Brochure

Deliver efficiency to your network

HP 8200, 5400, and 3800 Switch Series

Growing demands on the network

There are far more demands placed on your enterprise network than ever before. The pressure to innovate, to bring products to market faster, and to improve productivity all at the same time can prove truly challenging. It is important for your network to be optimized and be robust enough to deal with the ever-changing market dynamics. We believe these unprecedented demands on your network can be offset by deploying powerful, next-generation range of switches that can deliver outstanding network performance.

To ready your network for market realities, HP brings the Modular 8200 and 5400 Switch Series and the stackable HP 3800 Switch Series that are L3 Modular and L3 Stackable intelligent switches. These switches offer unprecedented adaptive intelligence, versatility, and operational excellence to meet your current and future networking demands. This brochure will focus on the HP 8200 and 5400 Switch Series and the new HP 3800 Switch Series. For customers requiring modular 10G uplinks in a fixed-port switch, HP continues to have the HP 3500 Switch Series available.

The entire HP 8200, HP 5400, and HP 3800 Switch Series are built on ProVision ASICs. ProVision ASICs give these switches wire-speed policy enforcement, resiliency, ASIC programmability, and software integration.

The HP 8200, 5400, and 3800 Switch Series offer unparalleled adaptability. They provide for future-proof flexibility with available versatile intelligent ports, combining the capabilities of the ProVision ASIC with the unparalleled performance of 10/100/1000 ports and integrated Power over Ethernet (PoE/PoE+) capabilities; thereby setting a new standard for versatility and scalability. The modular HP 8200 and 5400 Switch Series and the stackable 3800 Switch Series can provide from 24 to 480 10/100/1000 PoE/PoE+ ports, with identical software features, performance, and lifetime warranty. The 8200 and 5400 switches can handle a maximum of 288 ports. All switch models and associated modules include a lifetime hardware replacement warranty for as long as you own the product with next business day advance replacement (available in most countries). Services modules come with a 5 year hardware replacement warranty on the hard drives. For details, refer to the HP Software License, Warranty and Support booklet at **hp.com/networking/warranty**.

In addition, these new intelligent switches deliver enhanced efficiency, ease of management, energy efficiency, and investment protection.

Respond to real world needs faster

As enterprises evolve to meet new economic conditions and global business requirements, where and how business is transacted is changing faster than ever. Videoconferencing, desktop virtualization, and cloud computing are just a few of the technologies that are setting a new pace of change for business interaction and collaboration. Users' experience with Web-based applications and on-demand high-definition video from consumer providers such as YouTube is fueling a fundamental shift in where people work and how they consume applications and services. In short, employees want seamless access to applications and content from anywhere and at any time. Content and applications must be available instantly, whether they are delivered from a workstation, a virtual data center, or the Internet.

To meet the demand for consumer-driven IT, including for theater-quality video, interactive multimedia and mobile access, you need a high-performance network that scales from the core to the edge, and the network must be flexible, secure, easily managed, and of course, cost efficient. The HP 8200, 5400, and 3800 Switch Series provides a rich set of platform and software features that makes them well suited for campus and branch access and small core deployments. Bringing these enhanced features under a common ASIC architecture, unified software and management tools enables you to deploy your solutions with unparalleled flexibility and lower total cost of ownership (TCO).

HP 8200, 5400, and 3800 Switch Series—prepare your network for tomorrow

HP 8200, 5400, and 3800 Switch Series help you overcome some of the challenges that you face in managing your network by delivering the HP FlexNetwork architecture promise with the following key capabilities:

Interoperability

(**Note:** These switches have interoperability with the key capabilities listed below.)

Enhanced interoperability with other standards-based devices with support for IEEE 802.3az energy-efficient Ethernet that delivers reduced power consumption. These switches have 10GBase-T uplinks that support 10 Gb speeds over standard copper cabling which means reduced cost and complexity. You also get the latest, in-house ProVision ASIC designed by HP that delivers high-end wire-speed capabilities, and intelligence to the HP 8200, 5400 and 3800 Switch Series.

The HP 3800 and the HP 8200 and 5400 v2 zl modules are built with second generation advanced ASICs continue the HP winning streak of delivering significant technology improvements. The v2 zl modules deliver double the 10G density while reducing power consumption together with hardware support for advanced capabilities such as policy-based routing (PBR), and better buffering.

