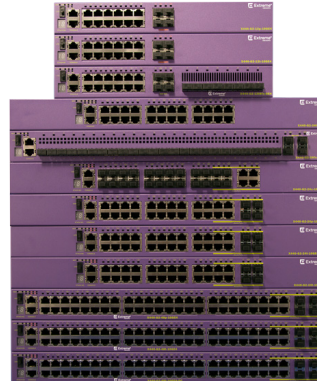


## Highlights

- Scalable cost-effective edge switches
- 12, 24, and 48-port Gigabit Ethernet connectivity
- 4 x 1Gb uplinks upgradeable to 10Gb via software license
- PoE/PoE+ models for powered connection of edge devices
- SFP and 100Base-FX fiber model options
- AC and DC Power options
- Non-blocking, wire-speed design
- Up to 8-unit 40Gb stacking via SummitStack-V
- Role-based policy and Fabric Attach for secure, automated access to network applications or services

## Smart Management Choices

- ExtremeCloud™ IQ and ExtremeCloud IQ - Site Engine for powerful, simple and secure public or private cloud management



# ExtremeSwitching™ X440-G2

Scalable Cost-Effective Edge Switch with ExtremeXOS Operating System

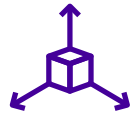
## Product Overview

The ExtremeSwitching X440-G2 series is a scalable cost-effective family of edge switches powered by Extreme Networks ExtremeXOS, a highly resilient OS providing continuous uptime, manageability and operational efficiency. The X440-G2 series switches provide high-performance routing and switching, flexible stacking, PoE+ support and comprehensive security, while extending the benefits of ExtremeXOS to the campus edge.

The X440-G2 Series easy-to-use, yet powerful, management options include ExtremeCloud™ IQ, Extreme Management Center and Extreme Cloud Appliance for either cloud-based or on-premise oversight and configuration. The X440-G2 also supports role-based policies and Fabric Attach for secure, automated access to specific network resources and applications.

## Intelligent Switching

The X440-G2 Series supports sophisticated and intelligent Layer 2 switching, as well as Layer 3 IPv4/IPv6 routing. They also provide role-based policy capabilities, bidirectional Access Control Lists, along with granular ingress/egress bandwidth control. Altogether, these enable fine-grained control over traffic flows, as well as controlled access to specific network services and applications.



## Flexible 10Gb Upgrades

All X440-G2 base models come equipped with 4 upgradeable 1Gb ports, resident on either the faceplate or rear panel of each model. These 1Gb ports can be upgraded to 10Gb Ethernet via a simple software license. This gives administrators the option to increase switch uplink speeds without replacing the entire switch.

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## High-Performance Stacking

ExtremeXOS SummitStack-V capabilities allow up to eight X440-G2 switches to be stacked together via two of the native X440-G2 10Gb ports. This provides 40Gb per unit stacking and allows use of standard 10Gb Ethernet cabling and optics technologies, enabling long distance stacking connectivity of up to 40 Km.

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## Power over Ethernet (PoE)

X440-G2 Series switches support both IEEE 802.3at PoE+ and IEEE 802.3af PoE to enable connection of standards compliant PoE devices today and into the future. The X440-G2 can support full PoE+ 30W power across all 48 ports with an external redundant power supply (RPS).



## Role-Based Policy

The X440-G2 supports role-based policies that can be centrally administered through the ExtremeControl policy manager. This policy framework empowers network administrators to define distinct roles or profiles to represent specific operational groups that may exist in an enterprise. Each defined role can then be granted individualized access to specific network services and applications and these access privileges remain associated with users as they move across both wired and wireless network access points.

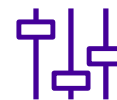
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## Audio Video Bridging (AVB)

The X440-G2 series supports IEEE 802.1 Audio Video Bridging to enable reliable, real-time audio/video transmission over Ethernet. AVB technology delivers the quality of service required for today's high-definition and time-sensitive multimedia streams.

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## Management

The X440-G2 can be managed in a variety of ways. Simple on-box management functions are delivered by a web-based GUI, and a generic CLI is available for manual configuration.

ExtremeCloud IQ along with ExtremeCloud IQ - Site Engine provide a comprehensive unified management capability with a consolidated view of users, devices and applications for wired and wireless networks. Zero-touch provisioning lets one quickly bring new X440-G2 switches online and a granular view of devices, ports and users enables efficient inventory and network topology management.

