

## Highlights

The Summit X670 series switches are purpose-built top-of-rack switches designed to support emerging 10 Gigabit Ethernet-enabled servers in enterprise and cloud data centers. Summit X670 helps optimize new server deployments with its optional, future-proofing 40 GbE uplink support while providing seamless support from existing Gigabit Ethernet-based servers to 10 GbE-based high-performance servers to start the transition to the new virtualized environment.



# Summit X670 Series

## Product Overview

The Summit X670 series is available in two models: Summit X670V and Summit X670. Summit X670V provides high-density for 10 Gigabit Ethernet switching in a small 1RU form factor. The switch supports up to 64 ports in one system and 448 ports in a stacked system using high-speed SummitStack-V160, which provides 160 Gbps throughput and distributed forwarding. The Summit X670 model provides up to 48 ports in one system and up to 352 ports in a stacked system using SummitStack-V technology.

With its versatile design, the Summit X670 series provides high density Layer 2/3 switching with low latency cut-through switching, and IPv4 and IPv6 unicast and multicast routing to enable enterprise aggregation and core backbone deployment in AC-powered and DC-powered environments.

Summit X670 series simplifies network operation with the ExtremeXOS modular operating system (OS), which is used amongst all Extreme Networks Summit and BlackDiamond Ethernet switches. The high availability ExtremeXOS operating system provides simplicity and ease of operation through the use of one OS everywhere in the network.

## 10 Gigabit Ethernet Switching

The Summit X670 model offers 48-port 10 Gigabit Ethernet non-blocking switching with 10GBASE-X SFP+ interfaces. Summit X670 is capable of Layer 2 and Layer 3 forwarding at up to 714 million packets per second forwarding rate in a small 1RU form factor, enabling next-generation high-performance server deployment in data centers. Both models support SummitStack-V high-speed, longer distance stacking.

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

SummitStack-V capability utilizes 10 GbE ports as stacking ports, enabling the use of standard cabling and optics technologies used for 10 GbE such as XFP, SFP+, 10GBASE-T and XENPAK. SummitStack-V provides long-distance stacking connectivity of up to 40 km while reducing the cable complexity of implementing a stacking solution. SummitStack-V enabled 10 GbE ports must be physically direct-connected.

### 40 Gigabit Ethernet Uplinks and High-Speed 160 Gbps Stacking

The Summit X670V model can support an additional four QSFP+ ports of 40 GbE with the optional VIM4-40G4X module. With this option, you can maximize the number of interfaces for servers up to 48 ports while using the dedicated four-port 40 GbE module for uplink connectivity. The optional VIM4-40G4X provides 160 Gbps aggregated bandwidth to the backbone. Each 40 Gigabit Ethernet port can be independently configured as 40 Gigabit Ethernet or 4 x 10 Gigabit Ethernet; thus with the VIM4-40G4X module, Summit X670V can support up to 64 ports of 10 Gigabit Ethernet in a 1RU form factor and is capable of Layer 2 and Layer 3 forwarding at up to 952 million packets per second forwarding rate. This configuration provides 3:1 oversubscription from front ports (total 480 Gbps bandwidth) to uplink ports (total 160 Gbps bandwidth) and maximizes server port density.

Summit X670V together with VIM4-40G4X provides high speed stacking running at 160 Gbps through the SummitStack-V160 technology. SummitStack-V160 can be enabled on two 40 Gigabit Ethernet QSFP+ ports on the VIM4-40G4X, using half of the module's four ports as stacking interfaces. SummitStack-V160 is compatible with SummitStack-V80, which is available for Summit X460 and Summit X480 series switches.

### Low Latency Switching for High-Frequency Trading and Cluster Computing

Summit X670 provides sub-microsecond latency and supports cut-through switching to help optimize the high frequency trading application as well as latency sensitive cluster computing.

### Green Design

The Summit X670 series is designed to be environmentally green. System power consumption is very low at both high-load and idle situations through the power-efficient hardware design.

The power supplies are also highly efficient, which minimizes the loss of power and unnecessary heat generated by the power supply. Summit X670 series switches can be used in AC or DC powered environments.

