The S4100-ON 10GbE switches comprise Dell Technologies’ 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, 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 10GBase-T 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. 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 EMC 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 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 EMC PowerSwitch S4100-ON switches support the open source Open Network Install Environment (ONIE) for zero touch installation of Dell EMC SmartFabric 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 features

- 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 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

* Not line rate
### Key Features with Dell EMC 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

<table>
<thead>
<tr>
<th></th>
<th>S4112F-ON</th>
<th>S4112T-ON</th>
<th>S4128F-ON</th>
<th>S4128T-ON</th>
<th>S4148F-ON</th>
<th>S4148FE-ON</th>
<th>S4148T-ON</th>
<th>S4148U-ON</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ports</strong></td>
<td>12xSFP+</td>
<td>12x10GbT</td>
<td>28xSFP+</td>
<td>28x10GbT</td>
<td>48xSFP+</td>
<td>48xSFP+</td>
<td>48x10GbT</td>
<td>48xSFP+</td>
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<tr>
<td></td>
<td>3xQSFP28</td>
<td>2xQSFP28</td>
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<td>Unified port</td>
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</tr>
</tbody>
</table>
| Max 10GbE density | 24        | 24 (12 10GbT and 12 SFP+)
|                | 6         | 36 (28 10GbT and 8 SFP+)
|                | 72        | 72        | 72 (48 10GbT and 48 SFP+)
| Max 25GbE density | 12        | 12        | 8         | 8         | 16        | 16        | 16        | 16        |
| Max 40GbE density | 3         | 3         | 2         | 2         | 6         | 6         | 6         | 6         |
| Max 50GbE density | 6         | 6         | 4         | 4         | 8         | 8         | 8         | 8         |
| Max 100GbE density | 3        | 3         | 2         | 2         | 4         | 4         | 4         | 4         |
| Max FC 8G/16G ports (oversubscribed) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Max FC 16G line rate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Max FC 32G ports (oversubscribed) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| Max FC 32G line rate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Switching capacity | 840Gbps | 840Gbps | 960Gbps | 960Gbps | 1.76Tbps | 1.76Tbps | 1.76Tbps | 1.76Tbps |
| Throughput      | 630Mpps   | 630Mpps   | 720Mpps   | 720Mpps   | 1320Mpps  | 1320Mpps  | 1320Mpps  | 1320Mpps  |
| LRM optics support |           |           |           |           |           |           |           |           |
| 1588v2 PTP timing |           |           |           |           |           |           |           |           |
| Max power consumption | 180W | 200W | 260W | 300W | 370W | 400W | 440W | 460W |
| Typical operating power | 90W | 120W | 160W | 250W | 200W | 240W | 320W | 300W |
| Number of fan trays | Fixed | Fixed | 4 | 4 | 4 | 4 | 4 | 4 |
| Fans per fan tray | 3 | 3 | 1 | 1 | 1 | 1 | 2 | 2 |
| Weight          | 8.30lbs   | 8.45lbs   | 19.66 lbs (8.92 kg) | 20.67 lbs (9.38 kg) | 20.15 lbs (9.14 kg) | 20.85 lbs (9.46 kg) | 22.37 lbs (10.15 kg) | 20.52 lbs (9.31 kg) |
| Max thermal output | 614 BTU/h | 682 BTU/h | 886 BTU/h | 1,023 BTU/h | 1,261 BTU/h | 1,364 BTU/h | 1,900 BTU/h | 1,568 BTU/h |

