

THE FIRST TOP-OF-RACK GIGABIT ETHERNET SWITCH PURPOSE-BUILT FOR VIRTUALIZED DATA CENTER ENVIRONMENTS

- Ultra-deep packet buffering and buffer “tunability” to handle bursty traffic in virtualized environments
- Line-rate switching of 48 GbE ports and up to four 10 GbE uplinks in 1RU
- Data center-optimized design delivers the best energy efficiency and configuration flexibility in its class

Product Comparison: GbE ToR Switches	Force10 S60	Cisco 4948-10GE	Extreme X450a	Brocade FCX648	Juniper EX4200
Total GbE ports Max. 10 GbE ports	48 4	48 2	48 2	48 4	48 2
Forwarding Capacity (Mpps)	120	102	131	132	101
Deep Packet Buffering	1.25 GB	16 MB	Undisclosed	Undisclosed	9 MB
Open Automation	Yes	No	No	No	No
Purpose-built for Data Center Operations (Reversible Airflow, Redundant PSUs)	Yes	No	No	No	No
Maximum Power Consumption (Redundant Power)	225W	300W	659W	~225W	320W
Stacking (Depth)	12	No	4	8	10
JumpStart Auto-Config	Yes	No	No	No	No
In-Service S/W Upgrades	Yes	No	No	No	No

Best-in-Class
GbE/10 GbE
ToR switching
— at the Best Price

Open Automation
Responsive
& Resilient
Data Center Network

Flexible
& Energy Efficient
Design

FORCE10

Force10 Delivers Innovation at the Rack Edge

Building on Force10 Networks heritage of delivering innovative technology solutions for the data center, the company recently introduced the newest addition to its award-winning family of Ethernet switching and routing products. The S-Series S60 is the industry's first GbE ToR (Top-of-Rack) switch that is purpose-built for dynamic data center environments.

The S60 answers the key ToR challenges related to the rapidly growing use of server virtualization as well as bursty streaming and storage applications. Delivering best-in-class packet buffering and buffer allocation “tunability” the S60 ensures predictable network performance at the rack edge, even when faced with huge spikes in network traffic. In addition, the S60 offers a compact and scalable design that provides 48 GbE ports and up to four optional 10 GbE uplinks in just 1-RU to conserve valuable rack space. Further, the S60 ToR GbE switch delivers configuration flexibility, high reliability and of course power and cooling efficiency to reduce data center costs.

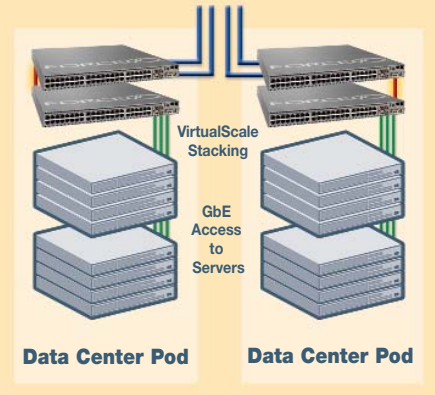
S60 Feature Highlights

- Line-rate switching of 48 GbE ports and up to four 10 GbE uplinks in a compact 1RU switch saves valuable rack space
- Industry-leading packet buffering and buffer allocation “tunability” to efficiently manage network congestion at the server I/O
- Supports Force10's Open Automation Framework and JumpStart bare metal auto-configuration to simplify network scaling, management and provisioning
- Data center optimized design supports reversible airflow (front-to-back or back-to-front), as well as redundant hot-swappable power supply and fan units
- VirtualScale stacking technology enables up to 12 S60 switches to be managed as a single unit



HIGH-PERFORMANCE TOP-OF-RACK APPLICATION

10 GbE to Core/Aggregation Switch



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Network Hardware Resale
800.451.3407
www.networkhardware.com

Tech Data
800.237.8931
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S-Series S60 Specifications

Physical

44 line-rate 10/100/1000Base-T ports
4 GbE SFP ports
1 RJ45 console/management port with RS232 signaling
2 USB 2.0 ports (1 USB A, 1 USB B)

Optional uplink modules:
2 line-rate ports 10 Gigabit Ethernet SFP+
2 line-rate ports 12 Gigabit Stacking**
1 line-rate port 24 Gigabit Stacking**

Size: 1 RU, 1.7 h x 17.32 w x 16.73" d (4.3 h x 44 w x 42.5 cm d)
Weight: 14.39 lbs (6.54 kg)
ISO 7779 A-weighted sound pressure level: 59.6 dBA at 73.4°F (23°C)
Power supply: 100–240 VAC 50/60 Hz, –44 to –60 VDC
Max. thermal output: 531 BTU/h
Max. current draw per system:
2 A at 100/120 VAC, 1 A at 200/240 VAC, 3.6 A at –48 VDC
Max. power consumption: 225 W
Max. operating specifications:
Operating temperature: 32° to 122°F (0° to 50°C)
Operating humidity: 10 to 85% (RH), non-condensing
Max. non-operating specifications:
Storage temperature: –40° to 158°F (–40° 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 10 GbE ports
Link aggregation across stack members
Hot swappable redundant AC or DC power
Hot swappable redundant fans

Performance

MAC addresses: 32K
IPv4 routes: 16K
IPv6 routes: 8K
Switch fabric capacity: 136 Gbps
Link aggregation: 8 links per group, 128 groups per stack
Stacking capacity: 96 Gbps per stack member
Queues per port: 4 queues
VLANs: 4096
Line-rate Layer 2 switching: all protocols, including IPv4 and IPv6
Line-rate Layer 3 routing: IPv4 and IPv6
LAG load balancing: based on Layer 2, IPv4 or IPv6 headers
Switching latency: <9 µs for 64 byte frames

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 PVST+
MTU 9,252 bytes

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
2024 DLSw MIB
2096 IP Forwarding Table MIB
2570 SNMPv3
2571 Management Frameworks
2572 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
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
rugin-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

Regulatory Compliance

Safety

UL/CSA 60950-1, 1st Edition
EN 60950-1, 1st Edition
IEC 60950-1, 1st 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 (CISPR 22: 2006), Class A Japan: VCCI V3/2007.04 Class A
USA: FCC CFR 47 Part 15, Subpart B, Class A

Immunity

EN 300 386 V1.3.3: 2005 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.



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