Summit® 400-48t

The Summit 400-48t sets the standard for intelligent edge switching.

Intelligence to Support New Services and Simplify the Network

- Intelligence to adapt to network priorities
- Intelligence to protect the network edge
- Common management interface with all Extreme Networks switches

High Availability to Keep Users Connected and Productive

- Resilient system design
- Ethernet Automatic Protection Switching (EAPS)–sub-second Layer 2 resiliency with every switch
- Software enhanced availability

Technology That Preserves Your Investment

- Designed for scalability
- 10 Gigabit Ethernet at the edge—when you need it
- UniStack™ stacking to support converged services

The Extreme Networks® Summit 400-48t is designed to meet the performance and availability requirements of today's high-performance converged networks that require Gigabit Ethernet connectivity. Converged applications like IP Telephony, video and wireless LAN require enhanced resiliency and reduced latency. The Summit 400-48t was designed to support evolving applications with exceptional Quality of Service (QoS), low latency, exceptional resiliency and line-rate performance for the full range of applications on a converged network. The Summit 400-48t provides high throughput along with 10 gigabit uplinks for unparalleled performance in a compact one rack unit format.

The Summit 400-48t can be stacked together with the other members of the Summit 400 series switch family using Extreme Networks high bandwidth UniStack™ stacking technology thereby bringing many of the advantages of a chassis-based solution to a stack of fixed switches. The Summit 400-48t provides high availability to keep users connected, network intelligence to support new services and investment protection through advanced upgradeable technology.

Target Applications

- High-bandwidth connectivity to support applications such as engineering design
- High throughput server aggregation utilizing 10 gigabit uplinks
- Technology refresh to future-proof networks by adding tri-speed 10/100/1000BASE-T connectivity which supports legacy as well as high-speed devices

The Summit 400-48t enables deployment of new intelligent services for today's high-performance converged networks.

Intelligence to Support New Services and Simplify the Network

The Summit 400-48t delivers the ability to easily deploy new services such as security, bandwidth tracking and traffic prioritization. With Layer 3 intelligence, high-performance and throughput capacity, Summit 400-48t helps deliver a full range of applications on a converged network.

Intelligence to Adapt to Network Priorities

Quality of Service

The Summit 400-48t uses advanced DiffServ and 802.1p (Class of Service) protocols for QoS. These protocols classify, prioritize, and mark LAN traffic as a way to efficiently use existing bandwidth and offer reliable connectivity for mission-critical applications and converged networks that are susceptible to bandwidth availability, system latency and jitter.

Policy-Based Rate Limiting

The Summit 400-48t supports up to 5,800 central rate limiters to automatically control bandwidth use and increase overall network efficiency. For Policy-Based Mapping, rate limiters can be applied to Layers 1 – 4 and can re-write DiffServ code points and 802.1p Class of Service.

The central flow control rate limiting feature in the Summit 400-48t adds a valuable tool for bandwidth management on ingress traffic. Similar to an ACL, the rate limiting feature inspects incoming packet headers to allocate a predefined amount of bandwidth for that traffic flow. If the flow exceeds the assigned bandwidth, excess packets are either dropped or modified by resetting their DiffServ code point. Rate limits can be configured from 1 Mbps in 1 Mbps increments up to full line-rate. Rate limiting is an excellent method of managing and prioritizing the total traffic coming into a switch and it also enables control of the amount of bandwidth any port, user, or application is allowed to consume.

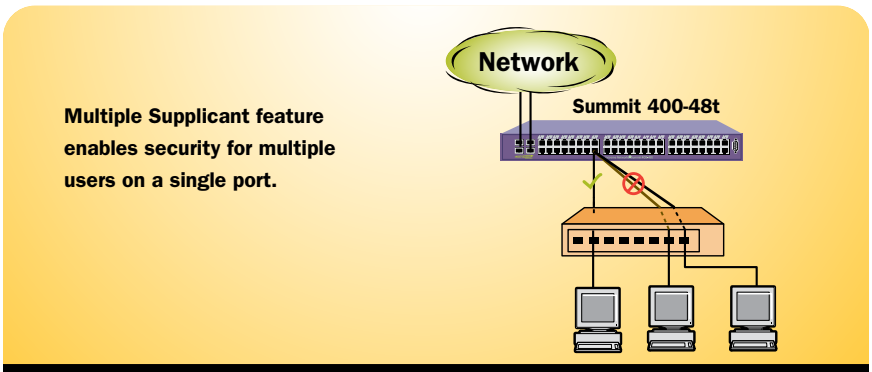
Intelligence to Protect the Network at the Edge

