

Overview

HP 10500 Switch Series

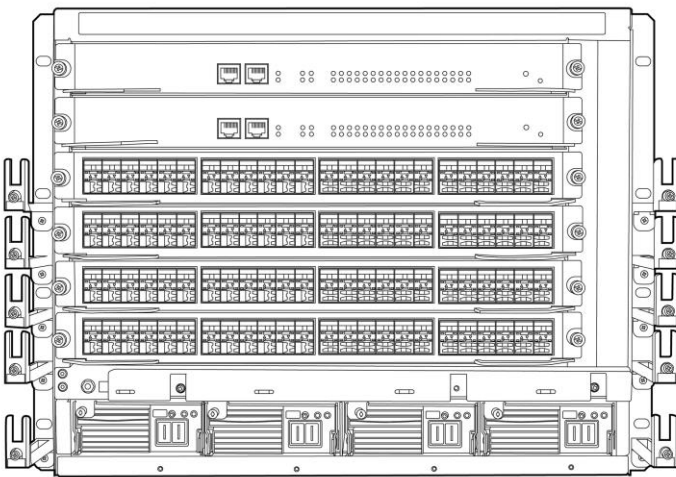
Models

| | |
|---------------------------|--------|
| HP 10504 Switch Chassis | JC613A |
| HP 10508 Switch Chassis | JC612A |
| HP 10508-V Switch Chassis | JC611A |
| HP 10512 Switch Chassis | JC748A |

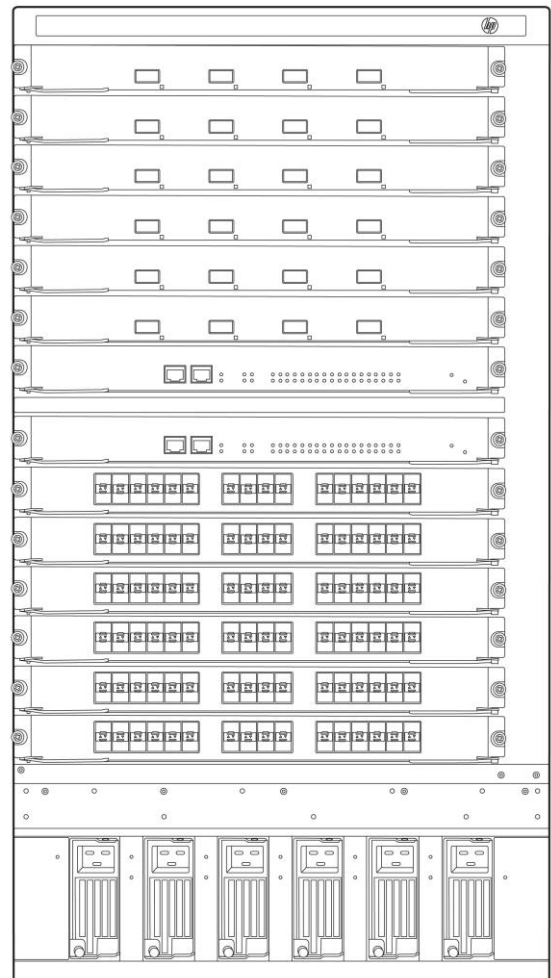
Product overview

The HP 10500 Switch Series sets a new benchmark for performance, reliability, and scalability with next-generation Clos architecture. Designed for enterprise campus core networks, the 10500 Switch Series enables a cloud-connected and rich-media-capable infrastructure. The switch series provides 1/10/40/100 GbE port density, 3-microsecond latency, and very low energy consumption.

With HP Intelligent Resilient Fabric (IRF) technology, the scalability and resiliency of the 10500 switch series can be extended and virtualized across up to four chassis with a single management interface—enabling flatter, more agile networks. This switch series, along with the entire HP FlexNetwork architecture, can be seamlessly managed through the HP Intelligent Management Center (IMC), which provides a single-pane-of-glass management view of the infrastructure.

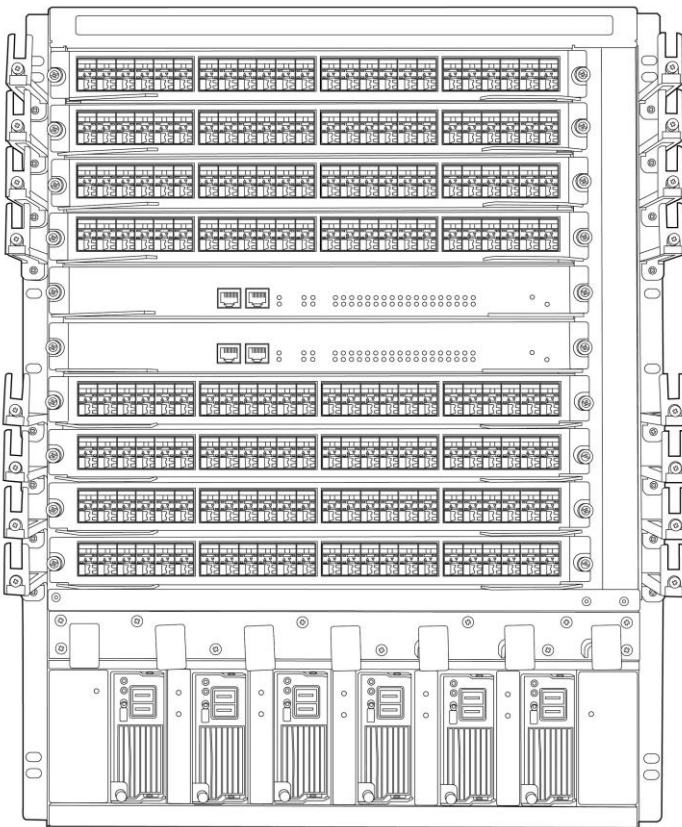


HP 10504 Switch Chassis

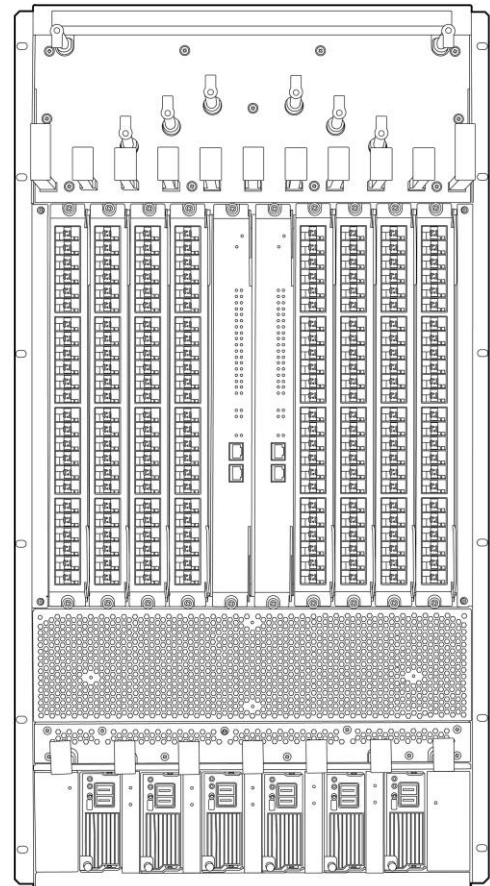


HP 10512 Switch Chassis

Overview



HP 10508 Switch Chassis



HP 10508-V Switch Chassis

Key features

- Advanced, next-generation Clos architecture
- Up to 13.76 terabits-per-second switching capacity
- Feature-rich switch with IPv6 and MPLS functionality
- HP IRF technology virtualizes up to four chassis
- Ultra-high 1/10/40/100 GbE density, including wire-speed on all ports

Features and benefits

Product architecture

- **Advanced Comware modular operating system**
brings native high stability, independent process monitoring, and restart through the modular design and multiple processes of HP Comware v7 software; allows individual software modules to be upgraded for higher availability and supports enhanced serviceability functions
- **In-service software upgrade (ISSU)**
Provides an upgrade of the entire chassis or an individual task or process, with zero packet loss
- **Distributed architecture with separation of data and control planes**
Delivers enhanced fault tolerance and facilitates continuous operation and zero service disruption during planned or unplanned control-plane events
- **Multitenant Device Context (MDC)**
Virtualizes a physical switch into multiple logical devices, with each logical switch having its own processes,

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configuration, and administration

Performance

- **High-speed fully distributed architecture**
provides up to 11.52 Tb/s switching capacity with released line cards and up to 13.72 Tb/s switching fabric capacity with Type D fabric; modules provide nonblocking wirespeed 10GbE/40GbE performance and future 100GbE expansion capability; with four fabrics, the switch delivers up to 8.571 billion pps throughput; all switching and routing is performed in the I/O modules; meets the demand of bandwidth-intensive applications today and in the future
- **Scalable system design**
provides investment protection to support future technologies and higher-speed connectivity, as the switch is designed for increased backplane bandwidth
- **Flexible chassis selection**
enables you to tailor product selections to your budget with a choice of four chassis: the 10504 switch (four open module slots), 10508 switch (eight open module slots), 10508-V switch (eight vertical open module slots), and 10512 switch (12 open module slots)

Connectivity

- **High-density port connectivity**
Offers up to 12 interface module slots; provides up to 96 40GbE ports, 576 10GbE ports, and 576 gigabit fiber/electrical ports per system
- **Jumbo frames**
Allows high-performance backups and disaster-recovery systems; provide a maximum frame size of 9K bytes
- **Loopback**
supports internal loopback testing for maintenance purposes and an increase in availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility
- **Ethernet operations, administration and maintenance (OAM):**
detects data link layer problems that occurred in the "last mile" using the IEEE 802.3ah OAM standard; monitors the status of the link between two devices
- **Flexible port selection**
provides a combination of fiber and copper interface modules, 100/1000BASE-X auto-speed selection, and 10/100/1000BASE-T auto-speed detection plus auto duplex and MDI/MDI-X
- **Monitor link**
collects statistics on performance and errors on physical links, increasing system availability (Comware v5 only)
- **Dual-personality functionality**
includes four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, and -LH, or 100-FX
- **Packet storm protection**
protects against unknown broadcast, unknown multicast, or unicast storms with user-defined thresholds
- **Flow control**
provides back pressure using standard IEEE 802.3x, reducing congestion in heavy traffic situations

Quality of Service (QoS)

- **IEEE 802.1p prioritization**
delivers data to devices based on the priority and type of traffic
- **Class of Service (CoS)**
sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ
- **Bandwidth shaping**
 - **Port-based rate limiting**
provides per-port ingress-/egress-enforced increased bandwidth
 - **Classifier-based rate limiting**

Overview

- uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port
- **Reduced bandwidth**
 - provides per-port, per-queue egress-based reduced bandwidth
- **Traffic policing**
 - supports Committed Access Rate (CAR) and line rate
- **Weighted random early detection (WRED)/random early detection (RED)**
 - delivers congestion avoidance capabilities through the use of queue management algorithm
- **Powerful QoS feature**
 - supports the following congestion actions: strict priority (SP) queuing, weighted round robin (WRR), weighted fair queuing (WFQ), and WRED