(Note: Please refer to the [ExtremeCloud IQ Release Notes: New Features and Enhancements](#) for latest list of XIQ-supported X440-G2 models.)

# Product Specifications

## Performance and Scaling

Switch Model	Maximum 10/100/1000 Base-T Ports	Maximum Active 1Gb SFP Ports	Maximum 10Gb SFP+ Ports	Aggregated Switch Bandwidth*	Frame Forwarding Rate*
X440-G2-12t-10GE4	12	4	4 via license	104 GBPS	77.4 MPPS
X440-G2-24t-10GE4	24	8 (4 + 4 Combo)	4 via license	128 GBPS	95.2 MPPS
X440-G2-48t-10GE4	48	8 (2 + 6 Combo)	4 via license	176 GBPS	130.9 MPPS
X440-G2-12p-10GE4	12	4	4 via license	104 GBPS	77.4 MPPS
X440-G2-24p-10GE4	24	8 (4 + 4 Combo)	4 via license	128 GBPS	95.2 MPPS
X440-G2-48p-10GE4	48	8 (2 + 6 Combo)	4 via license	176 GBPS	130.9 MPPS
X440-G2-24t-10GE4-DC	24	8 (4 + 4 Combo)	4 via license	128 GBPS	95.2 MPPS
X440-G2-48t-10GE4-DC	48	8 (2 + 6 Combo)	4 via license <sup>1</sup>	176 GBPS	130.9 MPPS
X440-G2-24x-10GE4	4 Combo	28 (24 + 4 Combo)	4 via license	128 GBPS	95.2 MPPS
X440-G2-24fx-GE4	24 100 Base-FX	4	0	12.8 GBPS	9.5 MPPS
X440-G2-12t8fx-GE4	12 10/100/1000 + 8 100 Base-FX	4	0	33.6 GBPS	25.0 MPPS
X440-G2-24t-GE4	24 10/100/1000	4	0	56 GBPS	41.7 MPPS

<sup>1</sup> 2 10GBase-T combo ports

\*with 10Gb licenses if available with license

- Less than 4 microsecond latency (64-byte)
- Layer 2/MAC Addresses: 16K
- IPv4 LPM Entries: 480
- IPv4 Hosts: 1000
- IPv6 LPM (64-bit) Entries: 240
- 4096 user-created VLAN/VMANs \*
- 9216 Byte Max Packet Size (Jumbo Frame)
- 128 load sharing trunks, up to 8 members per trunk
- 1,024 ingress bandwidth meters, 256 egress meters
- Ingress and egress bandwidth policing/rate limiting per flow/ACL
- 8 QoS egress queues/port
- Egress bandwidth rate shaping per egress queue and per port.
- Rate Limiting Granularity: 8 Kbps
- Half-duplex 10/100 supported on the following 10/100/1000 ports:
  - 12 port switches: Ports 1-12
  - 24 port switches: Ports 1-16
  - 48 port switches: Ports 1-16 and Ports 25-40

\* 2 VLANs reserved for system use

- LRM support on rear-panel SFP/SFP+ ports on all 48-port switches
- Policy Capabilities
  - Policy Profiles: 63
  - Rules per Profile: Up to 440
  - Authenticated Policy Users per Switch: Up to 1,536
  - Authenticated Policy Users per Port: Up to 1,536
  - Unique Permit/Deny Rules per switch: 440
    - MAC Rules: N/A
    - IPv4 Rules: 256
    - IPv6 Rules: N/A
    - L2 Rules: 184
- Rate Limiting: Per Class of Service

