ExtremeRouting SLX 9850 Technical Specifications

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Contents

Preface

This section discusses the conventions used in this guide, ways to provide feedback, additional help, and other Extreme Networks® publications.

Conventions

This section discusses the conventions used in this guide.

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.
	Identifies text to enter in the GUI.
italic text	Identifies emphasis.
	Identifies variables.
	Identifies document titles.

Format	Description
`Courier font`	Identifies CLI output.
	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.
italic text	Identifies a variable.
[ ]	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.
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, *member*[*member*…].
\	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.

Documentation and Training

To find Extreme Networks product guides, visit our documentation pages at:

Current Product Documentation	www.extremenetworks.com/documentation/
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Release Notes	www.extremenetworks.com/support/release-notes
Hardware/Software Compatibility Matrices	https://www.extremenetworks.com/support/compatibility-matrices/
White papers, data sheets, case studies, and other product resources	https://www.extremenetworks.com/resources/

Training

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For more information, visit www.extremenetworks.com/education/.

Getting Help

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

Extreme Portal	Search the GTAC (Global Technical Assistance Center) knowledge base, manage support cases and service contracts, download software, and obtain product licensing, training, and certifications.
The Hub	A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
Call GTAC	For immediate support: 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

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

Subscribing to Service Notifications

You can subscribe to email notifications for product and software release announcements, Vulnerability Notices, and Service Notifications.

1. Go to www.extremenetworks.com/support/service-notification-form.

2. Complete the form with your information (all fields are required).

3. Select the products for which you would like to receive notifications.

> **NOTE**
> You can modify your product selections or unsubscribe at any time.

4. Click **Submit**.

Providing Feedback to Us

Quality is our first concern at Extreme Networks, and we have made every effort to ensure the accuracy and completeness of this document. We are always striving to improve our documentation and help you work better, so we want to hear from you! We welcome all feedback but especially want to know about:

- Content errors or confusing or conflicting information.

- Ideas for improvements to our documentation so you can find the information you need faster.

- Broken links or usability issues.

If you would like to provide feedback to the Extreme Networks Information Development team, you can do so in two ways:

- Use our short online feedback form at https://www.extremenetworks.com/documentation-feedback/.

- Email us at documentation@extremenetworks.com.

Please 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.

ExtremeRouting SLX 9850 Technical Specifications

System specifications

System component	Description
Enclosure	SLX 9850-4: 10 rack unit (RU) height X 17.22 inches (43.7 cm) width x 30 inches (76.2 cm) depth. Each chassis contains the following Field-replaceable units (FRUs): • Interface module (4 maximum) • Switch fabric module (SFM) (6 maximum) • Management modules (MM) (2 maximum) • Power supply assemblies (6 maximum) • Fan assemblies (3 maximum) SLX 9850-8: 17 rack unit (RU) height X 17.22 inches (43.7 cm) width x 30 inches (76.2 cm) depth. Each chassis contains the following components: • Interface module (8 maximum) • Switch fabric module (SFM) (6 maximum) • Management modules (MM) (2 maximum) • Power supply assemblies (12 maximum) • Fan assemblies (3 maximum)
Power inlet	C20; power from port side
Power supplies	SLX 9850-4: Up to six hot-swappable power supplies. • AC power supply: 2915W@200-240V or 1390W@100-120V • DC power supply: 3000W@48V DC • SAF-D on HV SLX 9850-8: Up to twelve hot-swappable power supplies • AC power supply: 2915W@200-240V or 1390W@100-120V • DC power supply: 3000W@48V DC • SAF-D on HV
Fan modules	Three fan modules per chassis
Cooling	Front-to-back airflow
System architecture	Non-blocking fabric
System processors	4 core, 8 thread x86 processor
Port-to-port latency	<4 microseconds for 64-byte packets

