Summit X350 Series

Summit® X350 series 24- or 48-port 10/100/1000 Gigabit Ethernet stand-alone switches deliver high performance in a simple enterprise edge solution with the revolutionary ExtremeXOS® modular operating system.

Rapid Network Deployment

- High density gigabit ports with optional 10 gigabit uplinks
- Single streamlined operating system across the entire enterprise network
- ExtremeXOS operating system provides scripting capability to automate network configuration
- LLDP/LLDP-MED to provide device management
- Comprehensive network management through consistent ExtremeXOS CLI, SNMP, Web-based management and XML interface

Voice-Class Availability

- Modular ExtremeXOS operating system
- Ethernet Automatic Protection Switching (EAPS) resiliency protocol
- Quality of Service (QoS) with advanced traffic management capabilities for converged applications
- Redundant Power Supply to keep the network up even under power anomaly

Comprehensive Security

- Multiple network edge authentication support with multiple endpoints per port
- Extensive MAC and IP security functionality to help prevent man-in-the-middle attacks
- Identity Manager allows network managers to track users who access their network

The Summit X350 series switch is a Gigabit Ethernet value edge switch with the ExtremeXOS modular operating system at an affordable price.

Summit X350 series switches are based on the revolutionary ExtremeXOS core-class operating system from Extreme Networks®. ExtremeXOS modular operating system is highly resilient and helps provide continuous uptime, manageability and operational efficiency. Summit X350 provides customers with a consistent ExtremeXOS experience at an affordable price and is best suited in a network edge application where simple network deployment is required.

Summit X350 provides high availability and performance with its advanced traffic management capabilities.

The flexible Summit X350 switch provides high-density Gigabit Ethernet ports plus a slot for an XGM2 dual 10 gigabit option module in a compact 1RU format, supporting intelligent Layer 2 switching with Layer 2 – Layer 4 traffic classification and QoS on every port for high productivity. Optional redundant power supplies are available for each switch to help secure against power anomalies.

Target Applications

- Edge switch providing basic 10/100/1000BASE-T connectivity to the desktop in a network running the ExtremeXOS operating system from edge to core

Ease of Management Supporting Rapid Network Deployment

Summit X350 switches running ExtremeXOS provide a consistent network operation across the network. Summit X350 provides a variety of methods in configuring and managing the switch for ease of management and for rapid network deployment.

High Density Gigabit Ports with Optional 10 Gigabit Uplinks

Summit X350 provides ideal performance and functionality for the gigabit to the desktop application. It eliminates the need to funnel traffic through a low bandwidth gigabit trunk by providing non-blocking 10 gigabit links to the core. As an option module, the Summit X350 switch provides a variety of choices for 10 Gigabit Ethernet uplinks: dual port 10GBASE-T for UTP connectivity, dual port SFP+ for fiber and passive copper connectivity, dual port XFP and dual port XENPAK (see chart on the accessories page).

Single Streamlined Operating System in the Entire Enterprise Network

Extreme Networks offers an ExtremeXOS based Ethernet switching platform from edge, to aggregation, to core of the enterprise network. Having one operating system can help simplify network deployment and operation, as well as ongoing maintenance, to reduce the total cost of ownership. Summit X350 running ExtremeXOS provides a consistent experience among other switches such as the BlackDiamond® modular chassis and provides an excellent user experience from edge to core of the network.

Network Configuration Automation

ExtremeXOS provides an extensible scripting capability that allows users to create a customized series of commands and executables. Scripting can be used to add incremental configuration to the network infrastructure, such as a list of VLANs to be configured. This capability eases the rollout of networks and reduces configuration errors. For example, using the scripting capabilities of system- and user-defined environment variables and constructs, such as if/then and loops, allows automating regular management tasks and deployment configurations of QoS rate limiting and Access Control Lists (ACLs) to multiple ports or multiple switches.

Link Layer Discovery Protocol (LLDP) and LLDP-Media Endpoint Discovery (LLDP-MED)

ExtremeXOS supports IEEE 802.1ab standards-based discovery protocol and provides vendor-independent device discovery.

LLDP not only simplifies deployment and location of access devices, but can also be used as a troubleshooting and firmware management tool. LLDP is an extensible standard, providing a framework for industry consortiums to define application-specific extensions without causing compatibility issues. The ANSI/TIA-1057 LLDP-Media Endpoint Discovery (LLDP-MED) standard defines extensions specifically for VoIP. These extensions provide VoIP-specific information as well as allow transmission of configuration and location information to VoIP phones.