### Supports Virtualized Data Centers

With the optional feature pack, Summit X670 switches can also support Direct Attach (VEPA), which eliminates the virtual switch layer, simplifying the network and improving performance. Direct Attach enables data center simplification by reducing network tiers from 4 or 5 tiers to just 3 or 2 tiers, depending on the size of the data center.

To further enhance data center operations, Summit X670 switches support XNV (ExtremeXOS Network Virtualization), which is natively supported in the ExtremeXOS operating system and is a licensable feature pack for Ridgeline, a network and service management application, sold separately. XNV provides insight, control and automation for virtualized data centers.

Summit X670 switches also support Priority-based Flow Control (PFC, or IEEE 802.1Qbb), which allows network traffic to be controlled independently based on Class of Service. PFC allows network traffic that requires lossless throughput to be prioritized, while other traffic types that do not require or perform better without PFC can continue as normal.

### Software Defined Networking (SDN)

ExtremeXOS implementations of OpenFlow APIs allow an external OpenFlow-based SDN controller to access and control the forwarding plane of ExtremeXOS network devices. ExtremeXOS-based switches offer a programming interface through OpenFlow to enable high degree of automation in provisioning network services for many upper layer business critical applications running the OpenFlow-based SDN controller.

Extreme XOS-based switches also allow for integration with the OpenStack open source cloud computing platform for public and private clouds through the Extreme Networks Quantum plugin. The plugin provides a scalable, automated, rich API-driven system that enables networking-as-a-service model managing data center interconnect solutions and large multi-tenant networks.

### Audio Video Bridging (AVB)

ExtremeXOS supports IEEE Audio Video Bridging (AVB) standards to enable reliable real-time audio and video transmissions over Ethernet, for high-definition and time-sensitive multimedia streams with assigned Quality of

Service (QoS). ExtremeXOS leverages AVB to identify and reserve network resources for A/V traffic streams and supports synchronous streaming capabilities to ensure reliable and high-quality A/V transmissions over Ethernet. AVB also enables time sensitive multimedia streams to be sent over the Ethernet network with low latency and provides service quality for high definition information and entertainment applications.

### DCB Support with Enterprise Core Class Scalability

The Summit X670 series supports Data Center Bridging features such as Priority Flow Control (PFC), Enhanced Transmission Selection (ETS) and Data Center Bridging eXchange (DCBX) for data center convergence. At the same time, the Summit X670 series offers more cost-effective 10 Gigabit Ethernet switches, for both small-sized core backbone and traditional three-tier network architectures. Summit X670 series can support 10 Gigabit Ethernet campus aggregation with its core class routing and switching scalability. The Summit X670 series can support up to 16,000 IPv6 longest prefix matching routing tables, 6,000 IP ARP entries and 3,000 IP multicast group entries.

### One Operating System

Extreme Networks simplifies network operation by offering one common OS – ExtremeXOS – throughout the BlackDiamond and Summit switching portfolio. From 10/100 Mbps switching products such as Summit X150 and Summit X250e to the multi-10 gigabit core backbone BlackDiamond modular chassis switches, all switches can run the same version of the OS, which helps deploy, operate and maintain your entire network and reduce operating costs.

### 10 Gigabit Ethernet SFP+

The Summit X670 series supports SFP+ optics, which can support passive copper cable for up to 10 meters for Summit X670V and up to 3 meters for Summit X670. The switches also support fiber-optical cable installation with SFP+ transceivers. Summit X670 SFP+ ports support dual interface speeds of Gigabit Ethernet and 10 GbE. SFP+ ports can accept both gigabit SFP and 10 gigabit SFP, and depending upon the pluggable optics you choose, SFP+ ports can work in both modes.

### 40 Gigabit Ethernet QSFP+

The Summit X670V model provides a VIM4 slot for the optional VIM4-40G4X module. The VIM4-40G4X module supports four QSFP+ optics, and supports up to four ports of 40 GbE. 40 GbE QSFP+ ports can accept QSFP+ passive and active cables, as well as QSFP+ transceivers. Each 40 GbE port can be configured as a 40 GbE port or as four 10 GbE ports.

