

Overview

Models

HP 5820-14XG-SFP+ Switch with 2 Slots	JC106A
HP 5820X-24XG-SFP+ Switch	JC102A
HP 5820AF-24XG Switch	JG219A

Key features

- For enterprise core, distribution, data center
- Up to 24 ports of 10 GbE per unit/194 per stack
- Flex-Chassis—modular resiliency
- Cut-through switching for very low latency
- Hot-swappable I/O, power supplies, and fans

Product overview

The HP 5820 Switch Series features advanced Flex-Chassis switches that deliver a unique combination of unmatched 10 Gigabit Ethernet, Fibre Channel over Ethernet (FCoE) connectivity, high-availability architecture, full Layer 2/3 dual-stack IPv4/IPv6, and line-rate, low-latency performance on all ports. Extensible embedded application capabilities enable these switches to integrate services into the network, consolidating devices and appliances to simplify deployment and reduce power consumption and rack space. Extremely versatile, the switches can be used in high-performance, high-density building or department cores as part of a consolidated network; for data center top-of-rack server access; or as high-performance Layer 3, 10-GbE aggregation switches in campus and data center networks.

Features and benefits

Quality of Service (QoS)

- **Powerful QoS feature:** creates traffic classes based on access control lists (ACLs), IEEE 802.1p precedence, IP, DSCP or Type of Service (ToS) precedence; supports filter, redirect, mirror, or remark; supports the following congestion actions: strict priority (SP) queuing, weighted round robin (WRR), weighted fair queuing (WFQ), weighted random early discard (WRED), weighted deficit round robin (WDRR), and SP+WDRR
- **Integrated Network Services:** with support for Open Application Architecture (OAA) modules, extends and integrates application capability into the network
- **Ring Resiliency Protection Protocol (RRPP):** provides fast recovery for ring Ethernet-based topology; ensures consistent application performance for applications such as VoIP

Management

- **Remote configuration and management:** is available through a secure Web browser or a command-line interface (CLI)
- **IEEE 802.1ab LLDP discovery:** advertises and receives management information from adjacent devices on a network
- **USB support:**
 - **File copy:** allows users to copy switch files to and from a USB flash drive
- **DHCP options:** server (RFC 2131), client, snooping, and relay
- **SNMPv1, v2c, and v3:** facilitate centralized discovery, monitoring, and secure management of networking devices
- **sFlow:** provides scalable, ASIC-based network monitoring and accounting; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **Network Time Protocol (NTP):** synchronizes timekeeping among distributed time servers and clients; keeps consistent timekeeping among all clock-dependent devices within the network so that the devices can provide diverse applications based



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Connectivity

- **High-density port connectivity:** 194 10-GbE ports with a 40 Gbps resilient backplane
- **Data center I/O consolidation:** the 5820-14XG FCoE module supports two 4x8/4/2 Gbps FCoE modules (up to eight FC ports total) to reduce cost and complexity while boosting network performance
- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- **Jumbo frames:** on Gigabit Ethernet and 10-Gigabit ports, they allow high-performance remote backup and disaster recovery services
- **IPv6 native support:**
 - IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge
 - Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols
 - MLD snooping: forwards IPv6 multicast traffic to the appropriate interface
 - IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding
 - IPv6 routing: supports IPv6 static routes and IPv6 versions of RIP, OSPF, IS-IS, Border Gateway Protocol (BGP) routing protocols

Performance

- **Hardware-based wire-speed access control lists (ACLs):** feature-rich ACL implementation (TCAM based) helps ensure high levels of security and ease of administration without impacting network performance
- **Unique Flex-Chassis Architecture:** supports the best of both fixed chassis and modular configurations
- **Cut-through switching:** delivers wire-speed, line-rate performance on all ports, as well as cut-through switching for low latency

Resiliency and high availability

- **Data center–optimized design:** HP 5820AF-24XG Switch (JG219A) supports front-to-back/back-to-front airflow for hot/cold aisles, rear rack mounts, and redundant hot-swappable AC or DC power and fans

Manageability

- **Full-featured console:** provides complete control of the switch with a familiar command-line interface (CLI)
- **Web interface:** allows configuration of the switch from any Web browser on the network
- **RMON and sFlow:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Multiple configuration files:** allow multiple configuration files to be stored to a flash image
- **Troubleshooting:**
 - Ingress and egress port monitoring: enable network problem solving
 - Tracert and Ping: enable testing of network connectivity
 - Virtual Cable Tests: provide visibility to cable problems

Layer 2 switching

- **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs
- **32K MAC addresses:** provide access to many Layer 2 devices
- **4,094 port-based VLANs:** provide security between workgroups
- **IEEE 802.1ad QinQ and Selective QinQ:** increase the scalability of an Ethernet network by providing a hierarchical structure; connect multiple LANs on a high-speed campus or metro network
- **Gigabit Ethernet port aggregation:** allows grouping of ports to increase overall data throughput to a remote device
- **10 GbE port aggregation:** allows grouping of ports to increase overall data throughput to a remote device
- **Spanning Tree/MSTP, RSTP, and STP Root Guard:** prevent network loops
- **IPFIX/sFlow:** allows traffic sampling



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Layer 3 services

- **Address Resolution Protocol (ARP):** determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **Dynamic Host Configuration Protocol (DHCP):** simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets

Layer 3 routing

- **Layer 3 IPv4 routing:** provides routing of IPv4 at media speed; supports static routes, RIP and RIPv2, OSPF, IS-IS, and BGP
- **Routing Information Protocol (RIP) and RIPv2 support:** provides complete support of RIP for both IPv4 and IPv6
- **OSPF and OSPFv3 support:** provides complete support of OSPF for both IPv4 and IPv6
- **IS-IS and IS-ISv6 support:** provides complete support of IS-IS for both IPv4 and IPv6
- **Layer 3 IPv6 routing:** provides routing of IPv6 at media speed; supports static routes, RIPv2, OSPFv3, IS-ISv6, and BGPv4+
- **Bidirectional Forwarding Detection (BFD):** enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **Virtual Router Redundancy Protocol (VRRP) and VRRP Extended:** allow quick failover of router ports
- **Policy-based routing:** makes routing decisions based on policies set by the network administrator
- **IGMPv1, v2, and v3:** allow individual hosts to be registered on a particular VLAN
- **PIM-SSM, PIM-DM, and PIM-SM (for IPv4 and IPv6):** support IP Multicast address management and inhibition of DoS attacks
- **Equal-Cost Multipath (ECMP):** enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth

