

ExtremeSwitching VDX 8770 Technical Specifications

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ExtremeSwitching VDX 8770 Technical Specifications

This document highlights the features and specifications for the VDX 8770-4 and VDX 8770-8 switches.

System specifications

System component	Description
Enclosure	VDX 8770-4 switch - 8U rack-mountable chassis; 10U with air duct rack kit; 19-inch EIA-compliant VDX 8770-8 switch - 14U rack-mountable chassis; 19-inch EIA-compliant
Power inlet	C19; power from port side
Power supplies	VDX 8770-4 switch - Up to four hot-swappable 3000 W AC or DC power supplies at 220 VAC or -48 VDC VDX 8770-8 switch - Up to eight hot-swappable 3000 W AC or DC power supplies at 220 VAC or -48 VDC
Fans	VDX 8770-4 switch - Two fans per chassis VDX 8770-8 switch - Four fans per chassis
Cooling	VDX 8770-4 switch - Side-to-back airflow with front-to-back duct converter option VDX 8770-8 switch - Front-to-back airflow
System architecture	Nonblocking shared memory, virtual output queued
System processors	1.5 GHz
Port-to-port latency	<4 microseconds for 64-byte packets

Ethernet

System component	Description
SFP GbE ports	VDX 8770-4 switch: <ul style="list-style-type: none">• 1 GbE: 48×1 GbE line card with 48 SFP/SFP-copper ports• 10 GbE: 48×10 GbE line card with 48 SFP+ ports• 40 GbE: 12×40 GbE line card with 12 40-GbE QSFP ports; 27×40 GbE line card with 27 40-GbE QSFP ports• 100 GbE: 6×100 GbE line card with 6 100-GbE CFP2 ports VDX 8770-8 switch: <ul style="list-style-type: none">• 1 GbE: 48×1 GbE line card with 48 SFP/SFP-copper ports• 10 GbE: 48×10 GbE line card with 48 SFP+ ports• 40 GbE: 27×40 GbE line card with 27 40-GbE QSFP ports• 100 GbEE: 6×100 GbE line card with 6 100-GbE CFP2 ports
Ethernet management port	RJ-45

LEDs

System component	Description
Line Card LEDs	<ul style="list-style-type: none"> • Power • Status • 10 GbE Port Status (48x10G-T line card) • 10 GbE Port Status (48x10 GbE line card) or 1 GbE Port Status (48x1 GbE line card) • 40 GbE QSFP Port Status (12x40 GbE or 27x40 GbE line card) in 40 GbE mode • 100 GbE Port Status (6x100 GbE line card)
Management Module LEDs	<ul style="list-style-type: none"> • Power • Status • Active • Ethernet Management link (upper left) • Ethernet Management link activity (upper right)
Switch Fabric Module LEDs	<ul style="list-style-type: none"> • Power • Status
Power Supply LEDs	<ul style="list-style-type: none"> • AC power input LED (AC OK) • DC power output LED (DC OK) • Alarm LED (ALM)
Fan LEDs	<ul style="list-style-type: none"> • OK • Fault

Other

System component	Description
Serial Cable	RJ-45 console cable
RJ-45 to DB9 adapter	RJ-45 to DB9 for console cable
RJ-45 connector	Uses an RJ-45 connector for the serial port

Weight and physical dimensions

"Fully loaded" VDX 8770-4 switch: 192-port configuration with four line cards, including two management modules, three switch fabric modules, two fans, four power supplies, and two cable management finger assemblies.

"Fully loaded" VDX 8770-8 switch: 384-port configuration with eight line cards, including two management modules, six switch fabric modules, four fans, eight power supplies, and one cable management comb.

Model	Height	Width	Depth	Weight (empty)	Weight (fully loaded)
VDX 8770-4 switch	34.7 cm	43.7 cm	61 cm	31.8 kg	86.2 kg
	13.7 inches	17.2 inches	24 inches	70 lb	190 lb
VDX 8770-4 switch with air duct rack kit	40 cm	43.7 cm	61 cm		
	15.7 inches	17.2 inches	24 inches		

Model	Height	Width	Depth	Weight (empty)	Weight (fully loaded)
VDX 8770-4 switch with fans	34.7 cm	43.7 cm	66 cm		
	13.7 inches	17.2 inches	26 inches		
VDX 8770-8 switch	66.2 cm	44 cm	66 cm	61.2 kg	165.6 kg
	26 inches	17.3 inches	26 inches	135 lb	365 lb

Card or module	Description	Height	Width	Thickness	Weight (no optics)
MM	Management module for chassis	19.83 cm	51.84 cm	3.78 cm	2.24 kg
		7.81 inches	20.41 inches	1.49 inches	4.96 lb
SFM	Switch fabric module	19.83 cm	52.62 cm	3.78 cm	2.6 kg
		7.81 inches	20.72 inches	1.49 inches	5.75 lb
48x10 GbE line card	Line card with 40 10 GbE transceivers	41.32 cm	51.20 cm	4.03 cm	5.8 kg
		16.27 inches	20.16 inches	1.59 inches	12.9 lb
48x10G-T line card	Line card with 48 fixed 10 GbE Base-T copper transceivers	41.32 cm	51.71 cm	4.03 cm	8.66 kg
		16.27 inches	20.36 inches	1.59 inches	19.1 lbs
48x1 GbE line card	Line card with 48 1 GbE transceivers	41.32 cm	51.2 cm	4.03 cm	5.8 kg
		16.27 inches	20.16 inches	1.59 inches	12.9 lb
12x40 GbE line card	Line card with 12 40 GbE transceivers	41.32 cm	51.76 cm	4.03 cm	5.39 kg
		16.27 inches	20.38 inches	1.59 inches	11.9 lb
6x100 GbE line card	Line card with 6 100 GbE transceivers	41.32 cm	51.76 cm	4.03 cm	9.61 kg
		16.27 inches	20.38 inches	1.59 inches	21.2 lb