Efficient Management to Handle Convergence-Driven Network Changes

Voice Grade Connections

Granular QoS, low latency and low jitter provide voice-quality connections. Summit X350 supports a range of QoS technologies that can prioritize and predictably handle high priority traffic policing or rate limiting on ingress, 802.1Q tagging and Diffserv marking, and shaping on egress with eight queues per port. The Extreme Networks tradition of building products with low latency and jitter continues with the Summit X350 series.

Comprehensive Network Management

As the network becomes a foundation of the enterprise application, network management becomes an important piece of the solution. Summit X350 supports comprehensive network management through Command Line Interface (CLI), SNMP v1, v2c, v3 and the embedded XML-based Web User Interface, ExtremeXOS ScreenPlay™. With a variety of management options and consistency across other Extreme Networks modular and fixed configuration switches, Summit X350 series switches provide ease of management for demanding converged applications.

Extreme Networks has developed tools that help save you time and resources in managing your network. EPICenter® management platform provides fault, configuration, accounting, performance and security functions, allowing more effective management of Extreme Networks multilayer switching equipment in a converged network.

Voice-Class Availability

Powered by the ExtremeXOS operating system, the Summit X350 switch supports process recovery and application upgrades without the need for a system reboot. Summit X350 offers the high network availability required for converged applications.

Modular Operating System to Help Maximize Uptime

Preemptive Multitasking and Protected Memory

Summit X350 switches allow each of many applications—such as Spanning Tree Protocol (STP)—to run as separate operating system processes that are protected from each other. This drives increased system integrity and helps protect against Denial of Service (DoS) attacks.

Process Monitoring and Restart

The ExtremeXOS operating system improves network availability using process monitoring and restart. Each independent operating system 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 ExtremeXOS allows the upgrading of individual software modules, should this be necessary, leading to higher availability in the network (see Figure 1).

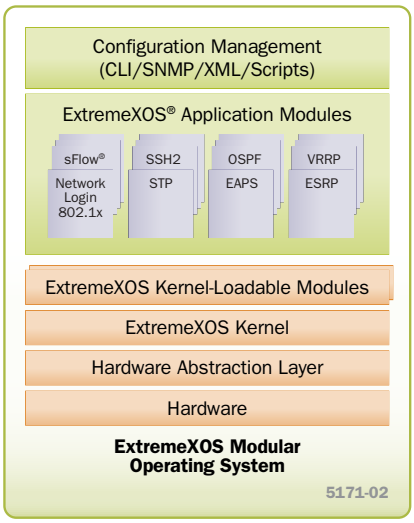


Figure 1: ExtremeXOS Modular Design

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 differs from Spanning Tree and Rapid Spanning Tree protocols, offering sub-second (less than 50 milliseconds) recovery that helps deliver consistent failover regardless of the number of VLANs, network nodes or network topology. Since EAPS allows the network to recover almost transparently, VoIP calls will not drop and digital video feeds will not freeze or pixelize in most situations.

Spanning Tree/Rapid Spanning Tree Protocols

Summit X350 switches support 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.

Link Aggregation (802.3ad)

Link aggregation allows trunking of up to eight links on a single logical connection, for up to 20 Gbps (10Gbps x 2) of redundant bandwidth per logical connection.

Exceptional Policy-based QoS with Advanced Traffic Management for Converged Applications

Summit X350 provides eight hardware queues per port to support granular traffic classification with bandwidth allocation. The 1,024 centralized classifiers per 24-port block can use information from Layers 1 through 4 to prioritize and meter incoming packets at line-rate. When metering traffic, the switch can drop out-of-spec traffic or flag it for later action. To expedite upstream traffic handling, a packet's classification can be carried forward with Layer 2 (802.1p) and Layer 3 (Diffserv) markings. Summit X350 switches provide advanced traffic management features that support the high-quality triple play of voice, video and data services.

Redundant Power Supplies

Summit X350 switches are designed with an external redundant power supply that offers a convenient and easy-to-upgrade in-field option to protect against power anomalies.

Comprehensive Security Management

Implementing a secure network means providing protection at the network perimeter as well as the core. Working together with the Sentriant® family of products from Extreme Networks, Summit X350 series switches use advanced security functions to help protect your network from known or potential threats. Security offerings from Extreme Networks encompass three key areas: user and host integrity, threat detection and response, and hardened network infrastructure.

User Authentication and Host Integrity Checking

Network Login

Network Login capability enforces user admission and usage policies. Summit X350 series switches support a comprehensive range of Network Login options by providing an 802.1x agent-based approach, a Web-based (agent-less) login capability for guests, and a MAC-based authentication model for devices. With these modes of Network Login, only authorized users and devices are permitted to connect to the network and be assigned to the appropriate VLAN.

Multiple Supplicant Support

Shared ports represent a potential vulnerability in a network. Multiple supplicant capability on a switch allows it to uniquely authenticate and apply the appropriate policies and VLANs for each user or device on a shared port.