Security

- **Defense-in-depth security:** provides integrated and distributed security enforcement that can be managed from a central location, such as the HP Intelligent Management Center (IMC)
- **Advanced processor queuing mechanism:** helps prevent denial-of-service (DoS) attacks, while DHCP snooping helps ensure that devices can only receive an IP address from a legitimate DHCP server on the network
- **RADIUS / HWTACACS:** eases switch management security administration by using a password authentication server
- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote CLI access over IP networks
- **IEEE 802.1x-based dynamic delivery of QoS/ACLs/VLANs:** allows complete control over user network access
- **Guest VLAN:** similar to IEEE 802.1X, it provides a browser-based environment to authenticated clients
- **Port isolation:** secures and adds privacy, and prevents malicious attackers from obtaining user information
- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **MAC-based authentication:** allows or denies access to the switch based on client MAC address
- **IP source guard:** helps prevent IP spoofing attacks
- **HTTPS management:** provides secure Web management
- **URPF:** limits malicious traffic on a network
- **Multi-Customer Edge (MCE)-Multicast Virtual Routing and Forwarding (MVRF):** provide MPLS Edge router support
- **Public Key Infrastructure (PKI):** is used to control access

Convergence

- **Voice VLAN:** automatically assigns VLAN and priority for IP phones, simplifying network configuration and maintenance
- **LLDP-MED:** is a standard extension that automatically configures network devices, including LLDP-capable IP phones
- **Internet Group Management Protocol (IGMP):** is used by IP hosts to establish and maintain multicast groups; supports v1, v2, and v3; utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks
- **Protocol Independent Multicast (PIM):** is used for IPv4 and IPv6 multicast applications; supports PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Mode (SSM)



Overview

Monitor and diagnostics

- **Port mirroring:** enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **OAM (802.3ah):** detects data link layer problems that occurred in the "last mile"; monitors the status of the link between the two devices
- **CFD (802.1ag):** connectivity fault detection (CFD) provides a Layer 2 link OAM (operations, administration, and maintenance) mechanism used for link connectivity detection and fault locating

Additional information

- **Intelligent Resilient Framework (IRF):**
 - Creates virtual resilient switching fabrics, where two or more switches perform as a single Layer 2 switch, and Layer 3 router
 - Switches do not have to be co-located and can be part of a disaster recovery system
 - Servers or switches can be attached using standard LACP for automatic load balancing and high availability
 - Simplifies network operation by eliminating the complexity of Spanning Tree Protocol, ECMP, or VRRP
- **OAA Modules:** supporting wireless Network Management and High Performance Security applications leverage network infrastructure investment
- **Green IT and power:** use the latest advances in silicon development, shut off unused ports, and use variable-speed fans to improve energy efficiency

Warranty and support

- **1-year warranty:** with advance replacement and 10-calendar-day delivery (available in most countries)
- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to: www.hp.com/networking/warranty for details on the support provided and the period during which support is available
- **Software releases:** refer to: www.hp.com/networking/warranty for details on the software releases provided and the period during which software releases are available for your product(s)



Technical Specifications

HP 5820-14XG-SFP+ Switch with 2 Slots (JC106A)

Ports	14 SFP+ 10-GbE ports; Duplex: full only 2 extended module slots 1 open module slot 4 RJ-45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 1 RJ-45 serial console port Supports a maximum of 14 SFP+ ports plus 8 8/4/2 Gbps Fibre Channel SFP+ ports, with optional module
Power supplies	2 power-supply slots 1 minimum power-supplies required (ordered separately)
Fan tray	includes: 1 x JC096A 1 fan tray slot Base product includes fan tray
Physical characteristics	Dimensions 18.39(d) x 17.32(w) x 3.39(h) in. (46.7 x 43.99 x 8.61 cm) (2U height) Weight 33.29 lb. (15.1 kg)
Memory and processor	1024 MB SDRAM, 512 MB flash; packet buffer size: 2 MB
Performance	Latency 2.02 μ s (Cut Through) 2.02 μ s, (Store and Forward) (64-byte packets) Throughput up to 363 million pps (64-byte packets) Routing/Switching capacity 488 Gbps Routing table size 12000 entries MAC address table size 32000 entries
Environment	Operating temperature 32°F to 113°F (0°C to 45°C) Operating relative humidity 10% to 90%, noncondensing Acoustic Low-speed fan: 44.3 dB, High-speed fan: 54.1 dB
Electrical characteristics	Maximum heat dissipation 836 BTU/hr (881.98 kJ/hr) Voltage 100-120/200-240 VAC DC voltage 300 W DC: -48 VDC to -60 VDC Frequency 50/60 Hz
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance
Emissions	VCCI Class A; EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; AS/NZS CISPR22 Class A; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A
Immunity	Generic ETSI EN 300 386 V1.3.3 EN EN 55024:1998+ A1:2001 + A2:2003 ESD EN 61000-4-2; IEC 61000-4-2 Radiated EN 61000-4-3; IEC 61000-4-3 EFT/Burst EN 61000-4-4; IEC 61000-4-4



Technical Specifications

Surge	EN 61000-4-5; IEC 61000-4-5
Conducted	EN 61000-4-6; IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8; EN 61000-4-8
Voltage dips and interruptions	EN 61000-4-11; IEC 61000-4-11
Harmonics	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3

Management

IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS; RMON1; FTP

Notes

Customer must order a power supply, as the device does not come with a PSU.
At least one JC087A or JC090A is required.

Services

3-year, parts only, global next-day advance exchange (UY832E)
3-year, 4-hour onsite, 13x5 coverage for hardware (UV894E)
3-year, 4-hour onsite, 24x7 coverage for hardware (UV897E)
3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV900E)
3-year, 24x7 SW phone support, software updates (UV903E)
1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR559E)
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR560E)
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR561E)
Installation with minimum configuration, system-based pricing (UW451E)
4-year, 4-hour onsite, 13x5 coverage for hardware (UV895E)
4-year, 4-hour onsite, 24x7 coverage for hardware (UV898E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV901E)
4-year, 24x7 SW phone support, software updates (UV904E)
5-year, 4-hour onsite, 13x5 coverage for hardware (UV896E)
5-year, 4-hour onsite, 24x7 coverage for hardware (UV899E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV902E)
5-year, 24x7 SW phone support, software updates (UV905E)
3 Yr 6 hr Call-to-Repair Onsite (UW972E)
4 Yr 6 hr Call-to-Repair Onsite (UW973E)
5 Yr 6 hr Call-to-Repair Onsite (UW974E)
1-year, 6 hour Call-To-Repair Onsite for hardware (HR563E)
1-year, 24x7 software phone support, software updates (HR562E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols (applies to all products in series)

General protocols

IEEE 802.1ag Service Layer OAM
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s (MSTP)
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree

RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs

IEEE8021-PAE-MIB
IEEE8023-LAG-MIB
RFC 1213 MIB II



Technical Specifications

IEEE 802.1X PAE	RFC 1493 Bridge MIB
IEEE 802.3ad Link Aggregation Control Protocol (LACP)	RFC 1657 BGP-4 MIB
IEEE 802.3ae 10-Gigabit Ethernet	RFC 1724 RIPv2 MIB
IEEE 802.3x Flow Control	RFC 1850 OSPFv2 MIB
RFC 768 UDP	RFC 2011 SNMPv2 MIB for IP
RFC 792 ICMP	RFC 2013 SNMPv2 MIB for UDP
RFC 793 TCP	RFC 2233 Interface MIB
RFC 826 ARP	RFC 2273 SNMP-NOTIFICATION-MIB
RFC 854 TELNET	RFC 2452 IPV6-TCP-MIB
RFC 925 Multi-LAN Address Resolution	RFC 2454 IPV6-UDP-MIB
RFC 951 BOOTP	RFC 2465 IPv6 MIB
RFC 1058 RIPv1	RFC 2466 ICMPv6 MIB
RFC 1350 TFTP Protocol (revision 2)	RFC 2571 SNMP Framework MIB
RFC 1519 CIDR	RFC 2572 SNMP-MPD MIB
RFC 1542 BOOTP Extensions	RFC 2573 SNMP-Notification MIB
RFC 2131 DHCP	RFC 2618 RADIUS Client MIB
RFC 2453 RIPv2	RFC 2620 RADIUS Accounting MIB
RFC 3046 DHCP Relay Agent Information Option	RFC 2665 Ethernet-Like-MIB
RFC 3576 Ext to RADIUS (CoA only)	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 3768 VRRP	RFC 2688 MAU-MIB
RFC 4675 RADIUS VLAN & Priority	RFC 2787 VRRP MIB
802.1r - GARP Proprietary Attribute Registration Protocol (GPRP)	RFC 2819 RMON MIB
	RFC 2925 Ping MIB
	RFC 3414 SNMP-User based-SM MIB
	RFC 3415 SNMP-View based-ACM MIB
	RFC 3418 MIB for SNMPv3
	RFC 3621 Power Ethernet MIB
	RFC 3826 AES for SNMP's USM MIB
	RFC 4133 Entity MIB (Version 3)
	LLDP-EXT-DOT1-MIB
	LLDP-EXT-DOT3-MIB
	LLDP-MIB
IP multicast	Network management
RFC 2934 Protocol Independent Multicast MIB for IPv4	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 3376 IGMPv3 (host joins only)	RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3618 Multicast Source Discovery Protocol (MSDP)	RFC 3176 sFlow
RFC 3973 Draft 2 PIM Dense Mode	ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
RFC 4601 Draft 10 PIM Sparse Mode	SNMPv1/v2c/v3
IPv6	OSPF
RFC 2080 RIPv6 for IPv6	RFC 2328 OSPFv2
RFC 2460 IPv6 Specification	RFC 3101 OSPF NSSA
RFC 2710 Multicast Listener Discovery (MLD) for IPv6	
RFC 2740 OSPFv3 for IPv6	
RFC 2925 Remote Operations MIB (Ping only)	
RFC 3019 MLDv1 MIB	
RFC 3162 RADIUS and IPv6	
RFC 3315 DHCPv6 (client and relay)	
RFC 3315 DHCPv6 (client only)	
RFC 3810 MLDv2 (host joins only)	
RFC 4022 MIB for TCP	
RFC 4251 SSHv6 Architecture	
RFC 4252 SSHv6 Authentication	
RFC 4253 SSHv6 Transport Layer	
RFC 4254 SSHv6 Connection	
RFC 4293 MIB for IP	
	Security
	IEEE 802.1X Port Based Network Access Control
	RFC 1492 TACACS+
	RFC 2865 RADIUS (client only)
	RFC 2866 RADIUS Accounting
	Secure Sockets Layer (SSL)



Technical Specifications

RFC 4419 Key Exchange for SSH

SSHv2 Secure Shell

HP 5820X-24XG-SFP+ Switch (JC102A)

Ports	24 SFP+ 10-GbE ports; Duplex: full only 4 RJ-45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 1 RJ-45 serial console port Supports a maximum of 24 SFP+ ports plus 4 autosensing 10/100/1000 ports
Power supplies	2 power-supply slots 1 minimum power-supplies required (ordered separately)
Fan tray	includes: 1 x JC098A 1 fan tray slot Base product includes fan tray
Physical characteristics	Dimensions 16.81(d) x 17.32(w) x 1.73(h) in. (42.7 x 44.0 x 4.4 cm) (1U height) Weight 18.74 lb. (8.5 kg)
Memory and processor	1024 MB SDRAM, 512 MB flash; packet buffer size: 2 MB
Performance	Latency 2.02 μ s (Cut Through) 2.02 μ s, (Store and Forward) (64-byte packets) Throughput up to 363 million pps (64-byte packets) Routing/Switching capacity 488 Gbps Routing table size 12000 entries MAC address table size 32000 entries
Environment	Operating temperature 32°F to 113°F (0°C to 45°C) Operating relative humidity 10% to 90%, noncondensing Acoustic Low-speed fan: 48.4 dB, High-speed fan: 59.7 dB
Electrical characteristics	Maximum heat dissipation 631 BTU/hr (665.71 kJ/hr) Voltage 100-120/200-240 VAC DC voltage 300 W DC: -48 VDC to -60 VDC Frequency 50/60 Hz
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance
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Voltage dips and interruptions	EN 61000-4-11; IEC 61000-4-11
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Flicker	EN 61000-3-3, IEC 61000-3-3

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- 4 Yr 6 hr Call-to-Repair Onsite (UW973E)
- 5 Yr 6 hr Call-to-Repair Onsite (UW974E)
- 1-year, 6 hour Call-To-Repair Onsite for hardware (HR563E)
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HP 5820AF-24XG Switch (JG219A)

Ports	24 fixed 1000/10000 SFP+ ports 2 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 1 RJ-45 serial console port 1 RJ-45 out-of-band management port 1 USB 2.0
Power supplies	2 power-supply slots 1 minimum power-supplies required (ordered separately)
Fan tray	2 fan tray slots



Technical Specifications

The customer must order fan trays, as fan trays are not included with the switch. This system requires two same-direction airflow fan trays to function properly. The system should not be operated with only one fan tray for more than 24 hours. The system should not be operated without a fan tray more than two minutes. The system should not be operated outside of the temperature range of 32°F (0°C) to 113°F (45°C). Failure to comply with these operating requirements may void the product warranty.

