Overview

Models

HP ProCurve Switch 6200yl-24G-mGBIC	J8992A

Introduction

The HP ProCurve Switch 6200yl-24G-mGBIC is an advanced Layer 3 stackable 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.

Features and Benefits

Management

- **NEW Remote intelligent mirroring**: mirrors selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote 8200zl/6200yl/5400zl/3500yl 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 for easy mapping by network management applications
- **NEW Command authorization**: leverages RADIUS to link a custom list of CLI commands to individual network administrator's login; also provides an audit trail
- **Friendly port names**: allow assignment of descriptive names to ports
- **Dual flash images**: provides independent primary and secondary OS files for backup while upgrading
- **Multiple configuration files**: multiple configuration files can be stored to the flash image
- **Uni-Directional Link Detection** (UDLD): monitors a link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices
- **Management simplicity**: ProCurve-common networking features and CLI implementation (common across ProCurve zl and yl switches)

Connectivity

- **Jumbo frames**: on Gigabit and 10-Gigabit ports, allow high-performance remote backup and disaster-recovery services
- **NEW IPv6**:
  - **IPv6 host**: the switches can be managed and deployed at the edge of IPv6 networks
  - **Dual stack** (IPv4/IPv6): provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
  - **MLD snooping**: forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network
  - **IPv6 ready**: the switch hardware can support IPv6 QoS, ACL, routing, tunneling, and security; these features will be available when enabled via software update in follow-on releases

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**: increase performance by selecting the number of queues and associated memory

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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 ProCurve trunking**: support up to 60 trunks, each with up to 8 links (ports) per trunk; trunking across modules is supported

Layer 2 switching

- **NEW IEEE 802.1ad Q-in-Q**: increases the scalability of Ethernet network by providing a hierarchical structure; connects multiple LANs on high-speed campus or metro network
- **ProCurve 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**: allows automatic learning and dynamic assignment of VLANs

Layer 3 services

- **UDP helper function**: UDP broadcasts can be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevent server spoofing for UDP services such as DHCP
- **Loopback interface address**: defines an address in RIP and OSPF that can always be reachable, improving diagnostic capability

Layer 3 routing

- **Static IP routing**: provides manually configured routing; includes ECMP capability
- **RIP**: provides RIPv1 and RIPv2 routing at media speed
- **OSPF**: includes host-based ECMP to provide link redundancy/scalable bandwidth and NSSA

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 ability of the virus to spread 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; prevents user "piggybacking" on another user's IEEE 802.1X authentication
  - **Web-based authentication**: authenticates from Web browser for clients that do not support IEEE 802.1X supplicant; customized remediation can be processed on an external Web server
  - **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 will accept 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 host, preventing IP source

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address spoofing
- **Dynamic ARP protection**: blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or data 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 configured particular 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 FTP**: allows secure file transfer to/from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file
- **Secure management access**: all access methods--CLI, GUI, or MIB--are securely encrypted 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
- **NEW USB Secure Autorun** (requires HP ProCurve Manager Plus): deploys, diagnoses, and updates switch using USB flash
drive; works with secure credential to prevent tampering
- **NEW STP Root Guard**: protects 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): a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

Quality of Service (QoS)

- **Layer 4 prioritization**: enables prioritization based on TCP/UDP port numbers
- **Traffic prioritization**: allows real-time traffic classification into 8 priority levels mapped to 8 queues
- **Bandwidth shaping**:
  - **Port-based rate limiting**: per-port ingress/egress enforced maximum bandwidth
  - **Classifier-based rate limiting**: use ACL to enforce maximum bandwidth for ingress traffic on each port
  - **Guaranteed minimum**: 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), L3 protocol, TCP/UDP port number, source port, and DiffServ

Warranty and support

- ProCurve Lifetime Warranty: for as long as you own the product, with next-business-day advance replacement (available in most countries).
- Electronic and telephone support: limited electronic and telephone support is available from HP. Refer to the HP Web site at
www.procurve.com/support for details on the support provided and the period during which support is available.
- Software releases: refer to the HP Web site at www.procurve.com/support for details on the software releases provided and the period during which software releases are available.

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Accessories

HP ProCurve 620 Redundant/External Power Supply	J8696A
HP ProCurve 100-FX SFP-LC Transceiver	J9054B
NEW HP ProCurve 100-BX-D SFP-LC Transceiver	J9099B
NEW HP ProCurve 100-BX-U SFP-LC Transceiver	J9100B
HP ProCurve Gigabit-SX-LC Mini-GBIC	J4858C
HP ProCurve Gigabit-LX-LC Mini-GBIC	J4859C
HP ProCurve Gigabit-LH-LC Mini-GBIC	J4860C
HP ProCurve Gigabit 1000Base-T Mini-GBIC	J8177C
NEW HP ProCurve 1000-BX-D SFP-LC Mini-GBIC	J9142B
NEW HP ProCurve 1000-BX-U SFP-LC Mini-GBIC	J9143B
HP ProCurve 10-GbE X2-SC SR Optic	J8436A
NEW HP ProCurve 10-GbE X2-SC LRM Optic	J9144A
HP ProCurve 10-GbE X2-SC LR Optic	J8437A
HP ProCurve 10-GbE X2-SC ER Optic	J8438A
HP ProCurve 10-GbE X2-CX4 Transceiver	J8440B
HP ProCurve 10-GbE CX4 Media Converter	J8439A
yl Modules	
HP ProCurve Switch yl 10-GbE 2-Port CX4 + 2-Port X2 Module	J8694A

Services

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 software phone support	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

Refer to the HP Web site at: www.procurve.com/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.

Technical Specifications

HP ProCurve Switch 6200yl-24G-mGBIC (J8992A)	**Ports**	1 open module slot 24 open mini-GBIC (SFP) slots Supports a maximum of 4 10-GbE ports, with optional module	
	Physical characteristics	**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)
	Memory and processor	**Processor**	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 256 MB DDR SDRAM
	Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
	Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
		10 Gbps Latency	< 2.1 µs (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	10,000 entries
	Environment	**Operating temperature**	32ºF to 131ºF (0ºC to 55ºC); 32°F to 104°F (40°C) when used with any X2 10-GbE
		Operating relative humidity	15% to 95% @ 104ºF (40ºC), non-condensing
		Non-operating/ Storage temperature	–40°F to 158°F (-40°C to 70°C)
		Non-operating/ Storage relative humidity	15% to 95% at 149°F (65°C), non-condensing
		Altitude	up to 15,000 ft. (4.6 km)
		Acoustic	Power: 55.1 dB; DIN 45635T.19 per ISO 7779
	Electrical characteristics	**Description**	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and 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
		Power consumption	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.	
	Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
	Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
	Immunity	**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
Management	HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
Standards and protocols	**Device Management**	RFC 1591 DNS (client) HTML and telnet management
	General Protocols	IEEE 802.1ad Q-in-Q 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 UDLD (Uni-directional Link Detection) 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
	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 2460 IPv6 Specification RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 2925 Remote Operations MIB (Ping

	only) RFC 3019 MLDv1 MIB RFC 3315 DHCPv6 (client only) RFC 3513 IPv6 Addressing Architecture 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 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	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
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
Notes	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.

To learn more, visit www.procurve.com
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