Ultra-low-latency, data center optimized

The Dell Force10 S-Series S4810 is an ultra low-latency 10/40 GbE Top-of-Rack (ToR) switch purpose-built for applications in high-performance data center and computing environments. Leveraging a non-blocking, cut-through switching architecture, the S4810 delivers line-rate L2 and L3 forwarding capacity with ultra low-latency to maximize network performance. The compact S4810 design provides industry-leading density of 48 dual-speed 1/10 GbE (SFP+) ports as well as four 40 GbE QSFP+ uplinks to conserve valuable rack space and simplify the migration to 40 Gbps in the data center core (Each 40 GbE QSFP+ uplink can support four 10 GbE ports with a breakout cable). Priority-based Flow Control (PFC), Data Center Bridge Exchange (DCBX), Enhance Transmission Selection (ETS), coupled with ultra low latency and line rate throughput, make the S4810 ideally suited for iSCSI storage, FCoE Transit & DCB environments. In addition, the S4810 incorporates multiple architectural features that optimize data center network flexibility, efficiency, and availability, including IO panel to PSU airflow or PSU to IO panel airflow, and redundant, hot-swappable power supplies and fans.

The S4810 also supports Dell Force10’s Open Automation Framework, which provides advanced network automation and virtualization capabilities for virtual data center environments. The Open Automation Framework is comprised of a suite of inter-related network management tools that can be used together or independently to provide a network that is more flexible, available and manageable while reducing operational expenses.

Key applications

• Ultra-low-latency 10 GbE switching in HPCC, high-speed trading, or other business-sensitive deployments that require the highest bandwidth and lowest latency
• High-density 10 GbE ToR server aggregation in high-performance data center environments
• Design with the E-Series or Z-Series core switch/router to create a flat, two-tier, non-blocking 1/10/40 GbE data center network design
• Design a distributed core Clos fabric with S4810 switch in leaf and spine with the S-Series 1/10GbE ToR switches for cost-effective aggregation of 10 GbE uplinks
• Regular iSCSI Storage deployment
• Enterprise iSCSI (iSCSI over DCB)
• FIP Snooping Bridge as part of storage solution

Key features

• 1RU high-density 10/40 GbE ToR switch with 48 dual-speed 1/10 GbE (SFP+) ports and four 40 GbE (QSFP+) uplinks (totaling 64 10 GbE ports with breakout cables)
• 1.28 Tbps (full-duplex) non-blocking, cut-through switching fabric delivers line-rate performance under full load with 800ns latency
• Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features
• IO panel to PSU airflow or PSU to IO panel airflow
• Open Automation Framework adds VM-awareness as well as automated configuration and provisioning capabilities to simplify the management of virtual network environments
• Modular Dell Force10 Operating System (FTOS) software delivers inherent stability as well as advanced monitoring and serviceability functions
• Supports jumbo frames for high-end server connectivity
• 128 link aggregation groups with up to 8 members per group, using advanced hashing
• Redundant, hot-swappable power supplies and fans
• Hardware support for DCB
• Low power consumption
• VLT & eVLT: multichassis link to enable up to 576 10GE (3:1 over subscription)
• User Port stacking support for up to 6 units
• Support IPv6 Layer 2 and FIPS certification

Ultra low latency 10Gbe Top-of-Rack switch optimized for data center efficiency
Specifications: S4810 High-Performance 10/40 GbE Top-of-Rack Switch

Dell SKU description
S4810
48 x 10GbE SFP+, 4 x QSFP+, 1 x AC PSU, 2 x Fans, IO Panel to PSU Airflow
S4810, 48 x 10GbE SFP+, 4 x QSFP+, 1 x AC PSU, 2 x Fans, PSU to IO Panel Airflow
S4810, 48 x 10GbE SFP+, 4 x QSFP+, 1 x DC PSU, 2 x Fans, PSU to IO Panel Airflow
S4810, 48 x 10GbE SFP+, 4 x QSFP+, 1 x DC PSU, 2 x Fans, PSU to IO Panel Airflow

Redundant power supplies
S4810
AC Power Supply, IO Panel to PSU Airflow
S4810, DC Power Supply, PSU to IO Panel Airflow
S4810, DC Power Supply, PSU to IO Panel Airflow

FANS
S4810 fan module, IO Panel to PSU Airflow
S4810 fan module, PSU to IO SR4 Panel Airflow

Optics
Transceiver, QSFP+, 40GbE SR Transceiver, 850nm wavelength, 1,021-1300 Reach on OM3/OM4
Transceiver, QSFP+, 40GbE AOC, 850nm wavelength, 300-400 Reach on OM3/OM4
Transceiver, SFP+, 10GbE, SR, 850nm Wavelength, 300m Reach
Transceiver, SFP+, 10GbE, LR, 1310nm Wavelength, 10km Reach
Transceiver, SFP+, 10GbE, DWDM, ITU Channel 17-61, 40km Reach
Transceiver, SFP+, 10GbE, SR, 850nm Wavelength, 550m Reach
Transceiver, SFP+ 10GbE, LX, 1310nm Wavelength, 10km Reach
Transceiver, SFP+ 10GbE, BX, 1310nm Wavelength, 40km Reach
Transceiver, SFP+, 10GbE, ER, 1310nm Wavelength, 40km Reach
Transceiver, SFP+, LR (Long Reach Multimode) Optic, 10GbE, 1310nm Wavelength, 220m Reach on MMF

