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
- 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

* 50GbE supported in future release.
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6100</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>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</td>
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<tr>
<td>Fans</td>
<td>Fan spare normal airflow</td>
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<td></td>
<td>Fan with airflow I/O PNL to PS PNL</td>
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<td>Fan spare reverse airflow</td>
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<td></td>
<td>Fan with airflow from PS PNL to I/O PNL</td>
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<tr>
<td>Power supplies</td>
<td>AC PS spare normal airflow</td>
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<td></td>
<td>AC PS power supply with airflow from I/O PNL to PS</td>
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<td></td>
<td>AC PS spare reverse airflow</td>
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<td></td>
<td>AC power supply with airflow from PS to I/O PNL</td>
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<tr>
<td></td>
<td>DC PSU spare normal airflow</td>
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<tr>
<td></td>
<td>DC PSU with airflow from I/O PNL to PSU</td>
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<td></td>
<td>DC PSU spare reverse airflow DC PSU with airflow from PSU to I/O PNL</td>
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<tr>
<td>Optics</td>
<td>Transceiver, 100GbE, SR4 QSFP28</td>
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<td></td>
<td>Transceiver, 100GbE, LR4 QSFP28</td>
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<td>Transceiver, 100GbE, LR4Lite QSFP28</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, PSM4 10Km QSFP28 (**)</td>
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<tr>
<td></td>
<td>Transceiver, 100GbE, CWD4M 2Km QSFP28 (**)</td>
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<td></td>
<td>Transceiver, 100GbE, PSM4 500m QSFP28 (**)</td>
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<td></td>
<td>Transceiver, 100GbE, CXP SR10</td>
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<td>Transceiver, 40GbE, SR4 optic QSFP+</td>
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<td>Transceiver, 40GbE, eSR4 optic QSFP+</td>
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<td>Transceiver, 40GbE, LR4 optic QSFP+</td>
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<td></td>
<td>Transceiver, 40GbE, PSM4 10Km, QSFP+</td>
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<td>Transceiver, 40GbE, PSM4-LR MPO 10Km QSFP+ to LC</td>
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<td>Transceiver, 40GbE, L4M / SM4 Duplex QSFP+</td>
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<td>Transceiver, 1GbE Bidi BX10-UP and DOWN, 10Km, SMF, LC</td>
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<td></td>
<td>Transceiver, 1GbE Bidi BX40-UP and DOWN, 40Km, SMF, LC</td>
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<td>Transceiver, 1GbE Bidi BX40-UP and DOWN, 80Km, SMF, LC</td>
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<td>Transceiver, 1/10GBase-T, with QSA adaptor provides 10GbE for 30m over CAT5e/CAT6A/CAT7 UTP</td>
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<td>Cables</td>
<td>100GbE, 4x25GbE, QSFP28 to 4xSFP28, passive DAC</td>
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<td>100GbE, QSFP28 to QSFP28, active optical</td>
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<td></td>
<td>100GbE, QSFP28 to QSFP28, passive DAC</td>
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<td></td>
<td>100GbE, 2x50GbE, QSFP28 to 2xQSFP28, passive DAC, breakout (**)</td>
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<tr>
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<td>40GbE, QSFP+ to QSFP+, active optical</td>
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<td>40GbE, QSFP+ to QSFP+, passive DAC</td>
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<td>40GbE, MTP to 4xLC optical breakout</td>
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<td></td>
<td>40GbE, 4x10GbE, QSFP+ to 4xSFP+, passive DAC</td>
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<td>SFP+ Direct Attach Cable (Twinax) 2m</td>
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<td>QSFP+ Direct Attach Cable, 2m</td>
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<tr>
<td>Cable management</td>
<td>S6100 Cable Breakout Kit, MTP to LC (1RU 64 port LC over MMF)</td>
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<td>S6100 Cable Breakout Kit, MTP to LC (1RU 64 port LC over SMF)</td>
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<td></td>
<td>S6100 Cable Breakout Kit, MTP to LC (1RU 48 port LC over MMF)</td>
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<tr>
<td>Software</td>
<td>L3 Dell Networking OS</td>
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<td>S6100 series: Dell Networking software license operating system software license for advanced L3 features, latest version</td>
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<tr>
<td></td>
<td>Dell Networking OS</td>
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<td>S6100 series: Dell Networking Software License operating system software license, latest version</td>
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<tr>
<td></td>
<td>Select third-party operating system offerings</td>
</tr>
</tbody>
</table>

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
### 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:
  1. 16x40GE QSFP+ I/O module
  2. 8x100GE QSFP28 I/O module
  3. 4x100GE CXP and 4x100GEQSFP28 I/O module
- 1RU switch/management port with RS232 signaling
- 10/100/1000T Ethernet interface
- 1 USB 2.0 type A storage port
- 1 micro USB type B port for console/management port access
- 2 SFP+ 10Gbps/4Gbps 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 I/O modules: 44lbs (20kg)
- Chassis compliant to fresh air/cooling, 45°C
- Storage humidity: 5 to 95% (RH), non-condensing
- Operating temperature: –40°F to 158°F (–40°C to 70°C)
- 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
- ReadyRais rack mounting system, no tools required

#### Redundancy
- 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

#### I/O Module
- 16 ports of 40GbE 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

#### General IPv6 protocols
- 1991 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
- 4215 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
- 5059 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
- 3687 EAP
- 3626 AES Cipher Algorithm in the SNMP User Base Security Model
- 4250, 4251, 4252, 4253, 4254 SSHv2 Base Security Model
- 2596 Assured Delivery PHB Group
- 4301 Security Architecture for IPsec
- 4302 IPsec Authentication Header
- 4303 ESP Protocol
- 4807 IPsec Security Policy DB MiB

#### RFC and I-D compliance

#### General IPv4 protocols
- 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
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- 4303 ESP Protocol
- 4807 IPsec Security Policy DB MiB

### RIPv
- 1058 RIPv1
- 2453 RIPv2
- 1587 NSSA 4552 Authentication/
- 2514 OSPF Digital Signatures Confidentiality for
- 2328 OSPFv2 OSPFv3
- 2370 opaque LSA 5340 OSPF for IPv6

### IS-IS
- 5301 Dynamic hostname exchange mechanism for
- 5302 Domain-wide prefix distribution with two-level
- 5303 Three way handshake for IS-IS point-to-point

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