

# X670-G2 Series

## Highlights

### Business Alignment

- X670-G2-48x-4q – 48 ports of 1/10Gb SFP+ with 4 ports of 10/40Gb QSFP+
- X670-G2-72x – 72 ports of 1/10Gb SFP+ in 1 RU form factor

### Operational Efficiency

- Full ExtremeXOS® feature set supporting switching, routing, SDN, Data Center Bridging, MPLS, and Audio Video Bridging
- Controlling aggregation switch for V300 and V400 edge devices with Extreme Extended Edge Switching
- SummitStack™ support enables flexible stacking configurations with other stackable ExtremeXOS product lines
- IEEE 1588 PTP timing with integrated timing output ports
- All configurations provide non-blocking, line rate performance
- Low latency cut-through mode
- Front-to-Back or Back-to-Front airflow



## Scalable advanced 10Gb aggregation switch

The X670-G2 product family provides high density 10 Gigabit Ethernet and 40 Gigabit Ethernet switching in a small 1RU form factor. With its versatile design, the X670-G2 provides high density Layer 2/3 10Gb networking with low latency cut-through switching, and IPv4 and IPv6 unicast and multicast routing. This enables the X670-G2 to be flexibly deployed in enterprise aggregation or core backbone environments. The X670-G2 can additionally serve as the controlling aggregation switch within Extreme's Extended Edge Switching solution.

The X670-G2 comes in two models:

- X670-G2-48x-4q– 48 ports of 1/10Gb SFP+ with 4 ports of 10/40Gb QSFP+
- X670-G2-72x– 72 ports of 1/10Gb SFP+ in 1 RU form factor

The X670-G2-48x-4q supports four QSFP+ ports of 40 GbE. Each 40 Gigabit Ethernet port can be independently configured as 40 Gigabit Ethernet or 4 x 10 Gigabit Ethernet.

The X670-G2-72x model supports 72 ports of native 1Gb/10Gb SFP+ ports in a single compact system without the requirement to use break-out cables to achieve high density 10Gb connections.

## High-Performance Stacking

The X670-G2 supports 4 different methods of stacking: SummitStack-V, SummitStack-V80, SummitStack-V160, and SummitStack-V320.

### SummitStack-V—Flexible Stacking Over 10 Gigabit Ethernet

ExtremeXOS supports the SummitStack-V capability using 2 of the native 10GbE ports on the faceplate as stacking ports, enabling the use of standard cabling and optics technologies used for 10GbE SFP+, SummitStack-V provides long-distance stacking connectivity of up to 40 km while reducing the cable complexity of implementing a stacking solution. SummitStack-V is compatible with X440, X440-G2, X450, X450-G2, X460, X460-G2, X480, X670, X670V, and X770 switches running the same version of ExtremeXOS. SummitStack-V enabled 10GbE ports must be physically direct-connected.

### SummitStack-V80/V160/V320—Flexible Stacking Over 40 Gigabit Ethernet

The X670-G2-48x-4q also supports high-speed 80Gbps, 160Gbps, and 320Gbps stacking using QSFP+ ports, which is ideal for demanding applications where a high volume of traffic traverses through the stacking links, yet bandwidth is not compromised through stacking. SummitStack-V80, -V160, and -V320 can support passive copper cables (up to 1m), active multi-mode fiber cable (up to 100m), and QSFP+ optical transceivers for 40GbE up to 10 km. With SummitStack, the X670-G2-48x-4q provides a flexible stacking solution inside the data center or central office to create a virtualized switching infrastructure across rows of racks.

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## ExtremeXOS Intelligent L2 and L3 Switching

The X670-G2 supports sophisticated and intelligent Layer 2 switching, as well as Layer 3 IPv4/IPv6 routing including policy-based switching/routing, Provider Bridges, bidirectional ingress and egress Access Control Lists, and bandwidth control by 8 Kbps granularity both for ingress and egress.

To provide scalable network architectures used mainly for Carrier Ethernet network deployment, the X670-G2 supports MPLS LSP-based Layer 3 forwarding and Hierarchical VPLS (H-VPLS) for transparent LAN services. With H-VPLS, transparent Layer 3 networks can be extended throughout the Layer 3 network cloud by using a VPLS tunnel between the regional transparent LAN services typically built by Provider Bridges (IEEE 802.1ad) technology.