Network Login and 802.1x

The Network Login feature on the Summit 400-48t is a comprehensive user authentication tool that ensures that every user on every port can be authenticated. When a hub or Wireless Access Point (WAP) is attached to the switch running 802.1x, the first user on the hub or WAP is authenticated. With Network Login and Multiple Supplicant support, the Summit 400-48t will also challenge and authenticate any subsequent users connecting to the hub or WAP.

Security with Multiple Users on a Single Port

Normally, when the switched port is shared, a single user authentication opens that port for all other users, authorized or not. The Summit 400-48t solves this problem through the multiple supplicant feature of ExtremeWare® 802.1x Network Login. This feature associates the user with the device which is accessing the network. For example, a user may access the network from their PC by submitting an authorized password. If a second user wants LAN access from a different device through the same port via a shared access device (such as a hub or WAP), the second user can only enter the LAN with the correct password.



Security with Multiple Users on a Single Port

Secure Shell 2

The Summit 400-48t supports Secure Shell 2 (SSH2) to securely transfer switch configurations and ExtremeWare images into and out of the switch. To fix the known limitations in SSH, it is critical that customers use the latest SSH2 version as supported in the Summit 400-48t.

Common Management Interface with all Extreme Networks Switches

Compatible Command Line Interface Across All Platforms

The Summit 400-48t uses the same ExtremeWare management commands and has the same look and feel as all other Extreme Networks switches resulting in a common end-to-end management solution that reduces training expenses and management costs throughout the network. The Summit 400-48t supports extensive management interfaces through standard management tools like SNMP, RMON and Command Line Interface. The Summit 400-48t supports web-based, HTML management for an advanced "manage-anywhere" capability.

High Availability to Keep Users Connected and Productive

Availability is critical to end-user productivity. Advanced availability features normally found on more expensive core switches are now standard on the Summit 400-48t. Features such as hardware redundancy that keep the switch up and running are combined with advanced ExtremeWare availability software to dynamically route around problems in the network so that the end user is not only connected, but remains productive.

Resilient System Design

High Availability Uplinks

The Summit 400-48t supports redundant copper and/or fiber Gigabit Ethernet uplinks and redundant 10 Gigabit Ethernet uplinks for the highest uplink capacity at the edge and the greatest redundancy. If any single uplink port is not available, the Summit 400-48t can automatically failover to the redundant port for maximum resiliency and connectivity. The result is true high availability—the user stays connected to the network and remains productive.

External Power System

Extreme Networks has long been a leader in providing redundant power at the edge, but the Summit 400-48t takes this feature to a new level. Extreme Networks offers an External Power System that supports multiple Summit 400-48t switches, all with full power simultaneously. This power system provides 1-for-1 power for every Summit 400-48t connected. No more worrying about inadequate power if more than a single switch fails; the External Power System provides full redundant power for every Summit 400-48t switch. The External Power System automatically senses when the internal power supply has failed and immediately provides redundant power to the switch, preventing any loss of data.

EAPS–Sub-Second Layer 2 Resiliency with Every Switch

With ExtremeWare 7.3e and beyond, the standard edge license that ships with Summit 400-48t provides EAPS-Edge (RFC 3619) to deliver sub-second (usually less than 50ms recovery) protection switching to Layer 2 switches interconnected in an Ethernet ring topology. EAPS offers the advantage of converging in significantly less time than Spanning Tree Protocol (STP) or even Rapid Spanning Tree (802.1w) when a link breaks in the ring. 50ms convergence times are invisible to routing protocols so the routing protocols don't need to re-converge. Voice-over-IP (VoIP) calls don't drop and video feeds don't flicker because EAPS enables the users to stay connected even when there are link failures in the upstream network.

