



## HP E4500G Switch Series

Data sheet

### Product overview

The HP E4500G 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 E4500G 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. Some models also provide PoE support. 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 the efficient utilization of network resources. The series also offers clustering and stackable scalability with single IP address management.

### Key features

- Enterprise-class security features
- Wire-speed switching capacity up to 176 Gbps
- Dual-personality copper and fiber ports
- Support for clusters of up to 32 devices
- 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 E55XX 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

- **Virtual stacking capability:** single IP address management for a virtual stack of up to 255 Comware-based 3Com legacy devices, including HP E4XXX and E55XX series switches

## 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

## Convergence

- **LLDP-MED (Media Endpoint Discovery):** is a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **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](http://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](http://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)

\*Hardware warranty replacement for as long as you own the product, with next business day advance replacement (available in most countries) with a five-year hardware warranty replacement for the disk drive included with HP AllianceONE Services z1 Module, HP Threat Management Services z1 Module, HP PCM+ Agent with AllianceONE Services z1 Module, and HP E-MSM765 z1 Mobility Controller. For details, refer to the HP Software License, Warranty, and Support booklet at [www.hp.com/networking/warranty](http://www.hp.com/networking/warranty).

# HP E4500G Switch Series

## Specifications



**HP E4500-24G-PoE Switch (JE061A)**



**HP E4500-48G-PoE Switch (JE063A)**

<b>Ports</b>	<p>2 open module slots</p> <p>20 RJ-45 auto-sensing 10/100/1000 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only</p> <p>4 SFP dual-personality 10/100/1000 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T, IEEE 802.3af PoE)</p>	<p>2 open module slots</p> <p>44 RJ-45 auto-sensing 10/100/1000 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only</p> <p>4 SFP dual-personality 10/100/1000 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T, IEEE 802.3af PoE)</p>
<b>Physical characteristics</b>		
Dimensions	11.81(d) x 17.32(w) x 1.72(h) in. (30.0 x 43.99 x 4.36 cm) (1U height)	16.54(d) x 17.32(w) x 1.72(h) in. (42.0 x 44.0 x 4.36 cm) (1U height)
Weight	15.43 lb. (7 kg)	16.53 lb. (7.5 kg)
<b>Memory and processor</b>		
Processor	Power PC @ 200 MHz, 16 MB flash, 128 MB SDRAM; packet buffer size: 2 MB shared packet buffer	Power PC @ 200 MHz, 16 MB flash, 128 MB SDRAM; packet buffer size: 4 MB shared packet buffer
<b>Performance</b>		
1000 Mb latency	< 3.2 $\mu$ s (32-byte packets)	< 3.2 $\mu$ s
10 Gbps latency	< 2.6 $\mu$ s (32-byte packets)	< 2.6 $\mu$ s
Throughput	up to 93.2 million pps	130.9 million pps
Switching capacity	128 Gbps	176 Gbps
MAC address table size	16,000 entries	16,000 entries
<b>Reliability</b>		
MTBF (years)	21.9	14.1
<b>Environment</b>		
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
<b>Electrical characteristics</b>		
Voltage	100-240 VAC	100-240 VAC
DC Voltage		-48V DC
Maximum power rating	455 W	500 W
PoE power	370 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. 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).	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).
<b>Safety</b>	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
<b>Emissions</b>	FCC part 15 Class A; 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; ETSI EN 300 386 V1.3.3; Korean EMI Class A; EN 55024:1998	FCC part 15 Class A; 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; ETSI EN 300 386 V1.3.3; Korean EMI Class A; EN 55024:1998
<b>Management</b>	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

## Specifications (continued)

	HP E4500-24G-PoE Switch (JE061A)	HP E4500-48G-PoE Switch (JE063A)	
<b>Services</b>	<p>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)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.</p>	<p>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)</p> <p>Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.</p>	
<b>Standards and protocols</b> (applies to all products in series)	<p><b>Device management</b>            RFC 1157 SNMPv1/v2c            RFC 2819 RMON</p> <p><b>General protocols</b>            IEEE 802.1ag Service Layer OAM            IEEE 802.1D MAC Bridges            IEEE 802.1p Priority            IEEE 802.1Q VLANs            IEEE 802.1s (MSTP)            IEEE 802.1s 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 802.3 Type 10BASE-T            IEEE 802.3ad Link Aggregation Control Protocol (LACP)            IEEE 802.3ae 10-Gigabit Ethernet            IEEE 802.3u 100BASE-X            IEEE 802.3x Flow Control            IEEE 802.3z 1000BASE-X            RFC 768 UDP            RFC 783 TFTP Protocol (revision 2)            RFC 791 IP            RFC 792 ICMP            RFC 793 TCP            RFC 826 ARP            RFC 854 TELNET            RFC 925 Multi-LAN Address Resolution            RFC 951 BOOTP            RFC 1058 RIPv1            RFC 1350 TFTP Protocol (revision 2)            RFC 1519 CIDR            RFC 1542 BOOTP Extensions            RFC 1723 RIP v2            RFC 2131 DHCP            RFC 2453 RIPv2            RFC 3046 DHCP Relay Agent Information Option            RFC 3576 Ext to RADIUS (CoA only)</p>	<p>RFC 4675 RADIUS VLAN &amp; Priority</p> <p><b>IPv6</b>            RFC 2080 RIPng for IPv6            RFC 2460 IPv6 Specification            RFC 2461 IPv6 Neighbor Discovery            RFC 2462 IPv6 Stateless Address Auto-configuration            RFC 2463 ICMPv6            RFC 2464 Transmission of IPv6 over Ethernet Networks            RFC 2710 Multicast Listener Discovery (MLD) for IPv6            RFC 2740 OSPFv3 for IPv6            RFC 2925 Remote Operations MIB (Ping only)            RFC 3019 MLDv1 MIB            RFC 3162 RADIUS and IPv6            RFC 3315 DHCPv6 (client and relay)            RFC 3513 IPv6 Addressing Architecture            RFC 3587 IPv6 Global Unicast Address Format            RFC 3810 MLDv2 (host joins only)            RFC 4022 MIB for TCP            RFC 4251 SSHv6 Architecture            RFC 4252 SSHv6 Transport Layer            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 &amp; MLD Snooping Switch            RFC 4861 IPv6 Neighbor Discovery            RFC 4862 IPv6 Stateless Address Auto-configuration</p> <p><b>MIBs</b>            IEEE 8021-PAE-MIB            IEEE 8023-LAG-MIB            RFC 1493 Bridge MIB            RFC 2011 SNMPv2 MIB for IP            RFC 2013 SNMPv2 MIB for UDP            RFC 2233 Interfaces MIB</p>	<p>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 2674 802.1p and IEEE 802.1Q Bridge MIB            RFC 2688 MAU-MIB            RFC 2819 RMON MIB            RFC 2925 Ping MIB            RFC 3414 SNMP-User based-SM MIB            RFC 3415 SNMP-View based-ACM MIB            RFC 3418 MIB for SNMPv3            RFC 3621 Power Ethernet MIB            RFC 3826 AES for SNMP's USM MIB            RFC 4133 Entity MIB (Version 3)            LLDP-EXT-DOT1-MIB            LLDP-EXT-DOT3-MIB            LLDP-MIB</p> <p><b>Network management</b>            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</p> <p><b>Security</b>            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</p>

# HP E4500G 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)
- NEW** HP 0.5m PremierFlex OM3+ LC/LC Optical Cable (BK837A)

To learn more, visit [www.hp.com/networking](http://www.hp.com/networking)

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