



## HP E6200-24G-mGBIC yl Switch

Data sheet

### Product overview

The HP E6200-24G-mGBIC yl Switch is an advanced Layer 3 stackable switch in 1U height. It has 24 mini-GBIC slots and an expansion slot for an optional 4-port 10 GbE module. Designed to be deployed as an aggregator of traffic from the edge to the core of the network, this switch supports a variety of Gigabit mini-GBICs, such as SX, LX, LH, and 1000Base-T. The foundation for this switch is a purpose-built ProVision ASIC that allows the most demanding networking features, such as quality of service (QoS) and security, to be implemented in a scalable yet granular fashion. With its high-performance architecture, 10 GbE capability, and programmable ASIC, this switch offers excellent investment protection, flexibility, and scalability.

### Key features

- Distribution layer
- Layer 2 to 4 and intelligent edge feature set
- High performance
- Low-cost mini-GBIC connectivity
- 10 GbE uplinks



## Features and benefits

### Quality of Service (QoS)

- **Advanced classifier-based QoS:** classifies traffic using multiple match criteria based on Layer 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a per-port or per-VLAN basis
- **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers
- **Traffic prioritization:** allows real-time traffic classification into eight priority levels mapped to eight queues
- **Bandwidth shaping:**
  - **Port-based rate limiting:** provides per-port ingress-/egress-enforced maximum bandwidth
  - **Classifier-based rate limiting:** uses access control list (ACL) to enforce maximum bandwidth for ingress traffic on each port
  - **Guaranteed minimum:** provides per-port, per-queue egress-based guaranteed minimum bandwidth
- **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

### Management

- **Remote intelligent mirroring:** mirrors selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote HP E8200 zl, E6600, E6200 yl, E5400 zl, or E3500 switch anywhere on the network
- **RMON, XRMON, and sFlow:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol provides easy mapping by network management applications
- **Command authorization:** leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; also provides an audit trail
- **Friendly port names:** allow assignment of descriptive names to ports
- **Dual flash images:** provide independent primary and secondary operating system files for backup while upgrading

- **Multiple configuration files:** can be stored to the flash image
- **Uni-Directional Link Detection (UDLD):** monitors cable between two switches and shuts down the ports on both ends if the cable is broken, turning the bi-directional link into uni-directional; this prevents network problems such as loops
- **Management simplicity:** HP E-Series Switches-common networking features and CLI implementation (common across HP zl and yl switches)

### Connectivity

- **IPv6:**
  - **IPv6 host:** enables switches to be managed and deployed at the IPv6 network's edge
  - **Dual stack (IPv4/IPv6):** transitions from IPv4 to IPv6, supporting connectivity for both protocols
  - **MLD snooping:** forwards IPv6 multicast traffic to the appropriate interface
  - **IPv6 ACL/QoS:** supports ACL and QoS for IPv6 network traffic, preventing traffic flooding
  - **IPv6 routing:** supports static and OSPFv3 routing protocols
- **Jumbo frames:** on Gigabit and 10-Gigabit ports, they allow high-performance remote backup and disaster recovery services

### Performance

- **High-speed/capacity architecture:** 105.6 Gbps crossbar switching fabric provides intra- and inter-module switching with 75.7 million pps throughput on the purpose-built Provision ASICs
- **Selectable queue configurations:** allow you to increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

### Resiliency and high availability

- **Router redundancy:** VRRP allows groups of two routers to dynamically back each other up to create highly available routed environments
- **IEEE 802.1s Multiple Spanning Tree Protocol:** provides high link availability in multiple VLAN environments by allowing multiple spanning trees; encompasses IEEE 802.1D Spanning Tree Protocol and IEEE 802.1w Rapid Spanning Tree Protocol
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP) and HP port trunking:** support up to 60 trunks, each with up to 8 links (ports) per trunk

- **Distributed trunking:** enables loop-free and redundant network topology without using Spanning Tree Protocol; allows a server or switch to connect to two switches using one logical trunk for redundancy and load sharing

## Layer 2 switching

- **IEEE 802.1ad Q-in-Q:** increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on a high-speed campus or metro network
- **HP's switch meshing:** dynamically load balances across multiple active redundant links to increase available aggregate bandwidth
- **VLAN support and tagging:** supports complete IEEE 802.1Q standard and 2,048 VLANs simultaneously
- **IEEE 802.1v protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs
- **GARP VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

## Layer 3 services

- **User Datagram Protocol (UDP) helper function:** allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevents server spoofing for UDP services such as DHCP
- **Loopback interface address:** defines an address in Routing Information Protocol (RIP) and OSPF that can always be reachable, improving diagnostic capability
- **Route maps:** provide more control during route redistribution; allow filtering and altering of route metrics

## Layer 3 routing

- **Static IP routing:** provides manually configured routing for both IPv4 and IPv6 networks
- **Routing Information Protocol (RIP):** provides RIPv1 and RIPv2 routing
- **OSPF:** provides OSPFv2 for IPv4 routing and OSPFv3 for IPv6 routing

