HP A12500 Switch Series

Data sheet

Product overview

The HP A12500 Switch series comprises a pair of powerful, next-generation routing switches with outstanding capacity for the network core or the data center. Besides innovative Intelligent Resilient Framework (IRF) technology that provides unprecedented levels of performance and high availability, HP A12500 series switches incorporate the Open Application Architecture (OAA), which enables flexible deployment options for new services. These switches also have energy-efficiency features that drive down operational expenses. The A12500 series is ideal for organizations contemplating large-scale data center or campus consolidations, business continuity and disaster recovery sites, metropolitan area network deployments, and other applications requiring a robust, high-performance switching platform.

Key features

- Advanced architecture: midplane, CLOS
- 6.66 Tb switching capacity, ready for 13.32 Tbps
- High-density 10 GbE access with 128 1:1. 512 4:1
- 40 GbE/100 GbE future access
- Redundant switching fabric, power supply, fan tray

Features and benefits

Quality of Service (QoS)

- **Virtual Output Queue (VoQ):** prevents head-of-line blocking (HOL) per port on peak time and distributes it over a period of time, increasing the switch performance
- **IEEE 802.1p prioritization:** delivers data to devices based on the priority and type of traffic
- **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers
- **Broadcast control:** allows limitation of broadcast traffic rate to cut down on unwanted broadcast traffic on the network
- **Advanced classifier-based QoS:** classifies traffic using multiple match criteria based on Layer 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a per-port or per-VLAN basis
- **Bandwidth shaping:**
  - **Port-based rate limiting:** provides per-port ingress/egress enforced maximum bandwidth
  - **Classifier-based rate limiting:** uses ACL to enforce maximum bandwidth for ingress/egress traffic on each port

Data center optimized

- **Very high performance without compromise:** provides 6.66 Tbps, 2160 Mpps (A12518), 3.06 Tbps, and 960 Mpps (A12508); leveraging the latest generation of ASICs, the A12500 product family offers outstanding performance and density to build next-generation data centers
- **Very high density (10 GbE):** the A12518 switch supports up to 512 10-GbE (4:1) or 128 10-GbE (1:1) per physical rack (44RU); the A12508 switch supports up to 256 10-GbE (4:1) or 64 10-GbE (1:1); with two A12508 switches per physical rack (44RU), the density becomes 512 10-GbE (4:1) or 128 10-GbE (1:1)
- **Very high density (GbE):** the A12518 switch supports up to 864 1-GbE (1:1) in a physical (44RU) rack; the A12508 switch supports up to 384 1-GbE (1:1); with two A12508 switches per physical rack (44RU), the density becomes 768 1-GbE (1:1)
- **Scalable system design:** both the A12518 and A12508 switches are built using the latest switching architectures and technologies (CLOS architecture, midplane design), providing the flexibility and scalability for future higher 10 GbE density modules as well as 40 GbE/100 GbE interfaces
- **Ultramodern architecture:** using the latest evolution in switching design, CLOS, the A12500 switch combines performance and ultimate flexibility to provide a smooth evolution path to 13.32 Tbps and potentially 25 Tbps; no other switching architecture (Shared Memory/Crossbar) scales to these levels of performance
- **Jumbo Frames:** to accelerate the level of performances, the A12500 switch supports Jumbo Frames (9K) for intra-data-center communication, or for data center to data center traffic (disaster recovery), reducing the amount of time required for data backup and recovery

Compartmentalization

- **Department protection:** using network virtualization standards (QinQ, VRF, and MPLS), the A12500 switch allows organizations to isolate different business units with different resources (VRFs); using standard-based mechanisms, the network is completely virtualized, reducing cost and operations

Management

- **IRF capability:** provides single IP address management for a resilient virtual switching fabric of up to two switches
- **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
- **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
- **Multiple configuration files:** can be stored to the flash image
- **Command-line interface (CLI):** provides a secure, easy-to-use command-line interface for configuring the module via SSH or a switch console; provides direct real-time session visibility

