



Dell Networking S Series

S55 high-performance 1/10GbE top-of-rack switch

48-port GbE switch with up to four modular 10GbE ports or stacking interfaces in just 1RU, non-blocking architecture supports low-latency switching and routing, integrated network automation and virtualization technology with Networking's Open Automation Framework, reliable, data center optimized design supports I/O-to-PSU and PSU-to-I/O airflows and redundant, hot-swappable power.

Data center optimized 1/10GbE switch

The Dell Networking S Series S55 1/10GbE top-of-rack (ToR) switch is optimized for lowering operational costs while increasing scalability and improving manageability at the network edge. Optimized for high-performance data center applications, the S55 leverages a non-blocking architecture that delivers low-latency L2 and L3 switching to eliminate network bottlenecks. The high-density S55 design provides 48 GbE access ports with up to four modular 10GbE uplinks in just 1RU to conserve valuable rack space. The S55 incorporates multiple architectural features that optimize data center network efficiency and reliability, including I/O-to-PSU panel airflow or PSU-to-I/O panel airflow for hot/cold aisle environments, and redundant, hot-swappable power supplies and fans. A "scale-as-you-grow" ToR solution that is simple to deploy and manage, up to 12 S55 switches can be stacked to create a single logical switch by utilizing Dell Networking's stacking technology and high-speed stacking modules.

The S55 provides support for Dell Networking's Open Automation Framework, which leverages capabilities of the modular Dell FTOS software to bring network automation into virtual data center environments, making them more responsive and able to adapt to changes in application requirements. 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.

Applications

- 1/10GbE server aggregation at the ToR in high-performance data center environments
- With the S4810/S4820T/Z9000 virtualized switch/router to create a flat, two-tier, non-blocking 1/10GbE data center network design

Key features

- The 1RU S55 switch delivers 48 GbE access interfaces:
 - 44 10/100/1000Base-T copper ports (fixed RJ45)
 - 4 GbE ports that can be configured for copper or fiber (SFP)

- In addition, the S55 provides two optional high-speed slots that support the following uplink modules:
 - 2-port 10GbE SFP+ modules
 - 2-port 12Gbps stacking module
- 176Gbps switching capacity delivers, non-blocking switching with less than 5 microseconds of latency
- Scalable layer 2 and layer 3 switching with a full complement of standards-based features in FTOS
- I/O-to-PSU panel airflow or PSU-to-I/O panel airflow
- Redundant, hot-swappable power supplies (AC or DC) and fans
- Stacking technology enables up to 12 S55 switches to be managed as a single unit
- Open Automation Framework adds VM awareness as well as automated configuration and provisioning capabilities to simplify the management of virtual network environments
- Modular Dell FTOS software delivers inherent stability as well as advanced monitoring and serviceability functions
- Supports 9,252 byte jumbo frames
- Low power consumption of 130W for a fully-configured unit

Wire-speed 1/10GbE,
low-latency ToR switch
delivers efficient data
center performance.