Resiliency and high availability

- **Redundant/Load-sharing fabrics, management, fan assemblies, and power supplies**
 - increase total performance and power available while providing hitless, stateful failover
- **All hot-swappable modules**
 - Allows replacement of modules without any impact on other modules
- **Separate data and control paths**
 - separates control from services and keeps service processing isolated; increases security and performance
- **Passive design system**
 - delivers increased system reliability as the backplane has no active components
- **Intelligent Resilient Fabric (IRF)**
 - creates virtual resilient switching fabrics, where two or more switches perform as a single L2 switch and L3 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; can eliminate the need for complex protocols like Spanning Tree Protocol, Equal-Cost Multipath (ECMP), or VRRP, thereby simplifying network operation
- **IRF capability**
 - provides single IP address management for a resilient virtual switching fabric of up to four switches
- **Rapid Ring Protection Protocol (RRPP)**
 - provides standard sub-200 ms recovery for ring-based Ethernet topology (Comware v5 only)
- **Virtual Router Redundancy Protocol (VRRP)**
 - allows groups of two routers to dynamically back each other up to create highly available routed environments
- **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
- **Hitless patch upgrades**
 - allows patches and new service features to be installed without restarting the equipment, increasing network uptime and facilitating maintenance
- **IEEE 802.3ad LACP**
 - Supports up to 128 trunks, each with 8 links per trunk; and provides support for static or dynamic groups and a user-selectable hashing algorithm
- **Graceful restart**
 - supports graceful restart for OSPF, IS-IS, BGP, LDP, and RSVP; the network remains stable during the active-standby switchover; after the switchover, the device quickly learns the network routes by communicating with adjacent routers; forwarding remains uninterrupted during the switchover to achieve nonstop forwarding (NSF)
- **Ultrafast protocol convergence (sub second) with standard-based failure detection—Bidirectional Forwarding Detection (BFD)**
 - Enables link connectivity monitoring and reduces network convergence time for the routing information protocol (RIP), OSPF, BGP, IS-IS, VRRP, MPLS, and IRF
- **Smart link**
 - allows 100 ms failover between links (Comware v5 only)
- **Multiple internal power supplies**
 - provides high reliability; 10504 switch provides 3+1 redundancy; 10508, 10508-V, and 10512 switches provide 5+1

Overview

redundancy

Virtual private network (VPN)

- **IPSec**
provides secure tunneling over an untrusted network such as the Internet or a wireless network; offers data confidentiality, authenticity, and integrity between two network endpoints
- **Generic Routing Encapsulation (GRE)**
transports Layer 2 connectivity over a Layer 3 path in a secured way; enables the segregation of traffic from site to site
- **Manual or automatic Internet Key Exchange (IKE)**
provides both manual or automatic key exchange required for the algorithms used in encryption or authentication; auto-IKE allows automated management of the public key exchange, providing the highest levels of encryption

Management

- **Management interface control**
enables or disables each of the following interfaces depending on security preferences: console port, Telnet port, or reset button
- **Industry-standard CLI with a hierarchical structure**
reduces training time and expenses, and increases productivity in multivendor installations
- **Management security**
restricts access to critical configuration commands; offers multiple privilege levels with password protection; ACLs provide Telnet and SNMP access; local and remote syslog capabilities allow logging of all access
- **SNMPv1, v2, and v3**
provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption
- **sFlow (RFC 3176)**
provides scalable ASIC-based wirespeed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **Remote monitoring (RMON)**
Uses standard SNMP to monitor essential network functions; and supports events, alarms, history, and statistics groups as well as a private alarm extension group
- **FTP, TFTP, and SFTP support**
offers different mechanisms for configuration updates; FTP allows bidirectional transfers over a TCP/IP network; trivial FTP (TFTP) is a simpler method using User Datagram Protocol (UDP); Secure File Transfer Protocol (SFTP) runs over an SSH tunnel to provide additional security
- **Debug and sampler utility**
supports ping and traceroute for both IPv4 and IPv6
- **Network Time Protocol (NTP)**
synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time
- **Network Quality Analyzer (NQA)**
analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays and file transfer rates; allows a network manager to determine overall network performance and to diagnose and locate network congestion points or failures
- **Information center**
provides a central repository for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**
advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications

Overview

- **Dual flash images**
provides independent primary and secondary operating system files for backup while upgrading
- **Multiple configuration files**
stores easily to the flash image

Layer 2 switching

- **VLAN**
Supports up to 4,096 port-based or IEEE 802.1Q-based VLANs; also supports MAC-based VLANs, protocol-based VLANs, and IP-subnet-based VLANs for added flexibility (Comware v7 supports port-based VLANs only)
- **Bridge Protocol Data Unit (BPDU) tunneling**
transmits Spanning Tree Protocol BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- **GARP VLAN Registration Protocol**
allows automatic learning and dynamic assignment of VLANs (Comware v5 only)
- **Port mirroring**
duplicates port traffic (ingress and egress) to a local or remote monitoring port; supports four mirroring groups, with an unlimited number of ports per group
- **Spanning Tree Protocol**
supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- **Internet Group Management Protocol (IGMP) and Multicast**
controls and manages the flooding of multicast packets in a Layer 2 network
- **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
- **Per-VLAN spanning tree plus**
Allows each VLAN to build a separate spanning tree to improve link bandwidth usage in network environments with multiple VLANs (Comware v5 only)
- **Isolation at data link layer with private VLANs**
provides, through a two-tier VLAN structure, an additional layer of protection, simplifying network configuration while saving VLAN resources

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
- **User Datagram Protocol (UDP) helper**
redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP)**
simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets
- **Domain Name System (DNS)**
provides a distributed database that translates domain names and IP addresses, which simplifies network design; supports client and server

Layer 3 routing

- **Static IPv4 routing**
provides simple manually configured IPv4 routing
- **Routing Information Protocol (RIP)**
uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes

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- loop protection
- **Open shortest path first (OSPF)**
delivers faster convergence; uses this link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Intermediate system to intermediate system (IS-IS)**
uses a path vector Interior Gateway Protocol (IGP), which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **Border Gateway Protocol 4 (BGP-4)**
delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks
- **Policy-based routing**
makes routing decisions based on policies set by the network administrator
- **IP performance optimization**
provides a set of tools to improve the performance of IPv4 networks; includes directed broadcasts, customization of TCP parameters, support of ICMP error packets, and extensive display capabilities
- **Unicast Reverse Path Forwarding (uRPF)**
limits erroneous or malicious traffic in accordance with RFC 3074
- **Static IPv6 routing**
provides simple, manually configured IPv6 routing
- **Dual IP stack**
maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- **Routing Information Protocol next generation (RIPng)**
extends RIPv2 to support IPv6 addressing
- **OSPFv3**
provides OSPF support for IPv6
- **IS-IS for IPv6**
extends IS-IS to support IPv6 addressing
- **BGP+**
extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **Multiprotocol Label Switching (MPLS)**
uses BGP to advertise routes across Label Switched Paths (LSPs), but uses simple labels to forward packets from any Layer 2 or Layer 3 protocol, thus reducing complexity and increasing performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks
- **Multiprotocol Label Switching (MPLS) Layer 3 VPN**
allows Layer 3 VPNs across a provider network; uses MP-BGP to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility
- **Multiprotocol Label Switching (MPLS) Layer 2 VPN**
establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Virtual Private LAN Service (VPLS)**
establishes point-to-multipoint Layer 2 VPNs across a provider network
- **Super VLAN**
saves IP address space using the RFC 3069 standard (also called VLAN Aggregation)
- **Equal-Cost Multipath (ECMP)**
enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth
- **IPv6 tunneling**
Provides an important element for the transition from IPv4 to IPv6; allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6-to-4, intra-site-automatic-tunnel-addressing-protocol (ISATAP) tunnels, and IPv6 VPN provider-edge router tunnel

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Security

- **Access control list (ACL)**
supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **Remote Authentication Dial-In User Service (RADIUS)**
eases switch security access administration by using a password authentication server
- **Terminal Access Controller Access-Control System (TACACS+)**
delivers an authentication tool using TCP with encryption of the full authentication request, providing additional security
- **Switch management logon security**
helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication
- **Secure shell (SSHv2)**
uses external servers to securely log in to a remote device; with authentication and encryption, it protects against IP spoofing and plain-text password interception; increases the security of Secure FTP (SFTP) transfers
- **DHCP snooping**
helps ensure that DHCP clients receive IP addresses from authorized DHCP servers and maintain a list of DHCP entries for trusted ports; prevents reception of fake IP addresses and reduces ARP attacks, improving security
- **IP Source Guard**
filters packets on a per-port basis, which prevents illegal packets from being forwarded
- **ARP attack protection**
Protects from attacks using a large number of ARP requests by using a host-specific, user-selectable threshold
- **Port security**
allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **IEEE 802.1X**
provides port-based user authentication with support for Extensible Authentication Protocol (EAP) MD5, TLS, TTLS, and PEAP with choice of AES, TKIP, and static or dynamic WEP encryption for protecting wireless traffic between authenticated clients and the access point
- **Media access control (MAC) authentication**
provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication
- **Multiple user authentication methods**
 - **IEEE 802.1X**
uses an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server to authenticate in accordance with industry standards
 - **Web-based authentication**
provides a browser-based environment, similar to IEEE 802.1X, to authenticate clients that do not support the IEEE 802.1X supplicant
 - **MAC-based authentication**
authenticates the client with the RADIUS server based on the client's MAC address
- **DHCP protection**
blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Endpoint Admission Defense (EAD)**
provides security policies to users accessing a network

Convergence

- **LLDP-MED (Media Endpoint Discovery)**
defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **Protocol Independent Multicast (PIM)**
defines modes of Internet IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; supports PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Mode (SSM)
- **Multicast Source Discovery Protocol (MSDP)**

Overview

- allows multiple PIM-SM domains to interoperate; is used for inter-domain multicast applications (Comware v5 only)
- **Internet Group Management Protocol (IGMP)**
utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3
- **Multicast Border Gateway Protocol (MBGP)**
allows multicast traffic to be forwarded across BGP networks and kept separate from unicast traffic
- **Multicast Listener Discovery (MLD) protocol**
establishes, maintains, and manages IPv6 multicast groups and networks; supports v1 and v2 and utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM)
- **Multicast VLAN**
allows multiple VLANs to receive the same IPv4 or IPv6 multicast traffic, lessening network bandwidth demand by reducing or eliminating multiple streams to each VLAN
- **Voice VLAN**
automatically assigns VLAN and priority for IP phones, simplifying network configuration and maintenance (Comware v5 only)

Integration

- **Open Application Architecture (OAA)**
provides high-performance application-specific modules fully integrated with the switching architecture; uses the chassis high-speed backplane to access network-related data; increases performance, reduces costs, and simplifies network management
- **Local and global server load-balancing module**
Improves traffic distribution using powerful scheduling algorithms, including L4 to L7 services; and monitors the health status of servers and firewalls (JD252A Comware v5 only)
- **NetStream module**
Provides traffic analysis and statistics capture to allow network administrators to rapidly identify network anomalies and security threats as well as obtain capacity planning information; and supports NetFlow v5 and v9 (JD254A Comware v5 only)
- **Unified wired-WLAN module**
Supports up to 1,024 access points per module; can be used with select HP access points (refer to the HP 10500/7500 20G Unified Wired-WLAN Module data sheet for more details); provides N+1, N+N, and 1+1 redundancy with sub-second failovers; offers IPv4/IPv6 and end-to-end QoS; and includes flexible forwarding modes as well as Wi-Fi clear connect radio-frequency optimization and integrated IDS
- **VPN 20Gbps 10500 Firewall Module**
provides enhanced stateful packet inspection and filtering; supports flexible security zones and virtual firewall containment; delivers advanced VPN services with 3DES and AES encryption at high performance and low latency; offers Web content filtering and application prioritization and optimization

Additional information

- **Green initiative support**
provides support for RoHS and WEEE regulations
- **OPEX savings**
simplifies and streamlines deployment, management, and training through the use of a common operating system, thereby cutting costs as well as reducing the risk of human errors associated with having to manage multiple operating systems across different platforms and network layers
- **Unified HP Comware operating system with modular architecture**
provides an easy-to-enhance-and-extend feature set, which doesn't require whole-scale changes; all switching, routing, and security platforms leverage the Comware OS, a common unified modular operating system

