HP E4510G Switch Series

Data sheet

Product overview

The HP E4510G Switch Series provides advanced Gigabit Ethernet access and distribution for medium-sized businesses and smaller enterprise organizations seeking to build a secure converged network. HP E4510G switches support security, and management features, and accommodate up to four optional 10 GbE high-speed links, enabling connectivity to a core network or high-performance servers. The combination of high-performance Gigabit Ethernet switching, quality of service (QoS), and traffic management features help ensure that essential applications receive appropriate priority for efficient utilization of network resources. The series also offers single address management.

Key features

- Enterprise-class security features
- Wire-speed switching capacity up to 176 Gbps
- Dual-personality copper/fiber ports
- Single IP address management
- IEEE 802.1X network access control

Features and benefits

Quality of Service (QoS)

- **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers

- **Traffic prioritization (IEEE 802.1p):** allows real-time traffic classification into eight priority levels mapped to eight queues

- **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

- **Rate limiting:** sets per-port ingress enforced maximums and per-port, per-queue guaranteed minimums

- **Bandwidth shaping:**

  - **Rate limiting:** provides per-port, ingress-based enforced bandwidth maximums

  - **Guaranteed minimums:** provides per-port, per-queue egress-based guaranteed bandwidth minimums

- **Broadcast control:** allows limitation of broadcast traffic rate to cut down on unwanted broadcast traffic on the network

Management

- **Remote configuration and management:** is available through a secure Web browser or a command-line interface (CLI)

- **Manager and operator privilege levels:** enable read-only (operator) and read-write (manager) access on CLI and Web browser management interfaces

- **Management VLAN:** segments traffic to and from management interfaces, including CLI/telnet, a Web browser interface, and SNMP

- **RADIUS accounting support:** separates RADIUS accounting server support per SSID; provides detailed session, usage, and billing information for each client activity

- **Multiple configuration files:** can be stored to the flash image

- **Dual flash images:** provide independent primary and secondary operating system files for backup while upgrading

- **Secure Web GUI:** provides a secure, easy-to-use graphical interface for configuring the module via HTTPS

- **Command-line interface (CLI):** provides a secure, easy-to-use command-line interface for configuring the module via SSH or a switch console; provides direct real-time session visibility

- **SNMPv1, v2c, and v3:** facilitate centralized discovery, monitoring, and secure management of networking devices

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

- **3Com-heritage Comware Operating System:** CLI and Web user interface in common with HP E4xxx and E55xxx series switches

Connectivity

- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports

- **Dual-personality functionality:** includes four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, -LH, or 100-FX

- **IEEE 802.3af Power over Ethernet (PoE):** provides up to 15.4 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP phones, wireless access points, and security cameras

- **Optional 10 Gigabit Ethernet ports:** allow the addition of 10 Gigabit Ethernet connections for uplinks or high-bandwidth server connections; flexibly supports XFP, SFP+, or CX4 local connections

Manageability

- **RMON (remote monitoring):** provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **Dual flash images:** provides independent primary and secondary operating system files for backup while upgrading

- **Full-featured console:** provides complete control of the switch with a familiar command-line interface (CLI)

- **Web interface:** allows configuration of the switch from any Web browser on the network

- **Multiple configuration files:** allow multiple configuration files to be stored to flash image

- **Software updates:** free downloads from the Web

- **sFlow (RFC 3176):** wire-speed traffic accounting and monitoring

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- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol provides easy mapping using network management applications

Layer 2 switching

- **VLAN support and tagging:** support IEEE 802.1Q, with 4094 simultaneous VLAN IDs

- **GARP VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **IP multicast snooping and data-driven IGMP:** automatically prevents flooding of IP multicast traffic

- **Jumbo packet support:** supports up to 9220-byte frame size to improve performance of large data transfers

- **IEEE 802.1ad QinQ:** increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on a high-speed campus or metro network

Layer 3 routing

- **Static IP routing:** provides manually configured routing; includes ECMP capability