Specifications: S55 high-performance 1/10GbE ToR switch

Description	
S55	
44 x 10/100/1000Base-T, 4 x 1GbE SFP, 1 x AC PSU, 2 x FM, I/O to PSU Panels (Normal)	
44 x 10/100/1000Base-T, 4 x 1GbE SFP, 1 x AC PSU, 2 x FM, PSU to I/O Panels (Reverse)	
44 x 10/100/1000Base-T, 4 x 1GbE SFP, 1 x DC PSU, 2 x FM, I/O to PSU Panels (Normal)	
44 x 10/100/1000Base-T, 4 x 1GbE SFP, 1 x DC PSU, 2 x FM, PSU to I/O Panels (Reverse)	
Redundant power supplies and Fan modules*	
AC Power Supply, I/O to PSU Panels (Normal)	
AC Power Supply, PSU to I/O Panels (Reverse)	
DC Power Supply, I/O to PSU Panels (Normal)	
DC Power Supply, PSU to I/O Panels (Reverse)	
Fan Module, 1 x Fan, I/O to PSU Panels (Normal)	
Fan Module, 1 x Fan, PSU to I/O Panels (Reverse)	
Modules*	
2-port 10GE SFP+ module	
2-port 12Gbps high-speed stacking module	
Optics*	
SFP+, 10GbE, SR, 850nm Wavelength, 300m reach	
SFP+, 10GbE, LR, 1310nm Wavelength, 10Km reach	
SFP+, 10GbE, ER, 1310nm Wavelength, 40Km reach	
SFP+, 10GbE, LRM, 1310nm Wavelength, 220m reach	
SFP, 1000Base-SX, 850nm Wavelength, 550m reach	
SFP, 1000Base-LX, 1310nm Wavelength, 10Km reach	
SFP, 1000Base-ZX, 1550nm Wavelength, 80Km reach	
SFP, 100Base-FX, 1310nm Wavelength, 2Km reach	
SFP, 1000Base-T	
Cables*	
SFP+, CU, 10GbE, Direct Attach Cable, 0.5m	
SFP+, CU, 10GbE, Direct Attach Cable, 1m	
SFP+, CU, 10GbE, Direct Attach Cable, 2m	
SFP+, CU, 10GbE, Direct Attach Cable, 5m	
SFP+, CU, 10GbE, Direct Attach Cable, 7m	
Stacking Cable, 0.6m, 12Gbps	
Software	
FTOS – Networking Operating System Software, L3, S55	
Note: In-field change of airflow direction not supported.	
*Ordered separately	

Physical

44 10/100/1000Base-T ports
 4 GbE SFP ports
 1 RJ45 console management port with RS232 signaling
 1 RJ45 Ethernet management port
 1 USB-B management port
 2 USB 2.0 ports (1 USB A, 1 USB B)
 2 module bays
 Size: 1 RU, 1.75 x 17.42 x 18.75 (in), 4.44 x 44.25 x 47.62 (cm)
 Weight: 14.41 lbs (6.54 kg)
 ISO 7779 A-weighted sound pressure level: 63.9 dBA at 73.4°F (23°C)
 Power supply: 100–240V AC 50/60 Hz, –44 to –60V DC
 Max. thermal output: 443 BTU/h
 Max. current draw per system:
 2A at 100/120V AC, 1A at 200/240V AC, 3.6A at –48V DC
 Max. power consumption: 130W
 Max. operating specifications:
 Operating temperature: 32°F to 122°F (0°C to 50°C)
 Operating humidity: 10 to 85% (RH), non-condensing
 Max. non-operating specifications:
 Storage temperature: –40°F to 158°F (–40°F to 70°C)
 Storage humidity: 5 to 95% (RH), non-condensing
 Reliability: MTBF 169,315 hours

Redundancy

Ring stacking topology with dynamic master election
 Dual modular slots with up to four 10GbE ports
 Link aggregation across stack members
 Hot swappable redundant AC or DC power
 Hot swappable redundant fan

Performance

MAC addresses:	32K
IPv4 routes:	16K
IPv6 routes:	8K
Switching capacity:	176Gbps
Forwarding capacity:	131Mpps

Link aggregation: 8 links per group, 128 groups per stack
 Stacking capacity: 96Gbps per stack member
 Queues per port: 4 queues
 VLANs: 4096
 Layer 2 switching: All protocols, including IPv4 and IPv6
 Layer 3 routing: IPv4 and IPv6
 LAG load balancing: Based on layer 2, IPv4 or IPv6 headers
 Switching latency: <5 µs for 64 byte frames
 Packet buffer memory: 4MB
 CPU memory: 2GB
 SD card: 8GB

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
802.1s	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)
802.3ak	10 Gigabit Ethernet (10GBase-CX4)
802.3i	Ethernet (10Base-T)
802.3u	Fast Ethernet (100Base-TX)
802.3x	Flow Control
802.3z	Gigabit Ethernet (1000Base-X)
ANSI/TIA-1057	LLDP-MED
Force10	FRRP (Force10 Redundant Ring Protocol)
Force10	PVST+
MTU	9,252 bytes