## Specifications (cont.)

### External Ports/Slots

Switch Hardware	Ports
X440-G2-12t-10GE4	<ul style="list-style-type: none"> <li>• 12 x 10/100/1000BASE-T (RJ-45)</li> <li>• 4 x 1GBASE-X SFP (unpopulated front-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• Coaxial Barrel Connector RPS port</li> </ul>
X440-G2-24t-10GE4	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000BASE-T (RJ-45)</li> <li>• 4 x 1GBASE-X SFP (unpopulated) combo ports</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-48t-10GE4	<ul style="list-style-type: none"> <li>• 48 x 10/100/1000BASE-T (RJ-45)</li> <li>• 4 x 1GBASE-X SFP (unpopulated) combo ports</li> <li>• 2 x 1GbE copper combo ports upgradable to 10GbE on rear-panel</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-12p-10GE4	<ul style="list-style-type: none"> <li>• 12 x 10/100/1000BASE-T PoE-Plus</li> <li>• 4 x 1GBASE-X SFP (unpopulated front-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-24p-10GE4	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000BASE-T PoE-Plus</li> <li>• 4 x 1GBASE-X SFP (unpopulated) combo ports</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-48p-10GE4	<ul style="list-style-type: none"> <li>• 48 x 10/100/1000BASE-T PoE-Plus</li> <li>• 4 x 1GBASE-X SFP (unpopulated) combo ports</li> <li>• 2 x 1GbE copper combo ports upgradable to 10GbE on rear-panel</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x9 RPS port</li> </ul>
X440-G2-24t-10GE4-DC	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000BASE-T (RJ-45)</li> <li>• 4 x 1GBASE-X SFP (unpopulated) combo ports</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-48t-10GE4-DC	<ul style="list-style-type: none"> <li>• 48 x 10/100/1000BASE-T (RJ-45)</li> <li>• 4 x 1GBASE-X SFP (unpopulated) combo ports</li> <li>• 2 x 1GbE copper combo ports upgradable to 10GbE on rear-panel</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-24x-10GE4	<ul style="list-style-type: none"> <li>• 24 x SFP (unpopulated)</li> <li>• 4 x 10/100/1000 combo ports</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>

## Specifications (cont.)

Switch Hardware	Ports
X440-G2-24fx-GE4	<ul style="list-style-type: none"> <li>• 24 x 100Base-FX - LC connectors</li> <li>• 4 x 1GBASE-X SFP (unpopulated front-panel ports)</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-12t8fx-GE4	<ul style="list-style-type: none"> <li>• 12 x 10/100/1000BASE-T with 8 x 100Base-FX - LC connectors</li> <li>• 4 x 1GBASE-X SFP (unpopulated front-panel ports)</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>
X440-G2-24t-GE4	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000BASE-T (RJ-45)</li> <li>• 4 x 1GBASE-X SFP (unpopulated rear-panel ports)</li> <li>• 1 x Serial (console port RJ-45) with RTS/CTS modem control</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 2x7 RPS port</li> </ul>

## Physical

Switch Model	Weight	Height	Width	Depth
X440-G2-12t-10GE4	5.82 lb (2.64 kg)	1 RU / 1.73 inches (4.4 cm)	12.01 inches (30.5 cm)	10.28 inches (26.1 cm)
X440-G2-24t-10GE4	8.07 lb (3.66 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	10.01 inches (25.4 cm)
X440-G2-48t-10GE4	11.22 lb (5.09 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	14.51 inches (36.85 cm)
X440-G2-12p-10GE4	6.66 lb (3.02 kg)	1 RU / 1.73 inches (4.4 cm)	12.01 inches (30.5 cm)	10.28 inches (26.1 cm)
X440-G2-24p-10GE4	9.44 lb (4.28 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	10.01 inches (25.4 cm)
X440-G2-48p-10GE4	14.55 lb (6.60 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	14.51 inches (36.85 cm)
X440-G2-24t-10GE4-DC	8.07 lb (3.66 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	10.01 inches (25.4 cm)
X440-G2-48t-10GE4-DC	11.20 lb (5.08 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	14.51 inches (36.85 cm)
X440-G2-24x-10GE4	8.22 lb (3.73 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	10.01 inches (25.4 cm)
X440-G2-24fx-GE4	8.66 lb (3.93 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	10.01 inches (25.4 cm)
X440-G2-12t8fx-GE4	6.50 lb (2.95 kg)	1 RU / 1.73 inches (4.4 cm)	12.01 inches (30.5 cm)	10.28 inches (26.1 cm)
X440-G2-24t-GE4	7.98 lb (3.62 kg)	1 RU / 1.73 inches (4.4 cm)	17.36 inches (44.1 cm)	10.01 inches (25.4 cm)

### CPU/Memory

- 64-bit MIPS Processor, 1 GHz clock, single core
- 1GB ECC DDR3 DRAM
- 4GB eMMC Flash
- 1.5MB packet buffer on 12 - 24 port switches, 3.0MB packet buffer on 48 port switches

### LED Indicators

- Per port status LED including power status.
- System Status LEDs: management, fan and power.
- 7 segment display of stack number - operational on switches that support stacking.

### Stacking

- SummitStack-V with support for up to eight switches per stack.
- Mixed stacking with other ExtremeXOS Series switches, so long as all are running the same ExtremeXOS version.
- Requires two of the four available X440-G2 uplink ports.