Warranty and support

- **1-year Warranty 2.0**

Overview

advance hardware replacement with 10-calendar-day delivery (available in most countries)

- **Electronic and telephone support (for Warranty 2.0)**

limited electronic and 24x7 telephone support is available from HP for the entire warranty period; to reach our support centers, refer to <http://www.hp.com/networking/contact-support>; for details on the duration of support provided with your product purchase, refer to <http://www.hp.com/networking/warrantysummary>

- **Software releases**

to find software for your product, refer to <http://www.hp.com/networking/support>; for details on the software releases available with your product purchase, refer to <http://www.hp.com/networking/warrantysummary>

Software-defined networking

- **OpenFlow 1.3**

enables SDN to provide an end-to-end solution to automate the network, allowing for rapid application deployments (Comware v7 only)

Configuration

Build To Order: BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

HP 10504 Switch Chassis JC613A

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 8U - Height

HP 10508 Switch Chassis JC612A

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 14U - Height

HP 10508-V Switch Chassis JC611A

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 20U - Height

HP 10512 Switch Chassis JC748A

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 18U - Height

Box Level Integration CTO Models

CTO Solution Sku

HP 105xx CTO Switch Solution JG504A

- SSP trigger sku

CTO Switch Chassis

HP 10504 Switch Chassis JC613A

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules

See Configuration Note:1, 2

Configuration

- Must select min 1 Management Module
- Must select min 1 Power Supply
- 8U - Height

HP 10508 Switch Chassis

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 14U - Height

JC612A

See Configuration Note:1, 2

HP 10508-V Switch Chassis

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 20U - Height

JC611A

See Configuration Note:1, 2

HP 10512 Switch Chassis

- Must select min 1 Interface Module
- Must select min 4 Fabric Modules
- Must select min 1 Management Module
- Must select min 1 Power Supply
- 18U - Height

JC748A

See Configuration Note:1, 2

Configuration Rules:

- Note 1 If the Switch Chassis is to be Factory Integrated (CTO), Then the #0D1 is required on the Switch Chassis and integrated to the JG504A - HP 105xx CTO Enablement. (Min 1/Max 1 Switch per SSP)
- Note 2 If this Switch is selected, Then a Minimum of 1 factory integrated accessory must be ordered and integrated to CTO chassis. See Menu below, option must have a #0D1 to be integrated to the CTO Chassis.

Internal Power Supplies

(Switch 10504) System (std 0 // max 4) User Selection (min 3 1 // max 4) per switch enclosure

10504 provides 3+1 Redundancy. Select an appropriate number of power supplies based on the maximum output power of your system and redundancy requirements. For component power consumption consult the install guide.

(Switch 10508 and ,10508-V and 10512) System (std 0 // max 6) User Selection (min 5 1 // max 6) per switch enclosure

10512 ,10508-V and 10512 provides 5+1 Redundancy. Select an appropriate number of power supplies based on the maximum output power of your system and redundancy requirements. For component power consumption consult the install guide.

HP 10500 2500W AC Power Supply

JC610A

Configuration

| | |
|---|---------------------------------------|
| <ul style="list-style-type: none"> includes 1 x c19, 2500w | See Configuration Note: 1,2,3 |
| PDU Cable NA/MEX/TW/JP <ul style="list-style-type: none"> C19 PDU Jumper Cord (NA/MEX/TW/JP) | JC610A#B2B |
| PDU Cable ROW <ul style="list-style-type: none"> C19 PDU Jumper Cord (ROW) | JC610A#B2C |
| High Volt Switch to Wall Power Cord <ul style="list-style-type: none"> NEMA L6-20P Cord (NA/MEX/JP/TW) | JC610A#B2E |
| HP 10500 2400W DC Power Supply | JC747A See Configuration Note:1, 6 |

Configuration Rules:

- Note 1** If more than 1 power supply is selected they, must all be the same Sku number.
- Note 2** Localization required on orders without #B2B, #B2C or #B2E options.
- Note 3** #B2E is Offered only in NA, Mexico, Taiwan and Japan.
- Note 6** One of these cables is required when ordering this power supply: (Use #B01 if switch is CTO) - if applicable
- | | |
|---|--------|
| HP 10500 -48V 3m DC Power Supply Cable | JG390A |
| HP 10500 -48V 15m DC Power Supply Cable | JG391A |
- Remarks:** "Drop down under power supply should offer the following options and results:
 Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
 Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)
 High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)"

Modules

Interface Modules

(10504 Switch Only) System (std 0 // max 4) User Selection (min 1 // max 4) per enclosure

(10508 and 10508-V Switch Only) System (std 0 // max 8) User Selection (min 1 // max 8) per enclosure

(10512 Switch Only) System (std 0 // max 12) User Selection (min 1 // max 12) per enclosure

Configuration

| | |
|--|--|
| HP 10500 4-port 10GbE XFP SE Module <ul style="list-style-type: none">min=0 \ max=4 XFP Transceivers | JC620A See Configuration Note:4 |
| HP 10500 4-port 10GbE XFP EB Module <ul style="list-style-type: none">min=0 \ max=4 XFP Transceivers | JC627A See Configuration Note:4 |
| HP 10500 8-port 10GbE SFP+ EB Module <ul style="list-style-type: none">min=0 \ max=8 SFP+ Transceivers | JC629A See Configuration Note:1, 3 |
| HP 10500 8-port 10GbE SFP+ EA Module <ul style="list-style-type: none">min=0 \ max=8 SFP+ Transceivers | JC630A See Configuration Note:1, 3 |
| HP 10500 8-port 10GbE SFP+ SE Module <ul style="list-style-type: none">min=0 \ max=8 SFP+ Transceivers | JC631A See Configuration Note:1, 3 |
| HP 10500 16-port 10GbE SFP+ SC Module <ul style="list-style-type: none">min=0 \ max=16 SFP+ Transceivers | JC628A See Configuration Note:1, 3 |
| HP 10500 16p GbE/10GbE SFP+ SF Mod <ul style="list-style-type: none">min=0 \ max=16 SFP+ Transceivers | JH193A See Configuration Note:1, 3, 13 |
| HP 10500 24p GbE/10GbE SFP+ EC Mod <ul style="list-style-type: none">min=0 \ max=24 SFP+ Transceivers | JH194A See Configuration Note:1, 3, 13 |
| HP 10500 48-port GbE SFP SE Module <ul style="list-style-type: none">min=0 \ max=48 SFP Transceivers | JC619A See Configuration Note:1, 2 |
| HP 10500 44p GbE/4p 10GbE SFP+ SE Mod <ul style="list-style-type: none">min=0 \ max=44 SFP \ min=0 \ max=4 SFP+ Transceivers | JH191A See Configuration Note:1, 2, 3, 13 |
| HP 10500 48-port GbE SFP EA Module <ul style="list-style-type: none">min=0 \ max=48 SFP Transceivers | JC622A See Configuration Note:1, 2 |
| HP 10500 48-port GbE SFP EB Module <ul style="list-style-type: none">min=0 \ max=48 SFP Transceivers | JC625A See Configuration Note:1, 2 |
| HP 10500 24p GbE / 2p 10GbE XFP SE Mod <ul style="list-style-type: none">min=0 \ max=2 XFP min=0 \ max=24 SFP Transceivers | JC617A See Configuration Note:1, 2, 4 |

Configuration

| | |
|--|---|
| HP 10500 24p GbE / 2p 10GbE XFP EA Mod <ul style="list-style-type: none">min=0 \ max=2 XFP min=0 \ max=24 SFP Transceivers | JC621A See Configuration Note:1, 2, 4 |
| HP 10500 24p GbE / 2p 10GbE XFP EB Mod <ul style="list-style-type: none">min=0 \ max=2 XFP min=0 \ max=24 SFP Transceivers | JC626A See Configuration Note:1, 2, 4 |
| HP 10500 24p 1/10GBASE-T SF Mod <ul style="list-style-type: none">No Transceivers | JG394A |
| HP 10500 48-port Gig-T EA Module <ul style="list-style-type: none">No Transceivers | JC623A |
| HP 10500 48-port Gig-T SE Module <ul style="list-style-type: none">No Transceivers | JC618A |
| HP 10500 48p 1000BASE-T SE Mod <ul style="list-style-type: none">No Transceivers | JH192A See Configuration Note:13 |
| HP 10500/11900/7500 20Gbps VPN FW Module <ul style="list-style-type: none">min=0 \ max=2 SFP Transceivers | JG372A See Configuration Note:6,8 |
| HP 7500 Load Balancing Module <ul style="list-style-type: none">No supported Transceivers | JD252A See Configuration Note:6,9 |
| HP 7500 SSL VPN Module w/500-user Lic <ul style="list-style-type: none">No supported Transceivers | JD253A See Configuration Note:6,9 |
| HP 7500 NetStream Monitoring Module <ul style="list-style-type: none">No supported Transceivers | JD254A See Configuration Note:6,9 |
| HP 10500 32-port 10GbE SFP+ SF Module <ul style="list-style-type: none">min=0 \ max=32 SFP or SFP+ Transceivers | JC755A See Configuration Note:1, 3 |
| HP 10500 48p GbE/10GbE SFP+ SG Mod <ul style="list-style-type: none">min=0 \ max=48 SFP or SFP+ Transceivers | JH197A See Configuration Note:1, 3, 13 |

Configuration

| | |
|---|---|
| HP 10500 48-port 10GbE SFP+ SF Module <ul style="list-style-type: none"> min=0 \ max=48 SFP or SFP+ Transceivers | JC756A See Configuration Note:1, 3 |
| HP 10500 4-port 40GbE QSFP+ SF Module <ul style="list-style-type: none"> min=0 \ max=4 QSFP+ Transceivers | JC757A See Configuration Note:5 |
| HP 10500 16p GbE SFP/8p GbE Cmbo SE Mod <ul style="list-style-type: none"> min=0 \ max=24 SFP Transceivers | JC763A See Configuration Note:1 |
| HP 10500 6p 40GbE QSFP+ EC Mod <ul style="list-style-type: none"> min=0 \ max=6 QSFP+ Transceivers | JH195A See Configuration Note:5, 13 |
| HP 10500 8p 40GbE QSFP+ SF Module <ul style="list-style-type: none"> min=0 \ max=8 QSFP+ Transceivers | JG392A See Configuration Note:5 |
| HP 10500 4p 40GbE CFP SF Module <ul style="list-style-type: none"> min=0 \ max=4 CFP Transceivers | JG396A See Configuration Note:7 |
| HP 10500 2p 100GbE CFP SE Mod <ul style="list-style-type: none"> min=0 \ max=2 CFP Transceivers | JG916A See Configuration Note:12, 13 |
| HP 10500 2p 100GbE CFP EC Mod <ul style="list-style-type: none"> min=0 \ max=2 CFP Transceivers | JH196A See Configuration Note:12, 13 |
| HP 10500/7500 20G Unified Wired-WLAN Mod <ul style="list-style-type: none"> No supported Transceivers | JG639A See Configuration Note:6,11 |

Configuration Rules:

| | |
|---------------|--|
| Note 1 | The following Transceivers install into this Module: (Use #0D1 if switch is CTO) - if applicable |
| | 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 X120 1G SFP LC LH100 Transceiver JD103A |
| | HP X125 1G SFP LC LH40 1310nm Transceiver JD061A |
| | HP X120 1G SFP LC LH40 1550nm Transceiver JD062A |
| | HP X120 1G SFP RJ45 T Transceiver JD089B |
| | HP X120 1G SFP LC SX Transceiver JD118B |

