The S4100-ON 10GbE switches comprise Dell EMC’s latest disaggregated hardware and software data center networking solutions, providing state-of-the-art 100GbE uplinks, fibre channel connectivity 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, mid-market and Tier2 cloud service provider 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 S4148U-ON model can support up to 28 8/16G fibre channel ports, or 16 ports of 32G* fibre channel ports.

Using industry-leading hardware and a choice of Dell EMC’s 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 unified ports (S4148U) and 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 Networking S4100-ON switches support the open source Open Network Install Environment (ONIE) for zero touch installation of Dell EMC’s OS10 networking operating system, as well as of alternative network operating systems.

Maximum performance and functionality

The S4100-ON series are high-performance, multi-function, 1/10/25/40/50/100 GbE and 8/16/32G FC 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 and FC 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 (available in hardware only)

Key features

- 1RU high-density 10/40/100 GbE ToR switches with up to 48 ports of 10 GbE (SFP+) or up to 48 ports of 10GBaseT ports, or up to 28 ports of 8/16 fibre channel, two ports of 40 GbE (QSFP+), and up to four ports of 100GbE (QSFP28) or four ports of 8/16/32G fibre channel
- Multi-rate 100GbE ports support 10GbE or 8/16G ports support 1GbE. Up to four different simultaneous speeds are possible in a given profile.
- Supports dynamic reconfiguration of unified ports on S4148U product as 10GbE or 8/16G FC on SFP+ ports, and 25GbE or 16/32Gb FC on QSFP28 ports
- 1.76Tbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load on S4148F-ON, S4148FE-ON, S4148T-ON and S4148U-ON.
- 960Gbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load on S4128F-ON and S4128T-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
- Support for 10GBASE-LRM optics over OM1/OM2 fiber on S4148FE-ON product (not supported on other products in S4100 product family)
- IEEE 1588v2 supported (hardware only) on 48 port models

* Not line rate
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)
- 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

- 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>Ports</th>
<th>S4128T-ON</th>
<th>S4128F-ON</th>
<th>S4148T-ON</th>
<th>S4148F-ON</th>
<th>S4148FE-ON</th>
<th>S4148U-ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>28x10GbT</td>
<td>2x QSFP28</td>
<td>2x QSFP28</td>
<td>48x10GbT</td>
<td>2x QSFP+</td>
<td>4x QSFP28</td>
<td>48x10GbT</td>
</tr>
</tbody>
</table>

Unified port

Max 10GbE density

- 36 (28 10GbT and 8 SFP+)
- 72 (48 10GbT and 24 SFP+)

Max 25GbE density

- 16
- 16

Max 40GbE density

- 6
- 6

Max 50GbE density

- 8
- 8

Max 100GbE density

- 4
- 4

FC support (8G/16G)

Max FC 8G/16G ports (oversubscribed)

- 40

Max FC 16G line rate

- 28

Max FC 32G ports (oversubscribed)

- 16

Switching capacity

- 960Gbps
- 1.76Tbps

Throughput

- 720Mpps
- 1320Mpps

LRM optics support

- 1588v2 PTP timing

Max power

- 300W
- 440W

Typical operating power

- 290 W
- 450 W

Number of fan trays

- 4
- 4

Fans per fan tray

- 2
- 1

Weight

- 20.67 lbs (9.38 kg)
- 22.37 lbs (10.15 kg)

Max thermal output

- 1,023 BTU/h
- 1,261 BTU/h

- Supported
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
</table>
| **S4100-ON** | S4100, AC Power Supply, IO Panel to PSU Airflow  
S4100, DC Power Supply, PSU to IO Panel Airflow  
S4100, HV DC Power Supply, IO Panel to PSU Airflow  
S4100, HV DC Power Supply, PSU to IO Panel Airflow |
| **Redundant power supplies** | S4100, AC Power Supply, PSU to IO Panel Airflow  
S4100, DC Power Supply, PSU to IO Panel Airflow (available as custom kit)  
S4100, HV DC Power Supply, PSU to IO Panel Airflow |
| **Fans** | S4100, AC Power Supply, PSU to IO Panel Airflow |
| **Optics** | 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 10G,  
Transceiver, 10GbE, USR, SFP+  
Transceiver, 10GbE, LRM, SFP+ (for S4148FE only)  
Transceiver, 10GBASE-T use with QSA in QSFP+ port, 30m reach on CAT6a/7  
Transceiver, 40GbE, SR4 optic QSFP+ Transceiver, 40GbE, eSR4 optic QSFP+  
Transceiver, 40GbE, LR4 optic QSFP+  
Transceiver, 40GbE, ER4 optics QSFP+  
Transceiver, 40GbE, QSFP+  
Transceiver, 100GbE, SR4 QSFP28  
Transceiver, 100GbE, LR4 QSFP28  
Transceiver, 100GbE, LR4Lite QSFP28  
Transceiver, 100GbE, CWDM4 2Km QSFP28  
Transceiver, 100GbE, CWDM4 500m QSFP28  
Transceiver, 100GbE, SFP  
Transceiver, SFP+, 16Gbps Fibre Channel, SWL, 850nm, LC Duplex  
Transceiver, SFP+, 16Gbps Fibre Channel, LWL, 1310nm, LC SMF  
Transceiver, QSFP+, 4x16Gbps Fibre Channel, SW4, 850nm, MPO MMF  
Transceiver, QSFP28, 4x32Gbps Fibre Channel, SW4, 850nm, MPO MMF |
| **Cables** | 100GbE, 4x25GbE, QSFP28 to 4xSFP28, passive DAC  
100GbE, QSFP28 to QSFP28, active optical  
100GbE, QSFP28 to QSFP28, passive DAC  
100GbE, 2x50GbE, QSFP28 to 2xSFP28, 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 |
**Physical**