**Note:** SummitStack-V stacking is enabled on two of the four X440-G2 uplink ports by default (no license required). All stacking ports operate at 10Gb, but do not use standard Ethernet protocols. X440-G2 uplink ports, when not used for stacking, run the standard Ethernet protocol. Non-stacking uplink ports are limited by default to 1GbE, unless upgraded via software license. 10GbE licenses are available, in both two- and four-port versions, as well as a license to upgrade a dual 10GbE uplink switch to a four 10GbE uplink switch, that enable X440-G2 uplink ports to run the 10Gb Ethernet protocol.

Mapping of the two default X440-G2 stacking ports to their respective physical chassis interface #'s – by chassis type – are listed below.

X440-G2 Switches*	Stack Port #	Physical Uplink Port # On Chassis
48 Port Models	1	49 (Rear Panel, Dedicated SFP+ Port)
	2	50 (rear panel, dedicated SFP+ port)
24 Port Models	1	27 (Rear Panel)
	2	28 (Rear Panel)
12 Port Models	1	15 (Front Panel)
	2	16 (Front Panel)

\*The three extended temperature X440-G2 models (16539, 16540 and 16541) do NOT stack.

### Minimum/Maximum Power Consumption and Heat Dissipation

Switch Model	Minimum <sup>1</sup> Heat Dissipation (BTU/HR)	Minimum <sup>1</sup> Power Consumption (Watts)	Maximum <sup>1</sup> Heat Dissipation (BTU/Hr)	Maximum <sup>2</sup> Power Consumption (Watts)
X440-G2-12t-10GE4	52	15	109	32
X440-G2-24t-10GE4	87	26	136	40
X440-G2-48t-10GE4	141	41	208	61
X440-G2-12p-10GE4	72	21	216 (@200W PoE)	264
X440-G2-24p-10GE4	121	35	410 (@380W PoE)	500
X440-G2-48p-10GE4	196	53	755 (@740W PoE)	961
X440-G2-24t-10GE4-DC	77	23	134	39
X440-G2-48t-10GE4-DC	137	40	207	61
X440-G2-24x-10GE4	87	26	172	51
X440-G2-24fx-GE4	166	49	223	65
X440-G2-12t8fx-GE4	108	32	159	47
X440-G2-24t-GE4	76	22	130	38

<sup>1</sup> Idle no ports linked

<sup>2</sup> fans high all ports 100% traffic

The Non-PoE Extended Temperature Switches (X440-G2-24FX-GE4, X440-G2-12T8FX-GE4, X440-G2-24T-GE4)

	Fixed Internal Power Supply
Voltage Input Range	100 - 240 VAC <sup>†</sup>
Line Frequency Range	50 - 60 Hz +/- 5%
Power Supply Input Socket	IEC 320 C14
Power Cord Input Plug	IEC 320 C13
Operating Temperature	0° C to 60° C Normal Operation

The 12, 24, and 48 Port 10/100/1000 Models (Both PoE and Non-PoE)

	Fixed Internal Power Supply
Voltage Input Range	100 - 240 VAC <sup>†</sup>
Line Frequency Range	50 - 60 Hz +/- 5%
Power Supply Input Socket	IEC 320 C14
Power Cord Input Plug	IEC 320 C13
Operating Temperature	0° C to 50° C Normal Operation

<sup>†</sup> The power supplies will continue to operate +/- 10% of the rated input to accommodate temporary loss of input voltage regulation.

## Power

Switch Model	Power Supply Input Socket	Power Supply Input Socket	Power Supply Cord Gauge	Redundant Power Supply Input Socket
X440-G2-12t-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	Coaxial Barrel Connector
X440-G2-24t-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-48t-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-12p-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-24p-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-48p-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 16AWG/1.25mm <sup>2</sup> (100-125VAC), Min 18AWG/.75mm <sup>2</sup> (200-240VAC)	2x9 Terminal Block
X440-G2-24t-10GE4-DC	#6 Terminal Block	23	Min 14AWG/2.0mm <sup>2</sup>	2x7 Terminal Block
X440-G2-48t-10GE4-DC	#6 Terminal Block	40	Min 14AWG/2.0mm <sup>2</sup>	2x7 Terminal Block
X440-G2-24x-10GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-24fx-GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-12t8fx-GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block
X440-G2-24t-GE4	IEC 320 C14	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>	2x7 Terminal Block