Ethernet

System component	Description
QSFP28 ports	The QSFP28 ports are available on 36-port 100GbE flex-speed interface module. The 36-port 100GbE interface modules supports 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE and requires QSFP28 optics for connectivity.
SFP+ ports	The SFP+ ports are available on 72-port 10GbE/1GbE interface module. The 72-port 10GbE/1GbE interface module requires SFP+ ports for connectivity.
Management RJ-45 port	The management RJ-45 port on the MM management interface labeled MANAGEMENT for 1G/100M/10M connectivity.
Service RJ-45 port	The service RJ-45 port on the MM service interface labeled SERVICE for 10G/1G/100M connectivity

LEDs

System component	Description
Interface module LEDs	• Power: Green – Power OK, off – No power • Status: Green– Status OK, Amber – Error; Off – Unexpected error • Link status (1 LED per physical port): Green (Solid) – Link is up; Green (Blinking) – Link is up and running traffic; Off – No link
Management module LEDs	• Power: Green – Power OK, off – No power • Status: Green– Status OK, Amber – Error, Off – Unexpected error • Active: Off – This management module is in Standby mode; Blue – This is the active management module. • Switch fabric module status: Green – switch fabric module OK; Amber – error; Off – Unexpected error • Ethernet: Green (Solid) – Link is up; Green (Blinking) – Link is up and running traffic; Off – No link; Amber (some flex module ports): module is in 100G mode and these ports are inactive
Switch fabric module LEDs	• Power: Green – Power OK; off – No power • Switch fabric module status: Amber – Error NOTE There is a switch fabric module status LED on the front panel of the Fan module.
Power supply LEDs	• LED 1 and LED 2: Steady Green – Input and output voltages are within range • LED 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 range • LED 1: Green and LED 2: Flashing Yellow/Green – Over-temperature warning or fan error
Fan module LEDs	• Power (Fan) LED: No light (LED is off) – Fan assembly does not have power. Steady green – Fan assembly has power. • 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). • Power (SFM) LED: No light (LED is off) – One or more SFM module is not powered on. Green – Module is operational. • Status (SFM) LED: No light (LED is off) – One or more SFM module is either not operational or does not have power. Amber – Module is faulty or initializing. Green – Module is operational. NOTE Since the switch fabric module is behind the fan, the fan contains an LED that indicates problems with one of the switch fabric modules behind the fan.

ExtremeRouting SLX 9850 Technical Specifications
9035477-01

Other

System component	Description
Serial Cable	RJ-45 console cable
RJ-45 connector	Uses an RJ-45 connector for the serial port

Weight and physical dimensions

"Fully loaded" SLX 9850-4 device: 144 -100 Gig port configuration with four interface modules, including two management modules, six switch fabric modules, two fans, two power supplies, and two cable management combs.

"Fully loaded" SLX 9850-8 device: 288 - 100 Gig port configuration with eight interface modules, including two management modules, six switch fabric modules, three fans, four power supplies, and two cable management combs.

Model	Height	Width	Depth	Weight (empty)	Weight (fully loaded)
SLX 9850-4	10 rack units (RU)	43.7 cm 17.2 inches	76.2 cm 30 inches	107 lb (48.5 kg)	Chassis without interface modules: 212 lb (96.2 kg) Chassis with four SLX9850-100Gx36 CQ-M interface modules: 283 lb (128.4 kg)
SLX 9850-8	17 RU	43.7 cm 17.2 inches	76.2 cm 30 inches	179 lb (81.2 kg)	Including chassis, 2 management modules, 5 power supplies, 5 switch fabric modules, and filler panels for the interface modules: 359 lb (162.84 kg) Including chassis, 2 management modules, 5 power supplies, 5 switch fabric modules, and 8 SLX9850-100Gx36 CQ-M interface modules: 503 lb (228.16 kg)

Card or module	Description	Height	Width	Depth	Weight (no optics)
Management module, part number BR-SLX9850-MM	Management module	54.5 mm 1.79 in	201.0 mm 7.91 in	376.386 mm 14.82 in	6.7 lb 3.04 kg
Switch fabric module for SLX 9850-4, part number BR-SLX9850-4-SFM	Switch fabric module	46.6 mm 1.835 in	321.5 mm 12.66 in	146.823 mm 5.78 in	6.7 lb 3.04 kg
Switch fabric module for SLX 9850-8,	Switch fabric module	46.6 mm	596.176 mm	146.823 mm	11.5 lb