Software Enhanced Availability

The Summit 400-48t uses advanced Layer 3 availability intelligence to route around problems in the upstream network so that even if part of the network infrastructure is down, users remain connected to the network and are productive. Using advanced Layer 3 protocols like OSPF and ESRP, the Summit 400-48t is continuously aware of the status of uplink connections, and dynamically routes around any problem. Network administrators can now create non-stop routing topologies that combine with switch hardware redundancy to deliver higher levels of availability.

Equal Cost Multi-Path

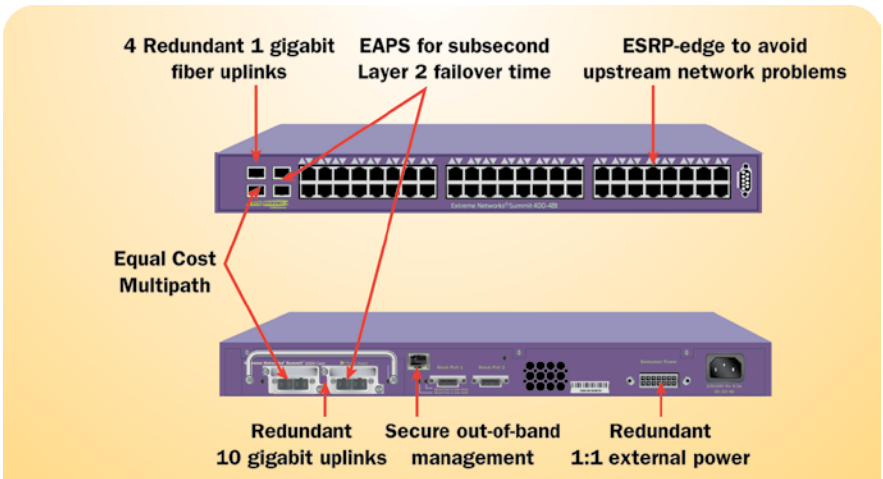
The Summit 400-48t supports the Equal Cost Multi-Path feature that not only improves switch availability, but also improves performance and saves the customer money. Equal Cost Multi-Path enables dual uplinks to be load balanced for performance and cost savings while also supporting redundant failover. If one uplink fails, traffic is automatically routed to the remaining uplink and connectivity is maintained.

Rapid Spanning Tree (802.1w)

The Summit 400-48t includes both standard STP and Rapid Spanning Tree Protocol (RSTP), which provide standards-based Layer 2 resiliency. RSTP delivers significantly faster convergence than STP, though never in the sub-second interval that EAPS can provide. The Summit 400-48t also provides compatibility with Per-VLAN Spanning Tree (PVST+) and Extreme Multiple Instance Spanning Tree (EMISTP). These protocols run in compatibility mode, single domain per port, to support resilient connectivity with aggregation switches running EMISTP and PVST+.

Software Redundant Port

In addition to EAPS, the Summit 400-48t provides a software redundant port, a unique alternative to Spanning Tree for redundant link management. Operating at Layer 1, this resiliency alternative provides simple, efficient link failovers based on physical port status, without the need to run a bridge topology protocol such as STP. This feature works equally well with single ports or load-shared port aggregations, and provides easy-to-configure physical link redundancy.



Summit 400-48t High Availability Features

Technology That Preserves Your Investment

With UniStack stacking, the Summit 400-48t, with other switches in the Summit 400 product family, delivers the best of both worlds: the benefits of a chassis at the cost of a stackable in an architecture designed to support today's evolving LAN applications. The resulting network simplification yields lower management and maintenance costs, while enhancing overall availability. UniStack stacking on the Summit 400-48t preserves the initial network investment while providing the flexibility to build and expand as network requirements grow.

