



Product overview

These Gigabit Ethernet switches deliver outstanding security, reliability, and multiservice support capabilities for robust switching at the edge or aggregation layer of large enterprise and campus networks or in the core layer of SMB networks. The HP 5500 El Switch Series comprises L2/L3 Gigabit Ethernet switches that can accommodate the most demanding applications and provide resilient and secure connectivity as well as the latest traffic prioritization technologies to enhance applications on convergent networks.

With complete IPv4/IPv6 dual-stack support, the series provides a migration path from IPv4 to IPv6 as well as hardware support for IPv6. Designed for increased flexibility, these switches are available with 24 or 48 Gigabit Ethernet ports. Power over Ethernet (PoE) and non-PoE models are available with optional GbE and 10GbE expansion capabilities. The all-fiber model with dual power supplies is ideal for applications that require the highest availability.

Key highlights:

- High expandability for investment protection
- Premium security and integrated management
- Multilayer reliability
- Convergence-ready support
- Outstanding Quality of Service (QoS)

Features and benefits

Quality of Service (QoS)

Storm restraint

Allows limitation of broadcast, multicast, and unknown unicast traffic rate to cut unwanted broadcast traffic on the network

Advanced classifier-based OoS

Classifies traffic using multiple-match criteria based on L2, L3, and L4 information; and applies QoS policies, such as setting the priority level and rate limit to bi-directional selected traffic on a per-port, per-VLAN, or whole-switch basis

Powerful QoS feature

Creates traffic classes based on access control lists (ACLs), IEEE 802.1p precedence, IP, DSCP, or ToS precedence; supports filter, redirect, mirror, or remark; and supports the following congestion actions: strict priority queuing (SP), weighted round robin (WRR), SP+WRR, weighted fair queuing (WFQ), and weighted random early discard (WRED)

Traffic policing

Supports Committed Access Rate (CAR) and line rate

Management

Friendly port names

Allows assignment of descriptive names to ports

· Remote configuration and management

Enables configuration and management through a secure Web browser or a CLI located on a remote device

· Manager and operator privilege levels

Provides read-only (operator) and read/write (manager) access on the CLI and Web browser management interfaces

Command authorization

Leverages HWTACACS to link a custom list of CLI commands to an individual network administrator's login; also provides an audit trail

· Secure Web GUI

Provides a secure, easy-to-use graphical interface for configuring the module via HTTPS

· Dual flash images

Provides independent primary and secondary operating system files for backup while upgrading

Multiple configuration files

Stores easily to the flash image

· Complete session logging

Provides detailed information for problem identification and resolution

• SNMPv1, v2c, and v3

Facilitate centralized discovery, monitoring, and secure management of networking devices

Remote monitoring (RMON)

Uses standard SNMP to monitor essential network functions; supports event, alarm, history, and statistics groups as well as a private alarm extension group

• 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

• sFlow (RFC 3176)

Provides scalable ASIC-based wire-speed 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

Management VLAN

Segments traffic to and from management interfaces, including the CLI/Telnet, Web browser interface, and SNMP

Remote Intelligent Mirroring

Mirrors ingress/egress ACL-selected traffic from a switch port or VLAN to a local or remote switch port anywhere on the network

Device Link Detection Protocol (DLDP)

Monitors the cable between two switches and shuts down the ports on both ends if the cable is broken, helping prevent network problems such as loops

· IPv6 management

Provides future-proof networking, because the switch is capable of being managed whether the attached network is running IPv4 or IPv6; and supports pingv6, tracertv6, Telnetv6, TFTPv6. DNSv6, syslogv6, FTPv6, SNMPv6. DHCPv6, and RADIUS for IPv6

Troubleshooting

Ingress and egress port monitoring enables network problem-solving; and virtual cable tests provide visibility into cable problems

In-Service Software Upgrade (ISSU)

Enables operators to perform upgrades in the shortest possible time, while helping minimize the risk of disruption to network operations or traffic