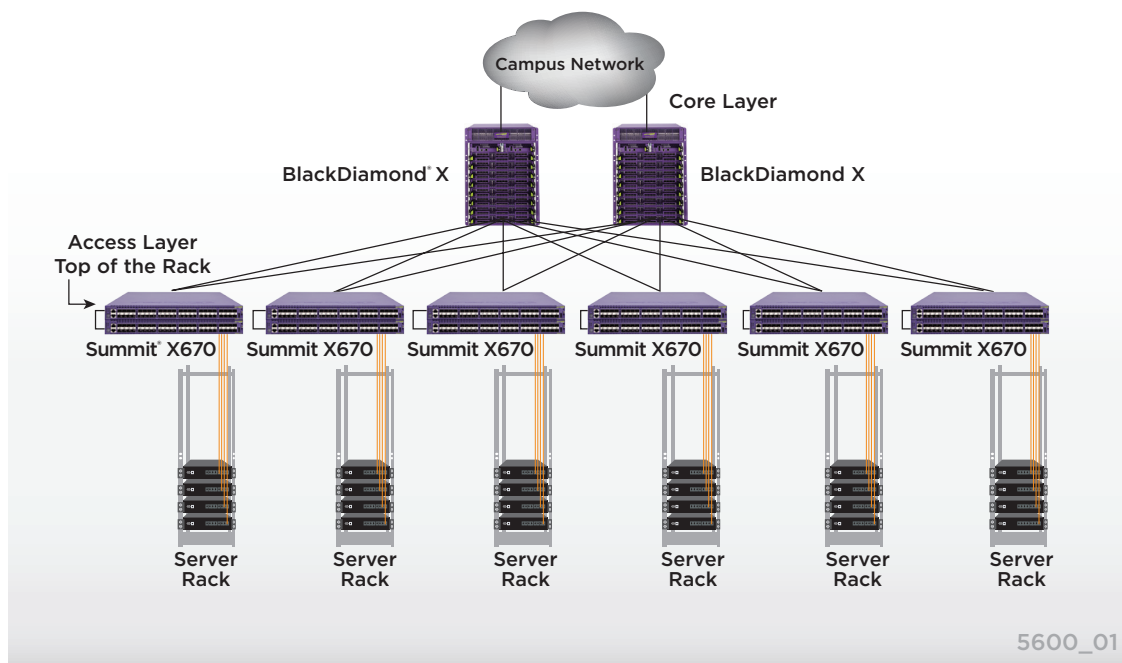


Figure 1: Top of Rack Switch for Servers in the Enterprise Data Center

## Low Power Consumption with Optimized Cooling Options

The Summit X670 series consumes very low power and provides optimized cooling options. Most servers installed in a standard 19-inch rack system flow air from front to back to maximize cooling performance. Compared to side-to-side air flow, front-to-back air flow provides more effective cooling throughout the rack system in the data center. The Summit X670 series has 2+1 hot swappable fan tray offering effective front-to-back air flow, or back-to-front air flow. Back-to-front air flow allows placement of 10 Gigabit Ethernet SFP+ ports in the back side of the rack and reduces distance between switches and servers for 10GBASE-CR SFP+ passive copper cable installations.

## Modular Operating System for Non-Stop Operation

### Preemptive Multitasking and Protected Memory

Summit X670 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 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.

## Loadable Software Modules

The modular design of the ExtremeXOS OS allows the upgrading of individual software modules, should this be necessary, leading to higher availability in the network.

## High Availability Network Protocols

### Ethernet Automatic Protection Switching (EAPS)

EAPS allows the IP network to provide the level of resiliency and uptime that users expect from their traditional voice network. EAPS is more adaptable than Spanning Tree or Rapid Spanning Tree protocols and offers sub-second (less than 50 milliseconds) recovery that delivers consistent failover regardless of the number of VLANs, network nodes or network topology. Since EAPS allows the network to recover almost transparently, Voice-over-IP (VoIP) calls will not drop and digital video feeds will not freeze or pixelize in most situations.

### Spanning Tree/Rapid Spanning Tree Protocols

Summit X670 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-Enhanced Availability

Software-enhanced availability allows users to remain connected to the network even if part of the network infrastructure is down. Summit X670 continuously checks for problems in the uplink 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.