## 1588 Precision Time Protocol (PTP)\*

The X670-G2 offers Boundary Clock (BC), Transparent Clock (TC), and Ordinary Clock (OC) for synchronizing phase and frequency and allowing the network and the connected devices to be synchronized down to microseconds of accuracy over Ethernet connection.

\*1588 PTP supported only in EXOS Release 30.6 and earlier

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## Audio Video Bridging (AVB)

The X670-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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## Low Latency Switching for Cluster Computing

The X670-G2 can achieve latency less than 600 nanoseconds and supports cut-through switching for latency-sensitive cluster computing.

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## Extended Edge Switching

The X670-G2 supports Extreme Extended Edge Switching, an innovative solution that simplifies the deployment and operation of edge switches. With this solution, the X670-G2 can be meshed with economical V300 or V400 Series access devices to form a single logical switch. Advanced X670-G2 services can then be seamlessly delivered to the V300 or V400 edge switches. The result is a simplified operational model that reduces costs.

## Modular Operating System for Non-Stop Operation

### Loadable Software Modules

The modular design of the ExtremeXOS OS allows the adding or upgrading of individual software modules dynamically without requiring a system reboot, leading to higher availability in the network.

### Preemptive Multitasking and Protected Memory

The X670-G2 series switches allow each of many applications— such as Open Shortest Path First (OSPF) and Spanning Tree Protocol (STP)—to run as separate OS processes that are protected from each other. This drives increased system integrity and inherently protects against cross-platform DoS attacks.

### Process Monitoring and Restart

ExtremeXOS increases network availability using process monitoring and restart. Each independent OS process is monitored in real time. If a process becomes unresponsive or stops running, it can be automatically restarted.

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## Rich OAM Suite – CFM, Y.1731, BFD

The X670-G2 series switches supports a rich suite of protocols to help with Operations, Administration and Maintenance. Connectivity Fault Management (CFM) allows detection, verification, and isolation of connectivity failures in virtual bridged LAN. Y.1731 is largely similar to CFM but also supports performance management by way of frame delay and frame delay variation measurements. Bidirectional Forwarding Detection (BFD) is a hello protocol that provides the rapid detection of failures in the forwarding path and helps the separation of control plane connectivity from forwarding plane connectivity. By having multiple control plane protocols like OSPF or MPLS rely on BFD to detect forwarding plane connectivity failures, network operators can benefit from simpler network profiling and planning, and consistent and predictable re-convergence times.

## High Availability Network Protocols

### Ethernet Automatic Protection Switching (EAPS)

EAPS allows the IP network to provide the level of resiliency and up time that users expect from their traditional voice network. EAPS is more adaptable than Spanning Tree or Rapid Spanning Tree protocols and can achieve sub-second recovery that delivers consistent failover regardless of the number of VLANs, network nodes, or network topology in Extreme Networks-recommended configurations.

EAPS functionality increases network recovery time, which results in significant reduction in Voice-over IP call drop rates and improvement in digital video performance in supported solution configurations.

### Spanning Tree/RAPID Spanning Tree Protocols

The X670-G2 supports Spanning Tree (802.1D), Per VLAN Spanning Tree (PVST+), Rapid Spanning Tree (802.1w) and Multiple Instances of Spanning Tree (802.1s) protocols for Layer 2 resiliency.

### Software-Enhances Availability

Software-enhanced availability allows users to remain connected to the network even if part of the network infrastructure is down. The X670-G2 continuously checks for problems in the unlink connections using advanced Layer 3 protocols such as OSPF, VRRP and Extreme Standby Router Protocol (ESRP, supported in Layer 2 or Layer 3), and dynamically routes traffic around the problem.

### Equal Cost Multipath

Equal Cost Multipath (ECMP) routing allows uplinks to be load balanced for performance and cost savings while also supporting redundant fail over. If an unlink fails, traffic is automatically routed to the remaining up links and connectivity is maintained.

### Link Aggregation (802.3AD)

Link aggregation allows trunking of up to 32 links on a single logical connection, for up to 320 Gbps of redundant bandwidth per logical connection.