Connectivity

Auto-MDIX

Automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

Flow control

Provides back pressure using standard IEEE 802.3x, reducing congestion in heavy traffic situations

Jumbo packet support

Supports up to 9216-byte frame sizes to improve the performance of large data transfers

High-density port connectivity

Provides up to 48 fixed 10/100/1000BASE-T or 24 SFP 100/1000BASE-X ports in an L2/L3 stackable switch, supporting unique Intelligent Resilient Framework (IRF) stacking

• IEEE 802.3at PoE+ support

Simplifies deployment and dramatically reduces installation costs by helping eliminate the time and cost involved in supplying local power at each access point location

• Ethernet operations, administration and maintenance (OAM)

Detects data-link-layer problems that occurs in the "last mile," using the IEEE 802.3ah OAM standard; and monitors the status of the link between two devices

High-bandwidth CX4 and SFP+ local stacking

Provide 10 Gb/s SPF+ or 12 Gb/s CX4 local stacking cables; and help achieve a resilient stacking configuration

· Optional 10GbE ports

Deliver, through the use of optional modules, additional 10GbE connections, which are available for uplinks or high-bandwidth server connections; and flexibly support copper, XFP, SFP+, or CX4 local connections

Performance

Non-blocking architecture

Up to 192 Gb/s non-blocking switching fabric provides wire-speed switching with up to 143 million pps throughput

Hardware-based wires-peed ACLs

Help provide high levels of security and ease of administration, without impacting network performance, with a feature-rich TCAM-based ACL implementation

Resiliency and high availability

Separate data and control paths

Separates control from services and keeps service processing isolated; and increases security and performance

External redundant power supply

Provides high reliability

Smart link

Allows 50 ms failover between links

Spanning Tree/MSTP, RSTP

Provides redundant links, while helping prevent network loops

· Rapid Ring Protection Protocol (RRPP)

Connects multiple switches in a high-performance ring, using standard Ethernet technology; traffic can be rerouted around the ring in less than 50 ms, reducing the impact on traffic and applications

· Virtual Router Redundancy Protocol (VRRP)

Allows a group of routers to dynamically back each other up to create highly available routed environments

·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; and helps eliminate the need for complex protocols such as Spanning Tree Protocol, Equal-Cost Multipath (ECMP), or VRRP, simplifying network operations

• IP Fast Reroute (FRR)

Forms backup paths and allows 50 ms switchover in case of a main path fault

IRF capability

Provides single IP address management for a resilient virtual switching fabric of up to nine switches

L2 switching

• 32K MAC addresses

Provide access to many L2 devices

• IEEE 802.1ad Q-in-Q and selective Q-in-Q

Increase the scalability of an Ethernet network by providing a hierarchical structure; and connect multiple LANs on a high-speed campus or metro network

· GARP VLAN Registration Protocol

Allows automatic learning and dynamic assignment of VLANs

· IEEE 802.1ad Q-in-Q

Increases the scalability of an Ethernet network by providing a hierarchical structure; and connects multiple LANs on a high-speed campus or metro network

10GbE port aggregation

Allows grouping of ports to increase overall data throughput to a remote device

Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) protocol snooping

Controls and manages the flooding of multicast packets in an L2 network

L3 services

Address Resolution Protocol (ARP)

Determines the MAC address of another IP host in the same subnet

Dynamic Host Configuration Protocol (DHCP)

Simplifies the management of large IP networks and supports the client and server; DHCP relay enables DHCP operation across subnets

Loopback interface address

Defines an address in Routing Information Protocol (RIP) and Open Standard Path First (OSPF), improving the diagnostic capability

· User Datagram Protocol (UDP) helper function

Allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses; and helps prevent server spoofing for UDP services such as DHCP

· Route maps

Provide more control during route redistribution; and allow filtering and altering of route metrics

L3 routing

• IPv4 routing protocols

Support static routes, RIP, OSPF, ISIS, and BGP

• IPv6 routing protocols

Provide routing of IPv6 at wire speeds; and support static routes, RIPng, OSPFv3, IS-ISv6, and BGP4+ for IPv6

