



Dell Networking S-Series

S4820T high-performance 1/10/40GbE switch

High-density, 1RU 48-port 1/10G BASE-T switch plus four 40GbE uplinks with non-blocking line-rate performance; feature-rich Dell Networking OS; optimized for iSCSI, DCB and ToR applications for Dell 12G rack servers, blade servers with Dell Networking MXL blade switch and storage solutions.

High density 1/10G BASE-T switch

The Dell Networking S-Series S4820T 1/10G BASE-T Ethernet switch is purpose-built for high performance data centers. By leveraging a non-blocking, cut-through (default mode is store and forward) switching architecture, the S4820T delivers line-rate L2/L3 features to maximize network performance. The S4820T design provides (48) 1/10G BASE-T ports that support 100Mb/1Gb/10Gb and four 40GbE QSFP+ uplinks. Each 40GbE QSFP+ uplink can be broken out into four 10GbE ports using breakout cables.

Priority-based Flow Control (PFC), Enhanced Transmission Selection (ETS), Data Center Bridge Exchange (DCBx) coupled with line rate throughput positions the S4820T as an ideal solution for data center ToR applications for servers, and storage arrays. In addition, the S4820T incorporates multiple architectural features that optimize data center network flexibility, efficiency, and availability. These features include I/O panel to PSU airflow or PSU to I/O panel airflow for hot/cold aisle environments, and redundant, hot-swappable power supplies and fans.

S4820T also supports Dell Networking's Embedded Open Automation Framework, which provides advanced network automation and virtualization capabilities for virtual data center environments. Embedded 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 flexible, available and manageable while helping to reduce operational expenses.

Key applications

- High-density 1/10G BASE-T ToR server aggregation in high-performance data center environments
- Design with the Z-Series core switch to create a two-tier, non-blocking 1/10/40GbE data center network architecture
- Lossless iSCSI storage deployments using DCB
- Enterprise, Web 2.0, and cloud service providers' data center networks for ToR and end of row applications
- High-performance SDN/OpenFlow 1.3 enabled with ability to inter-operate with industry standard Open-Flow controllers

Key features

- 1/10GbE copper connectivity for maximum flexibility and investment protection
- 1.28Tbps (full-duplex) non-blocking, cut-through (default mode is store and forward) switching fabric offers line-rate performance

- I/O panel to PSU airflow or PSU to I/O panel airflow
- Redundant, hot-swappable power supplies and fans
- Modular Dell Networking OS software offers inherent stability as well as advanced monitoring and serviceability functions
- Enhanced mirroring capabilities including 1:4 local mirroring, Remote Port Mirroring (RPM) and Encapsulated Remote Port Mirroring (ERPM). Rate shaping combined with flow based mirroring enables the user to analyze fine grained flows
- Supports jumbo frames for high-end performance in virtualized environments and IP storage/server communication
- VRF-lite enables sharing of networking infrastructure and provides L3 traffic isolation across tenants
- 128 link aggregation groups with up to 8 members per group
- Increase VM Mobility region by stretching L2 VLAN within or across two DCs with unique VLT capabilities like Routed VLT, VLT Proxy Gateway
- Scalable L2/L3 Ethernet switching with QoS and standards-based IPv4/IPv6 features, including OSPF, BGP and Policy Based Routing (PBR) support
- User port stacking support for up to 6 units that is managed as one logical device
- Embedded Open Automation Framework adds VM-awareness as well as automated configuration and provisioning capabilities to simplify the management of virtual network environments. Supports In-Box Puppet agent for DevOps

1/10G BASE-T cabling distances

Cable Type	1G BASE-T	10G BASE-T
Cat 6 UTP	100m (330 ft)	55m (180 ft)
Cat 6 STP	100m (330 ft)	100m (330 ft)
Cat 6A UTP	100m (330 ft)	100m (330 ft)
Cat 7	100m (330 ft)	100m (330 ft)

Flexible, powerful
Ethernet switch for data
centers of all sizes

Specifications: S4820T 1/10G BASE-T high-performance Ethernet switch

Dell SKU description

S4820T 1/10G BASE-T
S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, I/O Panel to PSU Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, PSU to I/O Panel Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x DC PSU, 2 x Fans, I/O Panel to PSU Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x DC PSU, 2 x Fans, PSU to I/O Panel Airflow

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, I/O panel to PSU Airflow, TAA

S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, PSU to I/O Panel Airflow, TAA

Redundant power supplies
S4820T 1/10G BASE-T, AC Power Supply, I/O Panel to PSU Airflow
S4820T 1/10G BASE-T, AC Power Supply, PSU to I/O Panel Airflow
S4820T 1/10G BASE-T, DC Power Supply, I/O Panel to PSU Airflow
S4820T 1/10G BASE-T, DC Power Supply, PSU to I/O Panel Airflow

Fans
S4820T 1/10G BASE-T fan module, I/O Panel to PSU Airflow
S4820T 1/10G BASE-T fan module, PSU to I/O SR4 Panel Airflow

Optics
Transceiver, QSFP+, 40GbE SR Optics, 850nm Wavelength, 100-150m Reach on OM3/OM4
Transceiver, QSFP+, 40GbE eSR Optics, 850nm Wavelength, 300-400 Reach on OM3/OM4
Transceiver, QSFP+, 40GbE LR4 Long Reach, 4xWDM channel, 1310nm, 10km Reach on SMF
Transceiver, QSFP+ 40GbE, LM4 Optics. 2 fiber (1-TX, 1-RX, 4 wavelengths) MMF, 100m