### Multi-Switch LAG (MLAG)

MLAG can address bandwidth limitations and improve network resiliency, in part by routing network traffic around bottlenecks, reducing the risks of a single point of failure, and allowing load balancing across multiple switches.

### Hardware Redundancy

X670-G2 series switches support a dual redundant AC/DC power supply to provide high availability. The power supply can be hot-swapped and replaced should it fail. The X670-G2 also supports standardized N+1 redundant hot-swappable fan units.

## Robust IP and MAC Security Framework

### Media Access Control (MAC) Lockdown

MAC security allows the lockdown of a port to a given MAC address and limiting the number of MAC addresses on a port. This capability can be used to dedicate ports to specific hosts or devices such as VoIP phones or printers and avoid abuse of the port—a capability that can be especially useful in environments such as hotels. In addition, an aging timer can be configured for the MAC lockdown, protecting the network from the effects of attacks using (often rapidly) changing MAC addresses.

### IP Security

The ExtremeXOS IP security framework helps protect the network infrastructure, network services such as DHCP and DNS, and host computers from spoofing and attacker-in-the-middle attacks. It also protects the network from statically configured and/or spoofed IP addresses and builds an external trusted database of MAC/IP/port bindings providing the traffic's source from a specific address for immediate defense.

### Identity Management

Identity Manager allows network managers to track users who access their network. User identity is captured based on NetLogin authentication, LLDP discovery and Kerberos snooping. ExtremeXOS uses the information to then report on the MAC, VLAN, computer hostname, and port location of the user. Further, Identity Manager can create both roles and policies, and then bind them together to create role-based profiles based on organizational structure or other logical groupings, and apply them across multiple users to allow appropriate access to network resources. In addition, support for Wide Key ACLs further improves security by going beyond the typical source/destination and MAC address as identification criteria access mechanism to provide filtering capabilities.

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## Threat Detection and Response

### Clear-Flow Security Rules Engine

CLEAR-Flow Security Rules Engine provides first-order threat detection and mitigation, and mirrors traffic to security appliances for further analysis of suspicious traffic in the network.

### sFlow

The X670-G2 series supports hardware-based sFlow® sampling that provides the ability to sample application-level traffic flows on all interfaces simultaneously.

### Port Mirroring

To allow threat detection and prevention, the X670-G2 supports many-to-one and one-to-many port mirroring. This allows the mirroring of traffic to an external network appliance such as an intrusion detection device for trend analysis or for utilization by a network administrator for diagnostic purposes. Port mirroring can also be enabled across switches in a stack.

### Line-Rate Ingress and Egress ACLS

ACLs are one of the most powerful components used in controlling network resource utilization as well as in protecting the network. The X670-G2 series supports up to 4,096 ingress ACLs and 1,024 egress ACLs per system based on Layer 2-, 3- or 4-header information such as the MAC or IP source/destination address. ACLs are used for filtering the traffic, as well as classifying the traffic flow to control bandwidth, priority, mirroring, and policy-based routing/switching.

### Denial of Service Protection

The X670-G2 series effectively handles Denial of Service (DoS) attacks. If the switch detects an unusually large number of packets in the CPU input queue, it assembles ACLs that automatically stop these packets from reaching the CPU. After a period of time these ACLs are removed, and reinstalled if the attack continues. ASIC-based LPM routing eliminates the need for control plane software to learn new flows, allowing more network resilience against DoS attacks.

### Secure and Comprehensive Network Management

As the network becomes a foundation of the enterprise application, network management becomes an important piece of the solution. The X670-G2 supports comprehensive network management through Command Line Interface (CLI), SNMP v1, v2c, v3, and ExtremeXOS ScreenPlay embedded XML-based Web user interface. With a variety of management options and consistency across other Extreme Networks modular and stackable switches, X670-G2 series switches provide ease of management for demanding converged applications.

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## MPLS

On the X670-G2 series switches MPLS can be enabled, if needed, by way of an optional feature pack. MPLS provides the ability to implement traffic engineering and multi-service networks, and improve network resiliency. The MPLS protocol suite provides the ability to deploy services based on L2VPNS (VPLS/VPWS), BGP-based L3VPNS; LSP Establishment based on LDP, RSVP-TE, Static provisioning; Integrated OAM tools like VCCV, BFD and CFM; And MPLS Fast Reroute to support rapid local convergence around network failures.