• ECMP

Enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth

Policy-based routing

Makes routing decisions based on policies set by the network administrator

• IGMPv1, v2, and v3

Allow individual hosts to be registered on a particular VLAN

• PIM-SSM, PIM-DM, and PIM-SM (for IPv4 and IPv6)

Support IP multicast address management and inhibition of DoS attacks

· IPv6 tunneling

Enables smooth transition from IPv4 to IPv6 by encapsulating IPv6 traffic over an existing IPv4 infrastructure

Unicast Reverse Path Forwarding (uRPF)

Limits erroneous or malicious traffic in accordance with RFC 3074

Bidirectional Forwarding Detection (BFD)

Enables link connectivity monitoring; and reduces the network convergence time for RIP, OSPF, BGP, IS-IS, VRRP, and IRF

Security

• ACLs

Provide IP L2-to-L4 traffic filtering; and support global ACL, VLAN ACL, port ACL, and IPv6 ACL; up to 3072 ingress ACLs and 448 egress ACLs are supported

• IEEE 802.1X

Is an industry-standard method for user authentication that uses an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server

MAC-based authentication

Authenticates the client with the RADIUS server, based on the client's MAC address

· Identity-driven security and access control

- Per-user ACLs

Permit or deny user access to specific network resources, based on the user identity and time of the day—allowing multiple types of users on the same network to access specific network services without risking network security or providing unauthorized access to sensitive data

- Automatic VLAN assignment

Automatically assigns users to the appropriate VLAN, based on their identities

Secure management access

Delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3

Secure FTP

Allows secure file transfer to and from the switch; and helps protect against unwanted file downloads or unauthorized copying of a switch configuration file

Guest VLAN

Provides a browser-based environment to authenticated clients, which is similar to IEEE 802.1X

Endpoint Admission Defense (EAD)

Provides security policies to users accessing a network

Port security

Allows access only to specified MAC addresses, which can be learned or specified by the administrator

Port isolation

Secures and adds privacy; and helps prevent malicious attackers from obtaining user information

STP BPDU port protection

Blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, helping prevent forged BPDU attacks

STP root guard

Helps protect the root bridge from malicious attacks or configuration mistakes

DHCP protection

Blocks DHCP packets from unauthorized DHCP servers, helping prevent denial-of-service attacks

Dynamic ARP protection

Blocks ARP broadcasts from unauthorized hosts, helping prevent eavesdropping or theft of network data

· IP source guard

Helps prevent IP spoofing attacks

· RADIUS/HWTACACS

Eases switch management security administration by using a password authentication server

Multiple Customer Edge (MCE)

Facilitates MPLS VPN network integration with up to 64 VPNs support

·uRPF

Allows normal packets to be forwarded correctly, while discarding the attaching packet due to lack of a reverse path route or incorrect inbound interface; helps prevent source spoofing and distributed attacks; and supports distributed uRPF

Convergence

• IEEE 802.1AB Link Layer Discovery Protocol (LLDP)

Facilitates easy mapping, using network management applications with the LLDP automated device discovery protocol

· LLDP-MED

Is a standard extension that automatically configures network devices, including LLDP-capable IP phones

LLDP-CDP compatibility

Receives and recognizes CDP packets from Cisco's IP phones for seamless interoperation

· IEEE 802.3af PoE

Provides up to 15.4 W per port to PoE-powered devices such as IP phones, wireless access points, and video cameras

PoE allocations

Supports multiple methods (automatic, IEEE 802.3af class, LLDP-MED, or user specified) to allocate PoE power for greater energy-efficiency savings

Voice VLAN

Automatically assigns a VLAN and priority for IP phones, simplifying network configuration and maintenance

• IP multicast snooping (data-driven IGMP)

Helps prevent flooding of IP multicast traffic

Internet Group Management Protocol (IGMP)

Utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks; and supports IGMPv1, v2, and v3

Protocol Independent Multicast (PIM)