Cables
Cable, 40GbE QSFP+, Direct Attach Cable, 1m
Cable, 40GbE QSFP+, Direct Attach Cable, 5m
Cable, 40GbE QSFP+ to 4xSFP+ Direct Attach Breakout Cable, 5m
Cable, 40GbE MTP to 4xLC Optical Breakout Cable (optics not included), 5m
Cable, 40GbE QSFP+, Active Fiber Optic, 10m
Cable, 40GbE QSFP+, Active Fiber Optic, 50m

Software
Software, Dell Networking OS, S4820T 1/10G BASE-T

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

Physical

48 line-rate 1/10G BASE-T ports
4 line-rate 40GbE QSFP+ ports
1 RJ45 console/management port with RS232 signaling
Size: 1 RU, 1.71" h x 17.09" w x 18.11" d (4.35 h x 43.4 w x 46.0 cm d)
Weight: 21.7 lbs (9.86 kg)
ISO 7779 A-weighted sound pressure level: 65 dBA at 78.8°F (26°C)
Power supply: 100-240 VAC 50/60 Hz
1) AC forward airflow
2) AC reverse airflow
Power supply: 40.5-60 VDC
1) DC forward airflow
2) DC reverse airflow
Max. thermal output: 1433 BTU/h
Max. current draw per system:
4.2A at 100/120V VAC 2.1A at 200/240VAC
10.4A at 40.5 VDC 7 A at 60VDC
Max. power consumption: 420W (at AC input or DC input)
Typ. power consumption: 360 Watts
Max. operating specifications:
Operating temperature: 32° to 104°F (0° to 40°C)
Operating humidity: 5 to 90% (RH), non-condensing
Operating altitude: 0ft to 6600ft above sea level
Max. non-operating specifications:
Storage temperature: -40° to 158°F (-40° to 70°C)
Storage humidity: 5 to 90% (RH), non-condensing

Redundancy

Hot swappable redundant power supplies
Hot swappable redundant fans
User port stacking up to 6 units

Performance

MAC addresses: 128K
IPv4 routes: 16K
IPv6 routes: 8K (shared CAM space with IPv4)
Switch fabric capacity: 1.28 Tbps (full-duplex)
640 Gbps (half-duplex)
960 Mpps
Forwarding capacity: 16 links per group, 128 groups per stack
Link aggregation: 4 queues
Queues per port: 4K
Layer 2 VLANs: 64 instances
MSTP : 64 instances
VRF-lite: 64 instances
Line-rate Layer 2 switching: all protocols, including IPv4 and IPv6
Line-rate Layer 3 routing: IPv4 and IPv6
IPv4 host table size: 16K
IPv6 host table size: 8K
IPv4 Multicast table size: 8K
LAG load balancing: based on Layer 2, IPv4 or IPv6 headers
Latency: 3.3 µsec
Packet buffer memory: 9MB
CPU memory: 2GB

IEEE compliance

802.1AB LLDP
802.1ag Connectivity fault Management
802.1D Bridging, STP
802.1p L2 Prioritization
802.1Q VLAN Tagging, Double VLAN Tagging, GVRP
802.1Qaz Enhanced Transmission Selection (ETS)
802.1Qbb Priority-based Flow Control (PFC)
DCBx (CIN, CEE, and IEEE2.5)
802.1s MSTP
802.1w RSTP
802.1X Network Access Control
802.3ab Gigabit Ethernet (1000BASE-T)
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) on optical ports
802.3u Fast Ethernet (100BASE-TX) on mgmt ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000BASE-X)
ANSI/TIA-1057 LLDP-MED
Force10 PVST+
MTU 12,000 bytes

RFC and I-D compliance

General Internet protocols

768	UDP	854	Telnet
793	TCP	959	FTP

General IPv4 protocols

791	IPv4	2474	Diffserv Field in IPv4 and IPv6 Headers
792	ICMP		
826	ARP	2596	Assured Forwarding PHB Group
1027	Proxy ARP		
1035	DNS (client)	3164	BSD Syslog
1042	Ethernet Transmission	3195	Reliable Delivery for Syslog
1305	NTPv3	3246	Expedited Assured Forwarding
1519	CIDR		
1542	BOOTP (relay)	4364	VRF-Lite (IPv4 VRF with OSPF, BGP, IS-IS and v4 multicast)
1812	Requirements for IPv4 Routers		
1918	Address Allocation for Private Internets	5798	RRRP

General IPv6 protocols

1981 Path MTU Discovery Features
2460 Internet Protocol, Version 6 (IPv6) Specification
2464 Transmission of IPv6 Packets over Ethernet Networks
2710 Multicast Listener Discovery (MLD) for IPv6
2711 IPv6 Router Alert Option
3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
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)
VRF-Lite (IPv6 VRF with OSPFv3, BGPv6, IS-IS)

Security

2404 The Use of HMAC-SHA-1-96 within ESP and AH
2865 RADIUS
3162 Radius and IPv6
3579 Radius support for EAP
3580 802.1X with RADIUS EAP
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 IPSecv Security Policy DB MIB

RIP

1058 RIPv1 | 2453 RIPv2

OSPF (v2/v3)

1587 NSSA
2154 OSPF Digital Signatures
2328 OSPFv2
2370 Opaque LSA | 4552 Authentication/Confidentiality for OSPFv3
5340 OSPF 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
draft-ietf-pim-sm-v2-new-05 PIM-SMw
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 SMIPv1
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 SMIPv2
2579 Textual Conventions for SMIPv2
2580 Conformance Statements for SMIPv2
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 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-PRODUCTS-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 Immunity

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 ALSAN switch)

Learn more at Dell.com/Networking

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Dell_Networking_S4820T_spec sheet

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