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## Supported Protocols and Standards

A list of supported protocols and standards is available on the Extreme Networks website at: <http://www.extremenetworks.com/go/xos>

## Technical Specs

### General Specifications

#### Performance and Scale

X670-G2-48x-4q – 1280Gbps switch bandwidth, 952Mpps forwarding rate

X670-G2-72x – 1440Gbps switch bandwidth, 1071Mpps forwarding rate

9216 Byte maximum packet size (Jumbo Frame)

Store-and-Forward and Cut-Through switching support

Less than 600 nanoseconds latency

128 load sharing trunks, up to 32 members per trunk

4096 VLANs (Port, Protocol, IEEE 802.1Q)

4096 ingress and 1024 egress ACL rules per switch

#### Forwarding Tables

Layer 2/MAC Addresses: 288K

IPv4 Host Addresses: 136K

IPv4 LPM Entries: 16K

IPv6 Host Addresses: 48K

IPv6 LPM Entries: 8K

#### CPU, Memory

1GHz 64-bit CPU

2GB DDR3 ECC SDRAM

4GB eMMC Flash Memory

#### QOS, Rate Limiting

4096 ingress bandwidth meters and 1024 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: 8Kbps – 1Mbps

#### LED Indicator

Per port status LED including power status

System Status LEDs: management, fan and power

#### External Ports – X670-G2-48x-4q

48 ports 10GBASE-X SFP+ (1Gb/10Gb dual speed)

4 ports 40GBASE-X QSFP+ (10G/40G dual speed)

One RJ-45 RS-232c Serial port (control port)

One 10/100/1000BASE-T out-of-band management port

#### External Ports – X670-G2-72x

72 ports 10GBASE-X SFP+ (1Gb/10Gb dual speed)

One RJ-45 RS-232c Serial port (control port)

One 10/100/1000BASE-T out-of-band management port

#### Power Supply Support

550W AC PSU – Front-Back and Back-Front airflow options

550W DC PSU – Front-Back and Back-Front airflow options

### Physical Specifications

#### X670-G2-48x-4q

Height: 1.73 Inches/4.4 cm

Width: 17.4 Inches/44.1 cm

Depth: 19.2 Inches/48.7 cm

Weight: 12.85 lbs/5.83 kg

#### X670-G2-72

Height: 1.73 Inches/4.4 cm

Width: 17.4 Inches/44.1 cm

Depth: 19.2 Inches/48.7 cm

Weight: 15.42 lbs/7.0 kg

#### X670 Fan Module

Height: 1.65 Inches/4.2 cm

Width: 1.65 Inches/4.2 cm

Depth: 3.98 inches/10.1 cm

Weight: 0.357 lbs./0.162 kg

### Operating Specifications

Operating Temperature Range: 0°C to 45°C (32°F to 113°F)

Operating Humidity: 10% to 95% relative humidity, non-condensing

Operating Altitude: 0-3,000 meters (9,850 feet)

Operational Shock (Half Sine): 30 m/s<sup>2</sup> (3 g), 11ms, 60 Shocks

Operational Random Vibration: 3Hz-500Hz @ 1.5g rms

### Storage and Transportation (Packaged)

Transportation Temperature: -40°C to 70°C (-40°F to 158°F)

Humidity: 10% to 95% RH, non-condensing

Packaged Shock (Half Sine): 180 m/s<sup>2</sup> (18 G), 6ms, 600 shocks

Packaged Sine Vibration: 5Hz-62Hz @ Velocity 5mm/s, 62Hz-500Hz @ 0.2G

Packaged Random Vibration: 5Hz-20 Hz @ 1.0 ASD w/-3dB/oct. from 20Hz-200Hz

14 drops min on sides & corners @ 42" (<15 kg box)

### Regulatory/Safety

#### North American Safety of ITE

UL 60950-1 2nd Ed, 2011-12-19, Listed Device (U.S.)

