HP ProCurve 8200zl Switch Series

Product overview

The HP ProCurve 8200zl Switch Series offers high performance, scalability, and a wide range of features in a high-availability platform that dramatically reduces complexity and provides reduced cost of ownership. As part of a Unified Wired and Wireless Network infrastructure solution, the 8200zl series provides platform technology, system software, system management, application integration, wired and wireless integration, network security, and support that are common across the HP ProCurve ProVision family of modular and fixed-port switches. Together, they deliver an agile, cost-effective, high-availability network solution. With key technologies to provide solution longevity, the 8200zl switch series is built to deliver long-term investment protection without added complexity for network core, aggregation, and high-availability access layer deployments. It provides these capabilities while bringing to market the industry’s first highly available switch with a lifetime warranty.

Key features

- System high availability, ProCurve ONE integrated
- Layer 2-Layer 4 and intelligent edge feature set
- Enterprise-class performance and security
- Scalable 10/100/1000 and 10-GbE connectivity
- HP ProCurve Lifetime Warranty
Features and benefits

Industry-leading warranty

Management

- Remote intelligent mirroring: mirrors selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote 8200zl/6600/6200yl/5400zl/3500yl switch anywhere on the network
- RMON, XRMON, and sFlow v5: 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
- 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
- ProCurve Unified Core-to-Edge Device/Network Management tools: ProCurve portfolio-common device-level tools (CLI, Web GUI, Menu) plus seamless integration into HP ProCurve Manager Plus (PCM+)/Identity Driven Manager (IDM) network management deployments
- 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 or fine-tuning the switch configuration
- Multiple configuration files: multiple configuration files can be stored to the flash image
- ProCurve Unified Core-to-Edge features: ProCurve ProVision portfolio-common feature implementation for faster solution deployment

Connectivity

- High-density port connectivity: 12 interface module slots, up to 288 wire-speed 10/100/1000 PoE-enabled ports or 48 10-GbE ports per system
- IEEE 802.3af Power over Ethernet: 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
- IEEE 802.3at Power Over Ethernet Plus: provides up to 30 W per port to IEEE 802.3 for PoE/PoE+ powered devices such as video IP phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras
- Jumbo frames: on Gigabit and 10-Gb ports, allow high-performance remote backup and disaster-recovery services
- 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 ACL/QoS: supports ACL and QoS for IPv6 network traffic
  - IPv6 ready: the switch hardware can support IPv6 routing, tunneling, and security; these features will be available when enabled via software update in follow-on releases
- ProCurve Unified Core-to-Edge hardware: ProCurve Intelligent Edge family-common interface and service modules, Gigabit optics/10-GbE transceivers, and power supplies enable sparing simplicity
- Pre-standard PoE support: detects and provides power to pre-standard PoE devices; see list of supported devices in the product FAQ at www.ProCurve.com
- Auto-MDIX: automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports

◆ For as long as you own the product, with next-business-day advance replacement (available in most countries). The following hardware products and their related series modules have a one-year hardware warranty with extensions available: HP ProCurve Routing Switch 9300m series, HP ProCurve Switch 8100zl series, HP ProCurve Network Access Controller 800, and HP ProCurve DCM Controller. The following hardware mobility products have a one-year hardware warranty with extensions available: HP ProCurve M111 Client Bridge, HP ProCurve MSM3xxR Access Points, HP ProCurve MSM7xx Mobility and Access Controllers, HP ProCurve RF Manager IDS/IPS Systems, HP ProCurve MSM Power Supplies, HP ProCurve 1 Port Power Injector, HP ProCurve CNMS Appliances, and HP ProCurve MSM317 Access Device. Disk drives in the HP ProCurve ONE Services zl Modules, HP ProCurve Threat Management Services zl Module, and HP ProCurve MSM765zl Mobility Controller have a five-year hardware warranty. Standalone software, upgrades, or licenses may have a different warranty duration. For details, refer to the ProCurve Software License, Warranty, and Support booklet at www.procurve.com/warranty.
Performance

- **High-speed/capacity architecture**: 691.2 Gbps crossbar switching fabric provides intra- and inter-module switching with 480.3 million pps throughput on the purpose-built ProVision ASICs.
- **Selectable queue configurations**: increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications.
- **Scalable system design**: chassis architecture/backplane provides built-in performance capacity/headroom to support next-generation high-density/high-speed connectivity.