Multiple supplicant support helps secure IP Telephony and wireless access. Converged network designs often involve the use of shared ports (see Figure 2).

Host Integrity Checking

Host integrity checking helps keep infected or noncompliant machines off the network. Summit X350 series switches support a host integrity or endpoint integrity solution that is based on the model from the Trusted Computing Group. Summit X350 interfaces with Sentriant AG200 endpoint security appliance from Extreme Networks to verify that each endpoint meets the security policies that have been set, and to quarantine those that are not in compliance.

Extensive MAC and IP Security Functionality

Media Access Control (MAC) Security

MAC security allows the lockdown of a port to a given MAC address and limiting the number of MAC addresses on a port. MAC security 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 helps protect 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 Manager

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.

Network Intrusion Detection and Response

Hardware-Based sFlow Sampling

sFlow® is a sampling technology that provides the ability to continuously monitor application-level traffic flows on all interfaces simultaneously. The sFlow agent is a software process that runs on Summit X350 switches and packages data into sFlow datagrams that are sent over the network to an sFlow collector. The collector gives an up-to-the minute view of traffic across the entire network, providing the ability to troubleshoot network problems, control congestion and detect network security threats.

Port Mirroring

To allow threat detection and prevention, Summit X350 switches support 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.

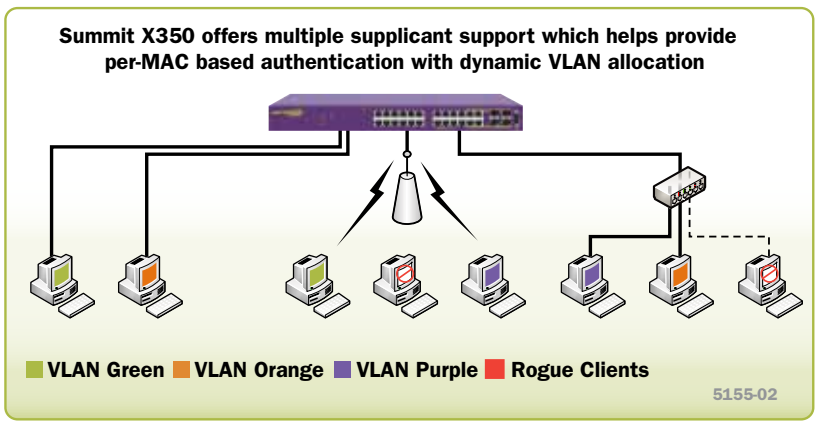


Figure 2: Multiple Supplicant Support

Comprehensive Security Management (continued)

Line-Rate ACLs

ACLs are one of the most powerful components used in controlling network resource utilization as well as protecting the network. Summit X350 switches support 1,024 centralized ACLs per 24-port block based on Layer 2, 3, or 4 header information such as the MAC, IPv4 and IPv6 address or TCP/UDP port. 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 X350 can effectively handle DoS attacks. If the switch detects an unusually large number of packets in the CPU input queue, it will assemble 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.

Secure Management

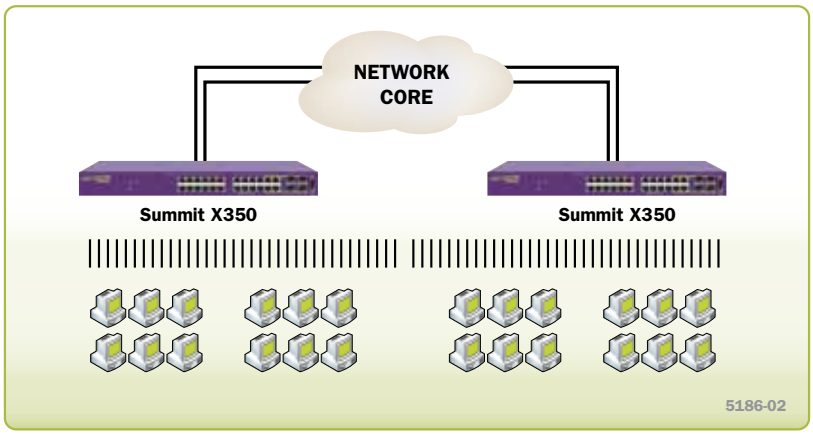
To prevent management data from being intercepted or altered by unauthorized access, Summit X350 supports SSH2, SCP and SNMPv3 protocols.

Target Application

Edge Connectivity for Advanced Applications

- Edge switch providing intelligent 10/100/1000BASE-T connectivity to the desktop in a network running ExtremeXOS from the core to the edge

Summit X350 is deployed as an intelligent Gigabit Ethernet edge switch, extending the benefits of the ExtremeXOS operating system to the network edge. This uniformity allows consistent quality and performance throughout your converged network while minimizing operational inefficiencies.