Configuration

| | |
|---------------------------------------|--------|
| HP X120 1G SFP LC LX Transceiver | JD119B |
| HP X125 1G SFP LC LH70 Transceiver | JD063B |
| HP X120 1G SFP LC BX 10-U Transceiver | JD098B |
| HP X120 1G SFP LC BX 10-D Transceiver | JD099B |

Note 2 The following Transceivers install into this Module (Use #OD1 if switch is CTO) - if applicable:

| | |
|---|--------|
| HP X110 100M SFP LC LH40 Transceiver | JD090A |
| HP X110 100M SFP LC LH80 Transceiver | JD091A |
| HP X115 100M SFP LC FX Transceiver | JD102B |
| HP X110 100M SFP LC LX Transceiver | JD120B |
| HP X115 100M SFP LC BX 10-U Transceiver | JD100A |
| HP X115 100M SFP LC BX 10-D Transceiver | JD101A |

Note 3 The following Transceivers install into this Module (Use #OD1 or #B01 if switch is CTO) - if applicable:

| | |
|---|--------|
| HP X130 10G SFP+ LC SR Transceiver | JD092B |
| HP X130 10G SFP+ LC LRM Transceiver | JD093B |
| HP X130 10G SFP+ LC LR Transceiver | JD094B |
| HP X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable | JD095C |
| HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable | JD096C |
| HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable | JD097C |
| HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable | JG081C |
| HP X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable | JC784C |
| HP X130 10G SFP+ LC ER 40km Transceiver | JG234A |

Note 4 The following Transceivers install into this Module (Use #OD1 if switch is CTO) - if applicable:

| | |
|---|--------|
| HP X135 10G XFP LC ER Transceiver | JD121A |
| HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver | JD108B |
| HP X130 10G XFP LC SR Transceiver | JD117B |
| HP X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver | JD107A |

Note 5 The following 40G Transceivers install into this Module (Use #OD1 or #B01 if switch is CTO) - if applicable:

| | |
|--|--------|
| HP X140 40G QSFP+ MPO SR4 Transceiver | JG325B |
| HP X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver | JG709A |
| HP X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable | JG326A |
| HP X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable | JG327A |
| HP X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable | JG328A |
| HP X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable | JG329A |
| HP X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable | JG330A |
| HP X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable | JG331A |
| HP X130 10G SFP+ LC LH 80km Transceiver | JG915A |

Note 6 These modules do not count towards the Minimum 1 module requirement.

Note 7 The following CFP Transceivers install into this Module:

| | |
|--|--------|
| HP X140 40G CFP LC LR4 10km SM Transceiver | JC857A |
|--|--------|

Configuration

| | |
|---------|---|
| Note 8 | <p>HP X125 1G SFP LC LH40 1310nm Transceiver JD061A</p> <p>HP X120 1G SFP LC LH40 1550nm Transceiver JD062A</p> <p>HP X125 1G SFP LC LH70 Transceiver JD063B</p> <p>HP X120 1G SFP LC SX Transceiver JD118B</p> <p>HP X120 1G SFP LC LX Transceiver JD119B</p> |
| Note 9 | <p>These modules are Not Supported with Management Modules JG496A - HP 10500 Type A MPU w/Comware v7 OS, JH198A - HP 10500 Type D w/Comware v7 OS MPU.</p> <p>They are Only Supported with Management Modules JC614A - HP 10500 Main Processing Unit and JG375A - HP 10500 TAA Main Processing Unit.</p> |
| Note 11 | <p>Maximum of this Module per Chassis:</p> <p>JC612A, JG821A, JC611A, JG822A min=0\max=7 per Chassis</p> <p>JC613A, JG820A min=0\max=3 per Chassis</p> <p>JC748A, JG823A min=0\max=11 per Chassis</p> <p>There are no restrictions on which slots these modules may go in.</p> |
| Note 12 | <p>The following Transceivers install into this Module</p> <p>HP X150 100G CFP LC LR4 10km SM Transceiver JG829A</p> |
| Note 13 | <p>These modules are Only Supported with Management Modules JG496A - HP 10500 Type A MPU w/Comware v7 OS, JH198A - HP 10500 Type D w/Comware v7 OS MPU.</p> <p>They are Not Supported with Management Modules JC614A - HP 10500 Main Processing Unit and JG375A - HP 10500 TAA Main Processing Unit.</p> |
| Remark: | <p>JD253A - Additional User licenses available below in the 'Switch Enclosure Options' category.</p> <p>JG639A and JG645A - Additional AP licenses available below in the 'Switch Enclosure Options' category.</p> |

Fabric Modules

System (std 0 // max 4) User Selection (min 4 // max 4) per enclosure

| | |
|---|--|
| HP 10508/10508-V 720Gbps Type A Fabric Module | <p>JC616A</p> <p>See Configuration Note:2, 4</p> |
| <p>HP 10504 880Gbps Type B Fabric Module</p> <ul style="list-style-type: none"> • No supported Transceivers | <p>JC751A</p> <p>See Configuration Note:1, 4</p> |
| <p>HP 10508/10508-V 1.04Tbps Type B Fabric Module</p> <ul style="list-style-type: none"> • No supported Transceivers | <p>JC753A</p> <p>See Configuration Note:2, 4</p> |
| <p>HP 10512 1.52Tbps Type B Fabric Module</p> <ul style="list-style-type: none"> • No supported Transceivers | <p>JC749A</p> <p>See Configuration Note:3, 4</p> |
| HP 10512 3.44Tbps Type D Fabric Module | <p>JC750A</p> |

Configuration

- No supported Transceivers See Configuration Note:3, 4

HP 10504 1.2Tbps Type D Fabric Module

JC752A

- No supported Transceivers See Configuration Note:1, 4

HP 10508/10508-V 2.32Tbps Type D Fabric Module

JC754A

- No supported Transceivers See Configuration Note:2, 4

Configuration Rules:

Note 1 These Modules install to the following switches: (Use #0D1 if switch is CTO) - if applicable
HP 10504 Switch Chassis JC613A

Note 2 These Modules install to the following switches: (Use #0D1 if switch is CTO) - if applicable
HP 10508-V Switch Chassis JC611A
HP 10508 Switch Chassis JC612A

Note 3 These Modules install to the following switches: (Use #0D1 if switch is CTO) - if applicable
HP 10512 Switch Chassis JC748A

Note 4 If more than 1 Fabric Module is selected, they must be of the same Type.

Management Modules

System (standard 0 // maximum 2) User Selection (minimum 1 // maximum 2) per enclosure

HP 10500 Main Processing Unit

JC614A

See Configuration Note:1

HP 10500 Type A MPU w/Comware v7 OS

JG496A

See Configuration Note:1,2,3

HP 10500 Type D w/Comware v7 OS MPU

JH198A

See Configuration Note:1,2,3,5

Configuration Rules:

Note 1 If 2 Management Module are selected, they must be the same Sku number.

Note 2 Note in Watson: This MPU supports CWv7 only and may not have some features from CWv5.

Note 3 The following Interface Modules are Not Supported with this Management Module:
HP 7500 Load Balancing Module JD252A

Configuration

| | |
|--|--------|
| HP 10500/7500 SSL VPN Module with 500-user License | JD253A |
| HP 10500/7500 NetStream Monitoring Module | JD254A |

Note 5 This Management Module only supports Type B and D Fabric Modules.

The following Fabric Modules are **Not Supported** with this Management Module:

| | |
|---|--------|
| HP 10504 400Gbps Type A Fabric Module | JC615A |
| HP 10508/10508-V 720Gbps Type A Fabric Module | JC616A |

Remarks: For Switch 10504, these modules can only be inserted into Slots 0 and 1. For Switches 10508 and 10508-V, these modules can only be inserted into Slots 4 and 5. For Switch 10512, these modules can only be inserted into Slots 6 and 7.

Management module JH198A only carries BIN executable, not IPE, upon release.

Transceivers

SFP Transceivers

| | |
|---|--------|
| HP X110 100M SFP LC LH40 Transceiver | JD090A |
| HP X110 100M SFP LC LH80 Transceiver | JD091A |
| HP X115 100M SFP LC FX Transceiver | JD102B |
| HP X110 100M SFP LC LX Transceiver | JD120B |
| HP X110 100M SFP LC BX 10-U Transceiver | JD100A |
| HP X110 100M SFP LC BX 10-D Transceiver | JD101A |
| HP X120 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 X120 1G SFP LC LH40 1550nm XCVR | JD062A |
| HP X120 1G SFP LC SX Transceiver | JD118B |
| HP X120 1G SFP LC LX Transceiver | JD119B |
| HP X125 1G SFP LC LH40 1310nm XCVR | JD061A |
| HP X125 1G SFP LC LH70 Transceiver | JD063B |
| 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 |

SFP+ Transceivers

| | |
|---|------------|
| HP X130 10G SFP+ LC SR Transceiver | JD092B |
| HP X130 10G SFP+ LC LRM Transceiver | JD093B |
| HP X130 10G SFP+ LC LR Transceiver | JD094B |
| HP X130 10G SFP+ LC ER 40km Transceiver | JG234A |
| HP X240 10G SFP+ SFP+ 0.65m DAC Cable | JD095C#B01 |

Configuration

| | |
|--------------------------------------|------------|
| HP X240 10G SFP+ SFP+ 1.2m DAC Cable | JD096C#B01 |
| HP X240 10G SFP+ SFP+ 3m DAC Cable | JD097C#B01 |
| HP X240 10G SFP+ SFP+ 5m DAC Cable | JG081C#B01 |
| HP X240 10G SFP+ 7m DAC Cable | JC784C#B01 |

XFP Transceivers

| | |
|---|--------|
| HP X130 10G XFP LC ZR 1550nm Transceiver | JD107A |
| HP X130 10G XFP LC SR Transceiver | JD117B |
| HP X130 10G XFP LC LR 1310nm Transceiver | JD108B |
| HP X135 10G XFP LC ER Transceiver | JD121A |
| HP X180 10G XFP LC LH 80km 1559.79nm DWDM Transceiver | JG232A |
| HP X180 10G XFP LC LH 80km 1558.98nm DWDM Transceiver | JG231A |
| HP X180 10G XFP LC LH 80km 1542.94nm DWDM Transceiver | JG230A |
| HP X180 10G XFP LC LH 80km 1542.14nm DWDM Transceiver | JG229A |
| HP X180 10G XFP LC LH 80km 1540.56nm DWDM Transceiver | JG228A |
| HP X180 10G XFP LC LH 80km 1539.77nm DWDM Transceiver | JG227A |
| HP X180 10G XFP LC LH 80km 1538.98nm DWDM Transceiver | JG226A |

QSFP+ Transceivers

| | |
|---------------------------------------|------------|
| HP X140 40G QSFP+ LC LR4 SM XCVR | JG661A |
| HP X140 40G QSFP+ MPO SR4 XCVR | JG325B |
| HP X140 40G QSFP+ CSR4 300m XCVR | JG709A |
| HP X240 40G QSFP+ QSFP+ 1m DAC Cable | JG326A#B01 |
| HP X240 40G QSFP+ QSFP+ 3m DAC Cable | JG327A#B01 |
| HP X240 40G QSFP+ QSFP+ 5m DAC Cable | JG328A#B01 |
| HP X240 QSFP+ 4x10G SFP+ 1m DAC Cable | JG329A#B01 |
| HP X240 QSFP+ 4x10G SFP+ 3m DAC Cable | JG330A#B01 |
| HP X240 QSFP+ 4x10G SFP+ 5m DAC Cable | JG331A#B01 |
| HP X130 10G SFP+ LC LH 80km XCVR | JG915A |

CFP Transceivers

| | |
|--|--------|
| HP X140 40G CFP LC LR4 10km SM Transceiver | JC857A |
| HP X150 100G CFP LC LR4 10km SM XCVR | JG829A |

Switch Enclosure Options

Mounting Kit

| | |
|--|--------|
| HP X421 Chassis Universal Rck Mntg Kit | JC665A |
|--|--------|

[See Configuration Note:1](#)

Configuration Rules:

Note 1 If any 10500 switch is installed into a rack, then this Rack Mounting kit is required.