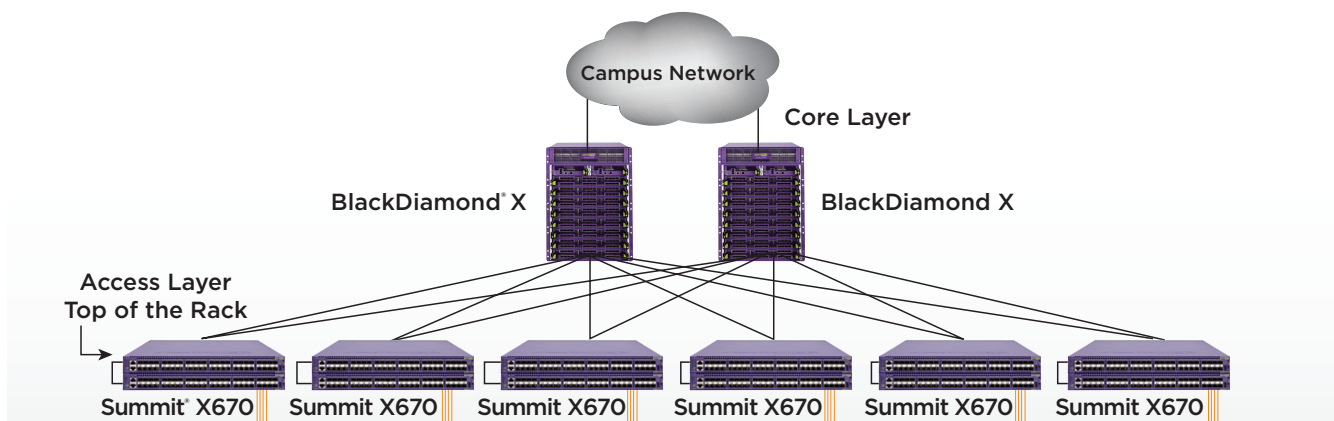


Figure 2: Summit X670 High Speed Uplink Option

## Equal Cost Multipath

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

## Link Aggregation (802.3ad)

Link aggregation allows trunking of up to 32 links on a single switch and up to 64 links in a SummitStack.

## Multi-Switch LAG (M-LAG)

M-LAG 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

Summit X670 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. Summit X670 also supports N+1 redundant hot-swappable fan trays.

## Robust IP / 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

ExtremeXOS IP security framework helps protect the network infrastructure, network services such as DHCP and DNS and host computers from spoofing and man-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.

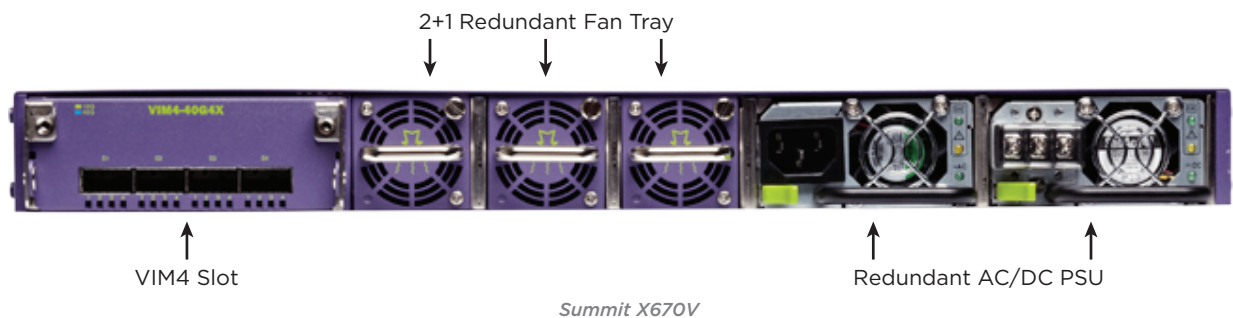
## Threat Detection and Response

### 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

Summit X670 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, Summit X670 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. Summit X670 series supports up to 2,048 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

Summit X670 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. Summit X670 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, Summit X670 series switches provide ease of management for demanding converged applications.

