TECHNICAL SPECIFICATION

ExtremeSwitching VDX 6940 Technical Specifications

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Contents

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This document highlights the features and specifications for the ExtremeSwitching VDX 6940 device.

System specifications

System component	Description
Enclosure	VDX 6940-36Q - 1U, 19-inch EIA-compliant, front-to-back airflow or back-to-front airflow; power from back VDX 6940-144S - 2U, 19-inch EIA-compliant, front-to-back airflow or back-to-front airflow; power from back
Power inlet	C14, power from nonport side
Power supplies	Two internal, redundant, field-replaceable, load-sharing AC or DC power supplies (each power supply has an integral fan unit)
Fans	VDX 6940-36Q Five field-replaceable fan assemblies, each with two fans, for a total of 10 per system VDX 6940-144S Four field-replaceable fan assemblies, each with one fan, for a total of 4 per system
Cooling	Front-to-rear and rear-to-front (port-side intake and port-side exhaust) airflow.
System architecture	Non-blocking shared memory switch
System processor	VDX 6940-36Q - 1.5 GHz P3041 Quad Core CPU VDX 6940-144S- 1.5 GHz P4080 8-Core CPU

Ethernet

System component	Description
QSFP+ GbE ports	VDX 6940-36Q - 36 40-GbE QSFP+ ports. 144 10-GbE ports using 10-GbE breakout cables. VDX 6940-144S - 12 40-GbE QSFP+ ports. Forty-eight 10-GbE ports using 10- GbE breakout cables.
QSFP28 ports	VDX 6940-144S - Up to 4 40/100-GbE dual personality ports can be configured for 100 GbE operation with qualified 100-GbE transceivers installed. NOTE For each dual personality port configured for 100-GbE operation, 40-GbE operation is disabled on three 40-GbE ports. Therefore, with a maximum of 4 100 GbE ports configured, all 40 GbE port operation is disabled.
SFP+ GbE ports	VDX 6940-144S - 96 fixed 10-GbE ports that support SFP+ and TSFP+ optics.
Ethernet management port	VDX 6940-36Q - RJ-45 10/100/1000 Mbps Ethernet out-of-band management port VDX 6940-144S - RJ-45 1000 Mbps Ethernet out-of-band management port

LEDs

System component	Description
Switch status and management	One bicolor system status LED (green and amber) on the port side. One green power status LED on the port side. Two green Ethernet management port status LEDs on the port side.
Port activity 40-GbE ports	One green LED per port for 40-GbE operation. Four green LEDs per port for 10-GbE operation in breakout mode.
Port activity 100-GbE ports (VDX 6940-144S)	One green LED per port for 100-GbE operation on 40/100 GbE dual personality ports 97, 98, 103, and 104.
Port activity fixed 10-GbE ports (VDX 6940-144S)	One bicolor LED (green and amber) per port to indicate status on the port side.
Fan status	One bicolor LED (green and amber) per fan to indicate status on nonport side.
Power supply status	VDX 6940-36Q - One green LED per power supply to indicate status on nonport side. VDX 6940-144SOne green LED to indicate status of input voltage and one bi-color (green/amber) LED to indicate status of output voltage.

Other

System component	Description
Serial cable	Rollover cable
RJ-45 connectors (2)	One serial port used for console. VDX 6940-36Q - One RJ-45 10/100/1000 Mbps Ethernet out-of-band management port VDX 6940-144S - One RJ-45 1000 Mbps Ethernet out-of-band management port
USB connector	Used for data and firmware downloads

Weight and physical dimensions

Fully loaded means that all FRUs and transceivers are installed.