Physical characteristics	Dimensions	25.98(d) x 17.32(w) x 1.72(h) in. (66 x 44 x 4.36 cm) (1U height)
	Weight	22.05 lb. (10 kg), Fully loaded
Memory and processor	1024 MB flash, 512 MB SDRAM; packet buffer size: 2 MB	
Performance	Latency	3 μ s(64-byte packets)
	Throughput	360 million pps
	Routing/Switching capacity	484 Gbps
	Routing table size	12000 entries
	MAC address table size	32000 entries
Environment	Operating temperature	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	10% to 90%, noncondensing
	Acoustic	Low-speed fan: 60.1 dB, High-speed fan: 69.9 dB
Electrical characteristics	Maximum heat dissipation	607 BTU/hr (640.39 kJ/hr)
	Voltage	100-120/200-240 VAC
	DC voltage	650W DC: -36 VDC to -72 VDC
	Frequency	50/60 Hz
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; ROHS Compliance	
Emissions	VCCI Class A; EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; AS/NZS CISPR22 Class A; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	
Immunity	Generic	ETSI EN 300 386 V1.3.3
	EN	EN 55024:1998+ A1:2001 + A2:2003
	ESD	EN 61000-4-2; IEC 61000-4-2
	Radiated	EN 61000-4-3; IEC 61000-4-3
	EFT/Burst	EN 61000-4-4; IEC 61000-4-4
	Surge	EN 61000-4-5; IEC 61000-4-5
	Conducted	EN 61000-4-6; IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8; EN 61000-4-8
	Voltage dips and interruptions	EN 61000-4-11; IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS; RMON1; FTP	



Technical Specifications

Notes	The customer must order power supply, as the device does not come with a PSU. At least one JC680A or JC681A is required	
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
Standards and protocols (applies to all products in series)	General protocols IEEE 802.1ag Service Layer OAM IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s (MSTP) IEEE 802.1v VLAN classification by Protocol and Port IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.1X PAE IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.3ae 10-Gigabit Ethernet IEEE 802.3x Flow Control RFC 768 UDP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 TELNET RFC 925 Multi-LAN Address Resolution RFC 951 BOOTP RFC 1058 RIPv1 RFC 1350 TFTP Protocol (revision 2) RFC 1519 CIDR RFC 1542 BOOTP Extensions RFC 2131 DHCP RFC 2453 RIPv2 RFC 3046 DHCP Relay Agent Information Option RFC 3576 Ext to RADIUS (CoA only) RFC 3768 VRRP RFC 4675 RADIUS VLAN & Priority 802.1r - GARP Proprietary Attribute Registration Protocol (GPRP)	RFC 4443 ICMPv6 RFC 4541 IGMP & MLD Snooping Switch RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration
	IP multicast RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3376 IGMPv3 (host joins only) RFC 3618 Multicast Source Discovery Protocol (MSDP) RFC 3973 Draft 2 PIM Dense Mode RFC 4601 Draft 10 PIM Sparse Mode	MIBs IEEE8021-PAE-MIB IEEE8023-LAG-MIB RFC 1213 MIB II RFC 1493 Bridge MIB RFC 1657 BGP-4 MIB RFC 1724 RIPv2 MIB RFC 1850 OSPFv2 MIB RFC 2011 SNMPv2 MIB for IP RFC 2013 SNMPv2 MIB for UDP RFC 2233 Interface MIB RFC 2273 SNMP-NOTIFICATION-MIB RFC 2452 IPV6-TCP-MIB RFC 2454 IPV6-UDP-MIB RFC 2465 IPv6 MIB RFC 2466 ICMPv6 MIB RFC 2571 SNMP Framework MIB RFC 2572 SNMP-MPD MIB RFC 2573 SNMP-Notification MIB RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2665 Ethernet-Like-MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2688 MAU-MIB RFC 2787 VRRP MIB RFC 2819 RMON MIB RFC 2925 Ping MIB RFC 3414 SNMP-User based-SM MIB RFC 3415 SNMP-View based-ACM MIB RFC 3418 MIB for SNMPv3 RFC 3621 Power Ethernet MIB RFC 3826 AES for SNMP's USM MIB RFC 4133 Entity MIB (Version 3) LLDP-EXT-DOT1-MIB LLDP-EXT-DOT3-MIB LLDP-MIB
	IPv6 RFC 2080 RIPng for IPv6	Network management IEEE 802.1AB Link Layer Discovery Protocol (LLDP) RFC 2819 Four groups of RMON: 1 (statistics), 2



Technical Specifications

RFC 2460 IPv6 Specification	(history), 3 (alarm) and 9 (events)
RFC 2710 Multicast Listener Discovery (MLD) for IPv6	RFC 3176 sFlow
RFC 2740 OSPFv3 for IPv6	ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
RFC 2925 Remote Operations MIB (Ping only)	SNMPv1/v2c/v3
RFC 3019 MLDv1 MIB	
RFC 3162 RADIUS and IPv6	OSPF
RFC 3315 DHCPv6 (client and relay)	RFC 2328 OSPFv2
RFC 3315 DHCPv6 (client only)	RFC 3101 OSPF NSSA
RFC 3810 MLDv2 (host joins only)	
RFC 4022 MIB for TCP	Security
RFC 4251 SSHv6 Architecture	IEEE 802.1X Port Based Network Access Control
RFC 4252 SSHv6 Authentication	RFC 1492 TACACS+
RFC 4253 SSHv6 Transport Layer	RFC 2865 RADIUS (client only)
RFC 4254 SSHv6 Connection	RFC 2866 RADIUS Accounting
RFC 4293 MIB for IP	Secure Sockets Layer (SSL)
RFC 4419 Key Exchange for SSH	SSHv2 Secure Shell



Accessories

HP 5820 Switch Series accessories

Transceivers

HP X124 1G SFP LC LH40 1310nm Transceiver	JD061A
HP X120 1G SFP LC LH40 1550nm Transceiver	JD062A
HP X125 1G SFP LC LH70 Transceiver	JD063B
HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
HP X130 SFP+ LC SR Transceiver	JD092B
HP X130 SFP+ LC LRM Transceiver	JD093B
HP X130 SFP+ LC LR Transceiver	JD094B
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
HP X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095B
HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096B
HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097B
HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081B

Cables

NEW HP 0.5 m PremierFlex OM3+ LC/LC Optical Cable	BK837A
NEW HP 1 m PremierFlex OM3+ LC/LC Optical Cable	BK838A
NEW HP 2 m PremierFlex OM3+ LC/LC Optical Cable	BK839A
NEW HP 5 m PremierFlex OM3+ LC/LC Optical Cable	BK840A
NEW HP 15 m PremierFlex OM3+ LC/LC Optical Cable	BK841A
NEW HP 30 m PremierFlex OM3+ LC/LC Optical Cable	BK842A
NEW HP 50 m PremierFlex OM3+ LC/LC Optical Cable	BK843A

Power Supply

HP 5800 300W AC Power Supply	JC087A
HP 5800 300W DC Power Supply	JC090A
HP RPS1600 Redundant Power System	JG136A
HP RPS1600 1600W AC Power Supply	JG137A