- **Logging:** provides local and remote logging of events via SNMP (v2c and v3) and syslog; provides log throttling and log filtering to reduce the number of log events generated
- **Management interface control:** each of the following interfaces can be enabled or disabled depending on security preferences: console port, telnet port, and SSH port
- **Out of band interface:** isolates management traffic from user data plane traffic for a complete isolation and total reachability, no matter what happens in the data plane
- **Network management:** Intelligent Management Console (IMC) centrally configures, updates, monitors, and troubleshoots
- **Network management:** SNMP v2c/v3 MIB-II with traps
- **RADIUS accounting:** logs all session details that can be used to generate usage reports or interface to a billing system
- **RMON:** provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Remote Intelligent Mirroring:** mirrors ingress ACL-selected traffic from a switch port or VLAN to a local or remote switch port anywhere on the network

Connectivity

- **IPv6 native support:**
  - **IPv6 host:** enables switches to be managed and deployed at the IPv6 network's edge
  - **Dual stack (IPv4 and IPv6):** transitions from IPv4 to IPv6, supporting connectivity for both protocols
  - **Multicast Listener Discovery (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 and OSPF routing protocols

Performance

- **6.66 Tbps (A12518) and 3.06 Tbps (A12508) fully nonblocking CLOS architecture:** includes a high-performance switch design with a nonblocking architecture
- **High-performance bandwidth:** with up to 6.66 Tbps capacity, providing nonblocking throughput for 128 10-GbE ports at Layer 2 and Layer 3 IPv4, Layer 3 IPv6, and MPLS (A12518 switch), or 64 10-GbE ports (A12508 switch)
- **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
- **High-performance processor system:** supervisory module uses three different processors to isolate key tasks: control plane (STP, OSPF, BGP, MPLS, etc.), fast recovery protocols (RRPP, BFD, etc.), and chassis management (temperature, power, etc.)

Resiliency and high availability

- **Intelligent Resilient Framework (IRF):** creates virtual resilient switching fabrics, where two or more switches perform as a single Layer 2 switch, 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, Equal-Cost Multipath (ECMP), or VRRP
- **Ultrafast protocol convergence:** enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **Device Link Detection Protocol (DLDP):** monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks
- **Complete set of routing protocols (Layer 3 IPv4 and IPv6):** doesn't require customers to think about which protocol is being supported by the A12500 switch; virtually all existing routing protocols (RIP, OSPF, IS-IS, and BGP) are supported for both Layer 3 IPv4 and Layer 3 IPv6; this is also the case for both unicast and multicast, with complete support of PIM-DM, PIM-SM, PIM-SSM, and MSDP
- **Hot patching:** the A12500 switch supports hot patching, allowing in-service patching for some isolated software problems
- **Non Stop Forwarding/Graceful Restart (NSF/GR):** using standardized-based IETF protocols, the A12500 switch provides nonstop forwarding (switching/routing) for Layer 3 routing protocols (Control Plane - OSPF, BGP, and MPLS), providing hitless failover
- **Ultrareliable architecture:** combining hardware redundancy at every layer (power supplies, fans, supervisory modules, etc.) and a multilayered software approach based on the Resilient Virtual Switching Fabric concept (using the IRF technology), the A12500 product family is able to provide the highest level of availability; following design guidelines from HP networking, customers are now able to build data centers providing an end-to-end availability reaching five 9s
- **Rapid Ring Protection Protocol (RRPP):** provides fast recovery for ring Ethernet-based topology

Layer 2 switching

- **GARP VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs
- **IP multicast snooping and data-driven IGMP:** automatically prevents flooding of IP multicast traffic
- **IEEE 802.1ad QinQ:** increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on a high-speed campus or metro network
- **BPDU tunneling:** transmits Spanning Tree Protocol BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- **VLAN support and tagging:** supports the IEEE 802.1Q (4K VLAN IDs)
- **Spanning Tree:** brought by Comware, the A12500 product family supports the entire set of STP protocols (STP, RSTP, and MSTP), facilitating a complete integration with standard networks