CSA 22.2 #60950-1-07 2nd Ed, 2011-12. (Canada)

Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)

CDRH Letter of Approval (U.S. FDA Approval)

#### European Safety of ITE

EN 60950-1:2006 2nd Ed. TUV-R GS

EN 60825-1:2007 (Lasers Safety)  
2006/95/EC Low Voltage Directive

International Safety of ITE

CB Report & Certificate per IEC 60950-1:2005 2nd Ed., + National Differences  
AS/NZS 60950-1 (Australia/New Zealand)

## EMI/EMC Standards

North America EMC for ITE

FCC CFR 47 part 15 Class A (U.S.A.)  
ICES-003 Class A (Canada)

European EMC Standards

EN 55022:2010 Class A  
EN 55024:12020  
Class A includes IEC 61000-4-2, 3, 4, 5, 6, 11  
EN 61000-3-2:2006+A2:2009 (Harmonics)  
EN 61000-3-3: 2008 (Flicker)  
ETSI EN 300 386 v1.6.1, 2012-09 (EMC Telecommunications)  
2004/108/EC EMC Directive

International EMC Certifications

CISPR 22: 2008, (Ed 6.0) Class A (International Emissions)  
CISPR 24:2010 Class A (International Immunity)  
IEC/EN 61000-4-2:2009 Electrostatic Discharge, 8kV Contact, 15kV Air,  
Criteria A  
IEC/EN 61000-4-3:2006+A1: 2008+A2:2010, Radiated Immunity, 80-2500MHz,  
5-20V/m, Criteria A  
EN 55024:1998+A1:2001+A2:2003 Class A (International Immunity)  
IEC/EN 61000-4-4:2012 Transient Burst, 2kV, Criteria A  
IEC/EN 61000-4-5:2006 Surge, 2 kV L-L, 4 kV L-G, Level 3, Criteria A  
IEC/EN 61000-4-6:2009 Conducted Immunity, 0.15-80MHz, 10V/m unmod.  
RMS, Criteria A  
IEC/EN 61000-4-11:2004 Power Dips & Interruptions, >30%, 25 periods,  
Criteria C

Country Specific

VCCI:2003-04, Class A (Japan Emissions)  
ACMA (C-Tick) (Australia emissions)  
BSMI (Taiwan EMC)  
CCC Mark (China)  
KCC Mark EMC (Korea)

## Telecom Standards

EN/ETSI 300 386:2008 (EMC Telecommunications)  
EN/ETSI 300 019 (Environmental for Telecommunications)

## IEEE 802.3 Media Access Standards

IEEE 802.3ab 1000BASE-T  
IEEE 802.3z 1000BASE-X

IEEE 802.3ae 10GBASE-X  
IEEE 802.3ba 40GBASE-X

## Environmental Standards

EN/ETSI 300 019-2-1 v2.1.2 (2000-09) – Class 1.2 Storage  
EN/ETSI 300 019-2-2 v2.3.1 (2013-04) – Class 2.3 Transportation  
EN/ETSI 300 019-2-3 v2.3.1 (2013-04) – Class 3.1e Operational  
EN/ETSI 300 753 (1997-10) – Acoustic Noise  
ASTM D3580 Random Vibration Unpackaged 1.5G  
EU RoHS 2011/65/EU  
EU WEEE 2012/19/EU  
China RoHS SJ/T 11363-2006

## Power Supply Specifications: 550W AC PSU

Physical Specifications

Height: 1.57 inches (4.0 cm)  
Width: 3.07 inches (7.8 cm)  
Depth: 13.31 Inches (33.8 cm)  
Weight 3.64 lb (1.65 kg)

Power Specifications

Voltage input range 90V to 264V  
Nominal input ratings 100V to 240V, 50Hz to 60Hz, 8A  
Nominal input current at full loads: 7.5A @ 90V (low-line) / 3.7A @ 230V  
(high-line)  
Line frequency range 47Hz to 63Hz  
Maximum inrush current 15A  
Output 12V, 45A max, 540W 3.3V, 3A max, 9.9W  
Maximum continuous DC output shall not exceed 550W  
Power supply input socket IEC 320 C14  
Power cord input plug IEC 320 C13  
Power supply cord gauge 18 AWG (0.75 mm<sup>2</sup>) up to 6 feet or 2 meters or 16  
AWG (1.0 mm<sup>2</sup>) over 6 feet  
Efficiency 84% typical at full load, high line