Technical Specifications

ExtremeXOS 12.5 Supported Protocols

Switching

- RFC 3619 Ethernet Automatic Protection Switching (EAPS) and EAPSv2
- IEEE 802.1D – 1998 Spanning Tree Protocol (STP)
- IEEE 802.1D – 2004 Spanning Tree Protocol (STP and RSTP)
- IEEE 802.1w – 2001 Rapid Reconfiguration for STP, RSTP
- IEEE 802.1Q – 2003 (formerly IEEE 802.1s) Multiple Instances of STP, MSTP
- EMISTP, Extreme Multiple Instances of Spanning Tree Protocol
- PVST+, Per VLAN STP (802.1Q interoperable)
- Draft-ietf-bridge-rstpmib-03.txt – Definitions of Managed Objects for Bridges with Rapid Spanning Tree Protocol
- Extreme Standby Router Protocol™ (ESRP)
- IEEE 802.1Q – 1998 Virtual Bridged Local Area Networks
- IEEE 802.3ad Static load sharing configuration and LACP based dynamic configuration
- Software Redundant Ports
- IEEE 802.1AB – LLDP Link Layer Discovery Protocol
- LLDP Media Endpoint Discovery (LLDP-MED), ANSI/TIA-1057, draft 08
- Extreme Discovery Protocol (EDP)
- Extreme Loop Recovery Protocol (ELRP)
- Extreme Link State Monitoring (ELSM)
- IEEE 802.1ag L2 Ping and traceroute, Connectivity Fault Management
- ITU-T Y.1731 Frame delay measurements

Management and Traffic Analysis

- RFC 2030 SNTP, Simple Network Time Protocol v4
- RFC 854 Telnet client and server
- RFC 783 TFTP Protocol (revision 2)
- RFC 951, 1542 BootP
- RFC 2131 BOOTP/DHCP relay agent and DHCP server
- RFC 1591 DNS (client operation)
- RFC 1155 Structure of Management Information (SMIv1)
- RFC 1157 SNMPv1
- RFC 1212, RFC 1213, RFC 1215 MIB-II, Ethernet-Like MIB & TRAPs
- RFC 1573 Evolution of Interface
- RFC 1650 Ethernet-Like MIB (update of RFC 1213 for SNMPv2)
- RFC 1901, 1905 – 1908 SNMP v2c, SMIv2 and Revised MIB-II
- RFC 2576 Coexistence between SNMP Version 1, Version 2 and Version 3
- RFC 2578 – 2580 SMIv2 (update to RFC 1902 – 1903)
- RFC 3410 – 3415 SNMPv3, user based security, encryption and authentication
- RFC 3826 – The Advanced Encryption Standard (AES) Cipher Algorithm in the SNMP User-based Security Model
- RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
- RFC 2021 RMON2 (probe configuration)
- RFC 2613 SMON MIB
- RFC 2925 Ping/Traceroute MIB
- RFC 2668 802.3 MAU MIB
- draft-ietf-hubmib-mau-mib-v3-02.txt
- RFC 1643 Ethernet MIB
- RFC 1493 Bridge MIB
- RFC 2096 IPv4 Forwarding Table MIB
- RFC 2737 Entity MIB v2
- RFC 2233 Interface MIB
- RFC 3621 PoE-MIB (PoE switches only)
- IEEE 802.1ag MIB
- Secure Shell (SSH-2) client and server
- Secure Copy (SCP-2) client and server
- Secure FTP (SFTP) server
- sFlow version 5
- Configuration logging
- Multiple Images, Multiple Configs
- RFC 3164 BSD Syslog Protocol with Multiple Syslog Servers
  - 999 Local Messages (criticals stored across reboots)
- Extreme Networks vendor MIBs (includes FDB, PoE, CPU, Memory MIBs)
- XML APIs over Telnet/SSH and HTTP/HTTPS
- Web-based device management interface – ExtremeXOS ScreenPlay
- IP Route Compression