## PoE Power Budget

Switch Model	Power Supply Input Socket	Redundant Power Supply Input Socket
X440-G2-12p-10GE4	200 W	200 W – Redundant Power Only
X440-G2-24p-10GE4	380 W	380 W – Redundant Power Only
X440-G2-48p-10GE4	740 W	1440 W – Additive Power 740 W – Redundant Power

## Environmental

### Environmental Specifications

- EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage
- EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation
- EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational
- EN/ETSI 300 753 (1997-10) - Acoustic Noise
- ASTM D3580 Random Vibration Unpackaged 1.5 G

### Environmental Compliance

- EU RoHS - 2011/65/EU
- EU WEEE - 2012/19/EU
- China RoHS - SJ/T 11363-2006
- Taiwan RoHS CNS 15663(2013.7)

### Operating Conditions

- Temp: 0° C to 50° C (32° F to 122° F) - all models
- Temp: 0° C to 60° C (32° F to 140° F) - extended temperature range models only (16539, 16540 and 16541)
- Humidity: 10% to 95% relative humidity, non-condensing
- Altitude: 0 to 3,000 meters (9,842 feet) - All Switch Models
- Shock (half sine): 30 m/s<sup>2</sup> (3 G), 11 ms, 6 shocks
- Random vibration: 3 to 500 Hz at 1.5 G rms

### Packaging and Storing Specifications

- Temp: -40° C to 70° C (-40° F to 158° F)
- Humidity: 10% to 95% relative humidity, non-condensing
- Packaged Shock (half sine): 180 m/s<sup>2</sup> (18 G), 6 ms, 600 shocks
- Packaged Vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G
- Packaged Random Vibration: 5 to 20 Hz at 1.0 ASD w/-3 dB/oct. from 20 to 200 Hz
- Packaged Drop Height: 14 drops minimum on sides and corners at 42 inches (<15 kg box)

## Regulatory and Safety

### North American ITE

- UL 60950-1 2nd edition A2:2014, Listed Device (U.S.)
- CSA 22.2 No. 60950-1 2nd edition 2014(Canada)
- Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
- CDRH Letter of Approval (US FDA Approval)

### European ITE

- EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 2nd Ed.
- EN 60825-1:2007 / IEC 60825-1:2007 Class 1
- (Lasers Safety)
- 2014 / 35/ EU Low Voltage Directive

### International ITE

- CB Report & Certificate per IEC 60950-1 : 2005+A1:2009+A2:2013 + National Differences
- AS/NZS 60950-1 (Australia /New Zealand)

## EMI/EMC Standards

### North American EMC for ITE

- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)

### European EMC Standards

- EN 55032:2015 Class A
- EN 55024:2010
- EN 61000-3-2: 2014 (Harmonics)
- EN 61000-3-3: 2013 (Flicker)
- EN 300 386 v1.6.1 (EMC Telecommunications)
- 2014/30/EU EMC Directive

### International EMC Certifications

- CISPR 32:2015, Class A (International Emissions)
- AS/NZS CISPR32:2015
- CISPR 24:2010 Class A (International Immunity)
- IEC 61000-4-2:2008/EN 61000-4-2:2009 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria B
- IEC 61000-4-3:2010/EN 61000-4-3:2006 +A1:2008 +A2:2010 Radiated Immunity 10V/m, Criteria A
- IEC 61000-4-4:2012. / EN 61000-4-4:2012 Transient Burst, 1 kV, Criteria A
- IEC 61000-4-5:2014 /EN 61000-4-5:2014 Surge, 1 kV L-L, 2 kV L-G, Level 3, Criteria B
- IEC 61000-4-6:2013/EN 61000-4-6:2014 Conducted Immunity, 0.15-80 MHz, 10Vrms, 80%AM (1kHz) Criteria A
- IEC/EN 61000-4-11:2004 Power Dips & Interruptions, >30%, 25 periods, Criteria C

### Country Specific

- VCCI Class A (Japan Emissions)
- ACMA RCM (Australia Emissions)
- CCC Mark
- KCC Mark, EMC Approval (Korea)

### Telecom Standards

- CE 2.0 Compliant

### IEEE 802.3 Media Access Standards

- IEEE 802.3ab 1000BASE-T
- IEEE 802.3z 1000BASE-X
- IEEE 802.3ae 10GBASE-X
- IEEE 802.3at PoE-Plus