Model	Height	Width	Depth	Weight (empty)	Weight (fully loaded)
Extreme VDX 6940-36Q	4.4 cm 1.73 in.	44 cm 17.32 in.	43.8 cm 17.22 in.	8.9 kg 19.6 lb	10.1 kg 22.3 lb
Extreme VDX 6940-144S	8.7 cm 3.41 in.	44 cm 17.32 in.	48.5 cm 19.1 in.	15.46 kg 34.10 lb	17.32 38.2 lb

Environmental requirements

TABLE 1 Environmental requirements

Condition	Operational	Non-operational
Ambient temperature	0°C to 40°C (32°F to 104°F)	-25°C to 70°C (-13°F to 158°F)
Relative humidity (non-condensing)	10% to 85% at 40°C (104°F)	5% to 80% at 70°C (158°F)
Altitude (above sea level)	0 to 3000 m (9,842 ft.)	0 to 12000 m (39,370 ft)
Shock	VDX 6940-36Q - 15 G , 11 ms, half-sine wave VDX 6940-144S - 15 G , 11 ms, half-sine wave	VDX 6940-36Q - 33 G, 11 ms, half-sine wave, 5/ea Axis and 33 G 6ms, Trapezoidal, 1/ea axis VDX 6940-144S - 33 G, 11 ms, half sine wave 5/ea Axis, and 33 G 6ms, Trapezoidal, 1/ea axis
Vibration	VDX 6940-36Q - 1 G sine, 0.5 gms random, 5-500 Hz VDX 6940-144S - 1 G sine, 0.5 gms random, 5-500 Hz	VDX 6940-36Q - 2.4 G sine, 1.1 gms random, 5-500 Hz VDX 6940-144S - 2.4 G sine, 1.1 gms random, 5-500 Hz
Airflow	VDX 6940-36Q • Maximum: 159 cmh (94 cfm) • Minimum: 65 cmh (38 cfm) VDX 6940-144S • Maximum: 370 cmh (218 CFM) • Minimum: 95 cmh (56 CFM)	N/A
Heat dissipation	Refer to BTU/hr data under "Power consumption (typical configuration)" and "Power consumption (maximum configuration)" for various power inputs.	N/A
Operating noise	VDX 6940-36Q • Maximum: 88 dBA (8.8 Bels) • Nominal: 71 dBA (7.1 Bels) VDX 6940-144S • Maximum 87 dbA (8.7 Bels) • Nominal: 69 dBA (6.9 Bels)	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
AC to DC - VDX 6940-36Q XBR-500WPSAC-01-F or XBR-500WPSAC-01-R	500 W	100 - 240 VAC (nominal) 90 - 264 VAC (range)	50 - 60 Hz (nominal) 50-60 Hz (range)	6 A @ 100 VAC 7 A @ 90 VAC	Line Fused	30 A peak at cold start and 50 A peak at warm start for <10 ms, 10 A peak for cycles 10 ms -150 ms, < 7 A peak for >150 ms
AC to DC - VDX 6940-144S	1100 W	100 - 240 VAC (nominal)	50 - 60 Hz (nominal)	12 A	AC line and neutral fused	40 A peak at 240 VAC during cold

Power supply model	Maximum output power rating (DC)	Input voltage	Input line frequency	Maximum input current	Input line protection	Maximum inrush current
XBR-VDX6940-64S-AC-2 XBR-VDX6940-64S-AC-R		90 - 264 VAC (range)	47 - 63 Hz (range)			startup at 25°C 77°F
DC to DC - VDX 6940-36Q RPS9DC+E or RPS9DC+I	500 W	48 VDC (nominal) 40-60 VDC (range)	NA	15 A 16 A	-VE fused	25 A peak cold and warm start
DC to DC - VDX 6940-144S XBR-1100WPSDC-01-F or XBR-1100WPSDC-01-R	1100 W	40-60 VDC (rated) 48 VDC(nominal) 40 - 60 VDC (range) XBR-1000WP-SDC-F/R DC power supplies require 45 VDC or greater to ensure output voltage at power on. After power on, the output voltage will remain operational to 40 VDC.	NA	<33 A	-Ve fused	60 A peak hot or cold start

Power consumption (typical configuration)

All ports fully configured with approved optic sources. Test performed with 25 percent traffic rate, fans at nominal speed, and one power supply.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
VDX 6940-36Q	2.18 A 231 W 788.42 BTU/hr	1.12 A 226 W 771.36 BTU/hr	4.1 A 211.2 W 720.84 BTU/hr	2	Input current is for 1 power supply, Watts & BTUs/hr are with two power supplies.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
				NOTE Device ships with two power supplies. One provides system power, but both must be installed to provide sufficient airflow from fans.	
VDX 6940-144S	3.288 A 332 W 1133.14 BTU/hr	1.639 A 326 W 1112.66 BTU/hr	6.8 A 350 W 1195.94 BTU/hr	1	Input current is for 1 power supply, Watts & BTUs/hr are with two power supplies.

