breakout)	72 (48 SFP+ and 24 via QSFP28 breakout)	72 (48 10GbT and 24 via QSFP28 breakout)
Max 25GbE density	12 via QSFP28 breakout	12 via QSFP28 breakout	8 via QSFP28 breakout	8 via QSFP28 breakout	16 via QSFP28 breakout	16 via QSFP28 breakout
Max 40GbE density	3	3	2	2	6	6
Max 50GbE density	6	6	4	4	8	8
Max 100GbE density	3	3	2	2	4	4

	S4112F-ON	S4112T-ON	S4128F-ON	S4128T-ON	S4148F-ON	S4148T-ON
Switching capacity	840Gbps	840Gbps	960Gbps	960Gbps	1.76Tbps	1.76Tbps
Throughput	625Mpps	625Mpps	720Mpps	720Mpps	1320Mpps	1320Mpps
1588v2 PTP timing					●	●
Max power consumption	180W	200W	260W	300W	370W	440W
Typical operating power	90W	120W	160W	250W	200W	320W
Number of fan trays	3 (Fixed)	3 (Fixed)	4	4	4	4
Fans per fan tray	1	1	1	1	1	2
Weight	8.30 lbs (3.76 kg)	8.45 lbs (3.83 kg)	19.66 lbs (8.92 kg)	20.67 lbs (9.38 kg)	20.15 lbs (9.14 kg)	22.37 lbs (10.15 kg)
Max thermal output	614 BTU/h	682 BTU/h	886 BTU/h	1,023 BTU/h	1261 BTU/h	1,500 BTU/h

● Supported

Product	Description
S4100-ON	S4112F, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O Panel to PSU Airflow S4112F, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O PSU to I/O Panel Airflow S4112T, 12x 10GBASE-T, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O Panel to PSU Airflow S4112T, 12x 10GBASE-T, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O PSU to I/O Panel Airflow S4128F, 28x 10GbE SFP+, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow S4128F, 28x 10GbE SFP+, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow, TAA Certified S4128F, 28x 10GbE SFP+, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module, PSU to I/O Panel Airflow, TAA Certified S4128F, 28x 10GbE SFP+, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module, PSU to I/O Panel Airflow S4128T, 28x 10GBASE-T, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow S4128T, 28x 10GBASE-T, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow, TAA Certified S4128T, 28x 10GBASE-T, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module , PSU to I/O Panel Airflow, TAA Certified S4128T, 28x 10GBASE-T, 2x 100GbE QSFP28, 2x AC PSU, 4x Fan module , PSU to I/O Panel Airflow S4148F, 48x 10GbE SFP+, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow S4148F, 48x 10GbE SFP+, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow, TAA Certified S4148F, 48x 10GbE SFP+, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, PSU to I/O Panel Airflow S4148F, 48x 10GbE SFP+, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, PSU to I/O Panel Airflow, TAA Certified S4148T, 48x 10GBASE-T, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow S4148T, 48x 10GBASE-T, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, I/O Panel to PSU Airflow, TAA Certified S4148T, 48x 10GBASE-T, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, PSU to I/O Panel Airflow S4148T, 48x 10GBASE-T, 2x QSFP+, 4x 100GbE QSFP28, 2x AC PSU, 4x Fan module, PSU to I/O Panel Airflow, TAA Certified
Redundant power supplies (not applicable to S4112)	S4100, AC Power Supply, IO Panel to PSU Airflow S4100, AC Power Supply, PSU to IO Panel Airflow S4100, DC Power Supply, IO Panel to PSU Airflow (available as custom kit) S4100, DC Power Supply, PSU to IO Panel Airflow (available as custom kit) S4100, HV DC Power Supply, IO Panel to PSU Airflow S4100, HV DC Power Supply, PSU to IO Panel Airflow
Fans (not applicable to S4112)	S4100 fan module, IO Panel to PSU Airflow S4100 fan module, PSU to IO Panel Airflow
Optics, Cables and Cable Management	Please refer to Dell Networking Transceivers and Cables spec sheet for complete list of optics and cables. for a complete list of optics and cables.

Physical

1 RJ45 console/management port with RS232 signaling
1 RJ45 micro-USB-B console port
1 RJ45 10/100/1000Base-T management Ethernet port
Size: 1 RU, 1.75"(h) x 17"(w) x 18"(d) (4.4cm (h) x 43.1cm (w) x 45.7cm (d))
S4112: 1.7"(h) x 8.28"(w) x 18"(d) (4.125cm (h) x 20.9cm (w) x 45cm (d)
Power supply: 100–240 VAC 50/60 Hz
Max. current draw per system: 6A/5A at 100/120V
AC; 3A/2.5A at 200/240V AC
    S4112: 2A/1.7A at 100/120V AC; 1A/0.8A at 200/240V AC
Max. operating specifications:
    Operating temperature: 41° to 104° F (5° to 40° C)
Operating humidity: 5 to 85% (RH), non-condensing
Max. non-operating specifications:
    Storage temperature: -40° to 149°F (-40° C to 65° C)
    Storage humidity: 5 to 95% (RH), non-condensing

Redundancy

Hot swappable redundant power (not applicable to S4112)
Hot swappable redundant fans (not applicable to S4112)
Fixed, redundant power supply and fan for S4112

Performance

Packet buffer memory: 12MB
CPU memory: 4GB
MAC addresses: 272K (in Scaled L2 mode)
PVST: 128 instances
ARP table 200K (in Scaled
L3 host mode)

IPv4 routes: 200K (in Scaled
L3 routes mode)
IPv6 hosts: 64K
IPv6 routes: 130K (in Scaled L3 routes mode)
Multicast hosts: 8K
Link aggregation: 32 links per group, 128 groups
Layer 2 VLANs: 4K
Layer3 VLANs: 500
MSTP: 32 instances
LAG load balancing: Based on layer 2, IPv4 or IPv6 headers
L2 Ingress ACL: 6K
L2 Egress ACL: 1K
IPv4 Ingress ACL: 6K
IPv4 Egress ACL: 1K
IPv6 Ingress ACL: 3K
IPv6 Egress ACL: 500
Storage performance parameters
iSCSI Sessions: 255
iSCSI Target: 16
F-Port: Max F-Port Sessions: 526
F-Port: Max members in a zone: 526

For Network Operating System (NOS) specific features, refer to Dell SmartFabric OS10 and Enterprise SONiC Distribution by Dell Technologies spec sheets.

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 32: Class A
Canada: ICES-003, Issue-4, Class A
Europe: EN 55032: 2015+A1:2007 (CISPR 32), 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

Warranty
1 Year Return to Depot

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 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 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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