Security, Switch and Network Protection

- Secure Shell (SSH-2), Secure Copy (SCP-2) and SFTP client/server with encryption/authentication (requires export controlled encryption module)
- SNMPv3 user based security, with encryption/authentication (see above)
- RFC 1492 TACACS+
- RFC 2138 RADIUS Authentication
- RFC 2139 RADIUS Accounting
- RFC 3579 RADIUS EAP support for 802.1x
- RADIUS Per-command Authentication
- Access Profiles on All Routing Protocols
- Access Policies for Telnet/SSH-2/SCP-2
- Network Login – 802.1x, Web and MAC-based mechanisms
- IEEE 802.1x – 2001 Port-Based Network Access Control for Network Login
- Multiple supplicants with multiple VLANs for Network Login (all modes)
- Fallback to local authentication database (MAC and Web-based methods)
- Guest VLAN for 802.1x
- RFC 1866 HTML – Used for Web-based Network Login and ExtremeXOS ScreenPlay
- SSL/TLS transport – used for Web-based Network Login and ExtremeXOS ScreenPlay (requires export controlled encryption module)
- MAC Security – Lockdown and Limit
- IP Security – RFC 3046 DHCP Option 82 with port and VLAN ID
- IP Security – Trusted DHCP Server
- Layer 2/3/4 Access Control Lists (ACLs)
- RFC 2267 Network Ingress Filtering
- RPF (Unicast Reverse Path Forwarding) Control via ACLs
- Wire-speed ACLs
- Rate Limiting/Shaping by ACLs
- IP Broadcast Forwarding Control
- ICMP and IP-Option Response Control
- SYN attack protection
- CPU DoS Protection with traffic rate-limiting to management CPU
- Robust against common network attacks:
  - CERT (http://www.cert.org)
  - CA-2003-04: “SQL Slammer”
  - CA-2002-36: “SSHredder”
  - CA-2002-03: SNMP vulnerabilities
  - CA-98-13: tcp-denial-of-service
  - CA-98.01: smurf
  - CA-97.28:Teardrop_Land -Teardrop and “LAND“ attack
  - CA-96.26: ping
  - CA-96.21: tcp_syn_flooding
  - CA-96.01: UDP_service_denial
  - CA-95.01: IP_Spoofing_Attacks_and_Hijacked_Terminal_Connections
  - IP Options Attack
- Host Attack Protection
  - Teardrop, boink, opentear, jolt2, newtear, nestea, syndrop, smurf, fraggle, papasmurf, synk4, raped, winfreeze, ping –f, ping of death, pepsi5, Latierra, Winnuke, Simping, Sping, Ascend, Stream, Land, Octopus

Security, Router Protection

- Identity Manager

IPv4 Host Services

- RFC 1122 Host Requirements
- RFC 768 UDP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 894 IP over Ethernet
- RFC 1027 Proxy ARP
- RFC 2068 HTTP server
- IGMP v1/v2/v3 Snooping with Configurable Router Registration Forwarding
- IGMP Filters
- PIM Snooping
- Static IGMP Membership
- Multicast VLAN Registration (MVR)

IPv4 Router Services

- Static Unicast Routes
- Static Multicast Routes
- RFC 1112 IGMP v1
- RFC 2236 IGMP v2
- RFC 3376 IGMP v3
- RFC 2933 IGMP MIB

IPv6 Host Services

- RFC 3587, Global Unicast Address Format
- Ping over IPv6 transport
- Traceroute over IPv6 transport

QoS and VLAN Services

Quality of Service and Policies

- Quality of Service and Policies
- IEEE 802.1D – 1998 (802.1p) Packet Priority
- RFC 2474 DiffServ Precedence, including 8 queues/port

Technical Specifications

- RFC 2598 DiffServ Expedited Forwarding (EF)
- RFC 2597 DiffServ Assured Forwarding (AF)
- RFC 2475 DiffServ Core and Edge Router Functions

Traffic Engineering
- RFC 3784 IS-IS Externs for Traffic Engineering (wide metrics only)

VLAN Services: VLANs, vMANs
- IEEE 802.1Q VLAN Tagging
- IEEE 802.1v: VLAN classification by Protocol and Port
- Port-based VLANs
- Protocol-based VLANs
- MAC-based VLANs
- Multiple STP domains per VLAN
- Upstream Forwarding Only/Disable Flooding
- RFC 5517 Private VLANs
- VLAN Translation
- IEEE 802.1ad Provider Bridge Network, virtual MANs (vMANs)
- vMAN Ethertype Translation/Secondary vMAN Ethertype
- Multicast Support for PVLAN
- Multicast Support for VLAN Aggregation

Summit X350-24t

General Specifications

Performance
- 88 Gbps switch fabric bandwidth
- 65.5 Mpps frame forwarding rate
- 9,216 Byte maximum packet size (Jumbo Frame)
- 13 load sharing trunks, up to 8 members per trunk
- 8 QoS queues/port
- 4,094 VLANs (Port, Protocol, IEEE 802.1Q)
- 1,024 centralized ACL rules per switch

Forwarding Tables
- Layer 2/MAC Addresses: 8K

Rate Limiting
- Ingress bandwidth policing/rate limiting per flow
- Egress bandwidth rate shaping per egress queue and per port
- Rate Limiting Granularity: 64Kbps
- Available Rate Limiters: 1,024 per switch