Extreme Networks has developed tools that simplify and help in efficiently managing your network. Ridgeline network and service management provides fault, configuration, accounting, performance and security functions, allowing more effective management of Extreme Networks products, solutions and third-party devices in a converged network.

## Supported Protocols and Standards

A list of supported protocols and standards is available on the Extreme Networks website at: <http://www.extremenetworks.com/product/extremexos-network-operating-system/>

# Technical Specifications

## Summit X670 Series

General Specifications
<b>Quality of Service and Policies</b>
1280 Gbps switch bandwidth, 952 Mpps forwarding rate (Summit X670V-48x with VIM4-40G4X)
960 Gbps switch bandwidth, 714 Mpps forwarding rate (Summit X670-48x)
9216 Byte maximum packet size (Jumbo Frame)
Store-and-Forward and Cut-Through switching support
Less than 1 micro second latency (64-byte packet)
128 load sharing trunks, up to 32 members per trunk
4,094 VLANs (Port, Protocol, IEEE 802.1Q)
2,048 ingress and 1,024 egress ACL rules per switch
<b>Forwarding Tables</b>
Layer 2/MAC Addresses: 128K
IPv4 Host Addresses: 6K
IPv4 LPM Entries: 16K
IPv6 Host Addresses: 3K
IPv6 LPM Entries: 8K

<b>CPU, Memory</b>
64-bit MIPS Processor, 1GHz clock
1GB ECC SDRAM
1GB Compact Flash
<b>QoS, Rate Limiting</b>
2,048 ingress bandwidth 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 - 1Mbps
<b>LED Indicators</b>
Per port status LED including power status
System Status LEDs: management, fan and power
Motion Detection LED
<b>External Ports</b>
48 port 10GBASE-X SFP+ (1G/10G dual speed)
One RJ-45 RS-232c Serial port (control port)
One 10/100/1000BASE-T out-of-band management port

<b>External Ports with VIM4-40G4X (Summit X670V-48x only)</b>
48 port 10GBASE-X SFP+ (1G/10G dual speed)
4 port 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
<b>Power Supply Support</b>
Summit 450W AC PSU
Summit 450W DC PSU
<b>Physical Specifications</b>
<b>Summit X670</b>
Height: 1.73 Inches/4.4 cm
Width: 17.4 Inches/44.1 cm
Depth: 19.25 Inches/48.9 cm
Weight: 16.0 lbs/7.3 kg (Summit X670V-48x: w/o PSU, VIM4-40G4X) 15.3 lbs/7.0 kg (Summit X670-48x: w/o PSU)
<b>VIM4-40G4X</b>
Height: 1.6 Inches/4.1 cm
Width: 4.1 Inches/10.3 cm
Depth: 6.5 Inches/16.6 cm
Weight: 0.99 lbs/0.45 kg
<b>Summit X670 Fan Module</b>
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
<b>Operating Specifications</b>
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: 3-500 MHz @ 1.5g rms
Storage & Transportation Conditions (Packaged)
Transportation Temperature: -40° C to 70° C (-40° F to 158° F)
<b>Storage Transportation Humidity: 10%-95% RH, non-condensing</b>
Packaged Shock (Half Sine): 180 m/s <sup>2</sup> (18 g), 6ms, 600 shocks
Packaged Sine Vibration: 5-62 Hz @ Velocity 5mm/s, 62-500 Hz @ 0.2G
Packaged Random Vibration: 5-20 Hz @ 1.0 ASD w/-3dB/oct. from 20-200 Hz
14 drops min on sides & corners @ 42" (<15 kg box)
<b>Acoustic Noise</b>
Summit X670-48x (FB): 54.3 dB(A) – 69.6dB(A)
Summit X670V-48x (FB): 56.6 dB(A) – 68.8dB(A)
<b>Regulatory/Safety</b>
<b>North American Safety of ITE</b>
UL 60950-1 1st Ed., Listed Device (U.S.)
CSA 22.2#60950-1-03 1st Ed. (Canada)
Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
CDRH Letter of Approval (U.S. FDA Approval)
<b>European Safety of ITE</b>
EN60950-1:2006
EN 60825-1+A2:2001 (Lasers Safety)

