



DELL EMC NETWORKING S6100-ON SWITCH

High-performance 10/25/40/50/100GbE top-of-rack open networking modular switch

Data center optimized

The S6100-ON is purpose-built for applications in high-performance data center and computing environments. Leveraging a non-blocking switching architecture, the S6100-ON delivers line-rate L2 and L3 forwarding capacity to maximize network performance. The compact design provides industry-leading density, conserving rack space while enabling denser footprints and simplifying migration to 100Gbps in the data center core. Priority-based flow control (PFC), data center bridge exchange (DCBX) and enhanced transmission selection (ETS) make the S6100-ON ideally suited for DCB environments. In addition, the S6100-ON incorporates multiple architectural features that optimize data center network flexibility, efficiency and availability, including redundant, hot-swappable power supplies and fans.

The S6100-ON also supports Dell EMC Networking's Open Automation Framework, providing enhanced network automation and virtualization capabilities for virtual data center environments. The Open Automation Framework comprises a suite of inter-related network management tools that can be used together or independently to provide a network that is flexible, available and manageable while helping to reduce operational expenses. Built-in support for key network virtualization and software-defined networking initiatives help enable customers with future-ready agility, optimized for virtual services deployment and delivery.

The S6100-ON supports disaggregated hardware and software data center networking solutions, allowing organizations to deploy modern workloads and applications designed for the open networking era.

Organizations that once utilized the disaggregation model with their data center server platforms can now leverage even greater benefits from Dell open networking platforms. Take advantage of this disaggregated networking model using industry-leading hardware and a choice of leading network operating systems to simplify data center fabric orchestration and automation.

These new offerings provide the flexibility to transform data centers and offer high-capacity network fabrics that are easy to deploy and cost-effective, providing a clear path to a software-defined data center. The Dell S6100-ON supports the industry standard Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems.

Key applications

- High-density 10/25/40/50/100GbE ToR server aggregation in high-performance data center environments

* 50GbE supported in future release.

- Active Fabric™ implementation for large deployments, creating a flat, two-tier, non-blocking 10/25/40/50/100GbE data center network design
- Small-scale Active Fabric implementation via the S6100-ON switch in leaf and spine along with S-Series 1/10/40GbE ToR switches enabling cost-effective aggregation of 10/40/50/100GbE uplinks
- iSCSI storage deployment including DCB converged lossless transactions
- High-performance SDN/OpenFlow 1.3 enabled with ability to inter-operate with industry standard OpenFlow controllers
- Use as a high-speed VXLAN Layer 2 Gateway that connects the hypervisor based overlay networks with non-virtualized infrastructure

Key features

- 2RU high-density 10/25/40/50/100GbE fixed switch with choice of up to 32 ports of 100GbE (QSFP28), 64 ports of 50GbE (QSFP28), 64 ports of 40GbE (QSFP+), 128 ports of 25GbE (SFP28) or 128 ports of 10GbE (using breakout cable) and two fixed SFP+ ports of 10GbE/1GbE/100MbE
- Up to 6.4Tbps of switching I/O bandwidth (full duplex) available and non-blocking switching fabric delivering line-rate performance under full load with sub usec latency
- Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support
- L2 multipath support via Virtual Link Trunking (VLT) and multiple VLT (mVLT) multi-chassis link aggregation technology
- VRF-lite enables sharing of networking infrastructure and provides L3 traffic isolation across tenants
- VXLAN gateway functionality support for optimized virtual operation
- Open Automation Framework adding automated configuration and provisioning capabilities to simplify the management of network environments
- Modular Dell Networking software delivering inherent stability as well as enhanced monitoring and serviceability functions
- Jumbo frame support for large data transfers
- 128 link aggregation groups with up to sixteen members per group, using enhanced hashing
- Redundant, hot-swappable power supplies and fans

