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 Operating System (FTOS); 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 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 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

Key features

- 1/10GbE copper connectivity for maximum flexibility and investment protection
- 1.28 Tbps (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 FTOS software offers inherent stability as well as advanced monitoring and serviceability functions
- Supports jumbo frames for high-end performance in virtualized environments and IP storage/server communication
- 128 link aggregation groups with up to 8 members per group
- Support for L2 multipath using Virtual Link Trunking (VLT) & enhanced VLT (eVLT)
- Scalable L2/L3 Ethernet switching with QoS and standards-based IPv4/IPv6 features
- User port stacking support for up to 6 units that is managed as one logical device
- 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)
Cat 7	100m (330 ft)	100m (330 ft)

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

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 Breakour Cable (optics not included), 5m
Cable, 40GbE QSFP+, Active Fiber Optic, 10m
Cable, 40GbE QSFP+, Active Fiber Optic, 50m

Software

Software, FTOS – Force10 Operating System Software, 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
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)
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
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	1350	TFTP
793	TCP	2474	Differentiated Services
854	Telnet	3164	Syslog
959	FTP	5880	BFD
1321	MD5		

General IPv4 Protocols

791	IPv4	1812	Routers
792	ICMP	1858	IP Fragment Filtering
826	ARP	2131	DHCP (relay)
1027	Proxy ARP	2338	VRRP
1035	DNS (client)	3021	31-bit Prefixes
1042	Ethernet Transmission	3046	DHCP Option 82
1305	NTPv3	3069	Private VLAN
1519	CIDR	3128	Tiny Fragment Attack Protection
1542	BOOTP (relay)		

General IPv6 Protocols

2460	IPv6	1858	IP Fragment Filtering
2461	Neighbor Discovery (partial)	2675	Jumbograms
		3587	Global Unicast Address Format
2462	Stateless Address Autoconfiguration (partial)	4291	Addressing
2463	ICMPv6		

RIP

1058	RIPv1	2453	RIPv2

OSPF

2154	MD5	3623	Graceful Restart
1587	NSSA	4222	Prioritization and Congestion Avoidance
2328	OSPFv2		
2370	Opaque LSA		

BGP

1997	Communities
2385	MD5
RFC 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-ietf-idr-restart-06	Graceful Restart
draft-michaelson-4byte-as-representation-05	4-byte ASN Representation (partial)

IS-IS

RFC 1195 Routing IPv4 with IS-IS
RFC 5308 Routing IPv6 with IS-IS

Multicast

1112	IGMPv1	3569	SSM for IPv4
2236	IGMPv2	4541	IGMPv1/v2 Snooping
3376	IGMPv3		
draft-ietf-pim-sm-v2-new-05	PIM-SM		

Network Management

1155	SMIv1
1156	Internet MIB
1157	SNMPv1
1212	Concise MIB Definitions
1215	SNMP Traps
1493	Bridges MIB
1850	OSPFv2 MIB
1901	Community-based SNMPv2
2011	IP MIB
2012	TCP MIB
2013	UDP MIB
2096	IP Forwarding Table MIB
2570	SNMPv3
2571	Management Frameworks
2572	Message Processing and Dispatching
2576	Coexistence Between SNMPv1/v2/v3
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
2865	RADIUS
3273	RMON High Capacity MIB
3416	SNMPv2
3418	SNMP MIB
3434	RMON High Capacity Alarm MIB
3580	802.1X with RADIUS
5060	PIM MIB
ANSI/TIA-1057	LLDP-MED 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
ruzin-mstp-mib-02	MSTP MIB (traps)
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-MON-MIB	
FORCE10-PRODUCTS-MIB	
FORCE10-SS-CHASSIS-MIB	
FORCE10-SMI	
FORCE10-SYSTEM-COMPONENT-MIB	
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 Class A
Canada: ICES-003, Issue-4, Class A
Europe: EN 55022:2006+A1:2007 (CISPR 22), Class A
Japan: VCCI V3/2009 Class A
USA: FCC CFR 47 Part 15, Subpart B, Class A

Immunity

EN 300 386 V1.4.1:2008 EMC for Network Equipment
EN 55024: 1998 + A1 + A2
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.

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