** Supported
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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 Panel to I/O Panel airflow  
S4112T, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O Panel to PSU Airflow  
S4112T, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x DC Fixed PSU, 3x Fixed Fan, I/O Panel to PSU Airflow  
S4112F, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x DC Fixed PSU, 3x Fixed Fan, I/O Panel to I/O Panel airflow  
S4112T, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x DC Fixed PSU, 3x Fixed Fan, I/O Panel to I/O Panel airflow  
S4112F, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O Panel to I/O Panel airflow  
S4112T, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x AC Fixed PSU, 3x Fixed Fan, I/O Panel to I/O Panel airflow  
S4112F, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x DC Fixed PSU, 3x Fixed Fan, I/O Panel to I/O Panel airflow  
S4112T, 12x 10GbE SFP+, 3x 100GbE QSFP28, 2x DC Fixed PSU, 3x Fixed Fan, I/O Panel to I/O Panel airflow  |
| 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 | 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, 10GbEBASE-T use with GSA in QSFP+ port, 30m reach on CAT6a/7  
Transceiver, 40GbE, SR4 optic QSFP+  
Transceiver, 40GbE, eSR4 optic QSFP+  
Transceiver, 40GbE, ER4 optics QSFP+  
Transceiver, 40GbE, PSM4-LR MPO 10Km QSFP+ to LC  
Transceiver, 40GbE, LR4 QSFP28  
Transceiver, 100GbE, SR4 QSFP28  
Transceiver, 100GbE, LR4 QSFP28  
Transceiver, 100GbE, LR4-Lite QSFP28  
Transceiver, 100GbE, CWDM4 2km QSFP28  
Transceiver, 100GbE, PSM4 500m QSFP28  
Transceiver, 100GbE, PSM4-IR, QSFP28  
Transceiver, SFP+, 16Gbps Fibre Channel, SWL, 850nm, LC Duplex (S4148U model only)  
Transceiver, SFP+, 16Gbps Fibre Channel, LWL, 1310nm, LC SMF (S4148U model only)  
Transceiver, QSFP+, 4x16Gbps Fibre Channel, SW4, 850nm, MPO MMF (S4148U model only)  
Transceiver, QSFP28, 4x32Gbps Fibre Channel, SW4, 850nm, MPO MMF (S4148U model only) |
| Cables | 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  
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 |
802.1w  RSTP
802.1s  MSTP
TIA-1057  LLDP-MED
802.1AB  LLDP
IEEE Compliance
Specifications
F-Port: Max members in a zone: 526
F-Port: Max F-Port Sessions: 526
iSCSI Target: 16
iSCSI Sessions: 255
IPv6 Egress ACL: 500
IPv6 Ingress ACL: 3K
IPv4 Ingress ACL: 6K
L2 Egress ACL: 1K
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
Dell EMC SmartFabric OS10 Software Specifications
IEEE Compliance
802.1AB  LLDP
TIA-1057  LLDP-MED
802.1s  MSTP
802.1w  RSTP
802.3ab  Gigabit Ethernet (1000Base-X) or breakout
802.3ad  Link Aggregation with LACP
802.3af  VLAN Tagging
802.3i  Ethernet (10Base-T)
802.3z  Gigabit Ethernet (1000BaseX)
802.1t  RPVST+
802.1w  RSTP
802.1q  VLAN Tagging, GVRP
802.1Qaz  ETS
802.1Qbb  PFC
802.1Q  VLAN Tagging, GVRP
802.1D  Bridging, STP
802.1Q  VLAN Tagging, GVRP
802.1D  Ethernet (10Base-T)
802.3u  Fast Ethernet (100Base-TX)
802.3ad  Link Aggregation with LACP
802.3af  VLAN Tagging
802.3i  Ethernet (10Base-T)
802.3z  Gigabit Ethernet (1000Base-X) with QSA
ANSI/TIA-1057 LLDP-MED
Jumbo MTU support 9,116 bytes
Layer2 Protocols
802.1D  Compatible
802.1p  L2 Prioritization
802.1Q  VLAN Tagging
802.1s  MSTP
802.1w  RSTP
802.1Q  VLAN Tagging
802.1Q  VLAN Tagging
802.1s  MSTP
802.1w  RSTP
802.1Q  VLAN Tagging
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 (10GE)
802.3af  VLAN Tagging
802.3i  Ethernet (10Base-T)
802.3z  Gigabit Ethernet (1000BaseX)
802.1t  RPVST+
802.3ad  Link Aggregation with LACP
802.1D  Compatible
802.1p  L2 Prioritization
802.1Q  VLAN Tagging
802.1s  MSTP
802.1w  RSTP
802.1Q  VLAN Tagging
802.1s  MSTP
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802.1p  L2 Prioritization
802.1Q  VLAN Tagging
802.1s  MSTP
802.1w  RSTP
PVST+
802.1X  Network Access Control
802.3ab  Gigabit Ethernet (1000BASE-T) or breakout
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802.3ad  Link Aggregation with LACP
802.3ae  10 Gigabit Ethernet (10GE)
802.3af  VLAN Tagging
802.3i  Ethernet (10Base-T)
802.3z  Gigabit Ethernet (1000BaseX)
802.1t  RPVST+
802.3ad  Link Aggregation with LACP
VLT (Virtual Link Trunking)
VLT Enhancements
Mlnos Upgrades
VLT Proxy Gateway
RVSTP over VLT
DCB, FSB, iSCSI over VLT
RSPAN over VLT
RFC Compliance
788  UDP
793  TCP
854  Telnet
959  FTP
1321  MD5
1350  TFTP
2474  Differentiated Services
2698  Two Rate Three Color Marker
3164  Syslog
4254  SSHv2
IPv4 Management support (telnet, FTP, TACACS, RADIUS, SSH, NTP)
OSPF
1587  NSSA
1745  OSPF/BGP interaction
1765  OSPF Database overflow
2154  MD5
2328  OSPFv2
2570  Opaque LSA
3101  OSPF NSSA
3623  OSPF Graceful Restart (Helper mode)*
Security
2865  RADIUS
3162  Radius and IPv6
4250, 4251, 4252, 4253, 4254 SHHv2
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
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 – Net SNMP
IP Forward MIB – Net SNMP
Host Resources MIB – Net SNMP
IF MIB – Net SNMP
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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)*
Data Center Bridging eXchange (DCBx)
DCBx Application TLV (iSCSI, FCoE*)
Fibre Channel (applicable only to S4148U-ON)
FCF F-Port
FC Zoning

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

Learn more at DellTechnologies.com/Networking