Defines modes of Internet multicasting to allow one-to-many and many-to-many transmission of information; and supports PIM Dense Mode (DM), Sparse Mode (SM), and SSM

Multicast Source Discovery Protocol (MSDP)

Allows multiple PIM-SM domains to interoperate; is used for inter-domain multicast applications

Multicast Border Gateway Protocol (MBGP)

Allows multicast traffic to be forwarded across BGP networks and kept separate from unicast traffic

Multicast VLAN

Allows multiple VLANs to receive the same IPv4 or IPv6 multicast traffic, lessening network bandwidth demand by reducing or helping eliminate multiple streams to each VLAN

Device support

· Cisco pre-standard PoE support

Detects and provides power to Cisco's pre-standard PoE devices such as wireless LAN access points and IP phones

Additional information

Green IT and power

Improves energy efficiency through the use of the latest advances in silicon development; and shuts off unused ports and utilizes variable-speed fans, reducing energy costs

Green initiative support

Provides support for RoHS and WEEE regulations

Warranty and support

Lifetime Warranty 2.0

Advance hardware replacement for as long as you own the product with next-business-day delivery (available in most countries)¹

Electronic and telephone support (for Lifetime Warranty 2.0)

Limited 24x7 telephone support from HP for the first three years; and limited electronic and business-hours telephone support from HP for the entire warranty period; to reach our support centers, refer to hp.com/networking/contact-support; for details on the duration of support provided with your product purchase, refer to hp.com/networking/warrantysummary

Software releases

To find software for your product, refer to hp.com/networking/support; for details on the software releases available with your product purchase, refer to hp.com/networking/warrantysummary

¹HP warranty includes repair or replacement of hardware for as long as you own the product, with next-business-day advance replacement (available in most countries). The disk drive included with the HP AllianceOne Advanced Services and Services zl Modules, HP Threat Management Services zl Module, HP AllianceOne Extended zl Module with Riverbed Steelhead, HP MSM765 zl Mobility Controller, and HP Survivable Branch Communication zl Module, powered by Microsoft* Lync, has a five-year hardware warranty. For details, refer to the software license and hardware warranty statements at hp.com/networking/warranty.

Specifications



Specifications (continued)

	HP 5500-24G EI Switch with 2 Interface Slots (JD377A)	HP 5500-48G EI Switch with 2 Interface Slots (JD375A)	HP 5500-24G-SFP EI Switch with 2 Interface Slots (JD374A)
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60950-1/A11; FDA 21 CFR Subchapter J; RoHS Compliance	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60950-1/A11; FDA 21 CFR Subchapter J; RoHS Compliance	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60950-1/A11; FDA 21 CFR Subchapter J; RoHS Compliance
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; EN 61000-3-2:2006; EN 61000-3-3:1995+A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; EN 61000-4-2; EN 61000-4-3; EN 61000-4-1; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; EN 61000-3-2:2006; EN 61000-3-3:1995+A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; EN 61000-3-2:2006; EN 61000-3-3:1995+A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A
Management	IMC—Intelligent Management Center; command-line interface; Web browser; SNMP Manager; IEEE 802.3 Ethernet MIB	IMC—Intelligent Management Center; command-line interface; Web browser; SNMP Manager; IEEE 802.3 Ethernet MIB	IMC—Intelligent Management Center; command-line interface; Web browser; SNMP Manager; IEEE 802.3 Ethernet MIB
Notes			1 power supply included
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UV870E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV873E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV876E) 3-year, 24x7 SW phone support, software updates (UV879E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR574E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR575E)	3-year, 4-hour onsite, 13x5 coverage for hardware (HQ080E) 3-year, 4-hour onsite, 24x7 coverage for hardware (HQ081E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (HQ084E) 3-year, 24x7 SW phone support, software updates (HQ083E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR580E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR581E)	3-year, 4-hour onsite, 13x5 coverage for hardware (UV870E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV873E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV876E) 3-year, 24x7 SW phone support, software updates (UV879E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR574E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR575E)
	1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR576E) Installation with minimum configuration, system-based pricing (UW451E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UV871E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV874E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV877E) 4-year, 24x7 SW phone support, software updates (UV880E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UV872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV875E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV878E) 5-year, 24x7 software phone (UV878E) 5-year, 24x7 SW phone support, software updates (UV881E)	Installation with minimum configuration, system-based pricing (UW451E) 4-year, 4-hour onsite, 13x5 coverage for hardware (HQ085E) 4-year, 4-hour onsite, 24x7 coverage for hardware (HQ086E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (HQ093E) 4-year, 24x7 SW phone support, software updates (HQ091E) 5-year, 4-hour onsite, 13x5 coverage for hardware (HQ088E) 5-year, 4-hour onsite, 24x7 coverage for hardware (HQ089E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (HQ094E) 5-year, 24x7 SW phone support, software updates (HQ092E)	1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR576E) Installation with minimum configuration, system-based pricing (UW451E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UV871E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV874E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV877E) 4-year, 24x7 Sw phone support, software updates (UV880E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UV872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV875E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV878E) 5-year, 24x7 Sw phone support, software updates (UV881E)

