

FASTIRON SUPERX FAMILY



ONE ARCHITECTURE, ONE SOLUTION
FOR TOTAL NETWORK CONVERGENCE

HIGHLIGHTS

- ▶ High-performance convergence switch family features the FastIron® SuperX with single management and the FastIron SX 800 and SX 1600 with redundant management for scalable and resilient solutions from the wiring closet to the network core
- ▶ Industry's most powerful convergence solution—up to 384 10/100/1000 Mbps Class 3 Power over Ethernet ports with N+1 power redundancy
- ▶ Support for legacy and standard IEEE 802.3af VoIP solutions, including policy-based voice VLAN and QoS configuration
- ▶ Combined SP/WRR queuing and cell-based switch fabric ensure low latency and jitter for voice and video traffic
- ▶ IronWare™ networking software features advanced Layer 2 and base Layer 3 services; Advanced IronWare upgrade option offers dynamic routing including BGP-4 and multicast routing
- ▶ IronShield™ 360 security protects network access and preserves network integrity; features include denial of service protection, closed loop threat detection and mitigation, IEEE 802.1x and multi-host authentication, identity-based access policies, Dynamic ARP Inspection, IP Source Guard and DHCP Snooping to protect against address spoofing and man-in-the-middle attacks
- ▶ Foundry Direct Routing technology delivers wire-speed Layer 2 and Layer 3 forwarding

- ▶ Redundant architecture and resilient protocols ensure business continuity in the event of network or equipment failure(s)
- ▶ Embedded sFlow™ traffic monitoring enables network-wide accounting, utilization reporting, capacity planning, intrusion detection, and more

Overview

Foundry Networks FastIron SuperX/SX family of PoE-ready Layer 2/Layer 3 switches are built to deliver a reliable and secure Ethernet and IP services infrastructure for a wide range of enterprise and service provider environments. Available in three chassis models, the scalable FastIron SuperX/SX offers the cost and operational benefits of a common operating system and shared interface and power supply modules.

The FastIron SuperX/SX enables enterprise customers to deploy a VoIP-ready infrastructure featuring the industry's most scalable and resilient Power over Ethernet (PoE) design and a rich feature set to secure and simplify the deployment of an edge-to-core converged network.

Service providers will benefit from the power of the IronWare networking intelligence, which features advanced Layer 2 services, Foundry's Metro Ring Protocol (MRP) for rapid service restoration in ring-based topologies, VLAN stacking for tunneled VLAN services, and rich bandwidth management features for controlling network utilization.

The FastIron SuperX/SX family includes three chassis: FastIron SuperX, FastIron SX 800, and FastIron SX 1600. The FastIron SX 800 and SX 1600 support redundant management and switch fabric modules for enhanced system resilience. All three chassis support PoE over tri-speed 10/100/1000 Mbps interfaces. The FastIron SX 1600 supports up to 384 Class 3 PoE ports with N+1 power redundancy making it the most powerful PoE solution in the industry.

Switch management modules are available with integrated Gigabit Ethernet or 10-Gigabit Ethernet ports providing cost-effective system configurations that include high-capacity connections to upstream switches. The management modules include high-performance system processors and high-capacity memory for scalable networking with routing capacity up to 1 million BGP routes and 20 BGP peers.

The FastIron SuperX/SX family features a unique power distribution design for system and PoE power. The chassis are designed with independent system and PoE power subsystems. This design achieves optimal power operation and configuration, reducing the equipment and ongoing costs in comparison to modular systems that use a common supply to power both the system and the PoE elements. The power consumption of a line module's PoE circuitry does not impact the system power. Similarly, the power consumption of the line modules, switch modules, and management modules does not impact the PoE power.