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
- **RIP and RIPng 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
- **Equal-Cost Multipath (ECMP):** enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth
- **Layer 3 IPv6 routing:** provides routing of IPv6 at media speed; supports static routes, RIPng, OSPFv3, IS-ISv6, and BGP4+
- **IPv6 tunneling:** allows a smooth transition from IPv4 to IPv6 by encapsulating IPv6 traffic over an existing IPv4 infrastructure
- **Complete multicast protocol stack:** PIM-DM, PIM-SM, PIM-SSM, MSDP, and extensions to BGP provide one of the most complete multicast protocol stacks
- **Policy routing:** allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies

- **MPLS support:** provides extended support of MPLS, including MPLS VPNs and MPLS Traffic Engineering (MPLS TE)
- **VPLS support:** provides extended support of VPLS for data center to data center communication at Layer 2; provides support of hierarchical VPLS for scalability

Security

- **IEEE 802.1X and RADIUS network logins:** control port-based access for authentication and accountability
- **Secure File Transfer Protocol (FTP):** allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file
- **Switch management logon security:** can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **DHCP protection:** blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Dynamic ARP protection:** blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote command-line interface (CLI) access over IP networks
- **Secure management access:** securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2 and SNMPv3
- **Access control lists (ACLs):** provide IPv4 and IPv6 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **MAC authentication:** provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication

Convergence

- **Layer 2, 3, and 4 QoS mechanisms:** support DiffServ priority tagging based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, and source port
- **IP multicast snooping and data-driven IGMP:** automatically prevents flooding of IP multicast traffic
- **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 (PIM-DM), sparse mode (PIM-SM), and source-specific mode (PIM-SSM)
- **Multicast Source Discovery Protocol (MSDP):** is used for inter-domain multicast applications, allowing multiple PIM-SM domains to interoperate
- **Multicast VLAN:** allows multiple VLANs to receive the same IPv4 or IPv6 multicast traffic, reducing network bandwidth demand by eliminating multiple streams to each VLAN

Monitor and diagnostics

- **Port mirroring:** enables traffic on a port to be simultaneously sent to a network analyzer for monitoring

Investment protection

- **Modular switch fabric:** provides investment protection by enabling future performance upgrades and increased port density
- **Environmentally friendly:** ROHS support and low power consumption based on the latest technology provide outstanding power 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)