Designed for Scalability

The Summit 400-48t delivers 10/100/1000 density, scalability, and port flexibility allowing customers to easily expand their network and make the most efficient use of available rack space. In just 1.75", 1RU, the Summit 400-48t supports:

- 48 copper Gigabit Ethernet ports (10/100/1000BASE-T)
- 4 ports of SFP MiniGBICs (logically shared with the 1000BASE-T ports)
- 2 ports of 10 gigabit uplinks (optional)
- 10/100/1000 port for out-of-band management
- 1 serial port

160 Gigabit per Second Switch Fabric

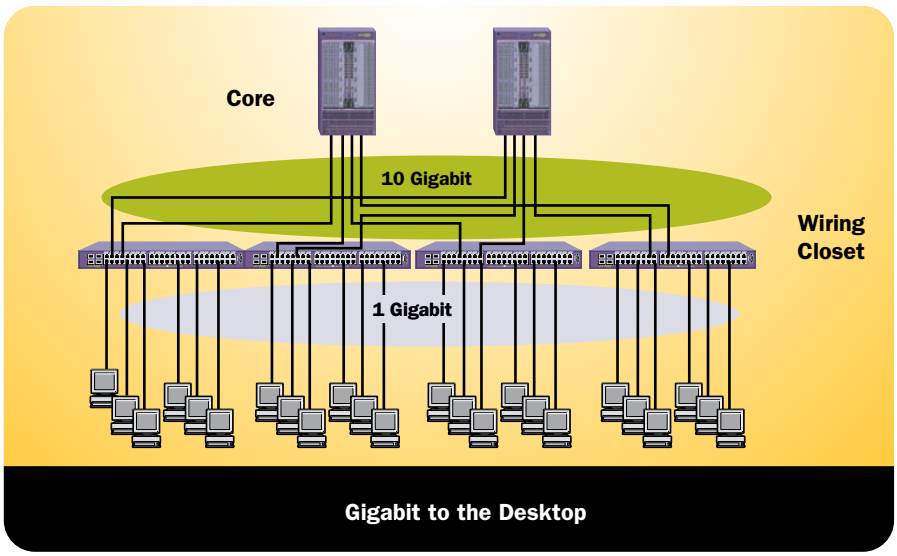
The Summit 400-48t delivers outstanding switch fabric and throughput performance giving users the bandwidth their applications require. The Summit 400-48t switch has 160 gigabits per second (Gbps) capacity supporting 101 million packets per second, making it a high-performance fixed configuration edge switch. This helps ensure that the Summit 400-48t will have the capacity to support ever-growing end user bandwidth requirements. The two 10 gigabit uplinks, high-performance switch fabric and 101 Mpps throughput ensure that the Summit 400-48t will continue to be a critical edge solution in your network for years to come.

Small, Medium, Large Networks Supported

The Summit 400-48t supports up to 16,000 MAC addresses, 4,000 Layer 3 forwarding database entries in hardware, or 64,000 routing table entries making this an ideal switch for both wiring closet implementations and enterprise branch offices. Even as your network grows, the large table sizes supported in the Summit 400-48t make this an excellent long-term solution more than capable of supporting network growth.

Wire-Speed Access Control Lists

Wire-speed Access Control Lists (ACLs) are powerful security tools and the use of ACLs in networks is likely to increase as a way to combat security threats. However, the value of ACLs is diminished if, by applying them, traffic slows down, creating a congestion point. The Summit 400-48t delivers wire-speed ACLs on every port for security while maintaining throughput. With the Summit 400-48t, an IT manager can turn on ACLs whenever they are needed without worrying about disrupting business applications or reducing productivity.



Jumbo Frame Support

Jumbo frames of up to 9,216 bytes are supported—making the Summit 400-48t an ideal switch for new applications requiring large frames such as storage and graphic/video applications. Studies have indicated that jumbo frames are particularly important in high performance cluster computing applications where their use can reduce server CPU loads by as much as 50%.

