

Extreme SLX 9540 Switch Technical Specifications

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Preface

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Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Extreme technical documentation.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE

A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION

An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.



CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.



DANGER

A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used to highlight specific words or phrases.

Format	Description
bold text	Identifies command names. Identifies keywords and operands. Identifies the names of GUI elements.
<i>italic text</i>	Identifies text to enter in the GUI. Identifies emphasis. Identifies variables.
Courier font	Identifies document titles. Identifies CLI output.

Format	Description
	Identifies command syntax examples.

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
<i>italic text</i>	Identifies a variable.
value	In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, <code>--show WWN</code> .
[]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ x y z }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. In Fibre Channel products, square brackets may be used instead for this purpose.
x y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, <code>member[member...]</code> .
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Extreme resources

Visit the Extreme website to locate related documentation for your product and additional Extreme resources.

White papers, data sheets, and the most recent versions of Extreme software and hardware manuals are available at www.extremenetworks.com. Product documentation for all supported releases is available to registered users at www.extremenetworks.com/support/documentation.

Document feedback

Quality is our first concern at Extreme, and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you.

You can provide feedback in two ways:

- Use our short online feedback form at <http://www.extremenetworks.com/documentation-feedback-pdf/>
- Email us at internalinfodev@extremenetworks.com

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Contacting Extreme Technical Support

As an Extreme customer, you can contact Extreme Technical Support using one of the following methods: 24x7 online or by telephone. OEM customers should contact their OEM/solution provider.

If you require assistance, contact Extreme Networks using one of the following methods:

- [GTAC \(Global Technical Assistance Center\)](#) for immediate support
 - Phone: 1-800-998-2408 (toll-free in U.S. and Canada) or +1 408-579-2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact.
 - Email: support@extremenetworks.com. To expedite your message, enter the product name or model number in the subject line.
- [GTAC Knowledge](#) - Get on-demand and tested resolutions from the GTAC Knowledgebase, or create a help case if you need more guidance.
- [The Hub](#) - A forum for Extreme customers to connect with one another, get questions answered, share ideas and feedback, and get problems solved. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
- [Support Portal](#) - Manage cases, downloads, service contracts, product licensing, and training and certifications.

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Brocade SLX 9540 Switch Technical Specifications

System specifications

System component	Description
Enclosure	Chassis-mountable on a desktop, or in a standard 2 or 4-post rack kit
Power supplies	Dual redundant, hot-swappable power supplies supported with 650 W AC intake or exhaust airflow, or 650 W DC intake or exhaust airflow.
Fan assemblies	Six redundant, hot-swappable fan units with intake or exhaust airflow
Cooling	Forced-air cooling front-to-back or back-to-front
System architecture	Non-blocking shared-memory switch
System processors	Control path based on Intel Broadwell-DE. CPU 4-cores, 8-threads running at 2.2 GHz, 35W Data path based on Broadcom DUNE chipsets, Qumran MX (BCM8837x) - Broadcom packet processor and traffic manager

Ethernet

System component	Description	Maximum ports supported
QSFP-28 ports	The QSFP-28 ports can support 100GbE/40GbE natively and 10GbE/25GbE through breakout cables. There are 6 x 100GbE ports.	6
SFP+ ports	The SFP+ ports can support 10GbE/1GbE interfaces. There are 48 x SFP+ ports.	48
Ethernet management port	RJ-45 port with 10/100/1000 Mbps auto-negotiating capability	1

LEDs

System component	Description
Interface module LEDs	<ul style="list-style-type: none">Power: Green - Power OK, off - No powerStatus: Green- Status OK, Amber - Error; Off - Unexpected errorLink status (1 LED per physical port): Green (Solid) - Link is up; Green (Blinking) - Link is up and running traffic; Off - No link
Power supply LEDs	<ul style="list-style-type: none">LED 1 and LED 2: Steady Green - Input and output voltages are within rangeLED 1: Off and LED 2: Flashing Yellow - Power supply does not have incoming power and is not providing power to the device, or the Input AC voltage is out of range.LED 1: Green and LED 2: Yellow - Output voltage is out of rangeLED 1: Green and LED 2: Flashing Yellow/Green - Over-temperature warning or fan error
Fan module LEDs	<ul style="list-style-type: none">Power (Fan) LED: No light (LED is off) - Fan assembly does not have power. Steady green - Fan assembly has power.

System component	Description
	<ul style="list-style-type: none"> Status (Fan) LED: No light (LED is off) - Fan assembly is either healthy or does not have power. Steady amber - Fan assembly is being initialized or has a failure (full or partial).

Other

System component	Description
Serial Cable	RJ-45 console cable
RJ-45 to DB9 adapter	1 (RJ-45 port to female DB9 connector)
AC power cord, power clip	For both units

Weight and physical dimensions

The Brocade SLX 9540 switch is 1 RU and 16" in depth.