Configuration

Remarks: Default a quantity of 1 when Switch is selected

Software Licenses

(10504 Switch Only) System (std 0 // max 3) User Selection (min 0 // max 3) per enclosure

(10508 and 10508-V Switch Only) System (std 0 // max 7) User Selection (min 0 // max 7) per enclosure

(10512 Switch Only) System (std 0 // max 11) User Selection (min 0 // max 11) per enclosure

HP 10500/7500 Wrd-WLAN Mod 128 AP E-LTU JG649AAE
See Configuration Note:1

HP Unified Wired-WLAN 128 AP Redundant E-LTU JG902AAE
See Configuration Note:1

Configuration Rules:

Note 1 Only applies to JG639A and JG645A.

Fans

| | |
|---|--------|
| HP 10504 Spare Fan Assembly | JC632A |
| HP 10508 Spare Fan Assembly | JC633A |
| HP 10508-V Spare Fan Assembly | JC634A |
| HP 10512 Spare Top Fan Tray Assembly | JC758A |
| HP 10512 Spare Bottom Fan Tray Assembly | JC773A |

Options for the SSL VPN Service Board Modules (JD253x)

HP 7500 SSL VPN 1000-user License JD257A
See Configuration Note:1, 2

- min=0\ max=10 per SSL

HP 7500 SSL VPN 1000-user E-LTU JD257AAE
See Configuration Note:1, 2

- min=0\ max=10 per SSL

HP 7500 SSL VPN 5000-user License JD258A
See Configuration Note:1, 2

- min=0\ max=2 per SSL

HP 7500 SSL VPN 5000-user E-LTU JD258AAE
See Configuration Note:1, 2

- min=0\ max=10 per SSL

Configuration Rules:

Note 1 Any mixture of (JD257A, JD258A, JD257AAE, JD258AAE) that equals 10,000 LTU's is the max per any JD253A

Configuration

module the maximum would be based on the module and not the entire switch.

Note 2 SSL VPN User Licenses are only supported on the following modules:
JD253A - HP 7500 SSL VPN Module with 500-User License

Power Supply Cables

(JC747A) System (std 0 // max 1) User Selection (min 1 // max 1) per DC Power Supply

HP 10500 -48V 3m DC Power Supply Cable
HP 10500 -48V 15m DC Power Supply Cable

JG390A#B01
JG391A#B01

Technical Specifications

HP 10504 Switch Chassis (JC613A)

| | | |
|-----------------------------------|---|--|
| I/O ports and slots | 4 I/O module slots Supports a maximum of 192 10GbE ports or 96 1/10GBASE-T ports or 192 Gigabit Ethernet ports or 32 40GbE ports, or a combination | |
| Additional ports and slots | 2 MPU (for management modules) slots 4 switch fabric slots | |
| Power supplies | 4 power supply slots 1 minimum power supply required (ordered separately) | |
| Fan tray | includes: 1 x JC632A 1 fan tray slot | |
| Physical characteristics | Dimensions | 17.32(w) x 25.98(d) x 13.9(h) in (43.99 x 65.99 x 35.31 cm) (8U height) |
| | Weight | 85.32 lb (38.7 kg) |
| | Full configuration weight | 183.14 lb (83.07 kg) |
| Memory and processor | Management module | Dual Core MIPS @ 1.2 GHz, 512 MB flash, 8 GB DDR2 SDRAM |
| Mounting and enclosure | Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only | |
| Performance | Throughput | up to 2.9 Bpps (64-byte packets) |
| | Switching capacity | 3.8 Tbps |
| | Routing table size | 512000 entries (IPv4), 128000 entries (IPv6) |
| | MAC address table size | 512000 entries |
| Reliability | Availability | 99.999% |
| Environment | Operating temperature | 32°F to 113°F (0°C to 45°C) |
| | Operating relative humidity | 10% to 95%, noncondensing |
| | Nonoperating/Storage temperature | -40°F to 158°F (-40°C to 70°C) |
| | Nonoperating/Storage relative humidity | 5% to 95%, noncondensing |
| | Altitude | up to 13,123 ft (4 km) |
| Electrical characteristics | Acoustic | Low-speed fan: 62.3 dB, High-speed fan: 75.5 dB |
| | Frequency | 50/60 Hz |
| | Voltage | 100 - 120 / 200 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen) |
| | Current | 16/60 A |
| | Power output | 2500 W |
| | Notes | Based on common power supply 2,500 W (AC) |
| | Safety | CAN/CSA 22.2 No. 60950-1; FCC Part 15, Subpart B; FDA 21 CFR Subchapter J; ROHS Compliance; IEC 60950-1 :Second Edition ; EN 60950-1:2006 + A11:2009; AS/NZS 60950-1; IEC 60825-1; UL 60950-1, 2nd Edition; EN60825-2:2004+A1:2007 |
| Emissions | VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR22 Class A; FCC (CFR 47, Part 15) Class A; GB9254 | |
| Immunity | Generic | Directive 2004/108/EC |
| | EN | EN 55024:1998+ A1:2001 + A2:2003; ETSI EN 300 386 V1.3.3 |
| | ESD | EN 61000-4-2 |
| | Radiated | EN 61000-4-3 |

Technical Specifications

| | | |
|-------------------|---|-----------------------------|
| | EFT/Burst | EN 61000-4-4 |
| | Surge | EN 61000-4-5 |
| | Conducted | EN 61000-4-6 |
| | Power frequency magnetic field | IEC 61000-4-8 |
| | Voltage dips and interruptions | EN 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; out-of-band management (serial RS-232C); SNMP Manager; Telnet; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB | |
| Notes | These modules - JC614A, JG252A, and JG254A - are only available using Comware v5 for the 10500. Please see an HP representative or technical notes for details. | |
| Services | Refer to the HP website at: http://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 10508 Switch Chassis (JC612A)

| | | |
|-----------------------------------|--|--|
| I/O ports and slots | 8 I/O module slots Supports a maximum of 384 10GbE ports or 192 1/10GBASE-T ports or 384 Gigabit Ethernet ports or 64 40GbE ports, or a combination | |
| Additional ports and slots | 2 MPU (for management modules) slots 4 switch fabric slots | |
| Power supplies | 6 power supply slots 1 minimum power supply required (ordered separately) | |
| Fan tray | includes: 1 x JC633A 1 fan tray slot | |
| Physical characteristics | Dimensions | 17.32(w) x 25.98(d) x 24.41(h) in (43.99 x 65.99 x 62 cm) (14U height) |
| | Weight | 125 lb (56.7 kg) |
| | Full configuration weight | 285.34 lb (129.43 kg) |
| Memory and processor | Management module | Dual Core MIPS @ 1.2 GHz, 512 MB flash, 8 GB DDR2 SDRAM |
| Mounting and enclosure | Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only | |
| Performance | Throughput | up to 5.7 Bpps (64-byte packets) |
| | Switching capacity | 7.7 Tbps |
| | Routing table size | 512000 entries (IPv4), 128000 entries (IPv6) |
| | MAC address table size | 512000 entries |
| Reliability | Availability | 99.999% |
| Environment | Operating temperature | 32°F to 113°F (0°C to 45°C) |
| | Operating relative humidity | 10% to 95%, noncondensing |
| | Nonoperating/Storage temperature | -40°F to 158°F (-40°C to 70°C) |
| | Nonoperating/Storage relative humidity | 5% to 95%, noncondensing |
| | Altitude | up to 13,123 ft (4 km) |
| | Acoustic | Low-speed fan: 63 dB, High-speed fan: 75.8 dB |

Technical Specifications

| | | |
|-----------------------------------|---|---|
| Electrical characteristics | Frequency | 50/60 Hz |
| | Voltage | 100 - 120 / 200 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen) |
| | Current | 16/60 A |
| | Power output | 2500 W |
| | Notes | Based on common power supply 2,500 W (AC) |
| Safety | CAN/CSA 22.2 No. 60950-1; FCC Part 15, Subpart B; FDA 21 CFR Subchapter J; ROHS Compliance; IEC 60950-1 :Second Edition ; EN 60950-1:2006 + A11:2009; AS/NZS 60950-1; IEC 60825-1; UL 60950-1, 2nd Edition; EN60825-2:2004+A1:2007 | |
| Emissions | VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR22 Class A; FCC (CFR 47, Part 15) Class A; GB9254 | |
| Immunity | Generic | Directive 2004/108/EC |
| | EN | EN 55024:1998+ A1:2001 + A2:2003; ETSI EN 300 386 V1.3.3 |
| | ESD | EN 61000-4-2 |
| | Radiated | EN 61000-4-3 |
| | EFT/Burst | EN 61000-4-4 |
| | Surge | EN 61000-4-5 |
| | Conducted | EN 61000-4-6 |
| | Power frequency magnetic field | IEC 61000-4-8 |
| | Voltage dips and interruptions | EN 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; out-of-band management (serial RS-232C); SNMP Manager; Telnet; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB | |
| Notes | These modules - JC614A, JG252A, and JG254A - are only available using Comware v5 for the 10500. Please see an HP representative or technical notes for details. | |
| Services | Refer to the HP website at: http://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 10508-V Switch Chassis (JC611A)

| | | |
|-----------------------------------|--|--|
| I/O ports and slots | 8 I/O module slots Supports a maximum of 384 10GbE ports or 192 1/10GBASE-T ports or 384 Gigabit Ethernet ports or 64 40GbE ports, or a combination | |
| Additional ports and slots | 2 MPU (for management modules) slots 4 switch fabric slots | |
| Power supplies | 6 power supply slots 1 minimum power supply required (ordered separately) | |
| Fan tray | includes: 1 x JC634A 1 fan tray slot | |
| Physical characteristics | Dimensions | 17.32(w) x 25.98(d) x 34.88(h) in (43.99 x 65.99 x 88.6 cm) (20U height) |
| | Weight | 169.53 lb (76.9 kg) |
| | Full configuration weight | 331.31 lb (150.28 kg) |
| Memory and processor | Management module | Dual Core MIPS @ 1.2 GHz, 512 MB flash, 8 GB DDR2 SDRAM |

Technical Specifications

| | | |
|-----------------------------------|--|---|
| Mounting and enclosure | Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only | |
| Performance | Throughput | up to 5.7 Bpps (64-byte packets) |
| | Switching capacity | 7.7 Tbps |
| | Routing table size | 512000 entries (IPv4), 128000 entries (IPv6) |
| | MAC address table size | 512000 entries |
| Reliability | Availability | 99.999% |
| Environment | Operating temperature | 32°F to 113°F (0°C to 45°C) |
| | Operating relative humidity | 10% to 95%, noncondensing |
| | Nonoperating/Storage temperature | -40°F to 158°F (-40°C to 70°C) |
| | Nonoperating/Storage relative humidity | 5% to 95%, noncondensing |
| | Altitude | up to 13,123 ft (4 km) |
| | Acoustic | Low-speed fan: 61.6 dB, High-speed fan: 72.6 dB |
| Electrical characteristics | Frequency | 50/60 Hz |
| | Voltage | 100 - 120 / 200 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen) |
| | Current | 16/60 A |
| | Power output | 2500 W |
| | Notes | Based on common power supply 2,500 W (AC) |
| Safety | CAN/CSA 22.2 No. 60950-1; FCC Part 15, Subpart B; FDA 21 CFR Subchapter J; ROHS Compliance; IEC 60950-1 :Second Edition ; EN 60950-1:2006 + A11:2009; AS/NZS 60950-1; IEC 60825-1; UL 60950-1, 2nd Edition; EN60825-2:2004+A1:2007 | |
| Emissions | VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR22 Class A; FCC (CFR 47, Part 15) Class A; GB9254 | |
| Immunity | Generic | Directive 2004/108/EC |
| | EN | EN 55024:1998+ A1:2001 + A2:2003; ETSI EN 300 386 V1.3.3 |
| | ESD | EN 61000-4-2 |
| | Radiated | EN 61000-4-3 |
| | EFT/Burst | EN 61000-4-4 |
| | Surge | EN 61000-4-5 |
| | Conducted | EN 61000-4-6 |
| | Power frequency magnetic field | IEC 61000-4-8 |
| | Voltage dips and interruptions | EN 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; out-of-band management (serial RS-232C); SNMP Manager; Telnet; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB | |
| Notes | These modules - JC614A, JG252A, and JG254A - are only available using Comware v5 for the 10500. Please see an HP representative or technical notes for details. | |
| Services | Refer to the HP website at: http://www.hp.com/networking/services for details on the service-level | |