TUV-R GS Mark by German Notified Body
2006/95/EC Low Voltage Directive
<b>International Safety of ITE</b>
CB Report & Certificate per IEC 60950-1:2006 + National Differences
AS/NZS 60950-1 (Australia/New Zealand)

<b>EMI/EMC Standards</b>
<b>North America EMC for ITE</b>
FCC CFR 47 part 15 Class A (U.S.A.)
ICES-003 Class A (Canada)
<b>European EMC Standards</b>
EN 55022:2006 Class A
EN 55024:A2-2003 Class A includes IEC 61000-4-2, 3, 4, 5, 6, 11
EN 61000-3-2-8-2006 (Harmonics)
EN 61000-3-3 1995+A2:2005 (Flicker)
ETSI EN 300 386 v1.3.3, 2005-04 (EMC Telecommunications)
2004/108/EC EMC Directive
<b>International EMC Certifications</b>
CISPR 22: 2006 Ed 5.2, Class A (International Emissions)
CISPR 24:A2:2003 Class A (International Immunity)
EC/EN 61000-4-2:2001 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria A
EC/EN 61000-4-3:2006 Radiated Immunity 10V/m, Criteria A
EC/EN 61000-4-4:2005 Transient Burst, 1 kV, Criteria A
IEC/EN 61000-4-5:2005 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria A
IEC/EN 61000-4-6:2005 Conducted Immunity, 0.15-80 MHz, 10V/m unmod. RMS, Criteria A
EC/EN 61000-4-11:2004 Power Dips & Interruptions, >30%, 25 periods, Criteria C
<b>COUNTRY SPECIFIC</b>
VCCI Class A (Japan Emissions)
ACMA (C-Tick) (Australia Emissions)
CCC Mark
KCC Mark EMC Approval (Korea)
<b>Telecom Standards</b>
EN/ETSI 300 386:2001 (EMC Telecommunications)
EN/ETSI 300 019 (Environmental for Telecommunications)
MEF9 and MEF14 certified for EPL, EVPL and ELAN
NEBS Level 3 compliant to portions of GR-1089 Issue 4 & GR-63 Issue 3 as defined in SR3580 with exception to filter requirement
<b>IEEE 802.3 Media Access Standards</b>
IEEE 802.3ab 1000BASE-T
IEEE 802.3z 1000BASE-X
IEEE 802.3ae 10GBASE-X
IEEE 802.3ba 40GBASE-X
<b>Environmental Standards</b>
EN/ETSI 300 019-2-1 v2.1.2 (2000-09) – Class 1.2 Storage
EN/ETSI 300 019-2-2 v2.1.2 (1999-09) – Class 2.3 Transportation
EN/ETSI 300 019-2-3 v2.1.2 (2003-04) – Class 3.1e Operational
EN/ETSI 300 753 (1997-10) – Acoustic Noise
ASTM D3580 Random Vibration Unpackaged 1.5G

Warranty
Ltd. 1-year on Hardware
90-days on Software
For warranty details, visit <a href="http://www.extremenetworks.com/go/warranty">www.extremenetworks.com/go/warranty</a>

## Power

Measured power consumption with direct attach passive copper cables.

	PSU Type	100% Traffic	30% Traffic
Summit X670-48x	AC	107W	99W
	DC	101W	93W
Summit X670V-48x	AC	170W	162W
	DC	159W	150W
Summit X670V-48x with VIM4-40G4X	AC	199W	190W
	DC	190W	181W

Summit 450W AC PSU
<b>Physical Specifications</b>
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)
<b>Power Specifications</b>
Voltage input range 90 to 264 V
Nominal input ratings 100 to 240 V, 50 to 60 Hz, 8 A
Nominal input current at full loads 12 A @ 90 V (low-line) 5 A @ 230 V (high-line)
Line frequency range 47 to 63 Hz
Maximum inrush current 15 A
Output 12 V, 37 A max, 450 Watts 3.3 V, 3 A max, 9.9 Watts
Maximum continuous DC output shall not exceed 450 Watts
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
Summit 450W DC PSU
<b>Physical Specifications</b>
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)
<b>Power Specifications</b>
Nominal Input -48 to -60 VDC, 24 A
DC Voltage Input Range -35 to -75 V
Inrush Current 21A peak
Minimum wire size 14 AWG (1.5 mm <sup>2</sup> ) copper stranded
DC Output 12 V , 37 A/3.3 V, 3 A
DC Output Power (W) 450 W