## Security

- **Switch CPU protection:** provides automatic protection against malicious network traffic trying to shut down the switch

- **Virus throttling:** detects traffic patterns typical of WORM-type viruses and either throttles or entirely prevents the virus from spreading across the routed VLANs without requiring external appliances
- **ICMP throttling:** defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic
- **Multiple user authentication methods:**
  - **IEEE 802.1X users per port:** provides authentication of multiple IEEE 802.1X users per port
  - **Web-based authentication:** authenticates from Web browser for clients that do not support IEEE 802.1X supplicant
  - **MAC-based authentication:** client is authenticated with the RADIUS server based on client's MAC address
  - **Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port:** switch port accepts up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- **Access control lists (ACLs):** provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on a per-VLAN or per-port basis
- **Identity-driven ACL:** enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
- **DHCP protection:** blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **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
- **Dynamic ARP protection:** blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- **Detection of malicious attacks:** monitors 10 types of network traffic and sends a warning when an anomaly that potentially can be caused by malicious attacks is detected
- **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

- **Source-port filtering:** allows only specified ports to communicate with each other
- **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 Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- **Secure File Transfer Protocol (FTP):** allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file
- **Management Interface Wizard:** helps ensure that management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB are secured to the desired level
- **Secure management access:** securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3
- **Switch management logon security:** can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **Security banner:** displays customized security policy when users log in to the switch
- **USB Secure Autorun (requires HP PCM+):** deploys, diagnoses, and updates a switch using a USB flash drive; works with a secure credential to prevent tampering
- **STP Root Guard:** protects the root bridge from malicious attack or configuration mistakes

## Convergence

- **IP multicast routing:** includes PIM Sparse and Dense modes to route IP multicast traffic
- **IP multicast snooping (data-driven IGMP):** automatically prevents flooding of IP multicast traffic
- **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

## 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 E6200-24G-mGBIC yl Switch

## Specifications



HP E6200-24G-mGBIC yl Switch (J8992A)

<b>Ports</b>	24 open mini-GBIC (SFP) slots Supports a maximum of 4 10-GbE ports, with optional module
<b>Physical characteristics</b>	
Dimensions	15.43(d) x 17.44(w) x 1.73(h) in. (39.2 x 44.3 x 4.4 cm) (1U height)
Weight	14.11 lb. (6.4 kg)
<b>Memory and processor</b>	
Processor	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 256 MB DDR SDRAM
<b>Mounting</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
<b>Performance</b>	
1000 Mb latency	< 3.7 $\mu$ s (FIFO 64-byte packets)
10 Gbps Latency	< 2.1 $\mu$ s (FIFO 64-byte packets)
Throughput	up to 75.7 million pps
Routing/Switching capacity	101.8 Gbps
Switch fabric speed	105.6 Gbps
Routing table size	10000 entries
<b>Environment</b>	
Operating temperature	32°F to 131°F (0°C to 55°C); 32°F to 104°F (40°C) when used with any X2 10-GbE
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 15,000 ft. (4.6 km)
Acoustic	Power: 55.1 dB; DIN 45635T.19 per ISO 7779
<b>Electrical characteristics</b>	
Description	The switch automatically adjusts to any voltage between 100-127 and 200-240 V with either 50 or 60 Hz.
Maximum heat dissipation	829 BTU/hr (875 kJ/hr)
Voltage	100-127/200-240 VAC
Current	1.8/0.9 A
Maximum power rating	243 W
Frequency	50/60 Hz
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.
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	
EN	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC
Conducted	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
Harmonics	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	HP PCM+; HP PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
<b>Notes</b>	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.
<b>Services</b>	3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR868E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR869E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR870E) 4-year, 24x7 SW phone support, software updates (UR871E)

## Specifications (continued)

### HP E6200-24G-mGBIC yl Switch (J8992A)

- 5-year, 4-hour onsite, 13x5 coverage for hardware (UR872E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware (UR873E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR874E)
- 5-year, 24x7 SW phone support, software updates (UR875E)
- 3 Yr 6 hr Call-to-Repair Onsite (UW356E)
- 4 Yr 6 hr Call-to-Repair Onsite (UW357E)
- 5 Yr 6 hr Call-to-Repair Onsite (UW358E)

Refer to the HP website at [www.hp.com/networking/services](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

#### Device management

- RFC 1591 DNS (client)
- HTML and telnet management

#### General protocols

- IEEE 802.1ad QinQ
- IEEE 802.1AX-2008 Link Aggregation
- IEEE 802.1D MAC Bridges
- IEEE 802.1p Priority
- IEEE 802.1Q VLANs
- IEEE 802.1s Multiple Spanning Trees
- IEEE 802.1v VLAN classification by Protocol and Port
- IEEE 802.1w Rapid Reconfiguration of Spanning Tree
- IEEE 802.3ad Link Aggregation Control Protocol (LACP)
- IEEE 802.3x Flow Control
- RFC 768 UDP
- RFC 783 TFTP Protocol (revision 2)
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 TELNET
- RFC 868 Time Protocol
- RFC 951 BOOTP
- RFC 1058 RIPv1
- RFC 1350 TFTP Protocol (revision 2)
- RFC 1519 CIDR
- RFC 1542 BOOTP Extensions
- RFC 2030 Simple Network Time Protocol (SNTP) v4
- RFC 2131 DHCP
- RFC 2453 RIPv2
- RFC 2548 (MS-RAS-Vendor only)
- RFC 3046 DHCP Relay Agent Information Option
- RFC 3576 Ext to RADIUS (CoA only)
- RFC 3768 VRRP
- RFC 4675 RADIUS VLAN & Priority
- UDLD (Uni-directional Link Detection)