Environmental requirements

Condition	Operational	Non-operational
Ambient temperature	0°C to 40°C (32°F to 104°F) outside switch	-25°C to 70°C (-13°F to 158°F) outside switch
Relative humidity (non-condensing)	5% to 90% at 40°C (104°F)	10% to 90% at 70°C (158°F)
Altitude (above sea level)	0 to 3000 m (10,000 feet)	0 to 12,000 m (40,000 feet)
Shock	20 G, 6 ms, half-sine wave	33 G, 11 ms, half-sine wave
Vibration	0.5 G, 5-500 Hz at 1.0 octave/minute	2.0 G, 5-500 Hz at 1.0 octave/minute
Airflow	Extreme VDX 8770-4 switch - Maximum: 1147 cmh (675 cfm) Extreme VDX 8770-8 switch - Maximum: 2124 cmh (1250 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
XBR-ACPWR-3000	3000 W	200 - 240 VAC (nominal) 180 - 264 VAC (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
XBR-DCPWR-3000	3000 W	-48 VDC (nominal) -40 - 60 VDC (range)	N/A	90 A	Input fuse on -48 V input	≤70 A peak initial current surge or spike of <10 ms

Power consumption (typical configuration)

Configuration of the VDX 8770-4 switch chassis: 2 management modules, 3 switch fabric modules, 4 48x10G, 2 fan FRUs; blades-enabled; Optics/Traffic 50% line rate - random packets, fans at nominal speed.

Configuration of the VDX 8770-8 switch chassis: 2 management modules, 6 switch fabric modules, 8 48x10G, 4 fan FRUs; blades-enabled; Optics/Traffic 50% line rate - random packets, fans at nominal speed.

NOTE

A 100 VAC power supply is not supported on the VDX 8770-4 and Extreme VDX 8770-8 switches.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
VDX 8770-4 switch	N/A	10 A 1971 W 6728 BTU/hr	41 A 1971 W 6728 BTU/hr	1	200 VAC amps, watts, and BTU/hr are calculated with 0.98 power factor and 2 PSUs
VDX 8770-8 switch	N/A	19 A 3838 W 13,101 BTU/hr	80 A 3838 W 13,101 BTU/h	2	200 VAC amps, watts, and BTU/hr are calculated with 0.98 power factor and 4 PSUs

Power consumption (maximum configuration)

Configuration of the VDX 8770-4 switch chassis: 2 management modules, 3 switch fabric modules, 4 48x10G, 2 fan FRUs; blades-enabled; Optics/Traffic full line rate - 64-byte packet, 40°C ambient fans at full speed.

Configuration of the VDX 8770-8 switch chassis: 2 management modules, 6 switch fabric modules, 8 48x10G, 4 fan FRUs; blades-enabled; Optics/Traffic full line rate - 64-byte packet, 40°C ambient fans at full speed.

NOTE

A 100 VAC power supply is not supported on the VDX 8770-4 and VDX 8770-8 switches.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
VDX 8770-4 switch	N/A	16 A 3250 W 11092 BTU/hr	68 A 3250 W 11092 BTU/hr	1	200 VAC amps, watts, and BTU/hr are calculated with 0.99 power factor and 2 PSUs
VDX 8770-8 switch	N/A	32 A 6387 W 21799 BTU/hr	133 A 6387 W 21799 BTU/hr	2	200 VAC amps, watts, and BTU/hr are calculated with 0.99 power factor and 4 PSUs

Power consumption (modules)

Module name	Module description	Maximum power consumption
MM	Management Module	50 W
SFM	Switch Fabric Module	132 W
BR-VDX8770-48x1G-SFP-1	48x1 GbE, SFP module	460 W
BR-VDX8770-48x10G-SFP-1	48x10 GbE, SFP+ module	460 W
BR-VDX8770-12x40G-QSFP-1	12x40 GbE, QSFP+ module	440 W
BR-VDX8770-48x10G-T-1	48x10 GbE, RJ45 module	700 W
BR-VDX8770-27x40G-QSFP-1	27x40 GbE, QSFP+ module	580 W
BR-VDX8770-6x100G-CFP2-1	6x100 GbE, CFP2 module	700 W
XBR-FAN-FRU	Fan FRU for 4- and 8-slot chassis	268 W

Data port specifications (Ethernet)

Model	Port type	Number of ports	Description
VDX 8770-4 switch	1 GbE	192	Supports up to 192 1-GbE ports with four 48x1 GbE line cards
	10 GbE	192	Supports up to 192 10-GbE ports with four 48x10 GbE line cards
	40 GbE	48	Supports up to 48 40-GbE ports with four 12x40 GbE line cards
		108	Supports up to 108 40-GbE ports with four 27x40 GbE line cards
	100 GbE	24	Supports up to 24 100-GbE ports with four 6x100 GbE line cards
VDX 8770-8 switch	1 GbE	384	Supports up to 384 1-GbE ports with eight 48x1 GbE line cards
	10 GbE	384	Supports up to 384 10-GbE ports with eight 48x10 GbE line cards
	40 GbE	96	Supports up to 96 40-GbE ports with eight 12x40 GbE line cards
		216	Supports up to 216 40-GbE ports with eight 27x40 GbE line cards
	100 GbE	48	Supports up to 48 100-GbE ports with eight 6x100 GbE line cards

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
Flow control	None

Memory specifications

Memory	Type	Size
Main memory	SDRAM	8 GB

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)

- 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).