



# Dell Networking S-Series

## S4820T high-performance 1/10/40GbE top-of-rack 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 Top-of-Rack (ToR) 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 IO panel to PSU airflow or PSU to IO 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 1.0/1.3\* enabled with ability to inter-operate with industry standard OpenFlow 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

- IO panel to PSU airflow or PSU to IO 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

### 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)

Flexible, powerful top-of-rack switch for data centers of all sizes

\* Full 1.3 compliance available in early Q1CY15.

# Specifications: S4820T 1/10G BASE-T high-performance top-of-rack 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, IO 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 IO Panel Airflow  
 S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x DC PSU, 2 x Fans, IO 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 IO Panel Airflow  
 S4820T 1/10G BASE-T, 48 x 1/10G BASE-T, 4 x QSFP+, 1 x AC PSU, 2 x Fans, IO 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 IO Panel Airflow, TAA

### Redundant power supplies

S4820T 1/10G BASE-T, AC Power Supply, IO Panel to PSU Airflow  
 S4820T 1/10G BASE-T, AC Power Supply, PSU to IO Panel Airflow  
 S4820T 1/10G BASE-T, DC Power Supply, IO Panel to PSU Airflow  
 S4820T 1/10G BASE-T, DC Power Supply, PSU to IO Panel Airflow

### Fans

S4820T 1/10G BASE-T fan module, IO Panel to PSU Airflow  
 S4820T 1/10G BASE-T fan module, PSU to IO 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

### 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  
 IP4 routes: 16K  
 IP6 routes: 8K (shared CAM space with IPv4)  
 Switch fabric capacity: 1.28 Tbps (full-duplex)  
 640 Gbps (half-duplex)  
 Forwarding capacity: 960 Mpps  
 Link aggregation: 8 links per group, 128 groups per stack  
 Queues per port: 4 queues  
 Layer 2 VLANs: 4K  
 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  
 IP4 host table size: 16K  
 IP6 host table size: 8K  
 IP4 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)  
 MSTP  
 802.1s RSTP  
 802.1w Network Access Control  
 802.1X Gigabit Ethernet (1000BASE-T)  
 802.3ab Frame Extensions for VLAN Tagging  
 802.3ac Link Aggregation with LACP  
 802.3ad 10 Gigabit Ethernet (10GBASE-X)  
 802.3ae 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)  
 ANS/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	1918	Address Allocation for Private Internets
792	ICMP		
826	ARP	2474	Diffserv Field in IPv4 and IPv6 Headers
1027	Proxy ARP		
1035	DNS (client)	2596	Assured Forwarding PHB Group
1042	Ethernet Transmission	3164	BSD Syslog
1305	NTPv3	3195	Reliable Delivery for Syslog
1519	CIDR	3246	Expedited Assured Forwarding
1542	BOOTP (relay)	4364	VRF-lite (IPv4 VRF with OSPF and BGP)
1812	Requirements for IPv4 Routers	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)

### Security

2404	The Use of HMAC-SHA-1-96 within ESP and AH	4250, 4251, 4252, 4253, 4254	SSHv2
2865	RADIUS	4301	Security Architecture for IPsec
3162	RADIUS and IPv6	4302	IPsec Authentication Header
3579	RADIUS support for EAP	4303	ESP Protocol
3580	802.1X with RADIUS	4807	IPsec Security Policy DB MIB
3768	EAP		
3826	AES Cipher Algorithm in the SNMP User Base Security Model		

### RIP

1058	RIPv1	2453	RIPv2
------	-------	------	-------

### OSPF (v2/v3)

1587	NSSA	4552	Authentication/Confidentiality for OSPFv3
2154	OSPF Digital Signatures		
2328	OSPFv2	5340	OSPF for IPv6
2370	Opaque LSA		

### 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	RRRP 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-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

October 2014 | Version 2.4  
 Dell\_Networking\_S4820T\_spec sheet

© 2014 Dell Inc. All rights reserved. Networking Networks, Adit, E-Series, Traverse, and TraverseEdge are registered trademarks and Axis, C-Series, FTOS, MASTERseries, Z-Series, S-Series, and TransAccess are trademarks of Networking Networks, Inc. All other company names are trademarks of their respective holders. Information in this document is subject to change without notice. Dell Inc. assumes no responsibility for any errors that may appear in this document.