Power consumption for the system and PoE are calculated, provisioned, and managed independently of one another. As more PoE devices are added to a switch, a simple power budget

FastIron SuperX Family Specifications



FEATURE	FASTIRON SUPERX	FASTIRON SX 800	FASTIRON SX 1600
Interface slots	8	8	16
Backplane Switching Capacity	510 Gbps	600 Gbps	1080 Gbps
Data Switching Capacity	408 Gbps	464 Gbps	848 Gbps
Packet Forwarding Capacity	304 Mpps	348 Mpps	636 Mpps
Management Redundancy	No	Yes	Yes
Active 10-GE Ports with Redundant Management	n/a	4 XFP	4 XFP
Switch Fabric Redundancy ¹	n/a	1+1	1+1
Management Processor	400MHz (M1) 466MHz (M2)	667MHz (M3) 667MHz (M4)	667MHz (M3) 667MHz (M4)
Memory	256MB (M1) 512MB (M2)	512MB (M3) 512MB (M4)	512MB (M3) 512MB (M4)
Height	10.4" (6RU)	10.4" (6RU)	24.5" (14RU)
MAXIMUM PORT DENSITY PER UNIT			
100BaseFX	192	192	384
1000BaseT, 10/100/1000 Mbps (RJ-45) ²	204	192	384
IEEE 802.3af Class 3 10/100/1000 Mbps	192	192	384
IEEE 802.3af Class 3 10/100/1000 Mbps with N+1 PoE power redundancy ³	140	140	384
1000BaseX Ports (SFP)	204	192	384
10GBaseX Ports (XFP)	16	20	36
MAXIMUM PORT DENSITY PER RACK			
100BaseFX	1344	1344	1152
1000BaseT, 10/100/1000 Mbps (RJ-45)	1428	1344	1152
IEEE 802.3af Class 3 10/100/1000 Mbps	1344	1344	1152
IEEE 802.3af Class 3 P10/100/1000 Mbps with N+1 PoE power redundancy ³	980	980	1152
1000BaseX Ports (SFP)	1428	1344	1152
10GBaseX Ports (XFP)	112	140	108
POWER SUPPLY REDUNDANCY			
System Power	N+1	N+1	N+2
PoE Power	N+1	N+1	N+3

¹ The two switch fabric modules in the FastIron SX 800 and FastIron SX 1600 operate in a load-sharing fashion. Upon failure of one of the switch modules, some system capacity will be lost. In this event, some traffic flows may experience reduced capacity through the remaining operational switch fabric during periods of high traffic loading.

² FastIron SuperX 1000BaseT modules are field-upgradeable to PoE with a PoE daughter card.

³ Computation is based on the 2500W, 220VAC PoE power supply.

calculation determines whether another PoE power supply needs to be added to the switch with no impact to system power. The system power distribution and the PoE power distribution sub-systems are each designed for M+N load-sharing operation (where N=1 for SuperX and SX 800; N=2 for the SX 1600). This dual-distribution power design simplifies power configuration while enhancing system reliability.

The chassis can be configured for a wide range of power environments including: 110V/220V AC power, -48V DC power and mixed AC/DC power configurations. To scale PoE configurations, PoE power supplies are available in two ratings – 1250W and 2500W. When configured with four 2500W PoE supplies, the FastIron SX 1600 can support up to 384 10/100/1000 Mbps Class 3 PoE ports and still maintain N+1 power redundancy. This capability is unmatched in the industry.

The FastIron SuperX/SX family provides a scalable, secure, low-latency, and fault-tolerant infrastructure for cost-effective integration of VoIP, video, wireless access, and high-performance data onto a common network. The system architecture features a scalable and resilient PoE design and a low-latency cell-based switch fabric with intelligent traffic management to ensure reliable and high-quality VoIP services. A rich suite of security features, including policy-based access control, IP source guard, dynamic ARP inspection, and DHCP snooping, work in unison to control network access and shield the network from internal and external threats. The FastIron SuperX/SX family establishes a new class of convergence-ready solutions, enabling organizations to implement a secure, reliable, scalable, and high-quality infrastructure for total network convergence.

Solution Designed for High-Quality and Reliable Network Convergence

ADVANCED QoS AND LOW LATENCY FOR ENTERPRISE CONVERGENCE

The FastIron SuperX/SX family offers superior quality of service (QoS) features that enable network administrators to prioritize high-priority and delay-sensitive services throughout the network. FastIron SuperX switches can classify, re-classify, police, mark, and re-mark an Ethernet frame or an IP packet prior to delivery. This flexibility lets network administrators discriminate among various traffic flows and enforce packet scheduling policies based on Layer 2 and Layer 3 QoS fields.