Specifications

	 HP A12518 Switch Chassis (JF430B)	 HP A12508 Switch Chassis (JF431B)
Ports	18 open module slots 2 MPU (for management modules) slots 9 switch fabric slots Supports a maximum of 512 10-GbE ports or 864 Gigabit ports, or a combination	8 open module slots 2 MPU (for management modules) slots 9 switch fabric slots Supports a maximum of 256 10-GbE ports or 384 Gigabit ports, or a combination
Physical characteristics		
Dimensions	29.13(d) x 17.4(w) x 66.38(h) in. (74 x 44.2 x 168.6 cm) (38U height)	29.13(d) x 17.4(w) x 38.39(h) in. (74.0 x 44.2 x 97.5 cm) (22U height)
Weight	352.74 lb. (160 kg)	209.44 lb. (95 kg)
Full configuration weight	639.33 lb. (290 kg)	374.78 lb. (170 kg)
Memory and processor		
Gigabit Module	PowerPC @ 667 MHz, 512 MB RAM; packet buffer size: 512 MB RAM (Ingress, shared by 24 1-GbE ports)	PowerPC @ 667 MHz, 512 MB RAM; packet buffer size: 512 MB RAM (Ingress, shared by 24 1-GbE ports)
10G Module	PowerPC @ 667 MHz, 512 MB RAM; packet buffer size: 512 MB RAM (Ingress/shared by 2 10-GbE ports)	PowerPC @ 667 MHz, 512 MB RAM; packet buffer size: 512 MB RAM (Ingress/shared by 2 10-GbE ports)
Management Module	Primary CPU: PowerPC @ 1000 MHz, 128 MB flash MB, 256 MB compact flash, 1 GB RAM	Primary CPU: PowerPC @ 1000 MHz, 128 MB flash MB, 256 MB compact flash, 1 GB RAM
Fabric	PowerPC @ 400 MHz, 128 MB RAM MB	PowerPC @ 400 MHz, 128 MB RAM MB
Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet
Performance		
Throughput	2160 million pps	960 million pps
Routing/Switching capacity	6660 Gbps	3060 Gbps
Environment		
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Electrical characteristics		
Description		Achieved Miercom Certified Green Award 10 Gigabit Ethernet modules consume half the power compared to competitive products; redundant, scalable, 90% efficient power supplies deliver high reliability in data center; new ASIC technology has low power consumption when providing rich features
Maximum heat dissipation	32859 BTU/hr (34666.24 kJ/hr)	14587 BTU/hr (15389.29 kJ/hr)
Voltage	100-120 / 200-240 VAC	100-120 / 200-240 VAC
Maximum power rating	10700 W	4750 W
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.	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.
Safety	CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance	CE Labeled; cUL Certified; UL Listed; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60825; IEC 60950-1:2001 (with CB Report); CAN/CSA-C22.2 No. 60950-1-03; Anatel; ULAR; GOST; EN 60950-1/A11; FDA 21 CFR Subchapter J; NOM; UL 60950-1:2003; EN 60950-1:2001; ROHS Compliance
Emissions	VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	VCCI Class A; EN 55022 Class A; VCCI V-3/2000.04; ICES-003 Class A; AS/NZS CISPR22 Class A; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A
Immunity		
Generic	ETSI EN 300 386 V1.3.3	ETSI EN 300 386 V1.3.3
EN	EN 55024:1998+ A1:2001 + A2:2003	EN 55024:1998+ A1:2001 + A2:2003
ESD	EN 61000-4-2; IEC61000-4-2	EN 61000-4-2; IEC61000-4-2
Radiated	EN 61000-4-3; IEC61000-4-3	EN 61000-4-3; IEC61000-4-3
EFT/Burst	EN 61000-4-4; IEC61000-4-4	EN 61000-4-4; IEC61000-4-4
Surge	EN 61000-4-5; IEC61000-4-5	EN 61000-4-5; IEC61000-4-5
Conducted	EN 61000-4-6; IEC61000-4-6	EN 61000-4-6; IEC61000-4-6
Power frequency magnetic field	IEC 61000-4-8; EN61000-4-8	IEC 61000-4-8; EN61000-4-8
Voltage dips and interruptions	EN 61000-4-11; IEC61000-4-11	EN 61000-4-11; IEC61000-4-11
Harmonics	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3

Specifications (continued)

	HP A12518 Switch Chassis (JF430B)	HP A12508 Switch Chassis (JF431B)
Management	IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface	IMC - Intelligent Management Center; command-line interface; out-of-band management (serial RS-232C); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; terminal interface (serial RS-232C); modem interface
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UX046E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX049E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX052E) 3-year, 24x7 SW phone support, software updates (UX055E) Installation with minimum configuration, system-based pricing (UX034E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX047E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX050E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX053E) 4-year, 24x7 SW phone support, software updates (UX056E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX048E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX051E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX054E) 5-year, 24x7 SW phone support, software updates (UX057E) 3 Yr 6 hr Call-to-Repair Onsite (UX058E) 4 Yr 6 hr Call-to-Repair Onsite (UX059E) 5 Yr 6 hr Call-to-Repair Onsite (UX060E) 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.	3-year, 4-hour onsite, 13x5 coverage for hardware (UW984E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UW987E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UW990E) 3-year, 24x7 SW phone support, software updates (UW993E) Installation with minimum configuration, system-based pricing (UX034E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UW985E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UW988E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UW991E) 4-year, 24x7 SW phone support, software updates (UW994E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UW986E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UW989E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UW992E) 5-year, 24x7 SW phone support, software updates (UW995E) 3 Yr 6 hr Call-to-Repair Onsite (UW996E) 4 Yr 6 hr Call-to-Repair Onsite (UW997E) 5 Yr 6 hr Call-to-Repair Onsite (UW998E) 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.