Card or module	Description	Height	Width	Depth	Weight (no optics)
part number BR-SLX9850-8-SFM		1.835 in	23.47 in	5.78 in	5.22 kg
72-port 10GbE/1GbE interface module, part number BR-SLX9850-10Gx72S-M	Interface module with 72 10GbE/1GbE ports (requires SFP+ optics)	64.0 mm 2.52 in	411 mm 16.18 inches	376.386 mm 14.82 in	13.1 lb 5.94 kg
36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface module, part number BR-SLX9850-100Gx36CQ-M	Interface module with 36 100GbE ports (requires QSFP28 optics), 40GbE ports (requires QSFP+ optics), or 240 10GbE ports (requires 40GbE-to-10GbE breakout)	64.0 mm 2.52 in	411 mm 16.18 inches	376.386 mm 14.82 in	22.1 lb 10.02 kg

Environmental requirements

Condition	Operational	Non-operational
Ambient temperature	0°C to 40°C (32°F to 104°F) outside device	–25°C to 55°C (–13°F to 131°F) outside device
Relative humidity (non-condensing)	5% to 95%	5% to 95%
Altitude (above sea level)	0 to 3000 m (10,000 feet)	0 to 12,000 m (40,000 feet)
Shock	5G, 11ms, half sine shock	10G, 10ms trapezoid shock
Vibration	0.2 G, 5-500 Hz at 1.0 octave/minute	0.5 G, 5-500 Hz at 1.0 octave/minute
Airflow	SLX 9850-4 - Maximum: 2336 cmh (1375 cfm) SLX 9850-8 - Maximum: 4035 cmh (2375 cfm)	N/A
Heat dissipation	Refer to values under "Power consumption (maximum configuration)".	N/A

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-SLX9850-ACPWR-3000	1390W@100-120V 2915W@200-240V	1390W Output: 100-120V (nominal) 90–132 V (range) 2915W Output: 200 - 240 VAC (nominal) 180–264 V (range)	50/60 Hz	16 A	Line & Neutral Fused	60 A peak for <10 ms, 10 ms - 150 ms <25 A peak, >150 ms <16 A

Power supply model	Maximum output power rating (DC)	Input voltage	Input line frequency	Maximum input current	Input line protection	Maximum inrush current
BR-SLX9850-DCPWR-3000	3000 W	—48 VDC (nominal) —40-60 VDC (range)	N/A	90 A	Input fuse on —48 VDC input	<70 A peak initial current surge or spike of <10 ms
High Voltage AC (HVAC)	3000 W	HV AC, 100V-120VAC. 200V-277VAC				
High Voltage DC (HVDC)	3000 W	HV DC, 240V-380V DC				

Power consumption (typical configuration)

Configuration of SLX 9850-4: One 4-slot chassis with one management module, five switch fabric modules, two power supplies, three fan modules, and four 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules set in 60x40 mode. Interface cards are enabled and optics/Traffic are at 50% line rate. Random packets, fans at nominal speed, ambient temperature 25 deg C.

Configuration of SLX 9850-8: One 8-slot chassis with one management module, five switch fabric modules, four power supplies, three fan modules, and eight 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules set in 60x40 mode. Interface cards are enabled and optics/Traffic are at 50% line rate. Random packets, fans at nominal speed, ambient temperature 25 deg C.

Model name	Power used in watts	Minimum number of power supplies	Notes
SLX 9850-4	3958	2	200 VAC amps, watts, and BTU/hr are calculated with 0.98 power factor and 2 PSUs
SLX 9850-8	7773	4	200 VAC amps, watts, and BTU/hr are calculated with 0.98 power factor and 4 PSUs

Power consumption (maximum configuration)

Configuration of SLX 9850-4: One 4-slot chassis with two management modules, six switch fabric modules, six power supplies, three fan modules, and eight 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules set in 60x40 mode. Interface cards are enabled and optics/Traffic are at full line rate. Random packets, fans at nominal speed, ambient temperature 40 deg C.