Once classified, the traffic is queued and scheduled for delivery. Three configurable queuing options provide the network administrator with flexible control over how the system services the queues. Weighted Round Robin (WRR) queuing applies user-configured weighting for servicing multiple queues, ensuring that even low-priority queues are not starved for bandwidth. With Strict Priority (SP) queuing, queues are serviced in priority order ensuring that the highest-priority

traffic is serviced ahead of lower priority queues. Combined SP and WRR queuing ensures that packets in the SP queue are serviced ahead of the WRR queues. Combined queuing is often used in VoIP networks where the VoIP traffic is assigned to the SP queue and data traffic is assigned to the WRR queues. Additionally, the FastIron SuperX/SX utilizes an advanced cell-based switch fabric with internal flow-control ensuring very low latency and jitter performance for converged applications.

INTELLIGENT AND SCALABLE POWER OVER ETHERNET (POE)

PoE is a key enabler of important applications such as VoIP, IEEE 802.11 wireless LANs, and IP video. The FastIron SuperX/SX is Foundry's third-generation PoE-capable switch family and incorporates the latest advances in PoE provisioning and system design to deliver scalable and intelligent PoE to the enterprise. The PoE power distribution sub-system is independent of the system power, eliminating system disruption in the event of PoE over-subscription or a PoE power failure. Customers have the choice of purchasing PoE-ready line modules or upgrading 10/100/1000 Mbps line modules when needed with field-installable PoE daughter modules. PoE power per port can be manually or dynamically configured. Dynamic configuration is supported using standards-based auto-discovery or legacy Layer 2 discovery protocols. Port priorities are also configurable and are used to prioritize PoE power in over-subscribed configurations.

FLEXIBLE BANDWIDTH MANAGEMENT

The FastIron SuperX/SX supports a rich set of bandwidth management features allowing granular control of bandwidth utilization. On ingress, extended ACLs can be used in combination with traffic policies to control bandwidth by user, by application, and by VLAN. On egress, outbound rate limiting can control bandwidth per port and per priority queue. These facilities allow the network operator fine-grained control of bandwidth utilization based on a wide range of application and user criteria.

COMPLETE SOLUTION FOR MULTICAST AND BROADCAST VIDEO

The use of video applications in the workplace requires support for scalable multicast services from the edge to the core. IGMP (v1, v2, v3) and PIM snooping improves bandwidth utilization in Layer 2 networks by restricting multicast flows to only those switch ports that have multicast receivers. In Layer 3 networks, support for PIM-SM, PIM-SSM and PIM-DM multicast routing optimizes traffic routing and network utilization for multicast applications.

SCALABLE AND WIRE-SPEED IP ROUTING SOLUTION

FastIron SuperX/SX switches can be upgraded with Advanced IronWare routing software (a Layer 3 upgrade). Advanced IronWare supports a full complement of unicast and multicast routing protocols enabling users to build fully featured Layer 2/Layer 3 networks. Supported routing protocols include RIPv1/v2, OSPF, PIM-SM/DM, BGP, and Equal Cost Multi-path (ECMP) for improved network performance. M2, M3, and M4 management modules can support routing table capacity up to 1,000,000 BGP routes and 20 BGP peers. To achieve wire-speed Layer 3 performance, the FastIron SuperX/SX supports Foundry Direct Routing (FDR) in which the forwarding information base (FIB) is maintained in local memory on the line modules. These hardware forwarding tables are dynamically populated by system management with as many as 256,000 routes.

NETWORK ACCESS CONTROL AND IRONSHIELD 360 SECURITY

Controlling network access is a top priority for network operators. FastIron SuperX/SX switches support a flexible suite of access control capabilities. Foundry's IronShield network access control features include multi-host IEEE 802.1x and MAC authentication schemes. Upon successful user or device authentication, the FastIron SuperX/SX switch will apply the appropriate access policy for the user. The access policy may define the assigned VLAN, QoS, and ACL to be applied to the user's traffic. Because of its standards-based design, this solution can be augmented with access control software and external appliances for enhanced access control operation. For example, an external NAC appliance and/or software can be used in combination with the FastIron SuperX/SX to provide host posture verification and remediation. This design allows customers the flexibility to build best-of-breed solutions for their access control infrastructure and not be locked-in to a single offering.