Resiliency and high availability

- **Redundant management, fabric, and power**: provide enhanced system availability and assured continuity of operations.
- **Virtual Router Redundancy Protocol (requires Premium License)**: 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.
- **Server-to-switch distributed trunking**: allows a server to connect to two switches with one logical trunk that consists of multiple physical connections; enables load-balancing and increases resiliency.
- **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.
- **Proven ASIC and system architecture**: the ProCurve ProVision ASIC and platform architecture, leveraged from ProCurve’s successful 5400zl/3500yl/6200yl families of switches, reduces technology risk and provides reliable support and flexibility.
- **HP ProCurve zl family components**: employ market-proven Intelligent Edge Switch interface modules, optics, and power supplies to reduce technology risk and enhance system reliability.
- **Hot-swappable modules**: interface, management, and fabric modules as well as mini-GBIC optics and power supplies can be removed, swapped, or added to the system without interrupting ongoing switch operations.

Layer 2 switching

- **IEEE 802.1ad Q-in-Q (requires Premium License)**: 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 the 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.
- **OSPF (requires Premium License)**: includes host-based ECMP to provide link redundancy/scalable bandwidth and NSSA.
Security

• **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

• **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

• **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 or bridged interfaces, without requiring external appliances

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

• **Secure management access:** all access methods—CLI, GUI, or MIB—are securely encrypted through SSHv2, SSL, and/or SNMPv3

• **Management Interface Wizard:** CLI-based step-by-step configuration tool to help ensure that management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB are secured to desired level

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

• **ICMP throttling:** defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic

• **Identity-driven ACL:** enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user

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

• **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 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 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

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

• **Security banner:** displays a customized security policy when users log in to the switch

• **USB Secure Autorun (requires HP ProCurve Manager Plus):** deploys, diagnoses, and updates switch using USB flash drive; works with secure credential to prevent tampering

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

• **Integrated Threat Management applications:** Advanced, scalable, switch-integrated security tools such as stateful firewall, intrusion detection/prevention system (IDS/IPS), and VPN concentrator via the Threat Management Services zl Module.
Convergence

- **IP multicast routing (requires Premium License):** 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
- **RADIUS VLAN for voice:** uses standard RADIUS attribute and LLDP-MED to automatically configure VLAN for IP phones
- **PoE allocations:** supports multiple methods (automatic, IEEE 802.3af class, LLDP-MED, or user specified) to allocate PoE power for more efficient energy savings

Quality of Service (QoS)

- **Advanced classifier-based QoS:** classifies traffic using multiple match criteria based on L2/3/4 information; applies QoS policies such as setting priority level and rate limit to selected traffic per port or per VLAN
- **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:** per-port ingress/egress enforced maximum bandwidth
  - **Classifier-based rate limiting:** uses 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

HP ProCurve ONE integration

- **HP ProCurve ONE Services z1 Module:** allows customers to embed applications directly into the network, either distributed throughout the network at the network edge, or centralized in the core or distribution layer; for more information about the HP ProCurve ONE solution, visit the ProCurve Web site

Flexibility

- **Unified Wired and Wireless Deployment and Management:** employing the MSM765z1 mobility controller, offers secure, advanced wireless services with simplified management and unified wired and wireless operation across the network
- **Complete feature set:** Gigabit PoE for edge VoIP solutions, scalable 10-GbE for enterprise-class distribution-layer implementations, advanced wireless management for comprehensive mobility solutions, and critical high-availability features for midmarket core network deployments
- **Programmable ASIC design:** allows seamless addition of new QoS and security features over time without costly hardware upgrades

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
### Specifications

#### Included accessories
- 1 HP ProCurve Switch 8200zl Management Module (J9092A)
- 2 HP ProCurve Switch 8200zl Fabric Module (J9093A)
- 1 HP ProCurve Switch 8200zl System Support Module (J9095A)
- 1 HP ProCurve Switch 8200zl Management Module (J9092A)
- 2 HP ProCurve Switch 8200zl Fabric Module (J9093A)
- 1 HP ProCurve Switch 8200zl System Support Module (J9095A)

#### Ports
- 12 open module slots
- Supports a maximum of 288 auto-sensing 10/100/1000 ports or 48 10-GbE ports or 288 mini-GBICs, or a combination
- 6 open module slots
- Supports a maximum of 144 auto-sensing 10/100/1000 ports or 24 10-GbE ports or 144 mini-GBICs, or a combination

#### Power supplies
- 4 power-supply slots
- 2 minimum power-supplies required (ordered separately)
- 2 power-supply slots
- 1 minimum power-supplies required (ordered separately)