Power: Summit X670V-48x
<b>[AC PSU]</b>
Nominal Input Ratings: 100 – 240V, 50/60Hz, 3.75A
Input Current: 3.0A @ 100V- (lowline) 1.2A @ 240V- (highline)
Power Consumption: 300W (1,024 BTU/h)
<b>[DC PSU]</b>
Nominal Input Ratings: 48 – 60V, 7.5A
Input Current: 5.75A @ 48V- (lowline) 4.6A @ 60V- (highline)
Heat Dissipation: 280W (956 BTH/h)
Power Consumption: 280W (956 BTH/h)
Power: Summit X670V-48x with VIM4-40G4X
<b>[AC PSU]</b>
Nominal Input Ratings: 100 – 240V-, 50/60Hz, 3.75A
Input Current: 3.4A @ 100V- (lowline) 1.4A @ 240V- (highline)
Heat Dissipation: 340W (1161 BTU/h)
Power Consumption: 340W (1161 BTU/h)
<b>[DC PSU]</b>
Nominal Input Ratings: 48 – 60V, 7.5A
Input Current: 6.85A @ 48V- (lowline) 5.45A @ 60V- (highline)
Heat Dissipation: 330W (1126 BTH/h)
Power Consumption: 330W (1126 BTH/h)
Power: Summit X670-48x
<b>[AC PSU]</b>
Nominal Input Ratings: 100 – 240V-, 50/60Hz, 2.5A
Input Current: 2.25A @ 100V- (lowline) 0.9A @ 240V- (highline)
Heat Dissipation: 225W (768 BTU/h)
Power Consumption: 225W (768 BTU/h)
<b>[DC PSU]</b>
Nominal Input Ratings: 48 – 60V, 5A
Input Current: 4.25A @ 48V- (lowline) 3.35A @ 60V- (highline)
Heat Dissipation: 210W (717 BTH/h)
Power Consumption: 210W (717 BTH/h)



<b>Summit 550W AC PSU</b>	
<b>Physical Specifications</b>	
Height:	1.5 inches (3.8 cm)
Width:	3.1 inches (7.8 cm)
Depth:	13.31 Inches (33.8 cm)
Weight	3.64 lb (1.65 kg)
<b>Power Specifications</b>	
Voltage input range	90 to 264 V
Nominal input ratings	100 to 240 V, 50 to 60 Hz, 8 A
Nominal input current at full loads	8 A @ 90 V (low-line) 4 A @ 230 V (high-line)
Line frequency range	47 to 63 Hz
Maximum inrush current	15 A
Output	12 V, 45 A max, 540 Watts 3 V, 3 A max, 10 Watts
Maximum continuous DC output shall not exceed	450 Watts
Power supply input socket	IEC 320 C14
Power cord input plug	IEC 320 C14
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
<b>Summit 550W DC PSU</b>	
<b>Physical Specifications</b>	
Height:	1.5 inches (3.8 cm)
Width:	3.1 inches (7.8 cm)
Depth:	13.3 Inches (33.8 cm)
Weight	3.22 lb (1.46 kg)
<b>Power Specifications</b>	
Nominal Input	-48 to -60 VDC, 18 A
DC Voltage Input Range	-35 to -75 V
Inrush Current	25A peak
Minimum wire size	14 AWG (1.5 mm <sup>2</sup> ) copper stranded
DC Output	12 V, 37 A/3.3 V, 3 A
DC Output Power (W)	550 W