Specifications (continued)

	HP 5500-24G EI Switch with 2 Interface Slots (JD377A)	HP 5500-48G EI Switch with 2 Interface Slots (JD375A)	HP 5500-24G-SFP EI Switch with 2 Interface Slots (JD374A)
Services (continued)	updates + Next Business Day Hardware Exchange (HS658E)	hardware (HR583E) 1-year, 24x7 software phone support, software updates (HR582E)	3-year, 6-hour Call-to-Repair Onsite (UW966E) 4-year, 6-hour Call-to-Repair Onsite (UW967E) 5-year, 6-hour Call-to-Repair Onsite (UW968E) 1-year, 6-hour Call-To-Repair Onsite for hardware (HR578E) 1-year, 24x7 software phone support, software updates (HR577E) 1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS658E)
	1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS659E)	1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS674E) 1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS675E)	1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS659E)
	3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS660E) 3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS661E) 4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS662E) 4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS663E)	3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS676E) 3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS677E) 4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS678E) 4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS679E)	3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS660E) 3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS661E) 4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS662E) 4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS663E)
	5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS664E) 5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS665E) Refer to the HP website at 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.	5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS680E) 5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS681E) Refer to the HP website at https://docs.org/nctworking/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.	5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS664E) 5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS665E) Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)







HP 5500-24G-PoE+ EI Switch with 2 Interface Slots (JG241A)

I/O ports and slots	48 RJ-45 autosensing 10/100/1000 PoE+ ports; Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3at PoE+) 4 dual-personality ports; autosensing 10/100/1000BASE-T or SFP 1 RJ-45 serial console port 2 port expansion module slots Supports a maximum of 48 autosensing 10/100/1000 ports	24 RJ-45 autosensing 10/100/1000 PoE+ ports; Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+) 4 dual-personality ports; autosensing 10/100/1000BASE-T or SFP 1 RJ-45 serial console port 2 port expansion module slots Supports a maximum of 24 autosensing 10/100/1000 ports
Physical characteristics Weight	17.32(w) x 16.54(d) x 1.72(h) in. (43.99 x 42.01 x 4.37 cm) (1U height) 14.33 lb (6.5 kg)	17.32(w) x 16.54(d) x 1.69(h) in. (43.99 x 42.01 x 4.29 cm) (1U height) 13.23 lb (6 kg)
Memory and processor	256 MB SDRAM, 32 MB flash; packet buffer size: 4 MB	256 MB SDRAM, 32 MB flash; packet buffer size: 2 MB
Mounting and enclosure	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included)	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included)
Performance		
100 Mb Latency	< 3.2 µs	< 3.2 µs
10 Gb/s Latency	< 2.6 µs	< 2.6 µs
Throughput	142.9 million pps	107.2 million pps
Routing/Switching capacity	192 Gb/s	144 Gb/s
Routing table size	12000 entries (IPv4)	12000 entries (IPv4)
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 90%, noncondensing	10% to 90%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Acoustic	ISO 7779	ISO 7779