Cables
Cable, 40GbE MTP to 4xLC 5 Optical Breakout Cable
Cable, 40GbE QSFP+ to 4xSFP+ Manual Direct Attach Breakout Cable
Cable, 40GbE QSFP+, Active Fiber Optic, 10m
Cable, 40GbE QSFP+, Active Fiber Optic, 50m
Cable, 40GbE QSFP+, Direct Attach Cable, 1m
Cable, 40GbE QSFP+, Direct Attach Cable, 5m
Cable, SFP+, 10GbE, Direct Attach Cable, 1m
Cable, SFP+, 10GbE, Direct Attach Cable, 5m
Cable, SFP+, 10GbE, Direct Attach Cable, 10m
Cable, SFP+, 10GbE, Direct Attach Cable, 25m

Software
Software, FTS – Force10 Optimized Configuration, S4810
Software, Force10, FC-Optimized Configuration, S4810

Note: In-field change of airflow direction not supported.

Physical
4x10 Gigabit Ethernet SFP+ ports
4 line rate 10 Gigabit Ethernet QSFP+ ports
1 RJ45 console/management port with RS232 signaling

Max. power consumption: 350 Watts (AC), 300 Watts (DC)
Max. thermal output: 1194 BTU/h

Redundancy
Hot swappable redundant power
Hot swappable redundant fans

Performance
IPv4 protocols: IPv4 - 128K
IPv6 protocols: 16K
IPv4 routes: 8K (shared CAM space with IPv4)
IPv6 routes: 8K (shared CAM space with IPv4)
Switch fabric capacity: 1.28 Tbps (full-duplex)
640 Gbps (half-duplex)

IEEE Compliance
802.1AM LLDP
802.1Qb Ethernet Connectivity Fault Management
802.1D Bridge, STP
802.1Qc Spanning Tree
802.1Qd VLAN Tagging, Double VLAN Tagging, GVRP
802.1Qv MSTP
802.1W RSTP
802.1X Network Access Control
802.3ad Gigabit Ethernet (1000BASE-T)
802.3ac Frame Extensions for VLAN Tagging
802.3ad Link Aggregation with LACP
802.3ae 10 Gigabit Ethernet (1000BASE-X)
802.3af 40 Gigabit Ethernet (40GbE-SR4, 40GbE-CR4) on optical ports
802.3u Fast Ethernet (10BASE-T) on mgmt ports
802.3z Gigabit Ethernet (1000BASE-X)

RFC and I-D Compliance
General Internet Protocols
768 UDP
793 TCP
854 Telnet
959 FTP
1321 CDP

General IPv4 Protocols
791 RIP
792 ICMP
802 ARP
1027 OSPF
1035 DNS (client)
1036 Ethernet Transmission
1037 MTU
1039 CIDR
1042 Bootstrap (en)

General IPv6 Protocols
2460 IPv6
2461 Neighbor Discovery
2462 Stateless Address Autoconfiguration
2463 ICMPv6

OSPF
2154 MDS
2328 OSPFv2
2370 Opaque LSA

BGP
199 Communities
2385 MDS

FTOS
2439 Route Flap Damping
2796 Route Reflector
2842 Capabilities
2858 Multicast Extensions
2918 Route Refresh
3065 Confederations
4368 Extended Communities
4893 4-byte ASNs
5396 4-byte ASN representations
draft-ietf-idr-bgp4-mux-05

draft-ietf-idr-bgp4-mux-05

draft-ietf-idr-bgp4-mux-05

draft-ietf-idr-bgp4-mux-05

IS-IS
1136 IPv4
1137 IPv6

Multicast
1122 IPv4
3569 IPv6

Network Management
155 SNMP
1156 Internet
1517 SNMP
1215 Conformance Definitions
1215 SNMP Traps
1245 BGP
1850 OSPFv2
1901 Community-based SNMPv2
2101 IP
2102 TCP
2103 UDP
2106 IP Forwarding Table
2570 SNMP
2571 Management Frameworks
2572 Message Processing and Dispatching
2573 Compliance Between SNMPv1/v2/v3
2576 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)
2853 Interfaces MIB
2895 RADIUS
2923 SNMP High Capacity MIB
2941 SNMPv2
2945 IPv6 High Capacity Alarm MIB
5060 IPv6 with RADIUS

Regulatory Compliance
UL/CUL 60950-1, Second Edition
EN 60950-1, Second Edition
IEC 60950-1, Second Edition including all National Deviations and Group Differences
EN 62380-1 Safety of Laser Products Part 1: Equipment Classification Requirements and Users's Guide
Regulation 2014/30 (2010 and 1040)

Emissions
Australia/New Zealand: AS/NZS CISPR 22: 2009, Class A
Canada: ICES-003, Issue-4, Class A
Japan: VCCI V3/2009 Class A
Canada: ICES-003, Issue-4, Class A

RoHS
All S-Series components are EU RoHS compliant.