Specifications (continued)

Standards and protocols
(applies to all products in series)

HP A12518 Switch Chassis (JF430B)

BGP
RFC 1657 Definitions of Managed Objects for BGPv4
RFC 1771 BGPv4
RFC 1772 Application of the BGP
RFC 1773 Experience with the BGP-4 Protocol
RFC 1774 BGP-4 Protocol Analysis
RFC 1965 BGP4 confederations
RFC 1997 BGP Communities Attribute
RFC 1998 PPP Gandalf FZA Compression Protocol
RFC 2385 BGP Session Protection via TCP MD5
RFC 2439 BGP Route Flap Damping
RFC 2796 BGP Route Reflection
RFC 2842 Capability Advertisement with BGP-4
RFC 2858 BGP-4 Multi-Protocol Extensions
RFC 2918 Route Refresh Capability

Denial of service protection
RFC 2267 Network Ingress Filtering
Automatic Filtering of well known Denial of Service Packets
CPU DoS Protection
Rate Limiting by ACLs

Device management
RFC 1155 Structure and Mgmt Information (SMIv1)
RFC 1157 SNMPv1/v2c
RFC 1305 NTPv3
RFC 1945 Hypertext Transfer Protocol – HTTP/1.0
RFC 2271 FrameWork
RFC 2452 MIB for TCP6
RFC 2454 MIB for UDP6
RFC 2573 (SNMPv3 Applications)
RFC 2578-2580 SMIv2
RFC 2579 (SMIv2 Text Conventions)
RFC 2580 (SMIv2 Conformance)
RFC 2819 (RMON groups Alarm, Event, History and Statistics only)
RFC 2819 RMON
RFC 3417 (SNMP Transport Mappings)
SNMP v3 and RMON RFC support
SSHv1/SSHv2 Secure Shell
TACACS/TACACS+

General protocols
IEEE 802.1ad Q-in-Q
IEEE 802.1ag Service Layer OAM
IEEE 802.1ah Provider Backbone Bridges
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.1X PAE
IEEE 802.3ab 1000BASE-T
IEEE 802.3ad Link Aggregation (LAG)
IEEE 802.3ae 10-Gigabit Ethernet
IEEE 802.3ah Ethernet in First Mile over Point to Point Fiber - EFMF
IEEE 802.3i 10BASE-T
IEEE 802.3u 100BASE-X
IEEE 802.3x Flow Control
IEEE 802.3z 1000BASE-X
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 903 RARP
RFC 951 BOOTP
RFC 959 File Transfer Protocol (FTP)

HP A12508 Switch Chassis (JF431B)

RFC 1027 Proxy ARP
RFC 1042 IP Datagrams
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 BOOTP Extensions
RFC 1812 IPv4 Routing
RFC 2131 DHCP
RFC 2338 VRRP
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2865 Remote Authentication Dial In User Service (RADIUS)

IP multicast
RFC 1112 IGMP
RFC 2236 IGMPv2
RFC 2283 Multiprotocol Extensions for BGP-4
RFC 2362 PIM Sparse Mode
RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 3376 IGMPv3
RFC 3618 Multicast Source Discovery Protocol (MSDP)