Scalability

Based on the same ProVision ASIC architecture and common software feature set, the HP 8200, 5400, and 3800 Switch Series can provide from 24 to 480 Gigabit ports, allowing them to be deployed in a wide variety of network environments. Proliferation of always-on, network-connected devices are driving the need for scalable networks, and the HP 3800 Switch Series provides industry-leading port density with up to 480 1G ports and 40 10G ports. In addition, plug and play, modular stacking provides easy expansion as the network grows.

Increasingly, media-rich network applications are demanding higher levels of performance, and the HP 3800 Switch Series provides very low latency and very high throughput to provide reliable traffic delivery. In addition, with meshed stacking, these switches deliver on the HP FlexCampus promise of flatter, two-tier networks that provide higher levels of performance while decreasing cost and complexity. The HP 8200, 5400, and 3800 Switch Series comes with advanced networking Layer 2/3 protocols and features (for example OSPF v2/v3, BGP, PIM, VRRP, and QinQ) uniquely suited for large-scale distribution solutions. As these features are built into the modular chassis, no expensive license upgrades are required to support these advanced capabilities.

Common experience

With the growing number of IT infrastructure devices, consolidation, and consistent management helps increase productivity and simplify common tasks. With meshed stacking, the HP 3800 Switch Series provides a single, consistent management interface for up to 10 switches, reducing the number of management interfaces.

In addition, HP Intelligent Management Center support provides a single pane of glass view of the entire IT infrastructure reducing swivel chair management for the HP 8200, 5400, and 3800 Switch Series.

Improved security

Networks today carry sensitive data much more critical to your business operations than ever before. Network administrators have the responsibility to ensure networks are safe from both internal and external threats. With the ability to control network access with features like IEEE 802.1x, Web authentication, media access control (MAC) authentication, and the ability to mitigate active threats to the network with virus throttling and traffic storm suppression, the HP 8200, 5400, and 3800 Switch Series can help ensure that the network is protected.

With the variety of applications running on today's networks, visibility into network traffic is essential for any network administrator. With support for key features such as traffic mirroring, sFlow, SNMP, and more, the HP 8200, 5400, and 3800 Switch Series provide network administrators the tools they need to monitor their networks.

With geographically-distributed networks, administrators need to be able to manage and access their IT infrastructure in a reliable manner. With out-of-band Ethernet management support, the HP 3800 Switch Series provides a management interface that is segmented from the data plane to provide a high level of reliability while reducing the need for third-party terminal servers.

Agility

HP 8200 and 5400 Switch Series provides a high-performance, enhanced security switch platform for deploying proven business and network applications and services within the network. Hosted on the HP AllianceONE Services zl Module, these applications and services can act on traffic locally, distributed throughout the network, or consolidated in a central location. These agile features make management easier and offer additional capabilities to adjust or improve network behavior (such as load balancing).

The HP 8200 and 5400 Switch Series supports HP AllianceONE, which allows user to manage costs and use space and power more efficiently. It also allows for delivery of tested and certified package, building end user confidence. Mission-critical applications such as communications and collaborations are driving the need for increasingly reliable networks.

With meshed stacking technology, the HP 3800 Switch Series provides the industry's highest level of resiliency in a stacking solution designed to deliver enhanced performance. With the ability to fully mesh stack up to five switches, the HP 3800 Switch Series achieves true modular-like resiliency with the flexibility of a 1U stackable form factor. With each switch directly connected to another, a switch or link failure results in minimal to no impact on the performance of the remaining network. In addition, other key capabilities such as dual redundant hot-swappable power supplies and a field-replaceable fan tray enhance the resiliency of the HP 3800 Switch Series.

Enabling Software Defined Networking

As networks grow larger in size and complexity, users need an easier way to add new applications. At the same time, because they are now crucial to businesses, networks have to be able to adapt quickly to changing business needs. Software Defined Networking (SDN) is created to satisfy these requirements by separating the control path out from the traffic forwarding path in a switch. This allows centralized control of the switches in a network. As a result, implementing new applications are simplified and the networks become more dynamic and adaptable. HP is a leader in SDN and an early adopter of OpenFlow, a key technology that enables SDN. The HP 8200, 5400, and 3800 Switch Series support the OpenFlow protocol.