Specifications (continued)

HP 5500-48G-PoE+ EI Switch with 2 Interface Slots (JG240A)

HP 5500-24G-PoE+ EI Switch with 2 Interface Slots (JG241A)

Electrical characteristics		
Maximum heat dissipation	921 BTU/hr (971.66 kJ/hr)	700 BTU/hr (738.5 kJ/hr)
AC voltage	100-240 VAC	100-240 VAC
DC voltage	-52 to -55 VDC	-52 to -55 VDC
Maximum power rating	910 W	575 W
-requency	50/60 Hz	50/60 Hz
PoE power	740 W	370 W
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
	PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).	PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).
	With AC input, the maximum power consumption is 640 W; PoE is 370 W.	With DC input, the maximum power consumption is 485 W; PoE is 370 W $$
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60950-1/A11; FDA 21 CFR Subchapter J; RoHS Compliance	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60950-1/A11; FDA 21 CFR Subchapter J; RoHS Compliance
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-11; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (HQ080E) 3-year, 4-hour onsite, 24x7 coverage for hardware (HQ081E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (HQ084E) 3-year, 24x7 SW phone support, software updates (HQ083E) 4-year, 4-hour onsite, 13x5 coverage for hardware (HQ085E) 4-year, 4-hour onsite, 24x7 coverage for hardware (HQ086E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (HQ093E) 4-year, 24x7 SW phone support, software updates (HQ091E) 5-year, 4-hour onsite, 13x5 coverage for hardware (HQ088E) 5-year, 4-hour onsite, 24x7 coverage for hardware (HQ089E) 5-year, 4-hour onsite, 24x7 coverage for hardware (HQ089E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (HQ094E) 5-year, 24x7 SW phone support, software updates (HQ092E) 3-year, 6-hour Call-to-Repair Onsite (HQ087E) 5-year, 6-hour Call-to-Repair Onsite (HQ090E) Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, 4-hour onsite, 13x5 coverage for hardware (UV870E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UV876E) 3-year, 24x7 SW phone support, software updates (UV879E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UV871E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV874E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV874E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV877E) 4-year, 24x7 SW phone support, software updates (UV880E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UV872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV875E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV875E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV875E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV878E) 5-year, 24x7 SW phone support, software updates (UV881E) 3-year, 6-hour Call-to-Repair Onsite (UW966E) 4-year, 6-hour Call-to-Repair Onsite (UW968E) Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications

Standards and protocols

(applies to all products in series)