IPv6
RFC 1350 TFTP
RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPng for IPv6
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2463 ICMPv6
RFC 2473 Generic Packet Tunneling in IPv6
RFC 2475 IPv6 DiffServ Architecture
RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2740 OSPFv3 for IPv6
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
RFC 3315 DHCPv6 (client only)
RFC 3484 Default Address Selection for IPv6
RFC 3513 IPv6 Addressing Architecture
RFC 3587 IPv6 Global Unicast Address Format
RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4541 IGMP & MLD Snooping Switch
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs
IEEE8023-LAG-MIB
RFC 1213 MIB II
RFC 1229 Interface MIB Extensions
RFC 1286 Bridge MIB
RFC 1493 Bridge MIB
RFC 1573 SNMP MIB II
RFC 1643 Ethernet MIB
RFC 1657 BGP-4 MIB
RFC 1724 RIPv2 MIB
RFC 1757 Remote Network Monitoring MIB
RFC 1850 OSPFv2 MIB
RFC 2011 SNMPv2 MIB for IP
RFC 2012 SNMPv2 MIB for TCP
RFC 2013 SNMPv2 MIB for UDP
RFC 2021 RMONv2 MIB
RFC 2096 IP Forwarding Table MIB
RFC 2233 Interfaces 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-Target MIB
RFC 2613 SMON 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 2737 Entity MIB (Version 2)
RFC 2787 VRRP MIB
RFC 2819 RMON MIB
RFC 2863 The Interfaces Group MIB
RFC 2925 Ping MIB
RFC 2932IP (Multicast Routing MIB)
RFC 2933 IGMP MIB
RFC 3273 HC-RMON 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 3813 MPLS LSR MIB
RFC 3814 MPLS FTN MIB
RFC 3815 MPLS LDP 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

MPLS
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification
RFC 2209 Resource ReSerVation Protocol (RSVP)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 3031 Multiprotocol Label Switching Architecture
RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification
RFC 3107 Carrying Label Information in BGP-4
RFC 3209 RSVP-TE: Extensions to RSVP for LSP Tunnels
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3487 Graceful Restart Mechanism for LDP
RFC 4090 Fast Reroute Extensions to RSVP-TE for LSP Tunnels
RFC 4364 BGP/MPLS IP Virtual Private Networks (VPNs)
RFC 4379 Detecting Multi-Protocol Label Switched (MPLS) Data Plane Failures
RFC 4447 Pseudowire Setup and Maintenance Using LDP
RFC 4448 Encapsulation Methods for Transport of Ethernet over MPLS Networks
RFC 4664 Framework for Layer 2 Virtual Private Networks
RFC 4665 Service Requirements for Layer 2 Provider Provisioned Virtual Private Networks
RFC 4761 Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling
RFC 4762 Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling

Network management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
IEEE 802.1D (STP)
RFC 1155 Structure of Management Information
RFC 1157 SNMPv1
RFC 1215 SNMP Generic traps
RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
RFC 1905 SNMPv2 Protocol Operations

Specifications (continued)

	HP A12518 Switch Chassis (JF430B)	HP A12508 Switch Chassis (JF431B)
Standards and protocols (applies to all products in series)	RFC 2273 SNMPv3 Applications RFC 2274 USM for SNMPv3 RFC 2571 SNMP Management Frameworks RFC 2572 SNMPv3 Message Processing RFC 2573 SNMPv3 Applications RFC 2576 Coexistence between SNMP versions RFC 2578 SMIv2 RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events) RFC 3164 BSD syslog Protocol RFC 3415 SNMPv3 View-based Access Control Model VACM) ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) SNMPv1/v2c/v3 **OSPF** RFC 1245 OSPF protocol analysis RFC 1246 Experience with OSPF RFC 1587 OSPF NSSA RFC 1765 OSPF Database Overflow RFC 1850 OSPFv2 Management Information Base (MIB), traps	RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3101 OSPF NSSA RFC 3623 Graceful OSPF Restart **QoS/CoS** IEEE 802.1P (CoS) RFC 2212 Guaranteed Quality of Service RFC 2474 DS Field in the IPv4 and IPv6 Headers RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) RFC 2697 A Single Rate Three Color Marker RFC 2698 A Two Rate Three Color Marker Bi-directional Rate Shaping **Security** IEEE 802.1X Port Based Network Access Control RFC 1321 The MD5 Message-Digest Algorithm RFC 2082 RIP-2 MD5 Authentication RFC 2104 Keyed-Hashing for Message Authentication 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 RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication Access Control Lists (ACLs) Guest VLAN for 802.1x MAC Authentication SSHv2 Secure Shell Web Authentication **IKEv1** RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