Appliance

HP 5820 VPN Firewall Module	JD255A
HP 5820-14XG-SFP+ Switch with 2 Slots (JC106A)	
HP 5820 4-port 8/4/2 Gbps FCoE SFP+ Module	JC530A
HP 5800 4-port 10GbE SFP+ Module	JC091A
HP 5800 2-port 10GbE SFP+ Module	JC092B
HP 5800 Access Controller Module for 64-256 Access Points	JD441A
HP 5800 2RU Spare Fan Assembly	JC096A
HP 5820 VPN Firewall Module	JD255A
HP 5820X-24XG-SFP+ Switch (JC102A)	
HP 5800 1RU Spare Fan Assembly	JC098A
HP 5820AF-24XG Switch (JG219A)	
HP 58x0AF 650W AC Power Supply	JC680A
HP 58x0AF 650W DC Power Supply	JC681A
HP 58x0AF Back (power side) to Front (port side) Airflow Fan Tray	JC682A
HP 58x0AF Front (port side) to Back (power side) Airflow Fan Tray	JC683A



Accessories

Additional HP Storage Options

Converged Network
Adapters (CNAs)

HP CN1100E Dual Port Converged Network Adapter

BK835A

HP CN1000E Dual Port Converged Network Adapter

AW520A

NOTE: Please visit the HP Converged Network Adapter QuickSpecs at:
www.hp.com/go/cna



Accessory Product Details

NOTE: Details are not available for all accessories. The following specifications were available at the time of publication.

HP X124 1G SFP LC LH40 Ports 1310nm Transceiver (JD061A)		1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)	
A small form-factor pluggable SFP Gigabit LH40 transceiver that provides a full duplex Gigabit solution up to 40km on a single-mode fiber.	Connectivity	Connector type	LC
	Physical characteristics	Wavelength	1310 nm
		Dimensions	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
		Full configuration weight	0.04 lb. (0.02 kg)
	Electrical characteristics	Power consumption typical	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type:	Single-mode fiber optic, complying with ITU-T G.652;
		Maximum distance:	
	Services		<ul style="list-style-type: none">40km distance
			Fiber type Single Mode

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP X120 1G SFP LC LH40 Ports 1550nm Transceiver (JD062A)		1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)	
A small form-factor pluggable (SFP) Gigabit LH40 transceiver that provides a full-duplex Gigabit solution up to 40 km on a single mode fiber.	Connectivity	Connector type	LC
	Physical characteristics	Wavelength	1550 nm
		Dimensions	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
		Full configuration weight	0.04 lb. (0.02 kg)
	Electrical characteristics	Power consumption typical	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type:	Single-mode fiber optic, complying with ITU-T G.652;
		Maximum distance:	
	Services		<ul style="list-style-type: none">40km distance
			Fiber type Single Mode

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Accessory Product Details

HP X125 1G SFP LC LH70 Transceiver (JD063B)	Ports	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)
	Connectivity	Connector type LC
<p>A small form-factor pluggable (SFP) Gigabit LH70 transceiver that provides a full-duplex Gigabit solution up to 70km on a single-mode fiber.</p>	Physical characteristics	Wavelength 1550 nm
	Electrical characteristics	Dimensions 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
		Full configuration weight 0.04 lb. (0.02 kg)
		Power consumption typical 0.8 W
Cabling		Power consumption maximum 1.0 W
		Cable type: Single-mode fiber optic, complying with ITU-T G.652;
Services		Maximum distance: • 70km
		Fiber type Single Mode
		Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP X125 1G SFP RJ45 T Transceiver (JD089B)	Ports	1 RJ-45 1000BASE-T port (IEEE 802.3ab Type 1000BASE-T)
	Connectivity	Connector type RJ-45
<p>A small form factor pluggable (SFP) Gigabit 1000Base-T transceiver that provides a full duplex Gigabit solution up to 100m on a Cat-5+ cable.</p>	Physical characteristics	Dimensions 2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm)
	Electrical characteristics	Full configuration weight 0.07 lb. (0.03 kg)
		Power consumption typical 0.8 W
		Power consumption maximum 1.0 W
Cabling		Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;
		Maximum distance: • 100m
Services		Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Accessory Product Details

HP X120 1G SFP LC SX Transceiver (JD118B)	Ports	1 LC 1000BASE-SX port
	Connectivity	Connector type LC
		Wavelength 850 nm
A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550m on a Multimode fiber.	Physical characteristics	Dimensions 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
	Electrical characteristics	Full configuration weight 0.04 lb. (0.02 kg)
		Power consumption typical 0.8 W
		Power consumption maximum 1.0 W
	Cabling	Maximum distance: <ul style="list-style-type: none">• FDDI Grade distance = 220m• OM1 = 275m• OM2 = 500m• OM3 = Not Specified by standard Cable length up to 550m Fiber type Multi Mode
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP X120 1G SFP LC LX Transceiver (JD119B)	Ports	1 SFP 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX)
	Connectivity	Connector type LC
		Wavelength 1300 nm
A small form-factor pluggable (SFP) Gigabit LX transceiver that provides a full duplex Gigabit solution up to 550m on MMF or 10Km on SMF	Physical characteristics	Dimensions 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
	Electrical characteristics	Full configuration weight 0.04 lb. (0.02 kg)
		Power consumption typical 0.8 W
		Power consumption maximum 1.0 W
	Cabling	Cable type: Either single mode or multimode; Maximum distance: <ul style="list-style-type: none">• 550m for Multimode• 10km for Singlemode Fiber type Both
	Services	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Accessory Product Details

HP 0.5 m PremierFlex
OM3+ LC/LC Optical
Cable (BK837A)

Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um \pm 3um; Cladding diameter: 125um \pm 2um; Coating diameter: 245 \pm 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade - Low Smoke Zero Halogen (LSZH) thermoplastic.
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 1 m PremierFlex
OM3+ LC/LC Optical
Cable (BK838A)

Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core Diameter: 50um \pm 3um, Cladding diameter: 125um \pm 2um; Coating diameter: 245 \pm 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Accessory Product Details

HP 2 m PremierFlex
OM3+ LC/LC Optical
Cable (BK839A)

Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um \pm 3um, Cladding diameter: 125um \pm 2um; Coating diameter: 245 \pm 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 5 m PremierFlex
OM3+ LC/LC Optical
Cable (BK840A)

Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um \pm 3um, Cladding diameter: 125um \pm 2um; Coating diameter: 245 \pm 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Accessory Product Details

HP 15 m PremierFlex OM3+ LC/LC Optical Cable (BK841A) **Notes**

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um \pm 3um, Cladding diameter: 125um \pm 2um; Coating diameter: 245 \pm 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 30 m PremierFlex OM3+ LC/LC Optical Cable (BK842A) **Notes**