Technical Specifications

descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 10512 Switch Chassis (JC748A)

| | | |
|-----------------------------------|--|---|
| I/O ports and slots | 12 I/O module slots Supports a maximum of 576 10GbE ports or 288 1/10GBASE-T ports or 576 Gigabit Ethernet ports or 96 40GbE ports, or a combination | |
| Additional ports and slots | 2 MPU (for management modules) slots 4 switch fabric slots | |
| Power supplies | 6 power supply slots 1 minimum power supply required (ordered separately) | |
| Fan tray | includes: 1 x JC758A, JC773A 2 fan tray slots | |
| Physical characteristics | Dimensions | 17.32(w) x 25.98(d) x 31.38(h) in (44.0 x 66.0 x 79.7 cm) (18U height) |
| | Weight | 166.23 lb (75.4 kg) |
| | Full configuration weight | 380.95 lb (172.8 kg) |
| Memory and processor | Management module | Dual Core MIPS @ 1.2 GHz, 512 MB flash, 8 GB DDR2 SDRAM |
| Mounting and enclosure | Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); Horizontal surface mounting only | |
| Performance | Throughput | up to 8.6 Bpps (64-byte packets) |
| | Switching capacity | 11.5 Tbps |
| | Routing table size | 512000 entries (IPv4), 128000 entries (IPv6) |
| | MAC address table size | 512000 entries |
| Reliability | Availability | 99.999% |
| Environment | Operating temperature | 32°F to 113°F (0°C to 45°C) |
| | Operating relative humidity | 10% to 95%, noncondensing |
| | Nonoperating/Storage temperature | -40°F to 158°F (-40°C to 70°C) |
| | Nonoperating/Storage relative humidity | 5% to 95%, noncondensing |
| | Altitude | up to 13,123 ft (4 km) |
| | Acoustic | Low-speed fan: 66 dB, High-speed fan: 79 dB |
| Electrical characteristics | Frequency | 50/60 Hz |
| | Voltage | 100 - 120 / 200 - 240 VAC, rated -48 to -60 VDC, rated (depending on power supply chosen) |
| | Current | 16/60 A |
| | Power output | 2500 W |
| | Notes | Based on common power supply 2,500 W (AC) |
| Safety | CAN/CSA 22.2 No. 60950-1; FCC Part 15, Subpart B; FDA 21 CFR Subchapter J; ROHS Compliance; IEC 60950-1 :Second Edition ; EN 60950-1:2006 + A11:2009; AS/NZS 60950-1; IEC 60825-1; UL 60950-1, 2nd Edition; EN60825-2:2004+A1:2007 | |
| Emissions | VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR22 Class A; FCC (CFR 47, Part 15) Class A; GB9254 | |
| Immunity | Generic | Directive 2004/108/EC |
| | EN | EN 55024:1998+ A1:2001 + A2:2003; ETSI EN 300 386 V1.3.3 |
| | ESD | EN 61000-4-2 |

Technical Specifications

| | |
|---------------------------------------|-----------------------------|
| Radiated | EN 61000-4-3 |
| EFT/Burst | EN 61000-4-4 |
| Surge | EN 61000-4-5 |
| Conducted | EN 61000-4-6 |
| Power frequency magnetic field | IEC 61000-4-8 |
| Voltage dips and interruptions | EN 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; out-of-band management (serial RS-232C); SNMP Manager; Telnet; terminal interface (serial RS-232C); modem interface; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB

Notes These modules - JC614A, JG252A, and JG254A - are only available using Comware v5 for the 10500. Please see an HP representative or technical notes for details.

Services Refer to the HP website at: <http://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)

BGP
 RFC 1771 BGPv4
 RFC 1772 Application of the BGP
 RFC 1965 BGP4 confederations
 RFC 1997 BGP Communities Attribute
 RFC 1998 An Application of the BGP Community Attribute in Multi-home Routing
 RFC 2385 BGP Session Protection via TCP MD5
 RFC 2439 BGP Route Flap Damping
 RFC 2796 BGP Route Reflection
 RFC 2858 BGP-4 Multi-Protocol Extensions
 RFC 2918 Route Refresh Capability
 RFC 3065 Autonomous System Confederations for BGP
 RFC 3392 Capabilities Advertisement with BGP-4
 RFC 4271 A Border Gateway Protocol 4 (BGP-4)
 RFC 4272 BGP Security Vulnerabilities Analysis
 RFC 4273 Definitions of Managed Objects for BGP-4
 RFC 4274 BGP-4 Protocol Analysis
 RFC 4275 BGP-4 MIB Implementation Survey
 RFC 4276 BGP-4 Implementation Report
 RFC 4277 Experience with the BGP-4 Protocol
 RFC 4360 BGP Extended Communities Attribute
 RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
 RFC 5291 Outbound Route Filtering Capability for BGP-4
 RFC 5292 Address-Prefix-Based Outbound Route Filter for BGP-4

Denial of service protection
 RFC 2267 Network Ingress Filtering
 Automatic filtering of well-known denial-of-service

MIBs
 RFC 1156 (TCP/IP MIB)
 RFC 1157 A Simple Network Management Protocol (SNMP)
 RFC 1215 A Convention for Defining Traps for use with the SNMP
 RFC 1229 Interface MIB Extensions
 RFC 1493 Bridge MIB
 RFC 1573 SNMP MIB II
 RFC 1643 Ethernet MIB
 RFC 1657 BGP-4 MIB
 RFC 2011 SNMPv2 MIB for IP
 RFC 2012 SNMPv2 MIB for TCP
 RFC 2013 SNMPv2 MIB for UDP
 RFC 2096 IP Forwarding Table MIB
 RFC 2233 Interface 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 2573 SNMP-Target MIB
 RFC 2578 Structure of Management Information Version 2 (SMIPv2)
 RFC 2580 Conformance Statements for SMIPv2
 RFC 2618 RADIUS Client MIB
 RFC 2620 RADIUS Accounting MIB
 RFC 2665 Ethernet-Like-MIB
 RFC 2668 802.3 MAU MIB
 RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
 RFC 2787 VRRP MIB
 RFC 2819 RMON MIB
 RFC 2925 Ping MIB

Technical Specifications

packets
CPU DoS Protection
Rate Limiting by ACLs

Device management

RFC 1157 SNMPv1/v2c
RFC 1305 NTPv3
RFC 1902 (SNMPv2)
RFC 2271 FrameWork
RFC 2579 (SMIv2 Text Conventions)
RFC 2580 (SMIv2 Conformance)
RFC 2819 (RMON groups Alarm, Event, History and Statistics only)
HTTP, SSHv1, and Telnet
Multiple Configuration Files
Multiple Software Images
SSHv1/SSHv2 Secure Shell
TACACS/TACACS+
Web UI

General protocols

IEEE 802.1ad Q-in-Q
IEEE 802.1ag Service Layer OAM
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.1X PAE
IEEE 802.3ab 1000BASE-T
IEEE 802.3ac (VLAN Tagging Extension)
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3ae 10-Gigabit Ethernet
IEEE 802.3ah Ethernet in First Mile over Point to Point Fiber - EFMF
IEEE 802.3ba 40 and 100 Gigabit Ethernet Architecture
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 894 IP over Ethernet
RFC 903 RARP
RFC 906 TFTP Bootstrap
RFC 925 Multi-LAN Address Resolution
RFC 950 Internet Standard Subnetting Procedure
RFC 959 File Transfer Protocol (FTP)
RFC 1027 Proxy ARP
RFC 1035 Domain Implementation and Specification

RFC 2932IP (Multicast Routing MIB)
RFC 2933 IGMP MIB
RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 3414 SNMP-User based-SM MIB
RFC 3415 SNMP-View based-ACM MIB
RFC 3417 Simple Network Management Protocol (SNMP) over IEEE 802 Networks
RFC 3418 MIB for SNMPv3
RFC 3595 Textual Conventions for IPv6 Flow Label
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)
RFC 4444 Management Information Base for Intermediate System to Intermediate System (IS-IS)

MPLS

RFC 2205 Resource ReSerVation Protocol
RFC 2209 Resource ReSerVation Protocol (RSVP)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 3031 Multiprotocol Label Switching Architecture
RFC 3032 MPLS Label Stack Encoding
RFC 3107 Carrying Label Information in BGP-4
RFC 3212 Constraint-Based LSP Setup using LDP
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3487 Graceful Restart Mechanism for LDP
RFC 3564 Requirements for Support of Differentiated Service-aware MPLS Traffic Engineering
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