RFC and I-D compliance

General Internet protocols

768	UDP	1321	MD5
793	TCP	1350	TFTP
854	Telnet	2474	Differentiated Services
959	FTP	3164	Syslog

General IPv4 protocols

791	IPv4	1812	Routers
792	ICMP	1858	IP Fragment Filtering
826	ARP	2131	DHCP (server & relay)
1027	Proxy ARP	2338	VRRP
1035	DNS (client)	3021	31-bit Prefixes
1042	Ethernet Transmission	3046	DHCP Option 82
1191	Path MTU Discovery	3069	Private VLAN
1305	NTPv3	3128	Tiny Fragment Attack Protection
1519	CIDR		
1542	BOOTP (relay)		

General IPv6 protocols

2460	Path MTU Discovery (partial)	2463	ICMPv6
2460	IPv6	2464	Ethernet Transmission
2461	Neighbor Discovery (partial)	2675	Jumbograms
2462	Stateless Address Autoconfiguration (partial)	3587	Global Unicast Address Format
		4291	Addressing

RIP

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

OSPF

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

BGP

1997	Communities	3065	Confederations
2385	MD5	4360	Extended Communities
2439	Route Flap Damping		
2796	Route Reflection	4893	4-byte ASN
2842	Capabilities	5396	4-byte ASN representations
2858	Multiprotocol Extensions	4271	BGPv4
2918	Route Refresh	4724	Graceful Restart

Multicast

1112	IGMPv1	4541	IGMP v1/v2/v3 Snooping
2236	IGMPv2		
3376	IGMPv3	4601	PIM-SM for IPv4
3569	SSM for IPv4		

Network management

1155	SMIv1		
1156	Internet MIB		
1157	SNMPv1		
1212	Concise MIB		
1215	Definitions		
1493	SNMP Traps		
1850	Bridges MIB		
1901	OSPFv2 MIB		
1905	Community-based SNMPv2		
1907	SNMPv2		
2011	SNMP MIB		
2012	IP MIB		
2013	TCP MIB		
2024	UDP MIB		
2096	DLsw MIB		
2233	IP Forwarding Table MIB		
2570	Interfaces MIB		
2571	SNMPv3		
2572	Management Frameworks		
	Message Processing and Dispatching		
2574	SNMPv3 USM		
2575	SNMPv3 VACM		
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		
4273	BGP MIBv1		
4293	IPv6 MIB		
5060	PIM MIB		
	ANSI/TIA-1057		
	draft-grant-tacacs-02		
	IEEE 802.1AB		
	IEEE 802.1AB		
	IEEE 802.1AB		
	sFlow.org		
	sFlow.org		

MIBs

F10-CHASSIS-MIB
 F10-IF-EXTENSION-MIB
 F10-LINK-AGGREGATION-MIB
 F10-PRODUCTS-MIB
 F10-S-SERIES-CHASSIS-MIB
 FORCE10-BGP4-V2-MIB draft-ietf-idr-bgp4-mibv2-05
 FORCE10-COPY-CONFIG-MIB
 FORCE10-MSTP-MIB ruzin-mstp-mib-02 (traps only)
 FORCE10-SYSTEM-COMPONENT-MIB
 FORCE10-TRAP-EVENT-MIB

Regulatory Compliance

Safety

UL/CSA 60950-1, 2nd Edition
 EN 60950-1, 2nd Edition
 IEC 60950-1, 2nd 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
 China CCC

Emissions

Australia/New Zealand: AS/NZS CISPR 22: Class A
 Canada: ICES-003, Issue-4, Class A
 Europe: EN 55022: (CISPR 22), Class A
 Japan: VCCI Class A
 USA: FCC CFR 47 Part 15, Subpart B, Class A
 Brazil: Anatel

Immunity

EN 300 386 EMC for Network Equipment
 EN 55024
 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