Product	Description
S6100	AC base normal airflow: 32-port 100G QSFP+, 4 slots, 2 AC PS, 5 fan subsys w/ airflow from I/O PNL to PS. Product number: 210-AFRS AC base reverse airflow: 32-port 100G QSFP+, 4 slots, 2 AC PS, 5 fan subsys w/ airflow from PS to I/O PNL. Product number: 210-AFRR
Fans	Fan spare normal airflow Fan with airflow I/O PNL to PS PNL Fan spare reverse airflow Fan with airflow from PS PNL to I/O PNL
Power supplies	AC PS spare normal airflow AC power supply with airflow from I/O PNL to PS AC PS spare reverse airflow AC power supply with airflow from PS to I/O PNL DC PSU spare normal airflow DC PSU with airflow from I/O PNL to PSU DC PSU spare reverse airflow DC PSU with airflow from PSU to I/OPN
Optics	Transceiver, 100GbE, SR4 QSFP28 Transceiver, 100GbE, LR4 QSFP28 Transceiver, 100GbE, LR4Lite QSFP28 Transceiver, 100GbE, PSM4 10Km QSFP28 (**) Transceiver, 100GbE, CWDM4 2Km QSFP28 (**) Transceiver, 100GbE, PSM4 500m QSFP28 (**) Transceiver, 100GbE, CXP SR10 Transceiver, 40GbE, SR4 optic QSFP+ Transceiver, 40GbE, eSR4 optic QSFP+ Transceiver, 40GbE, LR4 optic QSFP+ Transceiver, 40GbE, PSM4 10Km, QSFP+ Transceiver, 40GbE, PSM4-LR MPO 10Km QSFP+ to LC Transceiver, 40GbE, LM4 / SM4 Duplex QSFP+ Transceiver, 1GbE BiDi BX10-UP and DOWN, 10Km, SMF, LC Transceiver, 1GbE BiDi BX40-UP and DOWN, 40Km, SMF, LC Transceiver, 1GbE BiDi BX80-UP and DOWN, 80Km, SMF, LC Transceiver, 1/10GBase-T, with QSA adaptor provides 10GbE for 30m over CAT5e/CAT6A/CAT7 UTP
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 SFP+ Direct Attach Cable (Twinax) 2m QSFP+ Direct Attach Cable, 2m
Cable management	S6100 Cable Breakout Kit, MTP to LC (1RU 64 port LC over MMF) S6100 Cable Breakout Kit, MTP to LC (1RU 64 port LC over SMF) S6100 Cable Breakout Kit, MTP to LC (1RU 48 port LC over MMF)
Software	L3 Dell Networking OS S6100 series: Dell Networking software license operating system software license for advanced L3 features, latest version Dell Networking OS S6100 series: Dell Networking Software License operating system software license, latest version Select third-party operating system offerings

Note: in-field change of airflow direction only supported when unit is powered down and all fan and power supply units are replaced with airflow moving in a uniform direction

** Supported in future release

16xQSFP+ Module	8xQSFP28 Module	4xCXP + 4xQSFP28 Module
		
16 QSFP+ 40GbE ports	8 QSFP28 100GbE ports	4 CXP 100GbE ports and 4 QSFP28 100GbE ports

I/O Module

16 ports of 40Gb QSFP+. All 16 can be used as 40GbE or 8 ports can breakout to 4x10GbE

8 ports of 100GbE QSFP28. Each QSFP28 port can be used as 100GbE or 4x25GbE or 2x50GbE or 4x10GbE with breakout cables when available

4 ports of 100GbE CXP and 4 ports of QSFP28. Each CXP port can be used as 100GbE. Each QSFP28 port can be used as 100GbE or 4x25GbE or 2x50GbE or 4x10GbE with breakout cables when available

Technical specifications

Physical

Compact full featured modular 10/25/40/100GE switch with four I/O module slots.