Choosing the right switch for your network

Thanks to their versatility, the HP 8200, 5400, and 3800 Switch Series can be deployed in a wide range of network designs. Unique platform form-factor attributes—modular-based and stackable—make each switch series ideally suited for specific deployments and requirements. When selecting the right platform, you should consider the dimensions, density, interface flexibility, expandability, and level of hardware redundancy appropriate for the deployment. Important features are highlighted in table 1.

Table 1. HP 5400, and 3800 Switch Series—features

	HP 5406 zl switch with premium software	HP 5412 zl switch with premium software	3800-24G-PoE+-2SFP+ Switch 3800-48G-PoE+-4SFP+ Switch	3800-24G-2SFP+ Switch 3800-48G-4SFP+ Switch	3800-24SFP-2SFP+ Switch	3800-24G-2XG Switch 3800-48G-4XG Switch	3800-24G-PoE+-2XG Switch 3800-48G-PoE+-4XG Switch
Form factor	Modular	Modular	Stackable	Stackable	Stackable	Stackable	Stackable
Height (rack unit)	4U	7U	1U	1U	1U	1U	1U
10/100 ports	Up to 144	Up to 288	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
10/100/1000 ports	Up to 144	Up to 288	24/48	24/48	24	24/48	24/48
SFP	Up to 144	Up to 288	N/A	N/A	N/A	N/A	N/A
10GbE ports	Up to 48[2]	Up to 96[2]	Up to 4	Up to 4	Up to 2	Up to 4	Up to 4
Open module slots	6	12	1	1	1	1	1
Power for PoE	Supports PoE+ Internal: up to 1800 W With power shelf: up to 3600 W	Supports PoE+ Internal: up to 3600 W With power shelf: up to 5400 W	Supports PoE+ Internal: up to 1080 W	N/A	N/A	N/A	Supports PoE+ Internal: up to 1080 W
Performance (Mbps)	292.8[3]	585.6[3]	65.4/130.8	65.4/130.8	65.4	65.4/130.8	65.4/130.8
Power redundancy	System: use 2 (full) internal supplies PoE: N+1 and full possible[4]	System: use 3 (N+1) or 4 (full) internal supplies PoE: N+1 and full possible[4]	System: use 2 (full) internal supplies PoE: N+1 and full possible[4]	System: use 2 (full) internal supplies[4]	System: use 2 (full) internal supplies[4]	System: use 2 (full) internal supplies[4]	System: use 2 (full) internal supplies PoE: N+1 and full possible[4]
Removable management module	Yes	Yes	N/A	N/A	N/A	N/A	N/A
Removable fan tray	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hot swappable	Power Supply Management Module Fan Tray	Power Supply Management Module Fan Tray	Power Supply	Power Supply	Power Supply	Power Supply	Power Supply

[1] For 10/100 fixed-port SKU options with similar features, see the HP 3500 Switch Series