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um \pm 3um, Cladding diameter: 125um \pm 2um; Coating diameter: 245 \pm 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Accessory Product Details

HP 50 m PremierFlex OM3+ LC/LC Optical Cable (BK843A) **Notes**

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

- Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um
- Bandwidth: 3000 MHz-km @ 850nm (Laser)
- Jacket Color: Blue
- Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic
- Boot Color: White
- Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable.
- Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m
- Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45

Services

Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP RPS1600 Redundant Power System (JG136A)

Ports

8 redundant power supply ports
Restrictions: two -56V/25A DC(PoE); six -56V/8A DC(non-PoE)

Physical characteristics

Dimensions 15.63(d) x 17.32(w) x 1.74(h) in. (39.7 x 44 x 4.42 cm)

Weight 14.11 lb. (6.4 kg)

Full configuration weight 16.75 lb. (7.6 kg)

Environment

Operating temperature 14°F to 122°F (-10°C to 50°C)

Operating relative humidity 5% to 95%

Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)

Nonoperating/Storage relative humidity 5% to 95%

Altitude up to 13,123 ft. (4 km)

Acoustic Pressure: 53 dB; ISO 7779, ISO 9296

Electrical characteristics

Voltage 100-120/200-240 VAC

Current 30/60 A

Idle power 38 W

Maximum power rating 3550 W

RPS power 3200 W

PoE power 2800 W

RPS -55 V

PoE -55 V

Frequency 50/60 Hz



Accessory Product Details

Notes	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.</p> <p>With one RPS1600 Power Supply, the PRS1600 Redundant Power System can provide 1600W power output; With two PRS1600 Power Supplies, the output power is 3200W.</p>
Safety	CE Labeled; UL 60950-1; IEC 60950-1; ICES-003; FCC Part 15, Subpart B; EU RoHS Compliant; EN 60950-1/A11; C-Tick; VCCI Class A; ROHS Compliance; EN 300386
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP RPS1600 1600W AC Power Supply (JG137A)	Physical characteristics	Dimensions	8.19(d) x 4.96(w) x 1.63(h) in. (20.8 x 12.6 x 4.15 cm)
		Weight	3.02 lb. (1.37 kg)
	Environment	Operating temperature	14°F to 122°F (-10°C to 50°C)
		Operating relative humidity	5% to 95%
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	5% to 95%
	Electrical characteristics	Voltage	100-120/200-240 VAC
		Current	15/30 A
		Maximum power rating	1600 W
		Frequency	50/60 Hz
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.		

HP 5800 VPN Firewall Module (JD255A)



Accessory Product Details

Ports	2 RJ-45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 2 dual-personality ports; auto-sensing 10/100/1000Base-T or SFP 1 RJ-45 serial console port 1 Compact Flash port
Physical characteristics	Dimensions 9.84(d) x 9.84(w) x 14.45(h) in. (25 x 25 x 36.7 cm) Weight 7.72 lb. (3.5 kg)
Environment	Operating temperature 32°F to 113°F (0°C to 45°C) Operating relative humidity 10% to 95%, noncondensing
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS; RMON1; FTP
Features	Performance - 6.5Gbps Firewall Throughput - 1.8M Concurrent connection - 50K New connection per second - Max 20480 security policies - 2Gbps 3DES/AES VPN Throughput - 5000 IPSec tunnel - 4K VLAN Firewall operation mode - Routing mode - Transparent mode - Hybrid mode AAA service - Local Authentication - Standard Radius - HWTACACS+ - RADIUS domain Authentication ASPF - General TCP / UDP application - FTP/SMTP/HTTP/RTSP/H323 Protocol State Detection - SIP/MGCP/QQ/MSN Protocol State Detection - Java/ActiveX Blocking and Detection - Port mapping - Support for the fragmented packets Virtualization - 256 Virtual Firewall - 4 default Security Zone - Max 256 Security Zone NAT - NAPT - PAT - NAT Server - Port mapping - Bidirectional NAT - Static NAT Network Security - Add blacklist by hand or automatically



Accessory Product Details

- IP+MAC Binding
- ARP Reverse Query
- ARP Cheat Check
- Management ports closed by default
- DDOS
 - DNS Query Flood
 - SYN Flood
 - Auto start TCP Proxy when Detect SYN Flood
 - ICMP Flood
 - UDP Flood
 - IP Spoofing
 - SQL injection filter
- L2TP VPN
 - LNS,LAC
 - L2TP Multi-instance
- GRE
 - GRE tunneling protocol
- IPSec
 - AH/ESP
 - ESP
 - Transport/tunnel
 - NAT traversal
 - Strategy template
- IKE
 - DH
 - Pre-share Key authentication-method
 - Support aggressive mode and main exchange mode
 - IKE DPD, PKI / CA
- Network Feature
 - 802.1q VLAN
 - 4K sub-interface
 - Static and dynamic ARP
 - Multicast, PIM
 - IGMP v1/v2/v3
- Routing
 - RIP
 - OSPF
 - BGP
 - Static Route
 - policy Route
- High Availability
 - Active/Active mode
 - Active/Passive mode
 - Session Synchronization for Firewall
- System management
 - Web Management support IE/Firefox
 - Command line interface (Console/Telnet/SSH)
 - Classification Manager
 - Unified management through iMC
 - SNMPv1/v2c/v3
- Administration
 - Software Upgrades



Accessory Product Details

- Configuration Backup and Restore
- Logging/Monitoring
 - Syslog
 - Mini RMON
 - NTP
- NAT/ASPF/firewall log stream(Binary log)
- IPv6 Routing & Multicast
 - RIPng
 - OSPFv3
 - BGP4+
 - Static Route
 - Policy Route
 - PIM-SM/DM
- IPv6 Security
 - NAT-PT
 - Manual tunnel
 - IPV6 OVER ipv4 GRE tunnel
 - 6to4 tunnel (RFC3056)
 - ISATAP Tunnel
 - IPv6 Packet Filter
 - Radius
 - NAT64

Services

- 3-year, parts only, global next-day advance exchange (UZ914E)
- 3-year, 4-hour onsite, 13x5 coverage for hardware (UZ915)
- 3-year, 4-hour onsite, 24x7 coverage for hardware (UZ918E)
- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UZ922E)
- 3-year, 24x7 SW phone support, software updates (UZ925E)
- 4-year, 4-hour onsite, 13x5 coverage for hardware (UZ916E)
- 4-year, 4-hour onsite, 24x7 coverage for hardware (UZ919E)
- 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UZ923E)
- 4-year, 24x7 SW phone support, software updates (UZ926E)
- 5-year, 4-hour onsite, 13x5 coverage for hardware (UZ917E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware (UZ920E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UZ924E)
- 5-year, 24x7 SW phone support, software updates (UZ927E)
- 3 Yr 6 hr Call-to-Repair Onsite (UZ928E)
- 4 Yr 6 hr Call-to-Repair Onsite (UZ929E)
- 5 Yr 6 hr Call-to-Repair Onsite (UZ930E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols

IPv6

- | | |
|---|---|
| RFC 1981 IPv6 Path MTU Discovery | RFC 2405 The ESP DES-CBC Cipher Algorithm With Explicit IV |
| RFC 2460 IPv6 Specification | RFC 2406 IP Encapsulating Security Payload (ESP) |
| RFC 2465 Management Information Base for IP Version 6: Textual Conventions and General Group(partially support, only "IPv6 Interface Statistics table") | RFC 2410 The NULL Encryption Algorithm and Its Use With IPsec |
| RFC 3484 Default Address Selection for IPv6 | RFC 2411 IP Security Document Roadmap |
| RFC 3513 IPv6 Addressing Architecture | RFC 2451 The ESP CBC-Mode Cipher Algorithms |
| | RFC 2473 Generic Packet Tunneling in IPv6 |



Accessory Product Details

RFC 3587 IPv6 Global Unicast Address Format
RFC 4007 IPv6 Scoped Address Architecture
RFC 4862 IPv6 Stateless Address Auto-configuration

Security

RFC 1321 The MD5 Message-Digest Algorithm
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2138 RADIUS Authentication
RFC 2618 RADIUS Authentication Client MIB
RFC 2620 RADIUS Accounting Client MIB
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
draft-grant-tacacs-02 (TACACS)

VPN

RFC 1701 Generic Routing Encapsulation (GRE)
RFC 1702 Generic Routing Encapsulation over IPv4 networks.
RFC 1828 IP Authentication using Keyed MD5
RFC 1829 The ESP DES-CBC Transform
RFC 1853 IP in IP Tunneling
RFC 2085 HMAC-MD5 IP Authentication with Replay Prevention
RFC 2401 Security Architecture for the Internet Protocol
RFC 2402 IP Authentication Header
RFC 2403 The Use of HMAC-MD5-96 within ESP and AH
RFC 2404 The Use of HMAC-SHA-1-96 within ESP and AH

Specification

RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels
RFC 2661 Layer Two Tunneling Protocol "L2TP"
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
RFC 4214 Intra-Site Automatic Tunnel Addressing Protocol (ISATAP)

IKEv1

RFC 2407 The Internet IP Security Domain of Interpretation for ISAKMP
RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP).
RFC 2409 The Internet Key Exchange (IKE)
RFC 2412 The OAKLEY Key Determination Protocol
RFC 3526 More Modular Exponential (MODP) Diffie-Hellman groups for Internet Key Exchange (IKE)
RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers

PKI

RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 2511 Internet X.509 Certificate Request Message Format
RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
draft-nourse-scep-06:
PKCS#1
PKCS#10
PKCS#12
PKCS#7

HP 5820 4-port 8/4/2 Gbps FCoE SFP+ Module (JC530A)

Physical characteristics

Dimensions

8.27(d) x 6.3(w) x 1.46(h) in. (21 x 16 x 3.7 cm)

Weight

1.65 lb. (0.75 kg)

Full configuration weight

2.76 lb. (1.25 kg)

Environment

Operating temperature

32°F to 113°F (0°C to 45°C)

Operating relative humidity

5% to 95%



Accessory Product Details

	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%
	Shock and vibration	halt 30g rms
	Altitude	up to 13,123 ft. (4 km)
Notes	FCoE Features	
	• FCoE Compliance: Fibre Channel on Ethernet (FC-BB-5)/ IETF RFC 3643 draft standard	
	• FCoE Support: FIP FCoE initialization protocol/ FIP snooping/ Auto negotiation, full-duplex FC operation/ NPIV transparent connections to FC fabrics	
	• Ethernet Interface Compliance/Support: 10Gbps XAUI ports x 4 (internal)/ ETS - Enhanced transmission Selection (802.1Qaz)/ PFC - Class-based Flow Control (802.1Qbb)/ DCBX (802.1Qbb)	
	• Electrical: Connected and Activity LED controls in Ethernet mode	
	• Fibre Channel Standards: Physical Interface (FC-PI-3)/ Line Services (FC LS)/ Framing & Signaling (FC-FS-2)/ Virtual Interface Architecture Mapping (FC-VI)	
	• Fibre Channel Standards Continued.: Fabric Element MIB Specification (RFC 2837)/ Fibre Alliance MIB Specification (Version 4.0)/ Methodologies for Interconnects (FC-MI-2)/ Device Attach (FC-DA)	
	• Fibre Channel Classes of Service: Class 2/ Class 3/ Class F (inter-switch frames) connectionless Fibre Channel protocol support	
	• NPIV support:FC-DA-2/ FC-MT/ FC-FS clause 5.2.41/ FC-LS table 141 clause 5.2.41/ 04-075v0/ 03-184v1/ 03-046	
	• External Customer Interfaces: Four external SFP+ Flex Ports which configure to assume either of the following identities/ 10 Gigabit Converged Enhanced Ethernet (CEE)/ 8/4/2 Gbps Fibre Channel	
	• External Customer Interfaces Continued: RJ-45 Ethernet management port/ Unit power and system status LEDs/ Port login and activity LEDs/Recessed reset switch	
	• Media Support - Fibre Channel: Hot-pluggable/ 3.3 volt 8Gb SFP+ transceivers/ Also compatible with 4-Gbps and 2-Gbps SFPs/ Shortwave/ longwave optical	
	• Media Support - Ethernet: Hot-pluggable, 3.3 volt 10 Gigabit SFP+ transceivers/ TwinAx copper cables	
	• Other Features: SMI-S 1.1 support in firmware/ SAN boot support/Advanced Security (RADIUS, SSH, SSL)	
	• Diagnostics: Telnet/ Web browser interface/ SNMP (status only)/ Telnet/ CLI/ Web browser interface/ API interface	
	• Software/ Firmware Management Interfaces: Simple Network Management Protocol (SNMP)/ Management Information Base (MIB)/ CIM Provider/ Telnet/ CLI/Web Browser Management Interface/ API Interface	
	• Safety: USA/ Canada/ EU/ Australia/ New Zealand/ China	
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UY943E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware (UY946E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UY950E)	
	3-year, 24x7 SW phone support, software updates (UY953E)	