Model	Dimensions (with Fan FRU)	Weight (with 6 x Fan FRUs and 2 x PSUs without optics)
SLX 9540 Switch	445 x 43.7 x 451.5 mm	8.96 Kg (19.712 lbs)
Fantray	42.0 x 41.2 x 94.6 mm	0.18 Kg (.396 lb.)
Power Supply Unit	54.4 x 40.0 x 236.6 mm	0.76 Kg (1.672 lbs)

Environmental requirements

Condition	Operational	Non-operational
Ambient temperature	-5°C to 50°C (23°F to 122°F) (F2B) -5°C to 55°C (23°F to 131°F) (B2F) with 6 fan assemblies	-40°C to 70°C (-40°F to 158°F)
Relative humidity (non-condensing)	5% to 95% at 50°C (122°F)	5% to 95% at 70°C (158°F)
Altitude (above sea level)	0 to 3,000 m (9,843 ft) safety -60 to 4,000 m (13,123 ft) operational	0 to 12,000 m (39,370 ft)
Shock	20 G, 11 ms, half-sine wave	33 G, 11 ms, half-sine wave
Vibration	1 G sine, 0.4 grms random, 5-500 Hz	2.4 G sine, 1.1 grms random, 5-500 Hz
Airflow	134 cfm (estimated with 2 power supplies, 6 fan assemblies)	N/A
Heat dissipation (worst case)	DC power supply 563 W AC power supply 581 W	N/A
Operating noise	52.6 dBA (6 fan assemblies, 25°C, typical loading)	N/A
MTBF (25°C, 60% CL, Telec)	306,419 hours with DC power supply 327,539 hours with AC power supply	N/A

Worst case operational temperature is measured at sea level with at least 4 fan assemblies, with maximum power consumption optics modules (5W QSFP28) fully loaded.

Power supply specifications (per PSU)

Power supply model	Maximum output power rating (DC)	Input voltage	Input line frequency	Maximum input current	Input line protection	Maximum inrush current
BR-ACPWR-650-F	650 W	100-240V~	50-60Hz	12 A	Fuses	35A
BR-ACPWR-650-R	650 W	100-240V~	50-60Hz	12 A	Fuses	35A
BR-DCPWR-650-F	650 W	-48 - 60V	-	13.3 A	Fuses	40A
BR-DCPWR-650-R	650 W	-48 - 60V	-	13.3 A	Fuses	40A

Power consumption (typical configuration)

All 100-GbE ports are linked up, loading with 10 percent traffic rate. Six fan assemblies. Fans at nominal speed.

@100 VAC Input (Input power $\pm 5\%$)	@200 VAC Input (Input power $\pm 5\%$)	@-48VDC	Minimum number of power supplies	Notes
169 W 577 BTU/hr	166 W 566 BTU/hr	168 W 573 BTU/hr	1 x 650 W AC 1 x 650 W DC	1 power supply
178 W 607 BTU/hr	176 W 601 BTU/hr	179 W 611 BTU/hr	1 x 650 W AC 1 x 650 W DC	2 power supplies

Power consumption (maximum configuration)

All 100-GbE ports are linked up, loading with 100 percent traffic rate. Two power supplies and six fan assemblies. Fans at high speed.

@100 VAC Input (Input power $\pm 5\%$)	@200 VAC Input (Input power $\pm 5\%$)	@-48VDC	Minimum number of power supplies	Notes
570 W 1,945 BTU/hr	544.1 W 1,857 BTU/hr	552 W 1,884 BTU/hr	1 x 650 W AC 1 x 650 W DC	1 power supply
581.2 W 1,983 BTU/hr	562.4 W 1,919 BTU/hr	563 W 1,921 BTU/hr	1 x 650 W AC 1 x 650 W DC	2 power supplies

Data port specifications (Ethernet)

System component	Description	Maximum ports supported
QSFP28 ports	100 GbE QSFP28 ports	6
SFP+ ports	The SFP+ ports can support 10GbE/1GbE interfaces. There are 48 x SFP+ ports.	48
Ethernet management port	RJ-45 port with 10/100/1000 Mbps auto-negotiating capability	1

Serial port specifications (pinout RJ-45)

Pin	Signal	Description
1	Not supported	N/A
2	Not supported	N/A
3	RXD	Receive data
4	GND	Logic ground
5	Not supported	N/A
6	TXD	Transmit data
7	Not supported	N/A
8	Not supported	N/A

Serial port specifications (pinout - mini-USB)

Pin	Signal	Description
1	Reserved	Not used
2	UART0_RX	Debug port (data received by SLX)
3	UART0_TX	Console port (data transmitted by SLX)
4	Reserved	Not used
5	GND	Ground

Serial port specifications (protocol)

Parameter	Value
Baud	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

Memory specifications

Parameter	Type	Size
Main memory	DDR4	16 GB
Boot flash	NOR Flash	32 MB
SSD	M.2 SATA III (2 slots)	64 GB per slot

Regulatory compliance (EMC)

- FCC Part 15, Subpart B
- EN 55024
- EM 55032 (CE Mark) (Class A)
- ICES-003
- VCCI
- EN 300 386
- CNS 13438
- KN 32
- KN 35
- TCVN 7189
- EN 61000-3-2
- EN 61000-3-3
- GB 9254
- CISPR 32
- 2014/30/EU
- AS/NZS CISPR32 (Australia) (Class A)

Regulatory compliance (safety)

- EN/UL 60825
- EN/UL/CSA/IEC 60950-1
- GB 4943.1
- CNS 14336-1
- 2014/35/EU

Regulatory compliance (environmental)

- 2011/65/EU - Restriction of the use of certain hazardous substance in electrical and electronic equipment (EU RoHS).
- 2012/19/EU - Waste electrical and electronic equipment (EU WEEE).
- 94/62/EC - packaging and packaging waste (EU).
- 2006/66/EC - batteries and accumulators and waste batteries and accumulators (EU battery directive).
- 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (EU REACH).
- Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 - U.S. Conflict Minerals.
- 30/2011/TT-BCT - Vietnam circular.
- SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in EIPs (China).
- SJ/T 11364-2006 Marking for the Control of Pollution Caused by EIPs (China).