### Fan and Acoustic Noise

Switch Model	Acoustic Information	
	Bystand Sound Pressure*	Declared Sound Power (LWAD)*
X440-G2-12t-10GE4	0 dB(A) Fan Off	0 bels Fan Off
X440-G2-24t-10GE4	28.1 dB(A)	4.3 bels
X440-G2-48t-10GE4	37.9 dB(A)	5.4 bels
X440-G2-12p-10GE4	0 dB(A) Fan Off	0 bels Fan Off
X440-G2-24p-10GE4	39.4 dB(A)	5.5 bels
X440-G2-48p-10GE4	48.7 dB(A)	6.4 bels
X440-G2-24t-10GE4-DC	28.1 dB(A)	4.3 bels
X440-G2-48t-10GE4-DC	37.9 dB(A)	5.4 bels
X440-G2-24x-10GE4	26.8 dB(A)	4.0 bels
X440-G2-24fx-GE4	24.7 dB(A)	3.9 bels
X440-G2-12t8fx-GE4	23.3 dB(A)	4.0 bels
X440-G2-24t-GE4	28.1 dB(A)	4.3 bels

\*-At 25°C and 50% PoE Load where applicable

### External Redundant Power Supplies For Non-PoE Switches

All X440-G2 series non-PoE switches ship with one fixed internal power supply. If redundancy is required, an external RPS can be attached to the switch.

Model Number	Description
RPS-90	External redundant power supply Unit 90 Watts with cable for X440-G2-12t-10GE4 , Power cord ordered separately, order 10947 C5 to C14 Converter to utilize a C13 power cord.
STK-RPS-150PS	150 watt non-PoE redundant power supply for A, B, C, X450-G2 and X440-G2 switches, power cord ordered separately.
STK-RPS-150CH2	2-Slot modular shelf for rack-mounting 150W redundant power supplies (STK-RPS-150PS).
STK-RPS-150CH8	8-Slot modular shelf for rack-mounting 150W redundant power supplies (STK-RPS-150PS).
RPS-150XT	External redundant power supply unit 150 Watts with cable - Extended Temperature Range from 0 to +60 degrees Celsius, power cord ordered separately.
STK-RPS-1005CH3	3-Slot modular shelf for rack-mounting 150W extended temperature redundant power supplies (RPS-150XT) or 1005W PoE+ redundant power supplies (STK-RPS-1005PS).
EPS-C2	External Power System Chassis 2. Accepts up to three 750W AC PoE PSU 48V power supplies. Accepts up to 5 EPSCBL-2x7 or up to 1 EPS-CBL-2x9 cables. Ships with one EPS-CBL-2x7 cable.
EPS-CBL-2x7	External Power System Cable (1M) that connects EPS-C2 to any X440 or X450-G2 non-PoE switch for providing redundant DC power.
750W AC PSU	AC Power Supply module for EPS-C2 Chassis Redundant Power Supply, power cord ordered separately.



## External Redundant Power Supplies For PoE X440-G2 Switches

All X440-G2 series PoE switches ship with fixed internal power supplies.

RPS Use Table	RPS-90	STK-RPS-150PS	RPS-150XT	EPS-C2	RPS-500P	STK-RPS-1005PS
12t	X					
24t, 24x, 48t, 24fx, 12t8fx		X	X	X	X	
12p and 24p				X	X	
48p						X

RPS Model	Redundant Power Supply Output
RPS-90	Coaxial Barrel Connector
STK-RPS-150PS	1 terminal block of 2x7 pins - provides system power and up to 150 watts of power
RPS-150XT	1 terminal block of 2x7 pins - provides system power and up to 150 watts of power
EPS-C2	1 terminal block of 2x9 pins - used for other Summit switches 5 terminal blocks of 2x7 pins - used for Summit X440-G2's
RPS-500p	1 terminal block of 2x7 pins - provides system power and up to 380 watts of IEEE802.3at power
STK-RPS-1005PS	1 terminal block of 2x9 pins - provides system power and up to 740 watts of IEEE802.3at power

RPS Model	Allowable PSU	Power Cord Input Plug/Socket	Power Cord Gauge
RPS-90	Not Applicable	IEC 320 C5/C14	Min 18AWG/0.75mm <sup>2</sup>
STK-RPS-150PS	Not Applicable	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>
RPS-150XT	Not Applicable	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>
EPS-C2	Summit 750W PoE AC PSU	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>
RPS-500p	Not Applicable	IEC 320 C13/C14	Min 18AWG/0.75mm <sup>2</sup>
STK-RPS-1005PS	Not Applicable	IEC 320 C13/C16	Min 16AWG/1.25mm <sup>2</sup> (100-125VAC), Min 18AWG/.75mm <sup>2</sup> (200-240VAC)