BGP	RFC 1657 Definitions of Managed Objects for BGPv4	RFC 1771 BGPv4	
Device management	RFC 1157 SNMPv1/v2c RFC 1305 NTPv3 RFC 2573 (SNMPv3 Applications) RFC 1901 (Community based SNMPv2) RFC 2452 MIB for TCP6 RFC 2819 RMON	RFC 2454 MIB for UDP6 RFC 2576 (Coexistence between SNMPv1, v2, and v3) RFC 3410 (Management Framework) RFC 3416 (SNMP Protocol Operations v2)	RFC 3417 (SNMP Transport Mappings) HTML and Telnet management Multiple Configuration Files SNMPv3 and RMON RFC support
General protocols	IEEE 802.1ad Q-in-Q IEEE 802.1ak Multiple Registration Protocol (MRP) and Multiple VLAN Registration Protocol (MVRP) IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1v VLAN classification by Protocol and Port IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.3ab 1000BASE-T IEEE 802.3ab 1000BASE-T IEEE 802.3ab 1000BASE-T IEEE 802.3ab 10-Gigabit Ethernet IEEE 802.3ab 10-Gigabit Ethernet IEEE 802.3af Power over Ethernet IEEE 802.3at 10BASE-T IEEE 802.3at 10BASE-T IEEE 802.3at 100BASE-X IEEE 802.3x Flow Control IEEE 802.3x Flow Control IEEE 802.3x Flow Control IEEE 802.3x Toodbase-X RFC 768 UDP RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 854 Telnet RFC 925 Multi-LAN Address Resolution RFC 950 Internet Standard Subnetting Procedure RFC 951 BOOTP RFC 3246 Expedited Forwarding PHB RFC 1027 Proxy ARP	RFC 1058 RIPv1 RFC 1122 Host Requirements RFC 1141 Incremental updating of the Internet checksum of the Simple Network Management Protocol (SNMPv3) RFC 1213 Management Information Base for Network Management of TCP/IP-based Internets RFC 1256 ICMP Router Discovery Protocol (IRDP) RFC 1305 NTPv3 RFC 1350 TFTP Protocol (revision 2) RFC 1519 CIDR RFC 1519 CIDR RFC 1542 BOOTP Extensions RFC 1723 RIP v2 RFC 1812 IPv4 Routing RFC 1887 An Architecture for IPv6 Unicast Address Allocation RFC 2236 IGMP Snooping RFC 2338 VRRP RFC 2338 VRRP RFC 2375 IPv6 Multicast Address Assignments RFC 2616 HTTP Compatibility v1.1 RFC 2644 Directed Broadcast Control RFC 2711 IPv6 Router Alert Option RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2866 RADIUS Accounting RFC 3246 Expedited Forwarding PHB RFC 3410 Applicability Statements for SNMP RFC 3414 User-based Security Model (USM) for version 3	RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) RFC 3417 Transport Mappings for the Simple Network RFC 3484 Default Address Selection for Internet Protocol version 6 (IPv6) RFC 3493 Basic Socket Interface Extensions for IPv6 RFC 3542 Advanced Sockets Application Program Interface (API) for IPv6 RFC 3587 IPv6 Global Unicast Address Format RFC 3596 DNS Extensions to Support IP Version 6 RFC 3623 Graceful OSPF Restart RFC 3704 Unicast Reverse Path Forwarding (uRPF) RFC 3768 VRRP RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 RFC 4113 Management Information Base for the User Datagram Protocol (UDP) RFC 4213 Basic IPv6 Transition Mechanisms RFC 4443 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification RFC 4594 Configuration Guidelines for DiffServ Service Classes 802.1r—GARP Proprietary Attribute Registration Protocol (GPRP)
IP multicast	RFC 2236 IGMPv2 RFC 2710 Multicast Listener Discovery (MLD) for IPv6	RFC 2858 Multiprotocol Extensions for BGP4 RFC 3376 IGMPv3 RFC 3569 An Overview of Source-Specific Multicast (SSM)	RFC 3618 Multicast Source Discovery Protocol (MSDP) RFC 3973 PIM Dense Mode

Specifications

Standards and protocols (continued) (applies to all products in series)