Once the user is permitted access to the network, protecting the user's identity and controlling where the user connects becomes a priority. To prevent "user identity theft" (spoofing), the FastIron SuperX/SX switches support DHCP snooping, Dynamic ARP inspection, and IP source guard. These three features work together to deny spoofing attempts and to defeat man-in-the-middle attacks. To control where users connect, the FastIron SuperX/SX switches support private VLANs, quarantine VLANs, policy-based routing, and extended ACLs, all of which can be used to control a user's access to the network.

FastIron SuperX/SX switches feature embedded sFlow packet sampling providing system-wide traffic monitoring for accounting, troubleshooting, and intrusion detection. Using Foundry's IronView Network Management (INM) System to process sFlow data from the switches, IronShield 360 provides closed loop threat detection and response. sFlow packet samples

are scanned for known threat signatures. Upon a positive match, INM can be configured to automatically send a control command to the FastIron SuperX/SX switch to throttle or disable the port on which the threat has been detected. This advanced security capability provides a network-wide security umbrella without the added complexity and cost of ancillary sensors.

SECURE AND STANDARDS-BASED NETWORK MANAGEMENT SOLUTION

Security is a concern for today's network managers, and the FastIron SuperX/SX switches support a powerful set of network management solutions to help protect the switch. Multilevel access security on the console and a secure Web management interface prevent unauthorized users from accessing or changing the switch configuration. Using Terminal Access Controller Access Control Systems (TACACS/TACACS+) and RADIUS authentication, network managers can enable considerable centralized control and restrict unauthorized users from altering network configurations.

The FastIron SuperX/SX family includes Secure Shell (SSHv2), Secure Copy, and SNMPv3 to restrict and encrypt communications to the management interface and system, thereby ensuring highly secure network management access. For an added level of protection, network managers can use ACLs to control which ports and interfaces have TELNET, Web and/or SNMP access.

RESILIENT DESIGN ENSURES BUSINESS CONTINUITY

A FastIron SuperX/SX networking solution is built for high-value environments. Featuring redundant management modules, redundant fans, redundant load-sharing switch fabrics, and power supply modules, the FastIron SX 800/1600 switches are designed for maximum system availability. Switch fabric failover preserves network connectivity in the event of a switch module failure. Automatic management failover quickly restores network connectivity in the event of a management module failure. In the event of a topology change due to a port or facility failure, Layer 1 and Layer 2 protocols - e.g., Protected Link, Metro Ring Protocol (MRP), IEEE 802.3ad, UDLD, VSRP, and Rapid Spanning Tree Protocol - will restore service in sub-second time (tens to hundreds of milliseconds depending on the protocol) protecting users from costly service disruption. These high availability capabilities enable network operators to deploy a highly reliable network infrastructure that is resilient to, and tolerant of, network and equipment failures.

Key Features and Benefits

HIGH-DENSITY DESIGN

- ▶ 8- and 16-slot chassis models
- ▶ Management modules support multiple Gigabit Ethernet or 10 Gigabit Ethernet ports for convenient uplink applications
- ▶ Up to 384 ports of 1000BaseT ports that are upgradeable to support IEEE 802.3af PoE
- ▶ Up to 384 ports of 100/1000 Mbps SFP ports
- ▶ Up to 36 ports of 10-GbE using “Small Form Factor Pluggable” XFP optics. Available XFP optics include SR, LR, ER, ZR, and ZRD