- **Routing Information Protocol (RIP):** provides RIPv1 and RIPv2 routing

Security

- **Access control lists (ACLs):** provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number

- **RADIUS/TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote command-line interface (CLI) access over IP networks

- **Secure Web management with HTTPS and SSL:** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **IEEE 802.1X and RADIUS network logins:** control port-based access for authentication and accountability

- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator

- **MAC address lockout:** prevents particular configured MAC addresses from connecting to the network

- **Secure File Transfer Protocol (FTP):** allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file

- **Switch management logon security:** can require either RADIUS or TACACS+ authentication for secure switch CLI logon

- **Secure management access:** securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3

- **Custom banner:** displays security policy when users log in to the switch

- **Automatic VLAN assignment:** automatically assigns users to the appropriate VLAN based on their identity and location and the time of day

- **Management password:** provides security so that only authorized access to the Web browser interface is allowed

- **STP BPDU port protection:** blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks

- **Dynamic IP lockdown:** works with DHCP protection to block traffic from unauthorized hosts, preventing IP source address spoofing

- **DHCP protection:** blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks

- **Dynamic ARP protection:** blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data

- **STP Root Guard:** protects root bridge from malicious attack or configuration mistakes

Convergence

- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** is an automated device discovery protocol for easy mapping by network management applications

- **Automated voice VLAN assignment:** recognizes IP phones and automatically assigns voice traffic to a dedicated VLAN for IP phones

Warranty and support

- **Lifetime warranty:** for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)*

- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to www.hp.com/networking/warranty for details on the support provided and the period during which support is available

- **Software releases:** refer to www.hp.com/networking/warranty for details on the software releases provided and the period during which software releases are available for your product(s)

HP E4510G Switch Series

Specifications

	HP E4510-48G Switch (JF428A)	HP E4510-24G Switch (JF847A)
Ports	2 open module slots	2 open module slots
	44 RJ-45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)	20 RJ-45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
	4 SFP dual-personality 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)	4 SFP auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
Physical characteristics		
Dimensions	16.54(d) x 17.32(w) x 1.72(h) in. (42.0 x 44.0 x 4.37 cm) (1U height)	11.81(d) x 17.32(w) x 1.72(h) in. (30.0 x 44.0 x 4.37 cm) (1U height)
Weight	11.02 lb. (5 kg)	9.92 lb. (4.5 kg)
Memory and processor		
Processor	Power PC @ 200 MHz, 16 MB flash, 128 MB SDRAM; packet buffer size: 4 MB shared packet buffer	Power PC @ 200 MHz, 16 MB flash, 128 MB SDRAM; packet buffer size: 2 MB shared packet buffer
Performance		
1000 Mb Latency	< 3.2 μs	< 3.2 μs
10 Gbps Latency	< 2.6 μs	< 2.6 μs
Throughput	93.2 million pps	93.2 million pps
Switching capacity	176 Gbps	128 Gbps
MAC address table size	16,000 entries	16,000 entries
Reliability		
MTBF (years)	14.9	23
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%, non-condensing	10% to 90%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	5% to 95%, non-condensing	5% to 95%, non-condensing
Electrical characteristics		
Voltage	100-240 VAC	100-240 VAC
Maximum power rating	120 W	80 W
Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	IEC 60950-1; EN 60950; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03	IEC 60950-1; EN 60950; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55022; EN 55024; ICES-003 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	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55022; EN 55024; ICES-003 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
Management	IMC - Intelligent Management Center; command-line interface; Web browser; out-of-band management (serial RS-232C); SNMP Manager; Telnet	IMC - Intelligent Management Center; command-line interface; Web browser; out-of-band management (serial RS-232C); SNMP Manager; Telnet
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UV834E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV837E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UV840E) 3-year, 24x7 SW phone support, software updates (UV843E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UV835E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV838E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV841E) 4-year, 24x7 SW phone support, software updates (UV844E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UV836E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV839E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV842E) 5-year, 24x7 SW phone support, software updates (UV845E) 3 Yr 6 hr Call-to-Repair Onsite (UW434E) 4 Yr 6 hr Call-to-Repair Onsite (UW435E) 5 Yr 6 hr Call-to-Repair Onsite (UW436E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