10 Gigabit Ethernet at the Edge–When You Need It

The Summit 400-48t delivers the industry's first fixed configuration edge switch with two 10 gigabit uplinks so the edge switch uplink capacity can grow as the end user's bandwidth demands grow. Based on a modular design, an optional 10 gigabit "daughter card" can be added to the Summit 400-48t delivering immediate support for two 10 gigabit XENPAK I/O modules. This advanced design enables the user to easily upgrade the Summit 400-48t to multiple 10 gigabit uplinks when added uplink capacity is required.

UniStack Stacking to Support Converged Services

Latency and jitter can be lethal to real-time applications, such as voice and video. The Summit 400-48t and UniStack stacking architecture were designed to support converged services. The significant throughput provided by UniStack stacking—up to 160 Gbps per stack, and the distributed, shortest path forwarding—provides performance comparable with chassis switches. Resiliency is of key importance for these converged applications like video and IP Telephony and is assured by redundant bidirectional ring architecture and n-1 master redundancy, distributed Layer 2 and Layer 3 link aggregation, link redundancy, and distributed uplinks. The resulting network simplification yields lower management and maintenance costs, while enhancing overall availability. UniStack stacking on Summit 400 series switches transfers inter-switch packets at a nominal 20 Gbps, with instantaneous throughput at any switch reaching 40 Gbps, and a total stack bandwidth peaking at 160 Gbps.

Technical Specifications

ExtremeWare v7.6 Supported Protocols

General Routing and Switching
- RFC 1812 Requirements for IP Version 4 Routers
- RFC 1519 CIDR
- RFC 1256 IPv4 ICMP Router Discovery (IRDP)
- 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 2338 VRRP
- RFC 3619 Ethernet Automatic Protection Switching (EAPS) and EAPSv2
- IEEE 802.1D – 1998 Spanning Tree Protocol (STP)
- IEEE 802.1w – 2001 Rapid Reconfiguration for STP, RSTP
- IEEE 802.1s – 2004 Multiple Instances of STP, MSTP
- Extreme Multiple Instances of Spanning Tree Protocol (EMISTP)
- PVST+, per VLAN STP (802.1Q interoperable)
- Extreme Standby Router Protocol (ESRP)
- IEEE 802.1Q – 2003 Virtual Bridged Local Area Networks
- Extreme Discovery Protocol (EDP)
- Static Unicast Routes
- Extreme Loop Recovery Protocol (ELRP)
- Software Redundant Ports

VLANs
- IEEE 802.1Q VLAN Tagging
- IEEE 802.3ad Static configuration and dynamic (LACP) for server attached
- IEEE 802.1v: VLAN classification by Protocol and Port
- Port-based VLANs
- MAC-based VLANs
- Protocol-based VLANs
- Multiple STP domains per VLAN

Quality of Service and Policies
- IEEE 802.1D – 1998 (802.1p) Packet Priority
- RFC 2474 DiffServ Precedence, including 8 queues/port
- RFC 2598 DiffServ Expedited Forwarding (EF)
- RFC 2597 DiffServ Assured Forwarding (AF)
- RFC 2475 DiffServ Core and Edge Router Functions
- Ingress Rate Limiting
- Layer 1-4, Layer 7 (user name) Policy-Based Mapping
- Policy-Based Mapping/Overwriting of DiffServ code points, .1p priority
- Network Login/802.1x and DLCS (Dynamic Link Context System, WINS snooping) based integration with EPICenter Policy Manager for dynamic user/device based policies

RIP
- RFC 1058 RIP v1
- RFC 2453 RIP v2

OSPF
- RFC 2328 OSPF v2 (including MD5 authentication)
- RFC 1587 OSPF NSSA Option
- RFC 1765 OSPF Database Overflow
- RFC 2370 OSPF Opaque LSA Option

Note: OSPF Edge License includes 2 active interfaces, router priority 0

IP Multicast
- RFC 2362 PIM-SM
- RFC 1112 IGMP v1
- RFC 2236 IGMP v2
- IGMP Snooping with Configurable Router Registration Forwarding
- IGMP Filters
- Static IGMP Membership
- Static Multicast Routes
- Mtrace, draft-ietf-idmr-traceroute-ipm-07
- Mrinfo