Accessory Product Details

1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR770E)
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR771E)
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR772E)
4-year, 4-hour onsite, 13x5 coverage for hardware (UY944E)
4-year, 4-hour onsite, 24x7 coverage for hardware (UY947E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY951E)
4-year, 24x7 SW phone support, software updates (UY954E)
5-year, 4-hour onsite, 13x5 coverage for hardware (UY945E)
5-year, 4-hour onsite, 24x7 coverage for hardware (UY948E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY952E)
5-year, 24x7 SW phone support, software updates (UY955E)
3 Yr 6 hr Call-to-Repair Onsite (UY956E)
4 Yr 6 hr Call-to-Repair Onsite (UY957E)
5 Yr 6 hr Call-to-Repair Onsite (UY958E)
1-year, 6 hour Call-To-Repair Onsite for hardware (HR774E)
1-year, 24x7 software phone support, software updates (HR773E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 5800 Access Controller Module for 64–256 Access Points (JD441A)

Ports	1 RJ-45 out-of-band management port
Physical characteristics	Dimensions 9.57(d) x 9.84(w) x 1.38(h) in. (24.3 x 25 x 3.5 cm)
	Weight 3.64 lb. (1.65 kg)
Memory and processor	Processor Eight core @ 1000 MHz, 1 GB compact flash, 2 GB DDR2 SDRAM
Performance	Switch fabric speed 8 Gbps
	MAC address table size 8,000 entries
Environment	Operating temperature 32°F to 113°F (0°C to 45°C)
	Operating relative humidity 5% to 95%, non-condensing
	Non-operating/Storage temperature -40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity 5% to 95%, non-condensing
Electrical characteristics	Maximum heat dissipation 273 BTU/hr (288.02 kJ/hr)
	Maximum power rating 80 W
Safety	UL 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; GOST; C-Tick; NOM; IEC 60950-1 (with CB report)
Emissions	EN 55022; VCCI; ICES-003; AS/NZS CISPR 22; EN 300 386; FCC Part 15; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC



Accessory Product Details

Immunity	EN	EN 61000-4-2:1995+A1:1998+A2:2001; EN 61000-4-3:2006; EN 61000-4-4:2004; EN 61000-4-5:2006; EN 61000-4-6: 1996 +A1:2001:A2:2007; EN 61000-4-8:2001; EN 61000-4-11:2004; EN 55024:1998+ A1:2001 + A2:2003
Management	IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; SNMP Manager; Telnet; HTTPS; RMON1; FTP; in-line and out-of-band; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB	
Notes	Max. number of users: 4K. Max. number of users that are supported by local authentication: 1K. Max. number of SSIDs that can be configured: 256. Max. number of users that are supported by local portal authentication: 2K. Number of ACLs: 8K.	
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
Standards and protocols	General protocols	MIBs
	RFC 768 UDP	RFC 1229 Interface MIB Extensions
	RFC 791 IP	RFC 1643 Ethernet MIB
	RFC 792 ICMP	RFC 1757 Remote Network Monitoring MIB
	RFC 793 TCP	RFC 2011 SNMPv2 MIB for IP
	RFC 826 ARP	RFC 2012 SNMPv2 MIB for TCP
	RFC 854 TELNET	RFC 2013 SNMPv2 MIB for UDP
	RFC 855 Telnet Option Specification	RFC 2571 SNMP Framework MIB
	RFC 858 Telnet Suppress Go Ahead Option	RFC 2572 SNMP-MPD MIB
	RFC 894 IP over Ethernet	RFC 2613 SMON MIB
	RFC 950 Internet Standard Subnetting Procedure	RFC 2863 The Interfaces Group MIB
	RFC 959 File Transfer Protocol (FTP)	RFC 2932IP (Multicast Routing MIB)
	RFC 1122 Host Requirements	RFC 2933 IGMP MIB
	RFC 1141 Incremental updating of the Internet checksum	Mobility
	RFC 1144 Compressing TCP/IP headers for low-speed serial links	IEEE 802.11a High Speed Physical Layer in the 5 GHz Band
	RFC 1256 ICMP Router Discovery Protocol (IRDP)	IEEE 802.11b Higher-Speed Physical Layer Extension in the 2.4 GHz Band
	RFC 1321 The MD5 Message-Digest Algorithm	IEEE 802.11d Global Harmonization
	RFC 1334 PPP Authentication Protocols (PAP)	IEEE 802.11g Further Higher Data Rate Extension in the 2.4 GHz Band
	RFC 1350 TFTP Protocol (revision 2)	IEEE 802.11i Medium Access Control (MAC) Security Enhancements
	RFC 1812 IPv4 Routing	IEEE 802.11n WLAN Enhancements for Higher Throughput
	RFC 1944 Benchmarking Methodology for Network Interconnect Devices	Network management
	RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 1155 Structure of Management Information
	RFC 2104 HMAC: Keyed-Hashing for Message Authentication	RFC 1905 SNMPv2 Protocol Operations
	RFC 2246 The TLS Protocol Version 1.0	RFC 2573 SNMPv3 Applications
	RFC 2284 EAP over LAN	RFC 2574 SNMPv3 User-based Security Model (USM)
	RFC 2644 Directed Broadcast Control	RFC 2575 VACM for SNMP
	RFC 2864 The Inverted Stack Table Extension to the Interfaces Group MIB	SNMPv1/v2c
	RFC 2866 RADIUS Accounting	QoS/CoS
	RFC 2869 RADIUS Extensions	
	RFC 3268 Advanced Encryption Standard (AES)	



Accessory Product Details

Ciphersuites for Transport Layer Security (TLS)
RFC 3619 Ethernet Automatic Protection Switching (EAPS)
draft-ietf-capwap-protocol-specification-00.txt:CAPW
AP Protocol Specification
draft-ohara-capwap-lwapp-03.txt:Light Weight Access Point Protocol

IP multicast

RFC 1112 IGMP
RFC 2236 IGMPv2
RFC 2934 Protocol Independent Multicast MIB for IPv4

IPv6

RFC 1350 TFTP
RFC 1881 IPv6 Address Allocation Management
RFC 1887 IPv6 Unicast Address Allocation Architecture
RFC 1981 IPv6 Path MTU Discovery
RFC 2292 Advanced Sockets API for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 2526 Reserved IPv6 Subnet Anycast Addresses
RFC 2563 ICMPv6
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
RFC 3484 Default Address Selection for IPv6
RFC 3587 IPv6 Global Unicast Address Format
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6

RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2475 DiffServ Architecture
RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP

Security

IEEE 802.1X Port Based Network Access Control
RFC 3394 Advanced Encryption Standard (AES) Key Wrap Algorithm
RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP) Access Control Lists (ACLs)
Guest VLAN for 802.1x
MAC Authentication
Secure Sockets Layer (SSL)
SSHv1.5 Secure Shell
SSHv2 Secure Shell
Web Authentication
WPA (Wi-Fi Protected Access)/WPA2

IKEv1

RFC 3748 - Extensible Authentication Protocol (EAP)

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