## Power Supply Specifications: 550W DC PSU

Physical Specifications

Height: 1.57 inches (4.0 cm)  
Width: 3.07 inches (7.8 cm)  
Depth: 13.31 Inches (33.8 cm)  
Weight 2.58 lb (1.17 kg)

Power Specifications

Nominal Input -48 to -60VDC, 24A  
DC Voltage Input Range -35V to -75V  
Inrush Current 21A peak  
Minimum wire size 14 AWG (1.5 mm<sup>2</sup>) copper stranded  
DC Output 12V , 45A / 3.3V, 3A  
DC Output Power 550W

## Power Consumption

	X670-G2-48x-4q	X670-G2-72x
Minimum Heat Dissipation	325 BTU/hr	325 BTU/hr
Minimum Power Consumption	95W	95W
Maximum Heat Dissipation	768 BTU/hr	939 BTU/hr
Maximum Power Consumption	225W	275W

## Acoustics

Switch Model	Acoustic Information	
X670-G2-48x-4q	Dual 550W AC PS with Front to Back (FB) air flow	
	Bystander Sound Pressure* 60.2 dB(A), 0°C to 45°C	Declared Sound Power (LWAd)** 7.3 bels, 0°C to 45°C
	Dual 550W DC PS with Front to Back (FB) air flow	
	Bystander Sound Pressure* 61.3 dB(A), 0°C to 45°C	Declared Sound Power (LWAd)** 7.4 bels, 0°C to 45°C
	Dual 550W AC PS with Back to Front (BF) air flow	
	Bystander Sound Pressure* 58.3 dB(A), 0°C to 35°C 70.1 dB(A), 45°C	Declared Sound Power (LWAd)** 7.0 bels, 0°C to 35°C 8.4 bels, 45°C
	Dual 550W DC PS with Back to Front (BF) air flow	
	Bystander Sound Pressure* 55.0 dB(A), 0°C to 35°C 68.8 dB(A), 45°C	Declared Sound Power (LWAd)** 6.5 bels, 0°C to 35°C 8.1 bels, 45°C
X670-G2-72x	Dual 550W AC PS with Front to Back (FB) air flow	
	Bystander Sound Pressure* 58.9 dB(A), 0°C to 35°C 62.5 dB(A), 45°C	Declared Sound Power (LWAd)** 7.3 bels, 0°C to 35°C 7.6 bels, 45°C
	Dual 550W DC PS with Front to Back (FB) air flow	
	Bystander Sound Pressure* 58.5 dB(A), 0°C to 35°C 62.4 dB(A), 45°C	Declared Sound Power (LWAd)** 7.3 bels, 0°C to 35°C 7.6 bels, 45°C
	Dual 550W AC PS with Back to Front (BF) air flow	
	Bystander Sound Pressure* 59.8 dB(A), 0°C to 35°C 72.6 dB(A), 45°C	Declared Sound Power (LWAd)** 7.3 bels, 0°C to 35°C 8.2 bels, 45°C



Switch Model	Acoustic Information	
	Dual 550W DC PS with Back to Front (BF) air flow	
	Bystander Sound Pressure* 56.4 dB(A), 0°C to 35°C 73.0 dB(A), 45°C	Declared Sound Power (LWAd)** 6.7 bels, 0°C to 35°C 8.3 bels, 45°C

\* Bystander Sound Pressure is presented only for comparison to other products.

\*\* Declared Sound Power is presented in accordance with ISO-7779:2010(E), ISO 9296:2010 per ETSI/EN 300 753:2012-01.

## Supported System Configurations

Fan modules and power supplies must be ordered with all base models. A full complement of fan modules is required. A single power supply is required with an optional second power supply for redundancy. AC and DC power supplies can be mixed in a system. Air flow direction of fan modules and power supplies must match.