VOIP AND POWER OVER ETHERNET

- ▶ Standards-based IEEE 802.3af PoE support
- ▶ Choice of 1250W (70 Class 3) or 2500W (140 Class 3) PoE power supplies
- ▶ Independent system and PoE power sub-systems allow the addition of PoE without affecting the system power
- ▶ High-availability power design - N+1 PoE power redundancy for the 8-slot chassis and N+3 PoE power redundancy for the 16-slot chassis
- ▶ Intelligent PoE power management
- ▶ PoE auto-detection enables support for PoE and non-PoE devices without configuration changes
- ▶ Software accessible system and per port power consumption
- ▶ Configurable per port PoE priority for power allocation
- ▶ Proven interoperability with popular voice over IP equipment, including legacy Cisco IP phones
- ▶ Advanced QoS and cell-based fabric enable high-quality VoIP service
- ▶ Auto-configuration for VoIP endpoints
 - Voice VLAN feature automatically places IP phones in their own VLAN
 - Auto-detects legacy and standard 802.3af powered devices

IRONSHIELD ADVANCED SECURITY FEATURES

- ▶ Multilevel access security for console access
- ▶ IronShield 360 — sFlow-powered automated closed-loop threat detection and mitigation solution
- ▶ Secure Web-based management interface preventing unauthorized users from accessing or changing the switch configuration
- ▶ Terminal Access Controller Access Control Systems (TACACS/TACACS+) and RADIUS operator authentication
- ▶ Secure Shell and SNMPv3 restrict and encrypt communications to the management interface and system
- ▶ IEEE 802.1x authentication including multiple device authentication and dynamic policy configuration for authenticated clients - VLAN, ACL, and MAC filter

- ▶ Private VLANs provide security and isolation between switch ports to help ensure that users cannot snoop on other users’ traffic
- ▶ Denial of Service Protection - Monitoring, throttling, and locking out of ICMP and TCP SYN traffic both to the management address of the switch and for transit traffic
- ▶ IP Source Guard, DHCP Snooping, and ARP Inspection protect against snooping and man-in-the-middle attacks
- ▶ Private VLANs at the edge provide security and isolation between switch ports to help ensure that users cannot snoop on other users’ traffic
- ▶ ACL log reports provide source detail for denied packets

ADVANCED QUALITY OF SERVICE

- ▶ Classification, reclassification, policing and marking the traffic prior to delivery
- ▶ Identification, classification, and reclassification based on specific criteria including port, source /destination MAC address, 802.1p priority bit, source /destination IP address, Type of Service (ToS), Differentiated Services Control Point (DSCP) fields, or the Transmission Control Protocol/User Datagram Protocol (TCP/UDP) port
- ▶ Flexible queue servicing utilizing configurable Weighted Round Robin (WRR), Strict Priority (SP), or combined SP/WRR
- ▶ 8 hardware queues for flexible QoS management
- ▶ Ingress rate limiting—standard and extended ACL control, per VLAN, per port
- ▶ Egress rate limiting - per port

HIGH AVAILABILITY DESIGN

- ▶ Redundant, hot-swappable management modules (FastIron SX 800 and FastIron SX 1600)
- ▶ Redundant, hot-swappable switch fabric modules (FastIron SX 800 and FastIron SX 1600)
- ▶ Redundant, hot-swappable, load-sharing and distributed power supplies for system and PoE power
- ▶ Advanced protocols for topology resilience:
 - Foundry’s Metro Ring Protocol (MRP)
 - Virtual Switch Redundancy Protocol (VSRP)
 - Virtual Router Redundancy Protocol (VRRP)
 - Enhanced VRRP (VRRPE)
 - Rapid Spanning Tree Protocol (RSTP)
 - Per-VLAN Spanning Tree (PVST and PVRST)
 - IEEE 802.3ad trunking
 - Protected link

Technical Specifications

IEEE COMPLIANCE

- 802.3 10BaseT
- 802.3u 100BaseTX
- 802.3z 100BaseFX
- 802.3z 100BaseLX
- 802.3ab 1000BaseT
- 802.3ae 10-Gigabit Ethernet
- 802.3af Power over Ethernet
- 802.3x Flow Control
- 802.3ad Link Aggregation
- 802.1d Bridging
- 802.1p/q VLAN Tagging
- 802.1W Rapid STP
- PVST/PVST+/PVRST
- 802.1X User Authentication with Dynamic Filters and VLAN assignment
- 802.3 Ethernet Like MIB
- Repeater MIB
- Ethernet Interface MIB
- SNMPv1, v2c, and v3
- SNMP MIB II