[2] Requires v2 zl modules. With generation 1 zl modules, it is 240.2 Mpps

[3] Requires v2 zl modules. With generation 1 zl modules, it is 480.3 Mpps

[4] Refer to the 5400/3800 datasheet for more details

Table 2. HP 8200 Switch Series—features

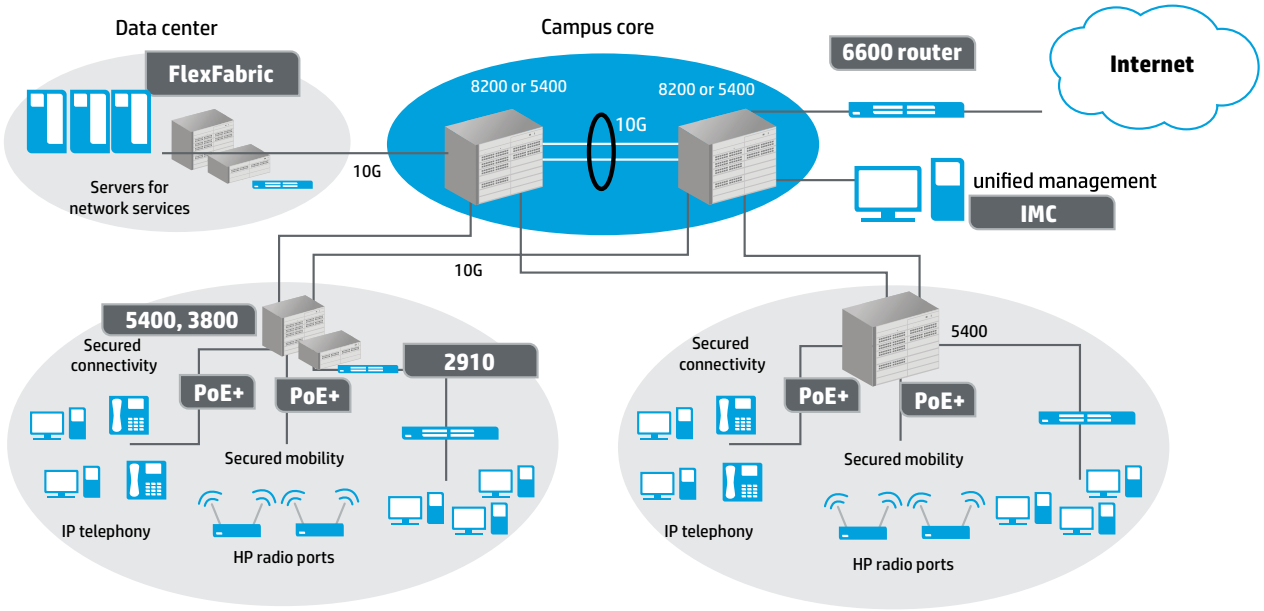
	HP 8212 Switch	HP 8206 Switch
Chassis slots		
Interface/service module	12	6
Management	2	2
Fabric	2	2
System support	1	1
Internal power supplies	4	2
Maximum ports per system		
10/100/1000 with PoE or PoE+	288	144
Mini-GBIC	288	144
100-FX	288	144
10GbE ports	96	48
PoE power	3600 W 5400 W	1800 W (internal) 2700 W (with external power shelf)
Chassis height	9U (15.6")	6U (10.4")
Performance		
Routing/switching capacity	993.6 Gbps[5]	496.8 Gbps[5]
Switch performance	739.2 Mpps[6]	369.6 Mpps[6]
Switch fabric speed	1123.2 Gbps[7]	561.6 Gbps[7]
High availability		
Management redundancy	1+1 (NonStop switching)	1+1 (NonStop switching)
Fabric redundancy	1+1 (load sharing)	1+1 (load sharing)
Power redundancy		
System N+1	3 supplies	2 supplies
N+N	4 supplies	2 supplies
PoE N+1	4 supplies N+N (with external power shelf)	2 supplies N+N (with external power shelf)
Cooling	1 fan tray (resilient)	1 fan tray (resilient)

[5] Requires v2 zl modules. With version 1 zl modules, the switch capacity will be 322.8 Gbps and 645.6 Gbps for 8206 and 8212, respectively.

[6] Requires v2 zl modules. With version 1 zl modules, the performance will be 240.2 Mpps and 480.3 Mpps.

[7] Requires v2 zl modules. With version 1 zl modules, the fabric speed will be 345.6 Gbps and 691.2 Gbps.

Figure 1. Summary of the wide range of use models for HP 8200, 5400, and 3800 Switch Series