1 RU45 console/management port with RS232 signaling

Size: 1 RU, 17.5” (h) x 17” (w) x 18” (d) (4.4h x 43.1w x 45.7 cm d)

Power supply: 100–240 VAC 50/60 Hz

Max. current draw per system:

Tbd at 100/120V AC tbd 200/240V AC

Max. operating specifications:

- Operating temperature: 32°C to 104°F (0°C to 40°C)
- Operating humidity: 10 to 85% (RH), non-condensing

Max. non-operating specifications:

- Storage temperature: –40° to 70°C
- Storage humidity: 5 to 95% (RH), non-condensing

**Redundancy**

Hot swappable redundant power

Hot swappable redundant fans

**Performance**

- Packet buffer memory 12MB
- CPU memory: 4GB
- MAC addresses: 160K
- ARP table 128K
- IPv4 routes: 128K
- IPv6 hosts: 64K
- IPv6 routes: 64K
- Multicast hosts: 8K
- Link aggregation: 16 links per group, 128 groups

Layer 2 VLANs: 4K

MISTP: 64 instances

LAG load balancing: Based on layer 2, IPv4 or IPv6 headers

Dell EMC Networking OS10.3 Enterprise Edition Software Specifications

**IEEE Compliance**

- 802.1AB LLDP
- TIA-1057 LLDP-MED
- 802.1s MSTP
- 802.3z Gigabit Ethernet (1000Base-X) with QSA
- 802.3ad Link Aggregation with LACP
- 802.3ab Gigabit Ethernet (1000Base-T)
- 802.1X Network Access Control
- 802.3f Link Aggregation with LACP
- 802.3g 10 Gigabit Ethernet (10Gb-Based)
- 802.3h 40 Gigabit Ethernet (40Gb-Based)
- 802.3i Ethernet (10Base-T)
- 802.3j Fast Ethernet (100Base-TX)
- 802.3k Gigabit Ethernet (1000Base-X)
- 802.3l L2 Prioritization
- 802.3m VLAN Tagging, Double VLAN Tagging, GVRP
- 802.3n PFC
- 802.3o ETS
- 802.3p RSTP

- **Layer 2 Protocols**
  - 802.1D Compatible
  - 802.1q VLAN Tagging
  - 802.1s MSTP
  - 802.1w RSTP
  - 802.1t RPVST+
  - 802.3ad Link Aggregation with LACP
  - VLT (Virtual Link Trunking)

- **RFC Compliance**
  - 768 UDP
  - 793 TCP
  - 854 Telnet
  - 897 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
- 3011 31-bit Prefixes
- 3046 DHCP Option B2 (Relay)
- 1812 Requirements for IPv4 Routers
- 1918 Address Allocation for Private Internets
- 2474 DiffServ Field in IPv4 and IPv6
- 2596 Assured Forwarding PHB Group
- 3105 Reliable Delivery for Syslog
- 3246 Expedited Assured Forwarding
- 4364 VRF-lite (IPv4 VRF with OSPF and BGP)*

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**Network Management**

- 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**

- 2265 RADIUS
- 3162 Radius and IPv4
- 4250, 4251, 4252, 4253, 4254 SSH
- 4301 Security Architecture for IPSec*
- 4302 IPSec Authentication Header*
- 4303 ESP Protocol*

**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
- RADIUS
- Port Mirroring
- 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)*
Data Center Bridging eXchange (DCBx)
DCBx Application TLV (iSCSI, FCoE*)
Fibre Channel
FCF F-Port
FCF E-Port*
FCF VE-Port*
FC Zoning*
* Roadmap

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
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 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

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