RFC COMPLIANCE

BGPv4

- RFC 1269, 1657 BGP3 and BGP4 MIBs
- RFC 1745 OSPF Interactions
- RFC 1771 BGP4
- RFC 1965 BGP4 Confederations
- RFC 1997 Communities and Attributes
- RFC 2385 MD5
- Authentication of BGP Session
- RFC 2439 Route Flap Dampening
- RFC 2796 Route Reflection
- RFC 2842 BGP4 Capabilities

OSPF

- RFC 1583 and 2328 OSPF v2
- RFC 1587 OSPF NSSA
- RFC 1745 OSPF Interactions
- RFC 1765 OSPF Database Overflow
- RFC 1850 OSPF Traps

- RFC 1850 OSPF v2 MIB
- RFC 2154 OSPF w/Digital Signatures (Password, MD-5)
- RFC 2178 OSPF
- RFC 2370 OSPF Opaque LSA Options
- RFC 2385 TCP MD5
- RFC 2439 Route Flap Dampening
- RFC 2842 Capabilities Advertisement
- RFC 2918 Route Refresh Capability

RIP

- RFC 1058 RIP v1
- RFC 1723 RIP v2
- RFC 1812 RIP Requirements

IP Multicast

- DVMRP v3-07
- PIM-DM v1
- RFC 1112 IGMP
- RFC 1122 DVMRP Host Requirements
- RFC 1122 Host Extensions
- RFC 1256 ICMP Router Discovery Protocol
- RFC 2236 IGMP v2
- RFC 2362 PIM-SM

General Routing Protocols

- RFC 768 UDP
- RFC 783 TFTP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 TELNET
- RFC 894 IP over Ethernet
- RFC 903 RARP
- RFC 906 TFTP Bootstrap
- RFC 951 BootP
- RFC 1027 Proxy ARP
- RFC 1122 Host Requirements
- RFC 1256 IRDP
- RFC 1519 CIDR
- RFC 1541, 1542 & 2131

BootP/DHCP Helper

- RFC 1542 BootP Extensions
- RFC 1591 DNS (client)
- RFC 1812 General Routing
- RFC 2338 VRRP

Others

- RFC 1157 SNMPv1
- RFC 1191 Path MTU Discovery
- RFC 1215 SNMP Generic Traps
- RFC 1354 IP Forwarding MIB
- RFC 1573 SNMP MIB II
- RFC 1757 RMON Groups 1,2,3,9
- RFC 1905, 1906 SNMPv2c
- RFC 4030 SNTIP
- RFC 2068 HTTP
- RFC 2138 RADIUS
- RFC 3176 sFlow
- RFC 3411 SNMPv3 Framework
- RFC 3412 SNMPv3 Processing
- RFC 3414 SNMPv3 USM
- RFC 3415 SNMPv3VACM
- TACACS+ v1.78
- MRP I, MRP II (Metro Ring Protocol)
- UDLD (Uni-directional Link Detection)
- IGMP Snooping (v1, v2, v3)
- Jumbo Frame with Gigabit Ethernet

SYSTEM MANAGEMENT

- IronView Network Manager (INM) Web-based graphical user interface
- Industry Standard Command Line Interface (CLI)
- Secure Copy
- Telnet and SSHv2
- SNMP v1, v2 and v3
- HTTP and HTTPS
- RMON HP OpenView for Sun Solaris, HP-UX, IBM's AIX, and Windows NT
- Virtual Cable Tester
- RFC 2674 P-Bridge and Q-Bridge

ELEMENT SECURITY OPTIONS

- AAA
- RADIUS
- Secure Shell (SSHv2)
- Secure Copy (SCP)
- TACACS/TACACS+
- Username/ Password (Challenge and Response)
- Bi-level Access Mode (Standard and EXEC Level)
- Protection for Denial of Service attacks, such as TCP SYN or Smurf Attacks

PHYSICAL DESIGN

- ETSI ETS 300 119-4, Engineering Requirements for Subracks in misc Racks and Cabinets
- ANSI/EIA-310-D, Cabinets, Racks, Panels, and Associated Equipment