#### IP multicast

- RFC 3376 IGMPv3 (host joins only)
- RFC 3973 Draft 2 PIM Dense Mode
- RFC 4601 Draft 10 PIM Sparse Mode

#### IPv6

- RFC 1981 IPv6 Path MTU Discovery

- RFC 2375 IPv6 Multicast Address Assignments
- RFC 2460 IPv6 Specification
- RFC 2464 Transmission of IPv6 over Ethernet Networks
- RFC 2710 Multicast Listener Discovery (MLD) for IPv6
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
- RFC 3019 MLDv1 MIB
- RFC 3315 DHCPv6 (client and relay)
- RFC 3484 Default Address Selection for IPv6
- RFC 3587 IPv6 Global Unicast Address Format
- RFC 3596 DNS Extension for IPv6
- RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
- RFC 4022 MIB for TCP
- RFC 4113 MIB for UDP
- RFC 4251 SSHv6 Architecture
- RFC 4252 SSHv6 Authentication
- RFC 4253 SSHv6 Transport Layer
- RFC 4254 SSHv6 Connection
- RFC 4291 IP Version 6 Addressing Architecture
- RFC 4293 MIB for IP
- RFC 4294 IPv6 Node Requirements
- 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
- RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
- RFC 5340 OSPF for IPv6
- RFC 5453 Reserved IPv6 Interface Identifiers
- RFC 5722 Handling of Overlapping IPv6 Fragments

#### MIBs

- RFC 1213 MIB II
- RFC 1493 Bridge MIB
- RFC 1724 RIPv2 MIB
- RFC 1850 OSPFv2 MIB
- RFC 2021 RMONv2 MIB
- RFC 2096 IP Forwarding Table MIB
- RFC 2613 SMON MIB
- 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 2737 Entity MIB (Version 2)
- RFC 2787 VRRP MIB
- RFC 2863 The Interfaces Group MIB
- RFC 2925 Ping 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
- XRMON

#### OSPF

- RFC 2328 OSPFv2
- RFC 3101 OSPF NSSA
- RFC 5340 OSPF for IPv6

#### QoS/CoS

- RFC 2474 DiffServ Precedence, including 8 queues/port
- 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 2865 RADIUS (client only)
- RFC 2866 RADIUS Accounting
- Secure Sockets Layer (SSL)
- SSHv1/SSHv2 Secure Shell

# HP E6200-24G-mGBIC yl Switch accessories

## Modules

HP 10 GbE 2-port SFP+/2-port CX4 yl Module (J9312A)

HP 10 GbE 2-port X2 / 2-port CX4 yl Module (J8694A)

## Transceivers

HP X131 10G X2 SC ER Transceiver (J8438A)

HP X130 CX4 Optical Media Converter (J8439A)

HP X131 10G X2 SC SR Transceiver (J8436A)

HP X131 10G X2 CX4 Transceiver (J8440C)

HP X111 100M SFP LC FX Transceiver (J9054C)

HP X131 10G X2 SC LR Transceiver (J8437A)

HP X131 10G X2 SC LRM Transceiver (J9144A)

HP X112 100M SFP LC BX-D Transceiver (J9099B)

HP X112 100M SFP LC BX-U Transceiver (J9100B)

HP X121 1G SFP LC LH Transceiver (J4860C)

HP X121 1G SFP LC SX Transceiver (J4858C)

HP X121 1G SFP LC LX Transceiver (J4859C)

HP X121 1G SFP RJ45 T Transceiver (J8177C)

HP X122 1G SFP LC BX-D Transceiver (J9142B)

HP X122 1G SFP LC BX-U Transceiver (J9143B)

## Cables

HP 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)

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

**NEW** HP 1 m PremierFlex OM3+ LC/LC Optical Cable (BK838A)

**NEW** HP 2 m PremierFlex OM3+ LC/LC Optical Cable (BK839A)

**NEW** HP 5 m PremierFlex OM3+ LC/LC Optical Cable (BK840A)

**NEW** HP 15 m PremierFlex OM3+ LC/LC Optical Cable (BK841A)

**NEW** HP 30 m PremierFlex OM3+ LC/LC Optical Cable (BK842A)

**NEW** HP 50 m PremierFlex OM3+ LC/LC Optical Cable (BK843A)

## EPS/RPS

HP E620 Redundant/External Power Supply (J8696A)

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

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4AA1-6625ENW, Created November 2007; Updated June 2011, Rev. 4