HP A12500 Switch Series accessories

Modules

HP A12500 Main Processing Unit (JC072A)
HP A12508 Fabric Module (JC067B)
HP A12518 Fabric Module (JC066A)
HP A12500 48-port Gig-T LEB Module (JC074A)
HP A12500 48-port Gig-T LEC Module (JC065A)
HP A12500 48-port GbE SFP LEB Module (JC075A)
HP A12500 48-port GbE SFP LEC Module (JC069A)
HP A12500 4-port 10-GbE XFP LEB Module (JC076A)
HP A12500 4-port 10-GbE XFP LEC Module (JC070A)
HP A12500 8-port 10-GbE XFP LEB Module (JC073A)
HP A12500 8-port 10-GbE XFP LEC Module (JC068A)
HP A12500 32-port 10-GbE SFP+ REB Module (JC064A)
HP A12500 32-port 10-GbE SFP+ REC Module (JC476A)
HP A12500 Spare Power Monitor Module (JC502A)

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 X125 1G SFP RJ45 T Transceiver (JD089B)
HP X120 1G SFP LC BX 10-U Transceiver (JD098B)
HP X120 1G SFP LC BX 10-D Transceiver (JD099B)
HP X120 1G SFP LC LH100 Transceiver (JD103A)
HP X130 10G XFP SC ZR Transceiver (JD107A)
HP X130 10G XFP SC LR Transceiver (JD108B)
HP X170 1G SFP LC LH70 1550 Transceiver (JD109A)
HP X170 1G SFP LC LH70 1570 Transceiver (JD110A)
HP X170 1G SFP LC LH70 1590 Transceiver (JD111A)
HP X170 1G SFP LC LH70 1610 Transceiver (JD112A)
HP X170 1G SFP LC LH70 1470 Transceiver (JD113A)
HP X170 1G SFP LC LH70 1490 Transceiver (JD114A)
HP X170 1G SFP LC LH70 1510 Transceiver (JD115A)
HP X170 1G SFP LC LH70 1530 Transceiver (JD116A)
HP X130 10G XFP LC SR Transceiver (JD117B)
HP X120 1G SFP LC SX Transceiver (JD118B)
HP X120 1G SFP LC LX Transceiver (JD119B)
HP X135 10G XFP LC ER Transceiver (JD121A)
HP X120 100M/1G SFP LC LX Transceiver (JF832A)
HP X110 100M SFP LC FX Transceiver (JF833A)
HP X240 SFP+ SFP+ 3 m Direct Attach Cable (JD097B)
HP X240 SFP+ SFP+ 5m Direct Attach Cable (JG081B)

Cables

HP A12500 Side Cable Management Guide (JC084A)
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 A12500 AC Power Entry Module (JF426A)
HP A12500 2000W AC Power Supply (JF429A)

Fan Tray

HP A12508 Fan Assembly (JC081A)
HP A12518 Fan Assembly (JC080A)
HP A12508 Optional Air Filter (JC082A)
HP A12518 Optional Air Filter (JC083A)

Memory

HP A-Series 1GB SDRAM (JC071A)

Products within this series have achieved sufficient scores in each of the rated criteria to achieve the Miercom Certified Green distinction Award. See the Specifications section of this series for more information.

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