PHYSICAL DIMENSIONS

FastIron SuperX

- 10.46in (H) x 17.5in (D) x 17.45in (W)
- 26.6cm (H) x 44.4cm (D) x 44.3cm (W)

FastIron SX 800

- 10.46in (H) x 19.5in (D) x 17.45in (W)
- 26.6cm (H) x 49.5cm (D) x 44.3cm (W)

FastIron SX 1600

- 24.46in (H) x 22.55in (D) x 17.2in (W)
- 62.1cm (H) x 57.3cm (D) x 43.7cm (W)

WEIGHT (FULLY LOADED)

FastIron SuperX and SX 800

- 70 lbs (31 kg)

FastIron SX 1600

- 196 lbs (88.6 kg)

ENVIRONMENTAL

- Operating Temperature: 0 °C to 40 °C (32 °F to 104 °F)
- Relative Humidity: 5 to 90%, @40 °C (104 °F, non condensing)
- Operating Altitude: 6600 ft (2,000 m)
- Storage Temperature: -25 °C to 70 °C (-13 °F to 158 °F)
- Storage Humidity: 95% maximum relative humidity, non-condensing
- Storage Altitude: 15,000 ft (4,500 m) maximum
- EU 2002/95/EC RoHS Directive

MTBF

- SuperX Chassis, Fan Tray, 1 P/S: 269,386 hrs
- SX 800 Chassis, Fan Tray, 1 P/S: 142,786 hrs
- SX 800 Chassis, Fan Tray, 2 P/S: 230,584 hrs
- SX1600 Chassis, Fan Tray, 2 P/S: 99,908 hrs
- SX1600 Chassis, Fan Tray, 4 P/S: 213,865 hrs
- M1 Management Module: 287,664 hrs
- M2 Management Module: 287,664 hrs
- M3 Management Module, Zero ports: 534,522 hrs
- M4 Management Module, 2x10-GbE ports: 269,436 hrs
- 24-port 10/100/1000 Copper Module: 352,103 hrs
- 24-port SFP Module: 348,204 hrs
- 2-port 10-GbE Module: 464,938 hrs

SUPERX SYSTEM POWER SPECIFICATIONS

System Power Supply

(SX-ACPWR, SX-DCPWR)

- -40 – -60 VDC Consumption (Amps): 36A
 - 100 – 120 VAC Consumption (Amps): 14.3A
 - 200 – 240 VAC Consumption (Amps): 7.2A
 - AC Frequency: 50 – 60Hz
 - Max BTU: 4874 BTU/Hr
 - Max Watts (Output): 1200W
 - Max Watts (Input): 1428W
- ### 1250W PoE Power Supply

- 100 – 120 VAC Consumption (Amps): 14A
 - 200 – 240 VAC Consumption (Amps): 7A
 - AC Frequency: 50 – 60Hz
 - Max BTU: 4736 BTU/Hr
 - Max Watts (Output): 1250W
 - Max Watts (Input): 1388W
- ### 2500W PoE Power Supply
- (SX-ACPWR-2500-POE)
- 200 – 240 VAC Consumption (Amps): 14A
 - AC Frequency: 50 – 60Hz
 - Max BTU: 9471 BTU/Hr
 - Max Watts (Output): 2500W
 - Max Watts (Input): 2775W

SAFETY AGENCY APPROVALS

- CAN/CSA-C22.2 No. 60950-1-03, Information Technology Equipment
 - Safety – Part 1: General Requirement
- UL 60950-1, Information Technology

Equipment – Safety – Part 1: General Requirement

- EN 60950-1, Information Technology Equipment – Safety – Part 1: General Requirement
- IEC 60950-1, Information Technology Equipment – Safety – Part 1: General Requirement
- EN 60825-1, Safety of Laser Products. Equipment Classification, Requirements and User Guide
- EN 60825-2, Safety of Laser Products, Safety of Optical Fibre Communications Systems

ROHS COMPLIANT (5 OF 6)

ELECTROMAGNETIC EMISSION

- ICES-003, Electromagnetic Emission
- FCC Class A
- EN 55022/CISPR 22 Class A
- VCCI Class A
- EN 61000-3-2, Power Line Harmonics
- EN 61000-3-3, Voltage Fluctuation & Flicker
- EN 61000-6-3, Electromagnetic Compatibility
- AS/NZS CISPR 22, Electromagnetic Compatibility