Indicators
- Per port status LED including power status
- System Status LEDs: management, fan and power

Ports
- 24 ports 10/100/1000BASE-T with auto-speed and auto-polarity
- 4 ports 1000BASE-X SFP (shared PHY with 4 10/100/1000BASE-T ports)
- 1 port Serial (control port)
- 1 10/100BASE-TX out-of-band management Port
- Per port status LED including power status
- Slot for XGM2 10 Gigabit Option Module

External Power Supply Support
- EPS-500

Physical Specifications

Dimensions
- Height: 1.73 Inches/4.4 Cm
- Width: 17.35 Inches/44.1 Cm
- Depth: 15.3 Inches/38.7 Cm
- Weight: 13.75 Lbs / 6.24 Kg

Operating Specifications

Temperature
- Operating Temperature Range: 0° C to 40° C (32° F to 104° F)
- Operating Humidity: 10% to 93% relative humidity, non-condensing
- Operational Shock (Half Sine): 30 m/s2 (3g), 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)
- Storage and Transportation Humidity: 10% to 95% RH, non-condensing
- Packaged Shock (Half Sine): 180 m/s2 (18g), 6ms, 600 shocks
- Packaged Sine Vibration: 5 – 62 Hz @ Velocity 5mm/s, 62 – 500 Hz @ 0.2 G
- Packaged Random Vibration: 5 – 20 Hz @ 1.0 ASD w/-3dB/oct. from 20 – 200 Hz
- 14 drops min on sides & corners @ 42” (<15kg box)

Power & Acoustic Sound
- Voltage Input Range: 90 – 264V
- Nominal Input Ratings: 100 – 240V, 50/60Hz, 1.0A
- Nominal Input Current: 0.75A @ 115V~ (lowline) 0.4A @ 230V~ (highline)
- Maximum In-Rush Current: 30A @115V; 60A@230V/60 Hz, Max Load
- Efficiency: 80% with 60% – 100% load
- Line Frequency Range: 47 – 63 Hz
- Nominal Frequency Range: 50 – 60 Hz
- Power Supply Input Socket: IEC 320 C14
- Power Cord Input Plug: IEC 320 C13
- Heat Dissipation: 75W (256 BTU/hr)
- Nominal Maximum Power Consumption: 75W (256 BTU/hr)
- Sound Power in accordance with EN 300 753 (10-1997)
- Sound Power: 48.7 dBA
- Declared Sound Power: 6.4 belsA per ISO 7779 & ISO 9296
- Bystander Sound Pressure in accordance with NEBS GR-63 Issue 2
- Bystander Sound Pressure: 38.9 dBA

Technical Specifications

Summit X350-48t

General Specifications

Performance
- 176 Gbps switch fabric bandwidth
- 101.2 Mpps frame forwarding rate
- 9,216 Byte maximum packet size (Jumbo Frame)
- 25 load sharing trunks, up to 8 members per trunk
- 8 QoS queues/port
- 4,094 VLANs (Port, Protocol, IEEE 802.1Q)
- 1,024 centralized ACL rules per 24-ports

Forwarding Tables
- Layer 2/MAC Addresses: 8K

Rate Limiting
- Ingress bandwidth policing/rate limiting per flow
- Egress bandwidth rate shaping per egress queue and per port
- Rate Limiting Granularity: 64Kbps
- Available Rate Limiters: 1,024 per 24-port

Indicators
- Per port status LED including power status
- System Status LEDs: management, fan and power

Ports
- 48 ports 10/100/1000BASE-T with auto-speed and auto-polarity
- 4 ports 1000BASE-X SFP (shared PHY with 4 10/100/1000BASE-T ports)
- 1 port Serial (control port)
- 1 10/100BASE-T out-of-band management port
- Per port status LED including power status
- Slot for XGM2 10 Gigabit Option Module

External Power Supply Support
- EPS-500

Physical Specifications

Dimensions
- Height: 1.73 Inches/4.4 Cm
- Width: 17.35 Inches/44.1 Cm
- Depth: 17.0 Inches/43.2 Cm
- Weight: 15.75 Lbs / 7.14 Kg

Operating Specifications

Temperature
- Operating Temperature Range: 0° C to 40° C (32° F to 104° F)
- Operating Humidity: 10% to 93% relative humidity, non-condensing
- Operational Shock (Half Sine): 30 m/s2 (3g), 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)
- Storage and Transportation Humidity: 10% to 95% RH, non-condensing
- Packaged Shock (Half Sine): 180 m/s2 (18g), 6ms, 600 shocks
- Packaged Sine Vibration: 5 – 62 Hz @ Velocity 5mm/s, 62 – 500 Hz @ 0.2 G
- Packaged Random Vibration: 5 – 20 Hz @ 1.0 ASD w/-3dB/oct. from 20 – 200 Hz
- 14 drops min on sides & corners @ 42" (<15kg box)