Management and Traffic Analysis
- RFC 2030 SNTP, Simple Network Time Protocol v4
- RFC 1866 HTML – web-based device management and Network Login
- RFC 2068 HTTP server
- 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 Mgmt Information (SMIv1)
- RFC 1157 SNMPv1
- RFC 1212, RFC 1213, RFC 1215 MIB-II, Ethernet-Like MIB & TRAPs
- RFC 1573 Evolution of Interface
- RFC 1901 – 1908 SNMP Version 2c, SMIv2 and Revised MIB-II
- RFC 2570 – 2575 SNMPv3, user based security, encryption and authentication
- RFC 2576 Coexistence between SNMP Version 1, Version 2 and Version 3
- RFC 2665 Ethernet-Like-MIB
- RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
- RFC 2021 RMON2 (probe configuration)
- RFC 2668 802.3 MAU MIB
- RFC 1643 Ethernet MIB
- RFC 1493 Bridge MIB
- RFC 2737 Entity MIB, Version 2
- RFC 2674 802.1p/802.1Q MIBs
- RFC 1354 IPv4 Forwarding Table MIB
- RFC 2233 Interface MIB
- RFC 2096 IP Forwarding Table MIB
- RFC 1724 RIPv2 MIB
- RFC 1850 OSPFv2 MIB
- RFC 2787 VRRP MIB
- RFC 2925 Ping/Traceroute/NSLOOKUP MIB
- Draft-ietf-bridge-rstpmib-03.txt – Definitions of Managed Objects for Bridges with Rapid Spanning Tree Protocol
- draft-ietf-bridge-8021x-01.txt (IEEE8021-PAE-MIB)
- IEEE 802.1x – 2001 MIB
- Extreme extensions to 802.1x-MIB
- Secure Shell (SSHv2) clients and servers
- Secure Copy (SCPv2) client and server
- Secure FTP (SFTP) server
- Configuration logging
- Multiple Images, Multiple Configs
- BSD System Logging Protocol (SYSLOG), with Multiple Syslog Servers
- Local Messages (criticals stored across reboots)
- IEEE 802.1ab LLDP

ExtremeWare vendor MIBs: includes ACL, MAC FDB, IP FDB, MAC Address Security, Software Redundant Port, NetFlow, DoS-Protect MIB, QoS policy, Cable Diagnostics, VLAN config, vMAN, VLAN Translation and VLAN Aggregation MIBs

Security
- Routing protocol MD5 authentication (see above)
- Secure Shell (SSHv2), Secure Copy (SCPv2) and SFTP with encryption/authentication
- SNMPv3 user based security, with encryption/authentication (see above)
- RFC 1492 TACACS+
- RFC 2865 RADIUS Authentication
- RFC 2866 RADIUS Accounting
- RFC 3579 RADIUS Support for Extensible Authentication Protocol (EAP)
- RFC 3580 802.1X RADIUS
- RADIUS Per-command Authentication
- MAC based Network Login usingRADIUS
- Access Profiles on All Routing Protocols
- Access Profiles on All Management Methods
- Network Login (web-based DHCP/HTTP/RADIUS mechanism)
- RFC 2246 TLS 1.0 + SSL v2/v3 encryption for web-based Network Login
- IEEE 802.1x – 2001 Port-Based Network Access Control for Network Login
- Multiple supplicants for Network Login (web-based and 802.1x modes)
- Guest VLAN for 802.1x
- MAC Address Security – Lockdown, limit and aging
- IP Address Security with DHCP Option 82, DHCP Enforce/Duplicate IP Protection via ARP Learning Disable
- Network Address Translation (NAT)
- Layer 2/3/4/7 ACLs
- Source IP Lockdown – Dynamic filtering against invalidly sourced traffic

Denial of Service Protection
- RFC 2267 Network Ingress Filtering
- RPF (Unicast Reverse Path Forwarding) Control via ACLs
- Wire-speed ACLs
- Rate Limiting ACLs
- IP Broadcast Forwarding Control
- ICMP and IP-Option Response Control
- SYN attack protection
- FDB table resource protection via IPDA Subnet Lookup
- CPU DOS protection with ACL integration: Identifies packet floods to CPU and sets an ACL automatically, configurable enhanced DoS Protect
- Unidirectional Session Control