### X670-G2-48x-4q Base-Unit (part no. 17310)

Base unit plus:

- Three X670 fan modules Front-Back (17111) OR three X670 fan modules Back-Front (17112)

- One of the following:

- One or two 550W AC power supplies Front-Back (10925)
- One or two 550W AC power supplies Back-Front (10927)
- One or two 550W DC power supplies Front-Back (10926)
- One or two 550W DC power supplies Back-Front (10928)

### X670-G2-72x Base-Unit (part no. 17300)

Base unit plus:

- Five X670 fan modules Front-Back (17111) OR five X670 fan modules Back-Front (17112)
- One of the following:
  - One or two 550W AC power supplies Front-Back (10925)
  - One or two 550W AC power supplies Back-Front (10927)
  - One or two 550W DC power supplies Front-Back (10926)
  - One or two 550W DC power supplies Back-Front (10928)

## Ordering Information

Part Number	Product Name	Product Description
17300	X670-G2-72x Base-Unit	72 10GBASE-X SFP+, ExtremeXOS Advanced Edge License, unpopulated dual PSU power slot and 5 unpopulated fan airflow slots
17310	X670-G2-48x-4q Base-Unit	48 10GBASE-X SFP+ and 4 40GBASE-X QSFP+, ExtremeXOS Advanced Edge License, unpopulated dual PSU power slot , and 3 unpopulated fan airflow slots
17310T	X670-G2-48x-4q-FB-AC-TAA	TAA X670-G2-48x-4q 48 10GBASE-X SFP+ and 4 40GBASE-X QSFP+ ExtremeXOS Advanced Edge License, 2 550W AC Power Supplies with Front-to-Back airflow, and 3 Front-to-Back airflow fan modules
17111	X670 fan module FB	Fan module for X670 series switches, Front-to-Back airflow
17112	X670 fan module BF	Fan module for X670 series switches, Back-to-Front airflow
10925	550WAC PSU FB	550W AC Power Supply module for switches, Front-to-Back airflow
10926	550W DC PSU FB	550W DC Power Supply module for switches, Front-to-Back airflow
10927	550W AC PSU BF	550W AC Power Supply module for switches, Back-to-Front airflow
10928	550W DC PSU BF	550W DC Power Supply module for switches, Back-to-Front airflow
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
17131	X670 Series Core License	X670 Series Core License
17133	X670 MPLS Feature Pack	X670 MPLS Feature Pack
17134	X670 OpenFlow FeaturePack	ExtremeXOS SDN - OpenFlow Feature Pack for X670 series switches
17135	X670 AVB	ExtremeXOS Audio Video Bridging Feature Pack for X670 series switches
17136	X670-G2Timing 1588 PTP*	ExtremeXOS Network Timing Feature Pack for X670-G2 - enables 1588v2 PTP* (Precision Time Protocol)
11011	Direct Attach Feature Pack	Direct Attach Feature Pack
17137	X670-G2 MACsec Feature Pack	MACsec Feature Pack for X670-G2 series switches. Enables MACsec when used with LRM/MACsec Adapter (10965)
10319	QSFP+SR4 module	40 Gigabit Ethernet QSFP+ SR4 optical module, MPO connector, 100m MMF link length
9380014-5M	MPO to 4x LC OM3 MMF	MP Oto 4xLC OM3 MMF patch cord, 5m (for use with 10319 QSFP+ SR 10Gb breakout)
10329	40Gb Bidi MMF QSFP+	40Gb Bidirectional MMF, 100m OM3, QSFP+, duplex LC
10320	QSFP+LR4 module	40 Gigabit Ethernet QSFP+ LR4 optical module, LC connectors, 10km SMF link length
10326	QSFP+PSM Optical Module	40 Gigabit QSFP+ Parallel Single Mode (PSM) LR4, MPO connector, SMF 10 km
10327	MPO to 4x LC SMF	MPO to 4x LC SMF patch cord, 10m (for use with 10326 QSFP + PSM LR4)
10334	40Gb LM4 QSFP+	40Gb LM4, 140m OM3 MMF, 1km SMF, QSFP+, LC
10335	40Gb ER4 QSFP+	40Gb ER4, 40km SMF, QSFP+, LC
10311	QSFP+passive copper cable, 0.5M	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 0.5m length.
10312	QSFP+passive copper cable, 1.0M	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 1m length.