Technical Specifications

| | |
|---|--|
| RFC 1042 IP Datagrams | RFC 5036 LDP Specification |
| RFC 1058 RIPv1 | |
| RFC 1142 OSI IS-IS Intra-domain Routing Protocol | Network management |
| RFC 1195 OSI ISIS for IP and Dual Environments | IEEE 802.1AB Link Layer Discovery Protocol (LLDP) |
| RFC 1213 Management Information Base for Network Management of TCP/IP-based internets | RFC 1155 Structure of Management Information |
| RFC 1256 ICMP Router Discovery Protocol (IRDP) | RFC 1157 SNMPv1 |
| RFC 1293 Inverse Address Resolution Protocol | RFC 1448 Protocol Operations for version 2 of the Simple Network Management Protocol (SNMPv2) |
| RFC 1305 NTPv3 | RFC 2211 Controlled-Load Network |
| RFC 1350 TFTP Protocol (revision 2) | RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events) |
| RFC 1393 Traceroute Using an IP Option | RFC 3176 sFlow |
| RFC 1519 CIDR | RFC 3411 SNMP Management Frameworks |
| RFC 1531 Dynamic Host Configuration Protocol | RFC 3412 SNMPv3 Message Processing |
| RFC 1533 DHCP Options and BOOTP Vendor Extensions | RFC 3414 SNMPv3 User-based Security Model (USM) |
| RFC 1591 DNS (client only) | RFC 3415 SNMPv3 View-based Access Control Model VACM) |
| RFC 1624 Incremental Internet Checksum | ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) |
| RFC 1701 Generic Routing Encapsulation | |
| RFC 1721 RIP-2 Analysis | OSPF |
| RFC 1723 RIP v2 | RFC 1245 OSPF protocol analysis |
| RFC 1812 IPv4 Routing | RFC 1246 Experience with OSPF |
| RFC 2030 Simple Network Time Protocol (SNTP) v4 | RFC 1765 OSPF Database Overflow |
| RFC 2082 RIP-2 MD5 Authentication | RFC 1850 OSPFv2 Management Information Base (MIB), traps |
| RFC 2091 Trigger RIP | RFC 2154 OSPF w/ Digital Signatures (Password, MD-5) |
| RFC 2131 DHCP | RFC 2328 OSPFv2 |
| RFC 2138 Remote Authentication Dial In User Service (RADIUS) | RFC 2370 OSPF Opaque LSA Option |
| RFC 2236 IGMP Snooping | RFC 3101 OSPF NSSA |
| RFC 2338 VRRP | RFC 3137 OSPF Stub Router Advertisement |
| RFC 2453 RIPv2 | RFC 3623 Graceful OSPF Restart |
| RFC 2644 Directed Broadcast Control | RFC 3630 Traffic Engineering Extensions to OSPFv2 |
| RFC 2763 Dynamic Name-to-System ID mapping support | RFC 4061 Benchmarking Basic OSPF Single Router Control Plane Convergence |
| RFC 2784 Generic Routing Encapsulation (GRE) | RFC 4062 OSPF Benchmarking Terminology and Concepts |
| RFC 2865 Remote Authentication Dial In User Service (RADIUS) | RFC 4063 Considerations When Using Basic OSPF Convergence Benchmarks |
| RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS | RFC 4222 Prioritized Treatment of Specific OSPF Version 2 Packets and Congestion Avoidance |
| RFC 2973 IS-IS Mesh Groups | RFC 4577 OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks (VPNs) |
| RFC 3022 Traditional IP Network Address Translator (Traditional NAT) | RFC 4811 OSPF Out-of-Band LSDB Resynchronization |
| RFC 3277 IS-IS Transient Blackhole Avoidance | RFC 4812 OSPF Restart Signaling |
| RFC 3567 Intermediate System to Intermediate System (IS-IS) Cryptographic Authentication | RFC 4813 OSPF Link-Local Signaling |
| RFC 3719 Recommendations for Interoperable Networks using Intermediate System to Intermediate System (IS-IS) | RFC 4940 IANA Considerations for OSPF |
| RFC 3784 ISIS TE support | |
| RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit | QoS/CoS |
| RFC 3787 Recommendations for Interoperable IP Networks using Intermediate System to Intermediate System (IS-IS) | IEEE 802.1p (CoS) |
| RFC 3847 Restart signaling for IS-IS | RFC 1349 Type of Service in the Internet Protocol |
| RFC 4251 The Secure Shell (SSH) Protocol Architecture | |

Technical Specifications

RFC 4486 Subcodes for BGP Cease Notification Message
RFC 4884 Extended ICMP to Support Multi-Part Messages
RFC 4941 Privacy Extensions for Stateless Address Autoconfiguration in IPv6
RFC 5130 A Policy Control Mechanism in IS-IS Using Administrative Tags

IP multicast

RFC 2236 IGMPv2
RFC 2283 Multiprotocol Extensions for BGP-4
RFC 2362 PIM Sparse Mode
RFC 3376 IGMPv3
RFC 3446 Anycast Rendezvous Point (RP) mechanism using Protocol Independent Multicast (PIM) and Multicast Source Discovery Protocol (MSDP)
RFC 3618 Multicast Source Discovery Protocol (MSDP)
RFC 3973 PIM Dense Mode
RFC 4608 Source-Specific Protocol Independent Multicast in 232/8 (Comware v5 Only)
RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches
RFC 4601 PIM Sparse Mode
RFC 4604 Using Internet Group Management Protocol Version 3 (IGMPv3) and Multicast Listener Discovery Protocol Version 2 (MLDv2) for Source-Specific Multicast
RFC 4605 IGMP/MLD Proxying
RFC 4607 Source-Specific Multicast for IP
RFC 5059 Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast (PIM)

IPv6

RFC 1886 DNS Extension for IPv6
RFC 1887 IPv6 Unicast Address Allocation Architecture
RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPng for IPv6
RFC 2081 RIPng Protocol Applicability Statement
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 2473 Generic Packet Tunneling in IPv6
RFC 2526 Reserved IPv6 Subnet Anycast Addresses

Suite
RFC 2211 Specification of the Controlled-Load Network Element Service
RFC 2212 Guaranteed Quality of Service
RFC 2474 DSCP DiffServ
RFC 2475 DiffServ Architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)

Security

IEEE 802.1X Port Based Network Access Control
RFC 1321 The MD5 Message-Digest Algorithm
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1492 TACACS+
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP)
RFC 2409 The Internet Key Exchange (IKE)
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
Access Control Lists (ACLs)
Guest VLAN for 802.1X
MAC Authentication
Port Security
SSHv1/SSHv2 Secure Shell

VPN

RFC 2403 - HMAC-MD5-96
RFC 2404 - HMAC-SHA1-96
RFC 2405 - DES-CBC Cipher algorithm
RFC 2407 - Domain of interpretation
RFC 2547 BGP/MPLS VPNs
RFC 2917 A Core MPLS IP VPN Architecture
RFC 3947 - Negotiation of NAT-Traversal in the IKE
RFC 4302 - IP Authentication Header (AH)
RFC 4303 - IP Encapsulating Security Payload (ESP)

IPsec

RFC 1828 IP Authentication using Keyed MD5
RFC 1829 The ESP DES-CBC Transform
RFC 2085 HMAC-MD5 IP Authentication with Replay Prevention
RFC 2401 IP Security Architecture
RFC 2402 IP Authentication Header
RFC 2406 IP Encapsulating Security Payload
RFC 2410 - The NULL Encryption Algorithm and its use with IPsec

Technical Specifications

RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 2545 Use of MP-BGP-4 for IPv6
RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2740 OSPFv3 for IPv6
RFC 2767 Dual stacks IPv4 & IPv6
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 3307 IPv6 Multicast Address Allocation
RFC 3315 DHCPv6 (client and relay)
RFC 3484 Default Address Selection for IPv6
RFC 3513 IPv6 Addressing Architecture
RFC 3736 Stateless Dynamic Host Configuration Protocol (DHCP) Service for IPv6
RFC 3810 MLDv2 for IPv6
RFC 4214 Intra-Site Automatic Tunnel Addressing Protocol (ISATAP)
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

RFC 2411 IP Security Document Roadmap

Accessories

HP 10500 Switch Series accessories

Modules

| | |
|--|--------|
| HP 10500 Type A Main Processing Unit with Comware v7 Operating System | JG496A |
| HP A10500 Main Processing Unit | JC614A |
| HP 10500 48-port 10GbE SFP+ SF Module | JC756A |
| HP 10500 32-port 10GbE SFP+ SF Module | JC755A |
| HP 10500 24-port 1/10GBASE-T SF Module | JG394A |
| HP 10500 8-port 40GbE QSFP+ SF Module | JG392A |
| HP 10500 4-port 40GbE QSFP+ SF Module | JC757A |
| HP 10500 4-port 40GbE CFP SF Module | JG396A |
| HP A10500 8-port 10-GbE SFP+ SE Module | JC631A |
| HP A10500 4-port 10-GbE XFP SE Module | JC620A |
| HP A10500 16-port GbE SFP / 8-port GbE Combo / 2-port 10-GbE XFP SE Module | JC617A |
| HP 10500 16-port GbE SFP / 8-port GbE Combo SE Module | JC763A |
| HP A10500 48-port Gig-T SE Module | JC618A |
| HP A10500 48-port GbE SFP SE Module | JC619A |
| HP A10500 16-port 10-GbE SFP+ SC Module | JC628A |
| HP A10500 8-port 10-GbE SFP+ EA Module | JC630A |
| HP A10500 16-port GbE SFP / 8-port GbE Combo / 2-port 10-GbE XFP EA Module | JC621A |
| HP A10500 48-port GbE SFP EA Module | JC622A |
| HP A10500 48-port Gig-T EA Module | JC623A |
| HP A10500 8-port 10-GbE SFP+ EB Module | JC629A |
| HP A10500 4-port 10-GbE XFP EB Module | JC627A |
| HP A10500 48-port GbE SFP EB Module | JC625A |
| HP A10500 16-port GbE SFP / 8-port GbE Combo / 2-port 10-GbE XFP EB Module | JC626A |
| HP 10500 2-port 100GbE CFP SE Module | JG916A |
| HP 10500 48-port 1000BASE-T SE Module | JH192A |
| HP 10500 16-port 1/10GbE SFP+ SF Module | JH193A |
| HP 10500 24-port 1/10GbE SFP+ EC Module | JH194A |
| HP 10500 6-port 40GbE QSFP+ EC Module | JH195A |
| HP 10500 2-port 100GbE CFP EC Module | JH196A |
| HP 10500 48-port 1/10GbE SFP+ SG Module | JH197A |
| HP 10500 Type D with Comware v7 Operating System Main Processing Unit | JH198A |
| HP 10500 44-port GbE SFP / 4-port 10GbE SFP+ SE Module | JH191A |

Transceivers

| | |
|---|--------|
| HP X115 100M SFP LC FX Transceiver | JD102B |
| HP X110 100M SFP LC LX Transceiver | JD120B |
| HP X110 100M SFP LC LH40 Transceiver | JD090A |
| HP X110 100M SFP LC LH80 Transceiver | JD091A |
| HP X115 100M SFP LC BX 10-U Transceiver | JD100A |
| HP X115 100M SFP LC BX 10-D Transceiver | JD101A |
| 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 X125 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 LC LH100 Transceiver | JD103A |
| HP X120 1G SFP LC BX 10-D Transceiver | JD099B |
| HP X120 1G SFP LC BX 10-U Transceiver | JD098B |

Accessories

| | |
|--|--------|
| 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 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 X130 10G SFP+ LC SR Transceiver | JD092B |
| HP X130 10G SFP+ LC LRM Transceiver | JD093B |
| HP X130 10G SFP+ LC LR Transceiver | JD094B |
| HP X130 10G SFP+ LC ER 40km Transceiver | JG234A |
| HP X130 10G SFP+ LC LH 80km Transceiver | JG915A |
| HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable | JD096C |
| HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable | JD097C |
| HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable | JG081C |
| HP X240 10G SFP+ SFP+ 7m Direct Attach Copper Cable | JC784C |
| HP X130 10G XFP LC SR Transceiver | JD117B |
| HP X130 10G XFP LC LR Single Mode 10km 1310nm Transceiver | JD108B |
| HP X135 10G XFP LC ER Transceiver | JD121A |
| HP X130 10G XFP LC ZR Single Mode 80km 1550nm Transceiver | JD107A |
| HP X180 10G XFP LC LH 80km 1538.98nm DWDM Transceiver | JG226A |
| HP X180 10G XFP LC LH 80km 1539.77nm DWDM Transceiver | JG227A |
| HP X180 10G XFP LC LH 80km 1540.56nm DWDM Transceiver | JG228A |
| HP X180 10G XFP LC LH 80km 1542.14nm DWDM Transceiver | JG229A |
| HP X180 10G XFP LC LH 80km 1542.94nm DWDM Transceiver | JG230A |
| HP X180 10G XFP LC LH 80km 1558.98nm DWDM Transceiver | JG231A |
| HP X180 10G XFP LC LH 80km 1559.79nm DWDM Transceiver | JG232A |
| HP X180 10G XFP LC LH 80km 1560.61nm DWDM Transceiver | JG233A |
| HP X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver | JG661A |
| HP X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable | JG326A |
| HP X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable | JG327A |
| HP X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable | JG328A |
| HP X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable | JG329A |
| HP X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable | JG330A |
| HP X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable | JG331A |
| HP X140 40G CFP LC LR4 10km SM Transceiver | JC857A |
| HP X140 40G CFP LC LR4 10km SM Transceiver | JC857A |
| HP X140 40G QSFP+ MPO SR4 Transceiver | JG325B |
| HP X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver | JG709A |
| Security Modules | |
| HP 7500 Load Balancing Module | JD252A |
| Power Supply | |
| HP 10500 2500W AC Power Supply | JC610A |
| HP 10500 2400W DC Power Supply | JC747A |
| Mounting Kit | |
| HP X421 Chassis Universal 4-post Rack Mounting Kit | JC665A |
| License | |
| HP 10500/7500 SSL VPN 1000-user License | JD257A |