## Ordering Information

Part Number	Description
17101	Summit X670V-48x-FB
17102	Summit X670V-48x-BF
17103	Summit X670-48x-FB
17104	Summit X670-48x-BF
17131	Summit X670 Series Core License
17133	Summit X670 MPLS Feature Pack
11011	Direct Attach Feature Pack
17134	ExtremeXOS SDN - OpenFlow Feature Pack for Summit X670 series switches
17135	ExtremeXOS Audio Video Bridging Feature Pack for Summit X670 series switches
16499	Summit X670 -3rd Party Optics Feature Pack (for 40Gb QSFP+)
17122	VIM4-40G4X, 4 40GBASE-X QSFP+ ports module for Summit X670V
10917	450W AC Power Supply module for Summit switches, Front-to-Back airflow
10918	450W DC Power Supply module for Summit switches, Front-to-Back airflow
10925	550W AC Power Supply module for Summit switches, Front-to-Back airflow

Part Number	Description
10926	550W DC Power Supply module for Summit switches, Front-to-Back airflow
10927	550W AC Power Supply module for Summit switches, Back-to-Front airflow
10928	550W DC Power Supply module for Summit switches, Back-to-Front airflow
17111	Fan module for Summit X670 series switches, Front-to-Back airflow, spare
17112	Fan module for Summit X670 series switches, Back-to-Front airflow, spare
10051H	1000BASE-SX SFP, LC Connector, Hi Temp
10052H	1000BASE-LX SFP, LC Connector, Hi Temp
10053H	1000BASE-ZX SFP, Extra Long Distance SMF 70 km/21 dB Budget, LC Connector, Hi Temp
10065 <sup>1,3</sup>	10/100/1000BASE-T SFP module, Category 5 cable 100m link, RJ45-Connector
10070H <sup>3</sup>	10/100/1000BASE-T SFP module, CAT5 cable 100m link, RJ45-connector, Industrial Temp
10301	10GBASE-SR SFP+, 850nm, LC Connector, transmission length of up to 300m on MMF
10302	10GBASE-LR SFP+, 1310nm, LC Connector, transmission length of up to 10km on SMF
10309	10GBASE-ER SFP+, 1550nm, LC Connector, transmission length of up to 40km on SMF
10310	10GBASE-ZR SFP+, 1550nm, LC connector, transmission length up to 80km on SMF
10303 <sup>2</sup>	10GBASE-LRM SFP+, 1310nm, LC Connector, transmission length of up to 220m on Legacy MMF
10304	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 1m
10305	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 3m
10306	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 5m
10307 <sup>2</sup>	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 10m
10311	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 0.5m length
10312	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 1m length
10313	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 3m length
10323	40 Gigabit Ethernet QSFP+ passive copper cable assembly, 5m length
10315	40 Gigabit Ethernet QSFP+ active optical cable assembly, 10m length
10316	40 Gigabit Ethernet QSFP+ active optical cable assembly, 20m length
10318	40 Gigabit Ethernet QSFP+ active optical cable assembly, 100m length
10202	QSFP+ - 4xSFP+ fanout direct attach passive copper cable, 1m
10203	QSFP+ - 4xSFP+ fanout direct attach passive copper cable, 2m
10321	QSFP+ - 4xSFP+ fanout direct attach passive copper cable, 3m
10322	QSFP+ - 4xSFP+ fanout direct attach passive copper cable, 5m
10319	40 Gigabit Ethernet QSFP+ SR4 optical module, MPO connector, 100m link length
10320	40 Gigabit Ethernet QSFP+ LR4 optical module. LC connectors, 10km SMF link length
10326	40Gb Ethernet QSFP+ Parallel single mode (PSM), MPO connector, 10km SMF link length
10327	MPO to 4 x LC duplex connectors, SMF fanout patch cord, 10m (for use with 10326 and 10Gb breakout)
9380014-5M	MPO parallel fiber to 4 x LC duplex, OM3 MM fanout patch cord, 5m (for use with 10319 and 10Gb breakout)

#### Power Cords

In support of the Extreme Networks Green initiatives, power cords can be ordered separately but need to be specified at the time order. Please refer to [www.extremenetworks.com/product/powercords/](http://www.extremenetworks.com/product/powercords/) for details on power cord availability for this product..

<sup>1</sup> Not supported on X670V-48x (PN 17101, 17102)

<sup>2</sup> Not supported on X670-48x (PN 17103, 17104)

<sup>3</sup> 1Gb only supported

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



<http://www.extremenetworks.com/contact> / Phone +1-408-579-2800

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