Power & Accoustic Sound
- Voltage Input Range: 90 – 264V
- Nominal Input Ratings: 100~240V, 50/60 Hz, 1.5A
- Nominal Input Current: 1.45A @ 100V~ (lowline) 0.65A @ 230V~ (highline)
- Maximum In-Rush Current: 30A @ 115V; 60A @ 230V/6.0 Hz, Max Load
- Efficiency: 80% with 60% – 100% load
- Line Frequency Range: 47 – 63 Hz
- Nominal Frequency Range: 50 – 60 Hz
- Power Supply Input Socket: IEC 320 C14
- Power Cord Input Plug: IEC 320 C13
- Heat Dissipation: 115W (393 BTU/hr)
- Nominal Maximum Power Consumption: 115W (393 BTU/hr)
- Sound Power in accordance with EN 300 753 (10-1997)
- Sound Power: 49.9 dBA
- Declared Sound Power: 6.4 belsA per ISO 7779 & ISO 9296
- Bystander Sound Pressure in accordance with NEBS GR-63 Issue 2
- Bystander Sound Pressure: 39.7 dBA

Summit X350 Series

All Regulatory/Safety Standards

North American Safety of ITE
- 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)

European Safety of ITE
- EN60950-1:2001+A11
- EN 60825-1+A2:2001 (Lasers Safety)
- TUV-R GS Mark by German Notified Body
- 2006/95/EC Low Voltage Directive

International Safety of ITE
- CB Report & Certificate per IEC 60950-1:2001 + 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 55022:2003 Class A
- EN 55024:A2-2003 Class A includes IEC 61000-4-2, 3, 4, 5, 6, 11
- EN 61000-3-2,8-2000(Harmonics)
- EN 61000-3-3 1995+A1:2001(Flicker)
- ETSI EN 300 386 v1.3.3, 2005-04 (EMC Telecommunications)
- 2004/108/EC EMC Directive

International EMC Certifications
- CISPR 22: 2005, Class A (International Emissions)
- CISPR 24:A2:2003 Class A (International Immunity)
- IEC/EN 61000-4-2:2001 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria A
- EC/EN 61000-4-3:2002 Radiated Immunity 10V/m, Criteria A
- EC/EN 61000-4-4:2004 Transient Burst, 1 kV, Criteria A
- IEC/EN 61000-4-5:2001 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria A
- IEC/EN 61000-4-6:2004 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

Country Specific
- VCCI Class A (Japan Emissions)
- ACMA (C-Tick) (Australia Emissions)
- KCC Mark EMC Approval (Korea)

Telecom Standards
- EN/ETSI 300 386:2001 (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 802.3an 10GBASE-T

Environmental Standards
- 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. Lifetime with express Advanced Hardware Replacement (for products shipped from Extreme Networks on or after June 29, 2009)
- For warranty details, visit www.extremenetworks.com/go/warranty

Accessories

Summit X350 Series Redundant PSUs

EPS-500

EPS-500 is the redundant AC Power Supply for higher power consuming AC PSU based switches including Summit X350 switches. EPS-500 is one rack unit height and works as a standalone. EPS-500 can be rack mounted in a regular 19 inch rack system. EPS-500 comes with a DC output cable to connect between the Summit switch and EPS-500.

Front View

Rear View

Redundant PSU Compatibility Matrix

Summit Switch Models	Summit Switch Part Number(s)	External Redundant PSU Options
Summit X350-24t	16201	EPS-500 External Power Supply (10911)
Summit X350-48t	16202	EPS-500 External Power Supply (10911)

Power Supply Units

EPS-500

Dimensions and Weight
EPS-500
- Height: 1.73 Inches/4.4 Cm
- Width: 17.4 Inches/44 Cm
- Depth: 7.6 Inches/19.3 Cm
- Weight: 10.8 Lbs/4.9 Kg

Power
- Voltage Input Range: 90 – 264V
- Nominal Input Ratings: 100 – 240V~, 50 – 60Hz, 10A
- Line Frequency Range: 47 – 63 Hz
- Maximum Input Current: 5.75A at 115 VAC, 2.80A at 230 VAC
- Maximum Inrush Current: 30A at 115 VAC, 60A at 230 VAC
- Output: -50 VDC, 7.5A max, 375 Watts 12 VDC, 7.5A max, 90 Watts
- Power Supply Input Socket: IEC 320 C14
- Power Cord Input Plug: IEC 320 C13
- Heat Dissipation: 158W (539.1 BTU/h)
- Power Consumption: 659W (2448.6 BTU/h)