RPS Model	Weight	Dimensions
RPS-90	0.73 lb (0.33 kg)	Height: 1.06 inches ( 2.69 cm) Width: 5.20 inches ( 13.21 cm) Depth: 2.25 inches ( 5.72 cm)
STK-RPS-150PS	3.85 lb (1.75 kg)	Height: 2.04 inches ( 5.2 cm) Width: 7.7 inches ( 19.6 cm) Depth: 10.1 inches ( 25.7 cm)
RPS-150XT	3.22 lb (1.46 kg)	Height: 1.77 inches ( 4.50 cm) Width: 6.07 inches ( 15.42 cm) Depth: 13.00 inches ( 33.02 cm)
EPS-C2	2.27 lb (1.03 kg)	Height: 1RU, 1.73 inches (4.4 cm) Width: 17.4 inches (44.1 cm) Depth: 15.1 inches (38.4 cm)
RPS-500p	8.06 lb (3.66 kg)	Height: 1RU, 1.73 inches (4.4 cm) Width: 17.4 inches (44.1 cm) Depth: 7.9 inches (20.1 cm)
STK-RPS-1005PS	4.63 lb (2.1kg)	Height: 1.77 inches (4.5 cm) Width: 6.07 inches ( 15.42 cm) Depth: 13.39 inches (34.0 cm)

## Ordering Notes

All X440-G2 switches ship with fixed fans and power supplies:

- All the X440-G2 switches support optional external redundant power supplies (RPS).

- The following three switch models that support OC to 60C are NOT upgradeable to 10GbE:

- X440-G2-24fx-GE4
- X440-G2-12t8fx-GE4
- X440-G2-24t-GE4

## Ordering Information

Part Number	Name	Description
16530	X440-G2-12t-10GE4	X440-G2 12 10/100/1000BASE-T, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16531	X440-G2-12p-10GE4	X440-G2 12 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16531T	X440-G2-12p-10GE4-TAA	X440-G2 12 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model
16532	X440-G2-24t-10GE4	X440-G2 24 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16532T	X440-G2-24t-10GE4-TAA	X440-G2 24 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model
16533	X440-G2-24p-10GE4	X440-G2 24 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16533T	X440-G2-24p-10GE4-TAA	X440-G2 24 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model
16534	X440-G2-48t-10GE4	X440-G2 48 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16535	X440-G2-48p-10GE4	X440-G2 48 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16535A	X440-G2-48p-10GE4	X440-G2 48 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license. (Note: alternative supply-chain SKU for Part # 16535)
16535T	X440-G2-48p-10GE4-TAA	X440-G2 48 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS, TAA model
16536	X440-G2-24t-10GE4-DC	X440-G2 24 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed DC PSU, 1 RPS port, ExtremeXOS Edge license
16537	X440-G2-48t-10GE4-DC	X440-G2 48 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed DC PSU, 1 RPS port, ExtremeXOS Edge license
16538	X440-G2-24x-10GE4	X440-G2 24 unpopulated 1000BASE-X SFP (4 combo), 4 10/100/1000 combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license
16538T	X440-G2-24x-10GE4-TAA	X440-G2 24 unpopulated 1000BASE-X SFP (4 combo), 4 10/100/1000 combo, 4 1GbE unpopulated SFP, upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model
16539	X440-G2-24fx-GE4	X440-G2 24 fixed 100BASE-FX LC connectors, 4 1GBASE-X unpopulated SFP, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 0°C to 60°C operation
16540	X440-G2-12t8fx-GE4	X440-G2 12 10/100/1000BASE-T plus 8 fixed 100BASE-FX LC connectors, 4 1GBASE-X unpopulated SFP, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 0°C to 60°C operation
16541	X440-G2-24t-GE4	X440-G2 24 fixed 10/100/1000BASE-TX, 4 1GBASE-X unpopulated SFP, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 0°C to 60°C operation
<b>Firmware Licenses</b>		
16521	X440 Adv. Edge License	ExtremeXOS Advanced Edge License for X440/X440-G2 series switches
16522	X440 OpenFlow Feature Pack	ExtremeXOS SDN - OpenFlow Feature Pack for X440/X440-G2 series switches
16523	X440 Multimedia(AVB) Feature Pack	ExtremeXOS Multimedia Service (Audio Video Bridging) Feature Pack for X440/X440-G2 series switches