#### Physical characteristics
- Dimensions
  - 18.7(d) x 17.5(w) x 15.6(h) in. (47.5 x 44.45 x 39.62 cm) (9U height)
  - 17.49(d) x 17.42(w) x 10.35(h) in. (44.42 x 44.25 x 26.29 cm) (6U height)
- Weight
  - 50.45 lb. (22.88 kg)
  - 48.1 lb. (21.82 kg)

#### Memory and processor
- Gigabit Module
  - ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
- 10G Module
  - ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
- Management Module
  - Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM

#### Mounting
- Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only. Optional 4-post cabinet rail available (see Switch 8212zl Ordering Guide).
- Mounts in an EIA-standard 19 in. telco rack/equipment cabinet (hardware inc);

#### Performance
- 1000 Mb Latency
  - < 3.7 µs (FIFO 64-byte packets)
- 10 Gbps latency
  - < 2.1 µs (FIFO 64-byte packets)
- Throughput
  - up to 480.3 million pps
  - up to 240.2 million pps
- Routing/switching capacity
  - 645.6 Gbps
  - 322.8 Gbps
- Switch fabric speed
  - 691.2 Gbps
  - 345.6 Gbps
- Routing table size
  - 10,000 entries
  - 10,000 entries
- MAC address table size
  - 64,000 entries
  - 64,000 entries

#### Environment
- Operating temperature
  - 32°F to 113°F (0°C to 45°C)
  - 49°F to 113°F (9°C to 45°C)
- Operating relative humidity
  - 15% to 95% @ 113°F (55°C), non-condensing
  - 15% to 95% @ 131°F (55°C), 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
  - 15% to 95% @ 149°F (65°C), non-condensing
  - 15% to 95% @ 149°F (65°C), non-condensing
- Altitude
  - up to 10,000 ft. (3 km)
  - up to 10,000 ft. (3 km)
- Acoustic
  - Power: 63.0 dB, Pressure: 47.8 dB, ISO 7779, ISO 9296
  - Power: 60.0 dB, Pressure: 41.3 dB, ISO 7779, ISO 9296

#### Electrical characteristics
- Maximum heat dissipation
  - 4900 BTU/hr (5170 W/hr), (max. non-PoE); 7400 BTU/hr (807 k/W) (max. PoE)
  - 2450 BTU/hr (2584.75 k/W), (max. non-PoE); 3,700 BTU/hr (3,903 k/W) (max. PoE)
- Voltage
  - 100-127 / 200-240 VAC
  - 100-127 / 200-240 VAC
- Frequency
  - 50 / 60 Hz
  - 50 / 60 Hz
- Notes
  - Power supplies must be ordered separately. A minimum of two J8712A, J8713A, or J9306A supplies are required to power the system.
  - Power supplies must be ordered separately. A minimum of one J8712A, J8713A, or J9306A supply is required to power the system.

#### Safety
- CSA 22.2 No. 60950; UL 60950; EN 60950; IEC 60950; IEC 60825
- CSA 22.2 No. 60950; UL 60950; EN 60950; IEC 60950; IEC 60825

#### Emissions
- FCC Class A; FCC part 15 Class A; ICE-003, Canadian Radio Interface
- FCC Class A; FCC part 15 Class A; ICE-003, Canadian Radio Interface

#### Immunity
- EN 55024, CISPR 24
- EN 55024, CISPR 24
- ESD
  - IEC 61000-4-2, 4 kV CD, 8 kV AD
  - IEC 61000-4-2, 4 kV CD, 8 kV AD
- Radiated
  - IEC 61000-4-3, 3 V/m
  - IEC 61000-4-3, 3 V/m
- EFT/Burst
  - IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line)
  - IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line)
- Surge
  - IEC 61000-4-5, 1 kV/2 kV AC
  - IEC 61000-4-5, 1 kV/2 kV AC
- Conducted
  - IEC 61000-4-6, 3 V
  - IEC 61000-4-6, 3 V
- Power frequency magnetic field
  - IEC 61000-4-8, 1 A/m, 50 or 60 Hz
  - 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
  - IEC 61000-4-11, >95% reduction, 0.5 period, 30% reduction, 25 periods
- Harmonics
  - EN 61000-3-2, IEC 61000-3-2
  - EN 61000-3-2, IEC 61000-3-2
- Flicker
  - EN 61000-3-3, IEC 61000-3-3
HP ProCurve 8200z1 Switch Series

Specifications (continued)

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<td>RS-232C console port via an RJ-45 connector</td>
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<td>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.</td>
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