Part Number	Product Name	Product Description
10313 <sup>1</sup>	QSFP+passive copper cable, 3,0M	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 3m length.
10323 <sup>1</sup>	QSFP+passive copper cable, 5,0M	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 5m length.
10336	3m QSFP+ Active Optical Cable	40 Gigabit QSFP+ active optical cable, 3m
10337	5m QSFP+ Active Optical Cable	40 Gigabit QSFP+ active optical cable, 5m
10315	10m QSFP+ Active Optical Cable	40 Gigabit Ethernet QSFP+ active optical cable assembly, 10m length.
10316	20m QSFP+ Active Optical Cable	40 Gigabit Ethernet QSFP+ active optical cable assembly, 20m length.
10318	100m QSFP+ Active Optical Cable	40 Gigabit Ethernet QSFP+ active optical cable assembly, 100m length.
10202	QSFP+- 4xSFP+ fan-out cable, 1m	QSFP+to 4 x SFP+ fan-out copper cable, 1m
10203	QSFP+- 4xSFP+ fan-out cable, 2m	QSFP+to 4 x SFP+ fan-out copper cable, 2m
10321	QSFP+- 4xSFP+ fan-out cable, 3m	QSFP+to 4 x SFP+ fan-out copper cable, 3m
QSFP-SFPP-ADPT	QSFP+to SFP+ Adapter	QSFP+to SFP+ adapter, supports a single SFP+ 10 Gb Ethernet transceiver in a QSFP+ port (optical SFP+ transceivers only, 10303 LRM not supported)
10301	SR SFP+ module	10GBASE-SRSFP+, 850nm, LC Connector, transmission length of up to 300m on MMF
10302	LRSFP+ module	10GBASE-LRSFP+, 1310nm, LC Connector, transmission length of up to 10km on SMF
10309	ERSFP+ module	10GBASE-ERSFP+, 1550nm, LC Connector, transmission length of up to 40km on SMF
10310	ZR SFP+ module	10GBASE-ZRSFP+, 1550nm, LC connector, transmission length up to 80km on SMF
10325	Tunable DWDM SFP+	10Gigabit Ethernet SFP+ Tunable DWDM module, SMF 80km, LC
10GB-BX10-D	10 GB, SINGLE FIBER SM, -D 10 KM	10Gb, Single Fiber SM, Bidirectional, Downstream, 10Km, Simplex LC SFP+ (must be paired with 10GB-BX10-U)
10GB-BX10-U	10 GB, SINGLE FIBER SM, -U 10 KM	10Gb, Single Fiber SM, Bidirectional, Upstream, 10Km, Simplex LC SFP+ (must be paired with 10GB-BX10-D)
10304	SFP+Cable Assembly 1M	10GBASE-CRSFP+ pre-terminated twin-ax copper cable with link lengths of 1m
10305	SFP+Cable Assembly 3M	10GBASE-CRSFP+ pre-terminated twin-ax copper cable with link lengths of 3m
103061	SFP+Cable Assembly 5M	10GBASE-CRSFP+ pre-terminated twin-ax copper cable with link lengths of 5m
10051H	1000BASE-SXSFP, Hi	1000BASE-SXSFP, MMF 220 & 550 meters, LC connector, Industrial Temp
10052H	1000BASE-LXSFP, Hi	1000BASE-LXSFP, MMF 220 & 550 meters, SMF 10km, LC connector, Industrial Temp
10053H	1000BASE-ZXSFP, Hi	1000BASE-ZXSFP, SMF 70km, LC connector, Industrial Temp
10070H <sup>2</sup>	10/100/1000BASE-T SFP, Hi	10/100/1000BASE-TSFP module, CAT5 cable 100m link, RJ45-connector for Giga Bit Ethernet SFP Port, Industrial Temp

\* 1588 PTP supported only in EXOS Release 30.6 and earlier

<sup>1</sup> Not supported for SummitStack links

<sup>2</sup> Only 1Gb speed supported with 10070H when used with X670-G2

Note: See the ExtremeXOS Hardware/Software Compatibility and Recommendation Matrices document for a full list of supported devices and ExtremeXOS release recommendations.

## Power Cords

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

## Warranty

One-year hardware warranty. For warranty details, visit <https://www.extremenetworks.com/support/policies/>.

## Maintenance Services

Extreme's maintenance and support services with 100% in-sourced engineering experts and over 90% first-person resolution ensure efficient operation of your business- essential network. 24x7x365 phone support, advanced parts 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.



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