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 Attacks
- 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

Technical Specifications

General Specifications

Performance
- 160 Gbps switch fabric bandwidth
- 101 Mpps frame forwarding rate:
- 9216 Byte maximum packet size (Jumbo Frame)
- 8 link load sharing trunk, 8 members per trunk
- 8 QoS queues/port
- 4096 VLANs (Port, IEEE 802.1Q, MAC-based)
- 5520 total number of ACL Rules/lines
  - 115 rules per port
  - ACL rules can be applied to ingress
  - Additional ACL rules on optional 10 Gigabit Plug-In module

Rate Limiting
- Central flow based bandwidth policing/rate limiting: packets are classified after Ingress into flows with ACLs and a rate limiter is assigned to a given flow

Ingress Rate Limiting Granularity: 1Mb/s
- Available Rate Limiters: 3024 (63 per port)

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

Ports
- 48 ports 10/100/1000BASE-T
- 4 ports SFP (mini GBIC, shared with 1000BASE-T)
- Option module, 2 ports for 10 Gigabit XENPAK
- 1 port 10/100/1000 BASE-T (management)
- 1 port Serial (control point)
- 2 ports 10 gigabit stacking

Forwarding Tables
- Layer 2/MAC Addresses: 16K
- Layer 3 forwarding database in hardware: 4K
- Layer 3 routing table size: 64K

Physical Specifications

Dimensions
Height 1.7 Inches/4.3 Cm
Width 17.4 Inches/44.2 Cm
Depth 17 Inches/43.2 Cm
Weight 11 lbs/5 Kg

EPS Dimensions
EPS-T
Height 1.75 Inches/4.4 Cm
Width 17.4 Inches/44 Cm
Depth 7.6 Inches/19.3 Cm
EPS-160
Height 1.7 Inches/4.3 Cm
Width 7.4 Inches/18.8 Cm
Cable Length 1 Meter

Operating Specifications

Temperature
- Operating Temperature Range, Degrees Celsius/ Fahrenheit: 0 to 40 °C (32 to 104 °F)
- Storage Temperature Range, Degrees/Degrees Celsius: -40 to +70 °C (-40 to 158 °F)
- Humidity Range: 10-95% (RH) non-condensing

Acoustic
- Compliant with NEBS GR-63-Core spec
- The max measured value is 58dbA

Power
- Auto-ranging 100-240VAC, 50-60 Hz
- Min Voltage/Associated Current: 100VAC/4A
- Line Frequency: 50-60 Hz
- Max Voltage/Associated Current: 240VAC/2A
- Heat Dissipation, Watts/BTU: 160W/ 546BTU/hr
- External Power System connector
- External Power System EPS-160 module
  - Heat Dissipation, Watts/BTU: 160W/ 546BTU/hr
  - 100-240VAC, 4A-2A

Reliability
- Calculated MTBF: 77,934 hours, without EPS-160 External Power System
- Calculated MTBF with EPS-160: 79,164 hours
- Calculated MTBF for EPS-160: 1,230,089 hours
- Calculated MTBF for XEN 10-Gigabit Card: 1,230,089 hours
- Method: Bellcore TR-332 Operating @ 40 °C

Regulatory/Safety

Safety
North America
- cULus Listed device – UL 60950 3rd Edition (U.S. Safety) – CAN/CSA-C22.2 No. 60950-00 (Canadian Safety)

Europe
- Low Voltage Directive (LVD)
- TUV-R GS Mark by German Notified Body- EN60950:2000 (European Safety)

International
- CB Scheme – IEC60950: 2000 with all country deviations (International Safety)

Country Specific
- Mexico NOM/NYCE (Product Safety & EMC Approval)
- Australia/New Zealand AS/NZS 3260 (ACA DoC, Safety of ITE)
- Argentina S-Mark
- GOST (Russia)