Accessories

| | |
|--|----------|
| HP Unified Wired-WLAN 128 AP E-LTU | JG649AAE |
| Power Cords and Adapters | |
| HP 10500 -48V 3m DC Power Supply Cable | JG390A |
| HP 10500 -48V 15m DC Power Supply Cable | JG391A |
| Appliance | |
| HP 10500/7500 SSL VPN Module with 500-user License | JD253A |
| HP 10500/7500 NetStream Monitoring Module | JD254A |
| HP 10500/11900/7500 20Gbps VPN Firewall Module | JG372A |
| HP 10504 Switch Chassis (JC613A) | |
| HP 10504 880Gbps Type B Fabric Module | JC751A |
| HP 10504 1.2Tbps Type D Fabric Module | JC752A |
| HP A10504 Spare Fan Assembly | JC632A |
| HP 10508 Switch Chassis (JC612A) | |
| HP 10508/10508-V 1.04Tbps Type B Fabric Module | JC753A |
| HP 10508/10508-V 2.32Tbps Type D Fabric Module | JC754A |
| HP A10508 Spare Fan Assembly | JC633A |
| HP 10508-V Switch Chassis (JC611A) | |
| HP 10508/10508-V 1.04Tbps Type B Fabric Module | JC753A |
| HP 10508/10508-V 2.32Tbps Type D Fabric Module | JC754A |
| HP A10508-V Spare Fan Assembly | JC634A |
| HP 10512 Switch Chassis (JC748A) | |
| HP 10512 1.52Tbps Type B Fabric Module | JC749A |
| HP 10512 3.44Tbps Type D Fabric Module | JC750A |
| HP 10512 Spare Top Fan Tray Assembly | JC758A |
| HP 10512 Spare Bottom Fan Tray Assembly | JC773A |

Accessory Product Details

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

Transceivers

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|--|-------------------------------------|--|
| HP X125 1G SFP LC LH40 1310nm Transceiver (JD061A) A small form-factor pluggable SFP Gigabit LH40 transceiver that provides a full duplex Gigabit solution up to 40km on a single-mode fiber. | Ports Connectivity | 1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics) Connector type LC Wavelength 1310 nm |
| | Physical 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) |
| | 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: <ul style="list-style-type: none"> 40km distance |
| | Services | Fiber type Single Mode Refer to the HP website at http://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 1550nm Transceiver (JD062A) 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. | Ports Connectivity | 1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics) Connector type LC Wavelength 1550 nm |
| | Physical 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) |
| | 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: <ul style="list-style-type: none"> 40km distance |
| | Services | Fiber type Single Mode Refer to the HP website at http://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 LC LH70 | Ports | 1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics) |

Accessory Product Details

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|---|-----------------------------------|--|--|
| Transceiver (JD063B) A small form-factor pluggable (SFP) Gigabit LH70 transceiver that provides a full-duplex Gigabit solution up to 70km 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: • 70km | |
| | Services | Fiber type Single Mode | |
| | | Refer to the HP website at http://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. | |

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|--|-----------------------------------|--|--|--|
| HP X125 1G SFP RJ45 T Transceiver (JD089B) 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. | Ports | 1 RJ-45 1000BASE-T port (IEEE 802.3ab Type 1000BASE-T) | | |
| | Connectivity | Connector type | RJ-45 | |
| | Physical characteristics | Dimensions | 2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm) | |
| | | Full configuration weight | 0.07 lb. (0.03 kg) | |
| | | Power consumption typical | 0.8 W | |
| | Electrical characteristics | 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 http://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. | | |

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|--|-----------------------------------|--|--|--|
| HP X120 1G SFP LC BX 10-U Transceiver (JD098B) A small form-factor pluggable (SFP) Gigabit LX-BX10-U transceiver that provides a full duplex Gigabit solution up to 10km on a single mode cable. | Ports | 1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-U); Duplex: full only | | |
| | Connectivity | Connector type | LC | |
| | Physical 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 | |
| | Electrical characteristics | Power consumption maximum | 1.0 W | |
| | | Cabling | Maximum distance: • 10km | |

Accessory Product Details

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|--|-----------------|--|-------------|
| | Notes | Fiber type | Single Mode |
| | Services | TX 1310nm RX 1490nm | |
| | | Refer to the HP website at http://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. | |

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|---|-----------------------------------|--|--|--|
| <p>HP X120 1G SFP LC BX 10-D Transceiver (JD099B)</p> <p>A small form-factor pluggable (SFP) Gigabit LX-BX10-D transceiver that provides a full duplex Gigabit solution up to 10km on a single mode cable.</p> | Ports | 1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-D); Duplex: full only | | |
| | Connectivity | Connector type | LC | |
| | 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"> • Up to 10km | |
| | | Fiber type | Single Mode | |
| | Notes | TX 1490nm RX 1310nm | | |
| | Services | Refer to the HP website at http://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. | | |

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|--|-----------------------------------|--|---|--|
| <p>HP X120 1G SFP LC LH100 Transceiver (JD103A)</p> <p>A small form factor pluggable (SFP) Gigabit LH100 transceiver that provides a full-duplex Gigabit solution up to 100km on a single mode fiber.</p> | Ports | 1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics) | | |
| | Connectivity | Connector type | LC | |
| | | Wavelength | 1550 nm | |
| | 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: | <ul style="list-style-type: none"> • Up to 100km | |
| | | Fiber type | Single Mode | |
| | Services | Refer to the HP website at http://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. | | |

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|---|---------------------------------|-----------------------|--|--|
| <p>HP X120 1G SFP LC SX Transceiver (JD118B)</p> <p>A small form-factor pluggable (SFP) Gigabit SX</p> | Ports | 1 LC 1000BASE-SX port | | |
| | Connectivity | Connector type | LC | |
| | | Wavelength | 850 nm | |
| | Physical characteristics | Dimensions | 2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm) | |

Accessory Product Details

transceiver that provides a full-duplex Gigabit solution up to 550m on a Multimode fiber.

| | | |
|--|-----------------------------------|--------------------|
| Electrical characteristics | Full configuration weight | 0.04 lb. (0.02 kg) |
| | Power consumption typical | 0.8 W |
| Cabling | Power consumption maximum | 1.0 W |
| | Maximum distance: | |
| | • FDDI Grade distance = 220m | |
| | • OM1 = 275m | |
| Services | • OM2 = 500m | |
| | • OM3 = Not Specified by standard | |
| | Cable length | up to 550m |
| | Fiber type | Multi Mode |
| Refer to the HP website at http://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)

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

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|-----------------------------------|--|--|
| Ports | Connectivity | 1 SFP 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX) |
| | Connector type | LC |
| Physical characteristics | Wavelength | 1300 nm |
| | 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 |
| Cabling | Power consumption maximum | 1.0 W |
| | Cable type: | Either single mode or multimode; |
| | Maximum distance: | |
| | • 550m for Multimode | |
| Services | • 10km for Singlemode | |
| | Fiber type | Both |
| | Refer to the HP website at http://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. | |

Summary of Changes

| Date | Version History | Action | Description of Change: |
|--------------|-----------------------|---------|---|
| 11-Sep-2015 | From Version 31 to 32 | Changed | Changes made on Configuration Section |
| 17- Aug-2015 | From Version 30 to 31 | Added | Modules added: <ul style="list-style-type: none"> • JH192A • JH193A • JH194A • JH195A • JH196A • JH197A • JH198A • JH191A |
| | | Changed | Changes made on Standard Protocols and Technical Specifications |
| 30-Mar-2015 | From Version 29 to 30 | Added | Transceiver added: <ul style="list-style-type: none"> • JG915A |
| | | Changed | Technical Specification and Overview section were updated |
| 23-Dec-2014 | From Version 28 to 29 | Changed | Standards and protocols updated. |
| 12-Dec-2014 | From Version 27 to 28 | Deleted | Deleted SKU JG325A |
| 21-Oct-2014 | From Version 26 to 27 | Changed | Minor update made on Layer 2 switching |
| 22-Aug-2014 | From Version 25 to 26 | Changed | Key Features and Performance data on Technical Specifications changed. |
| 18-Aug-2014 | From Version 24 to 25 | Added | Added Software-defined networking on Overview section New accessory added: JG916A |
| 15-Apr-2014 | From Version 23 to 24 | Changed | Management Modules was revised in Configuration. |
| 31-Mar-2014 | From Version 22 to 23 | Changed | Transceivers were revised. |
| 19-Mar-2014 | From Version 21 to 22 | Changed | Transceivers were revised in Configuration. |
| 09-Dec-2013 | From Version 19 to 20 | Changed | Changes made in the Overview, Technical Specifications, and Accessories sections. |
| 18-Oct-2013 | From Version 18 to 19 | Changed | Configuration was revised. |
| 30-Sep-2013 | From Version 17 to 18 | Added | HP 10500/11900/7500 20Gbps VPN FW Mod was added to Interface Modules |
| | | | HP 10500 Type A MPU w/Comware v7 OS was added to Management Modules |
| 09-Aug-2013 | From Version 16 to 17 | Changed | Internal Power Supplies was revised in Configuration. |
| 12-Jul-2013 | From Version 15 to 16 | Changed | Modules and Internal Power Supplies were revised in Configuration. |

Summary of Changes

| | | | |
|-------------|-----------------------|---------|--|
| 10-Jun-2013 | From Version 14 to 15 | Changed | Standard Switch Chassis power supply, Configuration Rules in Internal Power Supplies and Fabric Modules, and Software Licenses were revised in Configuration HP 10508-V Switch Chassis and HP 10512 Switch Chasses were added to Box Level Integration CTO Models and HP 10500/7500 20G Unifd Wrld-WLAN TAA Mod was added to Interface Modules in Configuration |
| 22-May-2013 | From Version 13 to 14 | Changed | Corrections were made to the Configuration section. |
| 20-May-2013 | From Version 12 to 13 | Changed | Minor corrections were made to the Configuration section. |
| 03-Apr-2013 | From Version 11 to 12 | Removed | Removed an unsupported module spec from Accessory Product Details. |
| 26-Mar-2013 | From Version 10 to 11 | Changed | Corrected an image at the beginning of the document. |
| 19-Mar-2013 | From Version 9 to 10 | Changed | Corrected the new Configuration section. |
| 27-Feb-2013 | From Version 8 to 9 | Changed | The formatting of the new Configuration section was revised. |
| 19-Feb-2013 | From Version 7 to 8 | Added | The configuration section was added as well as several images. |
| | | Changed | Product overview, Features and benefits, Model specifications, and Accessories were revised. |
| 04-Dec-2012 | From Version 6 to 7 | Changed | Changes were made throughout the document. Several new accessories were added. |
| 30-May-2012 | From Version 5 to 6 | Changed | Corrected the names for several of the accessories that are specific to each model. |
| 14-May-2012 | From Version 4 to 5 | Changed | Features and Benefits, Accessories, and the weight and dimensions for each spec were revised. |
| 23-Mar-2012 | From Version 3 to 4 | Changed | Removed an incorrect item from the Features and Benefits section. |
| 13-Feb-2012 | From Version 2 to 3 | Changed | Updated the Features and Benefits and Options sections. |
| 14-Oct-2011 | From Version 1 to 2 | Changed | Features and Benefits and Services were revised. |

Summary of Changes

To learn more, visit: <http://www.hp.com/networking>

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