Power consumption (idle configuration)

No optics or connections to ports installed and system completed boot up, fans at nominal speed.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
VDX 6940-36Q	1.245 A 140 W 477.83 BTU/hr	0.636 A 136 W 464.18 BTU/hr	2.7 A 144.42 W 492.92 BTU/hr	1	Input current is for 1 power supply, Watts & BTUs/hr are with two power supplies.
VDX 6940-144S	1.73 A 180 W 614.35 BTU/hr	0.912 A 180 W 614.35 BTU/hr	4.8 A 244.8 W 835.52 BTU/hr	1	Input current is for 1 power supply, Watts & BTUs/hr are with two power supplies

Power consumption (maximum configuration)

All optic ports configured with optics that draw the maximum power rating per MSA specification. Fans set at high speed and one power supply unit (PSU) used.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
VDX 6940-36Q	2.84 A 295 W 1006.86 BTU/hr	1.44 A 289 W 986.38 BTU/hr	-48 VDC 5.8 A 288.6 W 985.01 BTU/hr	2	Input current is for 1 power supply, Watts & BTUs/hr are with two power supplies.

Model name	@100 VAC input	@200 VAC input	@-48 VDC input	Minimum number of power supplies	Notes
				NOTE Device ships with two power supplies. One provides system power, but both must be installed to provide sufficient airflow from fans.	
VDX 6940-144S	5.119 A 512 W 1747.5 BTU/hr	2.506 A 500 W 1706.54 BTU/hr	10.3 A 499.2 W 1703.81 BTU/hr	1	

Data port specifications (Ethernet)

Model	Port type	Number of ports	Description
VDX 6940-36Q	40-GbE	36	24 base ports can be upgraded to 36 with single port upgrade license.
		Up to 144 10-GbE ports in SFP breakout mode (also referred to as 4x10 GbE breakout mode)	Each 40-GbE port can be broken out into four independent 10-GbE SFP+ ports, providing up to 144 10-GbE SFP+ ports.
VDX 6940-144S	10-GbE fixed	96	64 base ports can be upgraded to 96 in two 16-port increments with port upgrade licenses.
	40-GbE	12	Base model with no 40-GbE ports can be upgraded to 12 in two 6-port increments with port upgrade licenses.
		Up to 48 10-GbE ports in SFP breakout mode	Each 40-GbE port can be broken out into four independent 10-GbE SFP+ ports, providing up to 48 10-GbE SFP+ ports. Combined with 96 10-GbE fixed ports, up 144 10-GbE ports can be provided on the VDX 6940-144S.
	100-GbE	Up to 4 100-GbE ports	Up to four 40/100-GbE capable dual personality ports can be configured as 100-GbE ports. For each port configured for 100-GbE operation, three ports are disabled for 40-GbE operation. Therefore the following configurations are possible: • 9 40 GbE QSFP ports and 1 100 GbE QSFP28 port • 6 40 GbE QSFP ports and 2 100 GbE QSFP28 ports • 3 40 GbE QSFP ports and 3 100 GbE QSFP28 ports • No 40 GbE QSFP ports and 4 100 GbE QSFP28 ports

Serial port specifications (pinout RJ-45)

Pin	Signal	Description
1	Not supported	N/A
2	Not supported	N/A
3	UART1_RXD	Receive data
4	GND	Logic ground
5	GND	Logic ground
6	UART1_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
Flow control	None

Memory specifications

Memory	Type	Size
Boot Flash		4 MB
Compact Flash	e-USB	16 GB
Main Memory	DDR3 SDRAM	16 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).