Laser Safety
North America
- FCC 21 CFR subpart (J) (Safety of Laser Products)
- CDRH Letter of Approval (U.S. FDA Approval)

Europe
- EN60825-2 (European Safety of Lasers)

EMI/EMC
North America
- FCC 47 CFR Part 15 Class A (U.S. Emissions)
- ICES-003 Class A (Canada Emissions)

Europe
- 89/336/EEC EMC Directive
- ETSI/EN 300 386:2001 (EU Telecommunication Emissions & Immunity)
- EN55022:1998 Class A (Europe Emissions)
- EN55024:1998 includes IEC/EN 61000-2,3,4,5,6,11 (Europe Immunity)
- EN 61000-3-2, -3 (Europe Harmonics and Flicker)

International
- IEC/CISPR 22:1997 Class A (International Emissions)
- IEC/CISPR 24:1998 (International Immunity)
- IEC/EN 61000-4-2 Electrostatic Discharge
- IEC/EN 61000-4-3 Radiated Immunity
- IEC/EN 61000-4-4 Transient Bursts
- IEC/EN 61000-4-5 Surge
- IEC/EN 61000-4-6 Conducted Immunity
- IEC/EN 61000-4-11 Power Dips & Interruptions

Country Specific
- Japan Class A (VCCI Registration, Emissions)
- Australia/New Zealand AS/NZS 3548 (ACA DoC, Emissions)
- Korean MIC Mark (MIC Approval, Emissions & Immunity)
- Mexico NOM/NYCE (Product Safety & EMC Approval)
- GOST (Russia)
- Taiwan CNS 13438:1997 Class A (BSMI Approval, Emissions)

Environmental
Standard
- EN 300 019-2-1 (2000-09) – Storage Class 1.2-packaged
- EN 300 019-2-2 (1999-09) – Transportation Class 2.3 (Packaged
- EN 300 019-2-2 (1999-09) – Stationary Use at Weather protected Locations, Class 3.1e - Operational
- EN 300 753 (1997-10) – Acoustic Noise – Operational
- ASTM D5276 * – Drop – Package
- ASTM D3332 * – Shock – Unpackaged
- ASTM D3580 * – Random Vibration – Unpackaged
- ASTM D6179 * – Tilt – Packaged

*Additional testing requested by Extreme Networks

Warranty
- Limited Lifetime Hardware Warranty
- 90-days on Software

Ordering Information

Part Number	Name	Description
16101	Summit 400-48t	Summit 400-48t, 48 10/100/1000BASE-T, 4 mini-GBIC, ExtremeWare Edge software license
16102	Summit 400-48t Advanced Edge Voucher	Summit 400-48t ExtremeWare Advanced Edge Upgrade Voucher
16106	Stacking cable, 0.5M	Summit UniStack stacking cable, 0.5M
16107	Stacking cable, 1.5M	Summit UniStack stacking cable, 1.5M
16108	Stacking cable, 3.0M	Summit UniStack stacking cable, 3.0M
16111	XGM-2xn	Option module with two unpopulated XENPAK ports for Summit X450 series and Summit 400-48t
10906	EPS-T	External Power System tray, accepts up to 2 EPS power modules
10907	EPS-160	External Power System module, 160 watts, for use with EPS-T
10051	SX mini-GBIC	1-port, Mini-GBIC, SFP, 1000BASE-SX, LC connector
10052	LX mini-GBIC	1-port, Mini-GBIC, SFP 1000BASE-LX, LC connector
10053	ZX mini-GBIC	1-port, Mini-GBIC, SFP, Extra long distance SMF 70 Km/21 dB budget, LC connector
10110	SR XENPAK	10 Gigabit Ethernet XENPAK Transceiver, 850 nm, up to 300 m on multimode fiber, SC connector
10111	LR XENPAK	10 Gigabit Ethernet XENPAK Transceiver, 1310 nm, up to 10 km on single-mode fiber, SC connector
10112	ER XENPAK	10 Gigabit Ethernet XENPAK Transceiver, 1550 nm, up to 40 km on single-mode fiber, SC connector

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