XGM2 Dual 10 Gigabit Ethernet Modules

				
XGM2 Dual 10 Gigabit Ethernet Module	**XGM2-2bt**	**XGM2-2sf**	**XGM2-2xf**	**XGM2-2xn**
Interface Type	10GBASE-T	SFP+	XFP	XENPAK
Supported Media	UTP	SFP+ Passive Copper SFP+ Optics	XFP Optics	XENPAK Optics
Distance	100 meters (Category 6a) 55 meters (Category 6 and 5e)	1-10 meters (Passive Copper) 300m-10km	300m-80km	300m-80km
Optics Support	N/A	10GBASE-SR/LR	10GBASE-SR/LR/ER/ZR	10GBASE-SR/LR/ER/ZR/LW

Ordering Information

Part Number	Name	Description
16201	Summit X350-24t	20 10/100/1000BASE-TX, 4 gigabit combo ports (4 unpopulated gigabit SFP and 10/100/1000/1000BASE-T), ExtremeXOS Layer 2 Edge License, 1 AC PSU, connector for EPS-500 external redundant PSU
16202	Summit X350-48t	44 10/100/1000BASE-TX, 4 gigabit combo ports (4 unpopulated gigabit SFP and 10/100/1000/1000BASE-T), ExtremeXOS Layer 2 Edge License, 1 AC PSU, connector for EPS-500 external redundant PSU
10911	EPS-500 External AC PSU	External Power System 500 Watts, Power cord ordered separately
10051	SX SFP	1000BASE-SX SFP, LC Connector
10052	LX SFP	1000BASE-LX, SFP, LC Connector
10053	ZX SFP	1000BASE-ZX, SFP, Extra Long Distance SMF 70 km/21 dB Budget, LC Connector
10064	LX100 SFP	1000BASE-LX100, SFP, Extra Long Distance SMF 100 km/ 30 dB Budget, LC Connector
10056	1000BX SFP BX-D	1000BASE-BX-D, SFP, SMF (1310-nm TX/1490-nm RX Wavelength), LC Connector
10057	1000BX SFP BX-U	1000BASE-BX-U, SFP, SMF (1310-nm TX/1490-nm RX Wavelength), LC Connector
16112	XGM2-2xf	Option Card, Two Unpopulated 10 Gigabit XFP Slots, compatible with Summit X350, Summit X450e, and Summit X450a
16113	XGM2-2xn	Option Card, Two Unpopulated 10 Gigabit XENPAK Slots, compatible with Summit X350, Summit X450e and Summit X450a
16114	XGM2-2sf	Option Card, Two Unpopulated 10 Gigabit SFP+ Slots, compatible with Summit X350, Summit X450e and Summit X450a
16115	XGM2-2bt	Option Card, two 10GBASE-T ports, compatible with Summit X350, Summit X450e, Summit X450a
10110	SR XENPAK	10GBASE-SR XENPAK Transceiver, 850 nm, up to 300 m on Multimode Fiber, SC Connector
10111	LR XENPAK	10GBASE-LR XENPAK Transceiver, 1310 nm, up to 10 km on Single-mode Fiber, SC Connector
10112	ER XENPAK	10GBASE-ER XENPAK Transceiver, 1550 nm, up to 40 km on Single-mode Fiber, SC Connector
10113	ZR XENPAK	10GBASE-ZR XENPAK Transceiver, 1550 nm, up to 80 km on Single-mode Fiber, SC Connector
10114	LX4 XENPAK	10GBASE-ER XENPAK Transceiver, 1550 nm, up to 40 km on Single-mode Fiber, SC Connector
10121	SR XFP	10GBASE-SR XFP Transceiver, 850nm, up to 300m on Multimode Fiber, LC Connector
10122	LR XFP	10GBASE-LR XFP Transceiver, 1310nm, up to 10km on Single-mode Fiber, LC Connector
10124	ER XFP	10GBASE-ER XFP Transceiver, 1550nm up to 40km on Single-mode Fiber, LC Connector
10125	ZR XFP	10GBASE-ZR XFP Transceiver, 1550nm, up to 80km on Single-mode Fiber, LC Connector
10301	10GBASE-SR SFP+	10GBASE-SR SFP+, 850nm, LC Connector, transmission length of up to 300m on SMF
10302	10GBASE-LR SFP+	10GBASE-LR SFP+, 1310nm, LC Connector, transmission length of up to 10km on SMF
10304	10GBASE-CR SFP+ 1m	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 1m
10305	10GBASE-CR SFP+ 3m	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 3m
10306	10GBASE-CR SFP+ 5m	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 5m
10307	10GBASE-CR SFP+ 10m	10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 10m

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