Following I/O modules are supported in each empty slot

- 16x40GE QSFP+ I/O module
- 8x100GE QSFP28 I/O module
- 4x100GE CXP and 4x100GE QSFP28 IO module

1 RJ45 console/management port with RS232 signaling

1 10/100/1000bT Ethernet for management

1 USB 2.0 type A storage port

1 micro USB type B port for console/management port access

2 SFP+ 10GbE/1GbE ports for data access

Chassis

Size: 2 RU, 17.08" w x 18" d x 3.5" h

Weight: Base with 2 PSU and Fans: 34 lbs (15.42kg)
Add 4 IO modules : 44lbs (20kg)

Environmental

Power supply: 100–240 VAC 50/60 Hz

Max. power consumption: 750 Watts

Typ. power consumption: 350 Watts

Max. operating specifications:

Operating temperature: 32°F to 113°F (0°C to 45°C)

Operating humidity: 10 to 90% (RH), non-condensing

Max. non-operating specifications:

Storage temperature: –40°F to 158°F (–40°C to 70°C)

Storage humidity: 5 to 95% (RH), non-condensing

Fresh Air Compliant to 45°C

ReadyRails rack mounting system, no tools required

Redundancy

Two hot swappable power supplies with integrated fans

Hot swappable redundant fan trays

Performance

Switching I/O bandwidth: 6.4Tbps

Forwarding capacity: Up to 4400 Mpps (Full Duplex)

MAC addresses: 160K

IPv4 Unicast routes: 128K

IPv6 Unicast routes: 64K

IPv4 Multicast routes: 64K

IPv6 Multicast routes: 32K

Multicast Hosts: 8K

ARP entries: 128K

Layer 2 VLANs: 4K per port

Layer 3 VLANs: 512 per system

MST: 64 instances

PVST+: 128 instances

LAG: 128 groups, 16 members per LAG group

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

Latency: L2: 300ns, L3: 400ns

Packet buffer memory: 16MB

CPU memory: 8GB

QOS data queues: 8

QOS control queues: 12

QOS: Default 768 entries scalable to 2.5K

ACL Support: 3K

IEEE compliance

802.1AB LLDP

802.1D Bridging, STP

802.1p L2 Prioritization

802.1Q VLAN Tagging, Double VLAN Tagging, GVRP

802.1Qbb PFC

802.1Qaz ETS

802.1s MSTP

802.1w RSTP

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

802.3u Fast Ethernet (100Base-TX) on mgmt ports

802.3x Flow Control

802.3z Gigabit Ethernet (1000Base-X) with QSA

ANSI/TIA-1057 LLDP-MED

Force10 PVST+

Jumbo MTU support 9,416 bytes

General Internet protocols

768 UDP

793 TCP

854 Telnet

959 FTP

RFC and I-D compliance

General IPv4 protocols

791 IPv4

792 ICMP

826 ARP

1027 Proxy ARP

1035 DNS (client)

1042 Ethernet Transmission

1305 NTPv3

1519 CIDR

1542 BOOTP (relay)

1812 Requirements for IPv4 Routers

1918 Address Allocation for Private Internets

2474 Diffserv Field in IPv4 and Ipv6 Headers

2596 Assured Forwarding PHB Group

3164 BSD Syslog

3195 Reliable Delivery for Syslog

3246 Expedited Assured Forwarding

4364 VRF-lite (IPv4 VRF with OSPF and BGP)

5798 VRRP

General IPv6 protocols

1981 Path MTU Discovery Features

2460 Internet Protocol, Version 6 (IPv6) Specification

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

4443 ICMP for IPv6

4861 Neighbor Discovery for IPv6

4862 IPv6 Stateless Address Autoconfiguration
5095 Deprecation of Type 0 Routing Headers in IPv6

IPv6 Management support (telnet, FTP, TACACS, RADIUS, SSH, NTP)

Security

2404 The Use of HMACSHA-1-96 within ESP and AH

2865 RADIUS

3162 Radius and IPv6

3579 Radius support for EAP

3580 802.1X with RADIUS

3768 EAP

3826 AES Cipher Algorithm in the SNMP User Base Security Model

4250, 4251, 4252, 4253, 4254 SSHv2

4301 Security Architecture for IPSec

4302 IPSec Authentication Header

4303 ESP Protocol

4807 IPsec Security Policy DB MIB

RIP

1058 RIPv1

2453 RIPv2

OSPF (v2/v3)