Configuration of SLX 9850-8: One 8-slot chassis with two management modules, six switch fabric modules, twelve power supplies, three fan modules, and eight 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules set in 60x40 mode. Interface cards are enabled and optics/Traffic are at full line rate. Random packets, fans at nominal speed, ambient temperature 40 deg C.

Model name	Power used in watts	Minimum number of power supplies	Notes
SLX 9850-4	5947	2	200 VAC amps, watts, and BTU/hr are calculated with 0.98 power factor and 2 PSUs

Model name	Power used in watts	Minimum number of power supplies	Notes
SLX 9850-8	11492	4	200 VAC amps, watts, and BTU/hr are calculated with 0.98 power factor and 4 PSUs

Power consumption (modules) (typical configuration)

NOTE

Typical configuration is 50% traffic with fans operating normally. Ambient temperature 25 deg C.

Module	Typical power consumption
Management Module	97 W
Switch Fabric Module	SLX 9850-4: 102 W SLX 9850-8: 200 W
Fan module	SLX 9850-4: 175 W SLX 9850-8: 346W
72-port 10GbE/1GbE interface module	250 W
36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface module	617 W

Power consumption (modules) (maximum configuration)

NOTE

Maximum configuration is 100% traffic with fans operating normally. Ambient temperature 40 deg C.

Module	Maximum power consumption
Management Module	100W
Switch Fabric Module	SLX 9850-4: 124 W SLX 9850-8: 220 W
Fan module	SLX 9850-4: 175 W SLX 9850-8: 346 W
72-port 10GbE/1GbE interface module	299 W
36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface module	848 W

Data port specifications (Ethernet)

Model	Port type	Number of ports	Description
SLX 9850-4	1 GbE	288	Supports up to 288 1-GbE ports with four 72-port 10GbE/1GbE interface modules
	10 GbE	288	Supports up to 288 10-GbE ports with four 72-port 10GbE/1GbE interface modules
		960	Supports up to 960 10-GbE ports with four 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules (requires 40GbE-to-10GbE breakout)
	40 GbE	240	Supports up to 240 40-GbE ports with four 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules
	100 GbE	144	Supports up to 144 100-GbE ports with four 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules
SLX 9850-8	1 GbE	576	Supports up to 576 1-GbE ports with eight 72-port 10GbE/1GbE interface modules
	10 GbE	576	Supports up to 576 1-GbE ports with eight 72-port 10GbE/1GbE interface modules
		1920	Supports up to 1920 10-GbE ports with eight 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules (requires 40GbE-to-10GbE breakout)
	40 GbE	480	Supports up to 480 40-GbE ports with eight 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules
	100 GbE	288	Supports up to 288 1000-GbE ports with eight 36-port 100GbE, 60-port 40GbE, or 240-port 10GbE flex-speed interface modules

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 (protocol)

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

Parameter	Value
Flow control	None

Memory specifications

Memory	Type	Size
Non-volatile storage	Solid-state drive (SSD)	Management module: 2x256GB multi-level cell (MLC) Interface module: 1x128GB MLC
Main memory	SDRAM	Management module: 16 GB DRAM Interface module: 16GB DRAM

Regulatory compliance (EMC)

- FCC Part 15, Subpart B (Class A)
- EN 55022 (CE mark) (Class A)
- EN 55024 (CE mark) (Immunity) for Information Technology Equipment
- ICES-003 (Canada) (Class A)
- AS/NZ 55022 (Australia) (Class A)
- VCCI (Japan) (Class A)
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-6-1

Regulatory compliance (safety)

- CAN/CSA-C22.2 No. 60950/UL 60950
- EN 60825 Safety of Laser Products
- EN 60950/IEC 60950 Safety of Information Technology Equipment

Regulatory compliance (environmental)

- 2014/35/EU and 2014/30/EU
- 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).