HP E4510-48G Switch (JF428A)		HP E4510-24G Switch (JF847A)	

Standards and protocols
(applies to all products in series)

General protocols
IEEE 802.1ag Service Layer OAM
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q (GVRP)
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.1X PAE
IEEE 802.3ad Link Aggregation (LAG)
IEEE 802.3ae 10-Gigabit Ethernet
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 925 Multi-LAN Address Resolution
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 3046 DHCP Relay Agent Information Option
RFC 3576 Ext to RADIUS (CoA only)
RFC 4675 RADIUS VLAN & Priority

IPv6
RFC 2080 RIPng for IPv6
RFC 2460 IPv6 Specification
RFC 2710 Multicast Listener Discovery (MLD) for

IPv6
RFC 2740 OSPFv3 for IPv6
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
RFC 3019 MLDv1 MIB
RFC 3162 RADIUS and IPv6
RFC 3315 DHCPv6 (client and relay)
RFC 3513 IPv6 Addressing Architecture
RFC 3810 MLDv2 (host joins only)
RFC 4022 MIB for TCP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4293 MIB for IP
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs
IEEE 8021-PAE-MIB
IEEE 8023-LAG-MIB
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 2011 SNMPv2 MIB for IP
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-Notification MIB
RFC 2573 SNMP-Target MIB
RFC 2665 Ethernet-Like-MIB
RFC 2819 RMON MIB
RFC 2925 Ping MIB
RFC 3414 SNMP-User based-SM MIB
RFC 3415 SNMP-View based-ACM MIB
RFC 3418 MIB for SNMPv3
RFC 3826 AES for SNMP's USM MIB
RFC 4133 Entity MIB (Version 3)
LLDP-EXT-DOT1-MIB
LLDP-EXT-DOT3-MIB
LLDP-MIB

Network management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3

Security
IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)
SSHv2 Secure Shell

HP E4510G Switch Series accessories

Modules

HP 1-Port 10-Gig XFP E45/E48 Module (JE053A)

HP 2-Port 10-Gig XFP E45/E48 Module (JE049A)

HP 2-port 10-GbE SFP+ A5500/E4800/E4500 Module (JD368B)

HP 2-Port 10-Gig LCM E45/E48 Module (JE051A)

Transceivers

HP X110 100M SFP LC FX Dual Mode Transceiver (JD497A)

HP X110 100M SFP LC LX10 Transceiver (JD498A)

HP X125 1G SFP RJ45 T Transceiver (JD089B)

HP X124 1G SFP LC SX Transceiver (JD493A)

HP X125 1G SFP LC LH70 Transceiver (JD063B)

HP X130 SC LR XFP Transceiver (JD108B)

HP X130 LC SR XFP Transceiver (JD117B)

HP X135 LC ER XFP Transceiver (JD121A)

HP X130 CX4 XFP Transceiver (JD506A)

HP X130 SFP+ LC SR Transceiver (JD092B)

HP X130 SFP+ LC LRM Transceiver (JD093B)

HP X130 SFP+ LC LR Transceiver (JD094B)

HP X240 SFP+ SFP+ 0.65m Direct Attach Cable (JD095B)

HP X240 SFP+ SFP+ 1.2m Direct Attach Cable (JD096B)

HP X240 SFP+ SFP+ 3m Direct Attach Cable (JD097B)

Cables

HP 50cm CX4 Cable (JE054A)

HP 100cm CX4 Cable (JE055A)

HP 300cm CX4 Cable (JE056A)

NEW HP .5 m Multimode OM3 LC/LC Optical Cable (AJ833A)

NEW HP 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)

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

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

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

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

NEW HP 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)

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