IPv6	RFC 1881 IPv6 Address Allocation Management RFC 1887 IPv6 Unicast Address Allocation Architecture RFC 1981 IPv6 Path MTU Discovery RFC 2080 RIPng 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 2475 IPv6 DiffServ Architecture RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 2711 IPv6 Router Alert Option RFC 2740 OSPFv3 for IPv6 RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only) RFC 2925 Remote Operations MIB (Ping only) RFC 3056 Connection of IPv6 Domains via IPv4 Clouds RFC 3162 RADIUS and IPv6	RFC 3306 Unicast-Prefix-based IPv6 Multicast Addresses RFC 3307 IPv6 Multicast Address Allocation RFC 3315 DHCPv6 (client and relay) RFC 3484 Default Address Selection for IPv6 RFC 3493 Basic Socket Interface Extensions for IPv6 RFC 3513 IPv6 Addressing Architecture RFC 3513 IPv6 Addressing Architecture RFC 3542 Advanced Sockets API for IPv6 RFC 3587 IPv6 Global Unicast Address Format RFC 3596 DNS Extension for IPv6 RFC 3810 MLDv2 for IPv6 RFC 4113 MIB for UDP RFC 4443 ICMPv6 RFC 5340 OSPFv3 for IPv6
MIBs	RFC 1212 Concise MIB Definitions RFC 1213 MIB II RFC 1493 Bridge MIB RFC 1657 BGP4 MIB RFC 1724 RIPv2 MIB RFC 1757 Remote Network Monitoring MIB RFC 1850 OSPFv2 MIB RFC 2012 SNMPv2 MIB for TCP RFC 2013 SNMPv2 MIB for UDP 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-Target MIB RFC 2574 SNMP USM MIB RFC 2618 RADIUS Authentication Client MIB RFC 2620 RADIUS Accounting Client MIB RFC 2665 Ethernet-Like-MIB	RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions RFC 2737 Entity MIB (Version 2) RFC 2787 VRRP MIB RFC 2819 RMON MIB RFC 2925 Ping MIB RFC 3414 SNMP-user-based-SM-MIB RFC 3415 SNMP-view-based-ACM-MIB RFC 4113 UDP MIB
Network management	IEEE 802.1AB Link Layer Discovery Protocol (LLDP) IEEE 802.1D (STP) RFC 1157 SNMPv1 RFC 1212 Concise MIB definitions RFC 1215 SNMP Generic traps RFC 1757 RMON 4 groups: Stats, History, Alarms and Events RFC 1901 SNMPv2 Introduction RFC 1918 Private Internet Address Allocation RFC 2373 Remote Network Monitoring Management Information Base for High Capacity Networks RFC 2571 An Architecture for Describing SNMP Management Frameworks	RFC 2572 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) RFC 2573 SNMP Applications RFC 2574 SNMPv3 user-based Security Model (USM) RFC 2575 SNMPv3 view-based Access Control Model (VACM) RFC 2576 Coexistence between SNMP versions RFC 2578 SMIv2 RFC 2581 TCP6 RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events)	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations RFC 3176 sFlow RFC 3410 Introduction to Version 3 of the Internet-standard Network Management Framework RFC 3414 SNMPv3 user-based Security Model (USM) RFC 3415 SNMPv3 view-based Access Control Model VACM) ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) SNMPv1/v2c/v3
OSPF	RFC 1587 OSPF NSSA RFC 1850 OSPFv2 Management Information Base (MIB), traps	RFC 2328 OSPFv2 RFC 2370 OSPF Opaque LSA Option RFC 3623 Graceful OSPF Restart	
QoS/CoS	IEEE 802.1P (CoS) 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 1492 TACACS+ RFC 1918 Address Allocation for Private Internets	RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting Access Control Lists (ACLs)	MAC Authentication Port Security

HP 5500 EI Switch Series accessories

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HP 5500 2-port 10GbE XFP Module (JD359B)

HP 5500 2-port 10GbE Local Connect Module (JD360B)

HP 5500 1-port 10GbE XFP Module (JD361B)

HP 5500/4800 2-port GbE SFP Module (JD367A)

HP 5500/5120 2-port 10GbE SFP+ Module (JD368B)

NEW HP 5500/5120 2-port 10GBASE-T Module (JG535A)

Transceivers

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 X110 100M SFP LC LH40 Transceiver (JD090A)

HP X110 100M SFP LC LH80 Transceiver (JD091A)

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 X120 1G SFP LC BX 10-U Transceiver (JD098B)

HP X120 1G SFP LC BX 10-D Transceiver (JD099B)

HP X110 100M SFP LC FX Transceiver (JD102B)

HP X130 10G XFP LC LR Transceiver (JD108B)

HP X130 10G XFP LC SR Transceiver (JD117B)

HP X120 1G SFP LC SX Transceiver (JD118B)

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HP X135 10G XFP LC ER Transceiver (JD121A)

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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)

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HP X130 10G SFP+ LC ER 40km Transceiver (JG234A)

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HP X230 CX4 to CX4 3m Cable (JD365A)

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HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)

HP 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)

HP 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)

HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)

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