## Ordering Information (cont.)

Part Number	Name	Description
16778	X440-G2 MACsec Feature Pack	MACsec Feature Pack for X440-G2 series switches. Enables MACsec when used with LRM/MACsec Adapter (10965)
16542	Dual 10GbE Upgrade License	License that converts the two non-stack 1GbE SFP ports to be 10GbE SFP+
16543	Quad 10GbE Upgrade License	License that converts four 1GbE SFP ports to be 10GbE SFP+
16546	Quad 10GbE Lic from Dual 10GbE Lic	Software license that upgrades an already licensed X440-G2 Dual 10GbE switch to a Quad 10GbE switch
<b>Accessories</b>		
10948	RPS-90	External Redundant Power Supply Unit 90 Watts with cable , Power cord ordered separately
10947	C5 to C14 Converter	Power dongle for converting an IEC C5 plug to IEC C14 plug - enables the use of to utilize a C13 power cord
STK-RPS-150PS	150W Non-PoE RPS	150 watt non-PoE redundant power supply for A, B, C and X450-G2 switches
STK-RPS-150CH2	2-Slot Modular Shelf	2-Slot Modular Shelf for rack mounting up to two 150 watt (STK-RPS-150PS) external redundant power supplies
STK-RPS-150CH8	8-Slot Modular Shelf	8-Slot Modular Shelf for rack mounting up to eight 150 watt (STK-RPS-150PS) external redundant power supplies
10932	RPS-150 XT	External Redundant Power Supply Unit 150 Watts with cable - Extended Temperature Range from 0 to +60 degrees Celsius, Power cord ordered separately
10923	RPS-500p	External PoE+ Redundant Power Supply Unit 500 Watts with cable, Power cord ordered separately
STK-RPS-1005PS	1005 W RPS	1005 watt 802.3at PoE external redundant power supply for C5 PoE and X440-48p switches
STK-RPS-1005CH3	3-Slot Modular Shelf	3-Slot Modular Shelf for rack mounting up to three of any combination of extended temperature 150 watt (10932 - RPS-150 XT) or STK-RPS-1005PS external redundant power supplies
10936	EPS-C2	External Power System Chassis 2. Accepts up to three 750W AC PoE PSU 48V power supplies. Accepts up to 5 EPS-CBL-2x7 or up to 1 EPS-CBL-2x9 cables
10939	EPS-CBL-2x7	External Power System Cable (1M with 2x7 pin) that connects EPS to any X440 or X450-G2 for providing redundant power
10931	750W AC PSU	AC Power Supply module for EPS-C2 Chassis Redundant Power Supply
10965	LRM/MACsec Adapter	LRM/MACsec Adapter, includes two host cables for host switch connection, and USB cable for optional power connection. Requires MACsec license on host switch.
10966	5-Unit Rack Mount Kit	Optional rack mount bracket for LRM/MACsec Adapter. Holds five units in 1RU
XN-2P-RMKIT-004	Spare Rack Mount Kit	Spare Rack Mount Kit for X440-G2 24 and 48-port models
<b>ExtremeCloud IQ Pilot Licenses</b>		
XIQ-PIL-S-C-EW	XIQ Pilot SAAS Subscription and EW support (1 device)	ExtremeCloud IQ Pilot SaaS Subscription and EW SaaS support for one (1) device
XIQ-PIL-S-C-PWP	XIQ Pilot SAAS Subscription and PWP support (1 device)	ExtremeCloud IQ Pilot SaaS Subscription and PWP SaaS support for one (1) device

## Warranty

The X440-G2 Series is covered under Extreme's Limited Warranty Express. For warranty details, visit:

<http://www.extremenetworks.com/go/warranty>

## Power Cords

In support of the Extreme Networks Green initiatives, power cords can be ordered separately, but need to be specified at time of ordering. Please refer to

[www.extremenetworks.com/product/powercords/](http://www.extremenetworks.com/product/powercords/)

for details on power cord availability for this product.

## Optics/Transceivers

For a list of the optics/transceivers supported on X440-G2 Series hardware, refer to our Extreme Optics Compatibility Tool at <https://optics.extremenetworks.com>.

## Maintenance Services

Extreme's maintenance and support services with 100% in-sourced engineering experts and over 90% first-person resolution ensure efficient operations of your business-essential network. 24x7x365 phone support, advanced part replacement, and on-site support augment your staff with experienced resources that help you mitigate critical network issues fast. Visit [Extreme Maintenance Services](#) for more information.