1587 NSSA 4552 Authentication/

2154 OSPF Digital Signatures Confidentiality for

2328 OSPFv2 OSPFv3

2370 Opaque LSA 5340 OSPF for IPv6

IS-IS

5301 Dynamic hostname exchange mechanism for IS-IS

5302 Domain-wide prefix distribution with two-level IS-IS

5303 Three way handshake for IS-IS point-to-point adjacencies

5308 IS-IS for IPv6

BGP
 1997 Communities
 2385 MD5
 2545 BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
 2439 Route Flap Damping
 2796 Route Reflection
 2842 Capabilities
 2858 Multiprotocol Extensions
 2918 Route Refresh
 3065 Confederations
 4360 Extended Communities
 4893 4-byte ASN
 5396 4-byte ASN representations
 draft-ietf-idr-bgp4-20 BGPv4
 draft-michaelson-4byte-as-representation-05 4-byte ASN Representation (partial)
 draft-ietf-idr-add-paths-04.txt ADD PATH

Multicast

1112 IGMPv1
 2236 IGMPv2
 3376 IGMPv3
 MSDP
 PIM-SM
 PIM-SSM

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)

Network management

1155 SMIv1
 1157 SNMPv1
 1212 Concise MIB Definitions
 1215 SNMP Traps
 1493 Bridges MIB
 1850 OSPFv2 MIB
 1901 Community-Based SNMPv2
 2011 IP MIB
 2096 IP Forwarding Table MIB
 2578 SMIv2
 2579 Textual Conventions for SMIv2
 2580 Conformance Statements for SMIv2
 2618 RADIUS Authentication MIB
 2665 Ethernet-Like Interfaces MIB
 2674 Extended Bridge MIB
 2787 VRRP MIB
 2819 RMON MIB (groups 1, 2, 3, 9)
 2863 Interfaces MIB
 3273 RMON High Capacity MIB
 3410 SNMPv3
 3411 SNMPv3 Management Framework
 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
 3413 SNMP Applications
 3414 User-based Security Model (USM) for SNMPv3
 3415 VACM for SNMP
 3416 SNMPv2
 3417 Transport mappings for SNMP
 3418 SNMP MIB
 3434 RMON High Capacity Alarm MIB
 3584 Coexistence between SNMP v1, v2 and v3
 4022 IP MIB
 4087 IP Tunnel MIB
 4113 UDP MIB
 4133 Entity MIB

4292 MIB for IP
 4293 MIB for IPv6 Textual Conventions
 4502 RMONv2 (groups 1,2,3,9)
 5060 PIM MIB
 ANSI/TIA-1057 LLDP-MED MIB
 Dell_ITA.Rev_1_1 MIB
 draft-grant-tacacs-02 TACACS+
 draft-ietf-idr-bgp4-mib-06 BGP MIBv1
 IEEE 802.1AB LLDP MIB
 IEEE 802.1AB LLDP DOT1 MIB
 IEEE 802.1AB LLDP DOT3 MIB
 sFlow.org sFlowv5
 sFlow.org sFlowv5 MIB (version 1.3)
 FORCE10-BGP4-V2-MIB Force10 BGP MIB (draft-ietf-idr-bgp4-mibv2-05)
 FORCE10-IF-EXTENSION-MIB
 FORCE10-LINKAGG-MIB
 FORCE10-COPY-CONFIG-MIB
 FORCE10-PRAP-ALARMS-MIB
 FORCE10-SS-CHASSIS-MIB
 FORCE10-SMI
 FORCE10-TC-MIB
 FORCE10-TRAP-ALARM-MIB
 FORCE10-FORWARDINGPLANE-STATS-MIB

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: 2006, 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:2011, 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

RoHS

All S Series components are EU RoHS compliant.

Certifications

Available with US Trade Agreements Act (TAA) compliance
 USGv6 Host and Router Certified on Dell Networking OS 9.5 and greater
 IPv6 Ready for both Host and Router
 UCR DoD APL (core and distribution ASLAN switch)

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 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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