IMMUNITY

- EN 61000-6-1, Electromagnetic Compatibility, Generic Standard
- EN 55024, Immunity Characteristics Supersedes:
 - EN 61000-4-2, ESD
 - EN 61000-4-3, Radiated, Radio Frequency, Electromagnetic Field
 - EN 61000-4-4, Electrical Fast Transient
 - EN 61000-4-5, Surge
 - EN 61000-4-6, Conducted Disturbances Induced by Radio Frequency Fields
 - EN 61000-4-8, Power Frequency Magnetic Field
 - EN 61000-4-11, Power Frequency Magnetic Field

WARRANTY

- 1-year Hardware
- 90-day Software

MOUNTING OPTIONS

- 19" Universal EIA (Telco) Rack or Tabletop

Ordering Information

PART NUMBER	DESCRIPTION
FI-SX1-4-AC	FastIron SuperX bundle with 8-slot chassis, fan tray and 1 AC power supply
FI-SX1-4-DC	FastIron SuperX bundle with 8-slot chassis, fan tray and 1 DC power supply
FI-SX800-AC	FastIron SX 800 bundle with 8-slot chassis, fan tray, 2 switch fabrics and 1 AC power supply
FI-SX800-DC	FastIron SX 800 bundle with 8-slot chassis, fan tray, 2 switch fabrics and 1 DC power supply
FI-SX1600-AC	FastIron SX 1600 bundle with 16-slot chassis, fan tray, 2 switch fabrics and 2 AC power supplies
FI-SX1600-DC	FastIron SX 1600 bundle with 16-slot chassis, fan tray, 2 switch fabrics and 2 DC power supplies
SX-FI12GM-4	FastIron SuperX M1 Management Module with 12-combo Gigabit Ethernet ports
SX-FI12GM2-4	FastIron SuperX M2 Management Module with 12-combo Gigabit Ethernet ports
SX-FIZMR	FastIron SX 800 / SX 1600 M3 Management module
SX-FI2XGMR4	FastIron SX 800 / SX 1600 M4 Management module with 2-port 10-Gigabit Ethernet
SX-FI424F	FastIron SuperX 24-port mini-GBIC based Gigabit Ethernet module
SX-FI424C	FastIron SuperX 24-port 10/100/1000 Ethernet module
SX-FI424HF	FastIron SuperX 24-port 100/1000 Combo Fiber Ethernet module
SX-FI42XG	FastIron SuperX 2-port XFP 10-Gigabit Ethernet module
SX-FI42XGW	FastIron SuperX 2-port LAN/WAN XFP 10-Gigabit Ethernet module
SX-24GCPOE	SuperX 802.3af PoE add-in card for 24-port 10/100/1000 Ethernet module
SX-FI424P	FastIron SuperX 24-port 10/100/1000 Ethernet module with 802.3af PoE
FI-FISF	FastIron SX 800 / SX 1600 Switch Fabric module
SX-FIL3U	FastIron SuperX chassis, full Layer 3 upgrade kit
SX-ACPWR-POE	FastIron SuperX / SX 800 / SX 1600 POE AC power supply, 1250W
SX-ACPWR-2500-POE	FastIron SuperX / SX 800 / SX 1600 POE AC power supply, 2500W
SX-ACPWR-SYS	FastIron SuperX / SX 800 / SX 1600 system AC power supply, 1200W
SX-DCPWR-SYS	FastIron SuperX / SX 800 / SX 1600 system DC power supply, 1200W
10G-XFP-SR	10-GbE SR XFP optic, MMF, LC connector
10G-XFP-LR	10-GbE LR XFP optic, SMF, LC connector
10G-XFP-ER	10-GbE ER XFP optic, SMF, LC connector
EIMG-SX	1000Base-SX mini-GBIC optic, MMF, LC connector
EIMG-LX	1000Base-LX mini-GBIC optic, SMF, LC connector
EIMG-LHA	1000Base-LHA mini-GBIC optic, SMF, LC connector, 80km maximum reach



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