Intelligent edge and aggregation

Intelligent/high availability edge and aggregation

Feature-rich switches that improve network efficiency

- **Advanced management and monitoring tools:** These include innovative Remote Intelligent Mirroring, Remote Network Monitoring (RMON), Extended RMON (XRMON), and sFlow on every port. Also, these switches support SNMP with secure access to manage devices.
- **Choice of connectivity:** These switches offer a choice of 10G, 10/100/1000, 10/100 PoE+ and non-PoE connectivity options. The introduction of new 10GBase-T module for 10G connectivity on the HP 8200, and 5400 as well as HP 3800 models with built-in 10GBase-T uplinks enables connectivity (up to 100 meters) with standard RJ45 cabling, and helps leverage existing infrastructure without costly transceivers.
- **10GbE expandability:** The switches' 10GbE expandability supports bandwidth-intensive applications such as video streaming and distribution layer link aggregation, providing deployment flexibility, and investment protection for future needs.
- **Energy efficiency:** The HP 8200, 5400, and 3800 Switch Series offer highly efficient power supplies. They have features like intelligent physical layer power management, LED power-save mode, IEEE 802.3az energy-efficient Ethernet, and dynamic PoE power allocation to intelligently conserve power consumption based on utilization. The HP 8200 and 5400 v2 zl modules enable energy savings depending upon the module compared to equivalent generation 1 modules. In addition, the Gigabit ports in v2 zl modules offer industry's first energy efficient Ethernet solution.

Additional software features

HP 8200, 5400, and 3800 Switch Series have:

- IEEE 802.1ad QinQ which increases Ethernet's scalability and allows multiple LANs in different locations to be connected in a campus or metro network.
- OSPF equal cost multipath 9 (ECMP9) dynamically load balances across multiple, active, equal-cost paths in a Layer 3 environment.
- IEEE 802.1s multiple spanning tree protocol (MSTP) provides high link availability in multiple VLAN environments.
- IEEE 802.3ad Link Aggregation Control Protocol (LACP) supports up to eight links (ports) per trunk; trunking across a stack is also supported.
- Dual flash images and multiple configuration files.

ProVision ASIC confers security, resiliency and TCO benefits

The ProVision ASIC is the product of continuous multi-year HP ASIC innovations. The raw performance of the ProVision ASIC architecture beats most competition while delivering unparalleled intelligence at the port. More specifically, the ProVision ASIC offers the following benefits:

- **Wire-speed policy enforcement engine**—The ProVision ASIC enables users to deploy more secure and granular policy at wire-speed across all ports for better protection of information assets and support for applications that require bandwidth and QoS control. The ProVision ASIC's policy engine is superior due to implementation of a multi-stage classifier and Ternary Content Addressable Memory (TCAM). The multi-stage classifier allows the traffic to be processed efficiently. The ProVision ASIC's TCAM can match more policy rules simultaneously at wire-speed than competitive offerings in this class resulting in a more granular and better-performing policy enforcement.
- **Built-in resiliency**—The ProVision ASIC is architected to operate continuously and withstand error conditions and malicious network attacks. The HP 8200, 5400, and 3800 Switch Series use a combination of software and ProVision ASIC functionality to verify whether all of the data packets are valid. Excessive packets from malicious attacks or network misconfiguration can be identified and demoted to lower-priority queues before they overwhelm and shut down the CPU and the switch. In addition, the ProVision ASIC has built in processes that include end-to-end data checking, embedded RAM error correction, and ECC on an external DRAM. These processes enable the integrity of traffic as it passes through the switch, protecting traffic from environmental elements.
- **Investment protection**—The ProVision ASIC confers investment protection through a programmable network processor feature that allows accommodating future technology enhancements. The network processor is based on patented technology from HP. New algorithms can be programmed into the ASIC to support new traffic classifications by inspecting deep into the data packets; this enables the HP switches based on ProVision ASIC to support applications and policy rules that do not yet exist.
- **Higher reliability and lower TCO**—The ProVision ASIC integrates components that are normally found on separate chips, such as the embedded processor, memory (for example, TCAM, input), packet classifier, MAC, and network processor. Because it is so highly integrated, the ProVision ASIC leads to a reduced number of components needed throughout the switch, which translates into increased reliability, lower power consumption, and lower TCO.

Choice and scalability for your network

Not all network applications are homogenous—and with their choice of 10/100, 10GbE, Gigabit, PoE, and PoE+ ports, the HP 8200, 5400, and 3800 Switch Series provide outstanding flexibility to right-size your network to support diverse applications and use models. High availability is critical so you can support uptime imperatives for your business while allowing you to reliably and seamlessly scale the network over time. The HP 8200 Series includes enhanced high-availability features including redundant management modules, redundant load-sharing fabric modules, and a completely passive backplane. In addition to these features, the 8200 shares many high availability features with the 5400 and 3800 including:

- Virtual Router Redundancy Protocol (VRRP), which allows groups of two routers to dynamically back each other up to create highly-available routed environments
- HP Switch Meshing, which dynamically load balances across multiple active redundant links to increase available aggregate bandwidth
- Distributed trunking, which allows a switch or server to connect to two upstream switches with one logical trunk—increasing resiliency and enabling load sharing
- IEEE 802.1ad QinQ, which increases Ethernet's scalability and allows multiple LANs in different locations to be connected in a campus or metro network
- OSPF ECMP (Equal Cost Multipath), which dynamically load balances across multiple, active, equal-cost paths in a Layer 3 environment
- NonStop Switching and Routing—allows the switch to continue forwarding traffic while the control plane is switchover from active to standby management module. (8200 only)
- RPVST+ provides interoperability with networks using PVST+ or RPVST+
- IEEE 802.1s MSTP, which provides high link availability in multiple-VLAN environment
- IEEE 802.3ad LACP, which supports up to 60 trunks, each with up to 8 links (ports) per trunk; trunking across modules on the 5400 and 8200 is supported. Trunking across stack members on the 3800 is also supported.
- Hot-swappable modules, including the management module for the HP 8200 switches, and optional redundant power supplies
- Dual flash images and multiple configuration files
- Uni-Directional Link Detection (UDLD), which prevents network downtime from fiber link break

Build operational excellence into your network

The ProVision ASIC and Versatile Intelligent Port allow plug-and-play solutions across the HP 8200, 5400, and 3800 Switch Series. The 5400 Switch Series share the same hardware modules with the HP 8200 zl Switch Series.

Along with a comprehensive, unified set of configuration management tools, this capability yields efficiency in deployment, operation, and maintenance, which in turn leads to reduced costs and increased productivity.

The Command Authorization and USB Autorun features in the HP 8200, 5400, and 3800 Switch Series also improve productivity in deploying, managing, and operating networks. These features allow less experienced or remote network managers to participate in installing and managing the switches.

Another important component of operational excellence is investment protection. All the HP 8200, 5400, and 3800 Switch Series support the next-generation Internet protocol—IPv6 host, IPv4/IPv6 dual stack, MLD snooping, ACL, QoS, and OSPF v3. To meet current and future IPv6 requirements, these switches have been certified with IPv6 Ready Logo Phase 2 from IPv6 Forum—a worldwide IPv6 advocacy consortium. The HP 5400 Switch Series has a removable management module (part of its modular design) that adds investment protection for those switches, while the HP 8200 Switch Series has dual-redundant management modules for increased resiliency. Finally, our industry-leading warranty and support policies help lower operation and maintenance costs, making the HP 8200, 5400, and 3800 Switch Series a wise long-term investment.

Intelligent switches for the future

The HP 8200, 5400, and 3800 Switch Series are built on an advanced ProVision ASIC architecture, enhancing control of the network and providing increased intelligence, versatility, and operational excellence.

The ProVision ASIC architecture and open-standards based features, such as the 10GBase-T for 10G medium distance (100 m) connectivity, reduce the need for expensive transceivers. Through HP AllianceONE, the HP 8200 and 5400 Switch Series offers unmatchable value by integrating applications within the network. Investments made today in these next-generation switches are likely to last well into the future.

Global citizenship at HP

At HP, global citizenship is our commitment to hold ourselves to high standards of integrity, contribution, and accountability in balancing our business goals with our impact on society and the planet. To learn more, visit **hp.com/hpinfo/globalcitizenship**, and for information about HP environmental programs, go to **hp.com/environment**, and for specific information about HP Networking products, go to **hp.com/networking/switches**

Give the power of advanced, intelligent switches to your network.

Boost network efficiency with HP 8200, 5400, and 3800 Switch Series. To learn more about SKUs and models, visit:

- HP 8200 Switch Series product page **http://h17007.www1.hp.com/us/en/products/switches/HP_8200_zl_Switch_Series/index.aspx**
- HP 5400 Switch Series product page **http://h17007.www1.hp.com/us/en/products/switches/HP_5400_zl_Switch_Series/index.aspx**
- HP 3800 Switch Series product page **http://h17007.www1.hp.com/us/en/products/switches/HP_3800_Switch_Series/index.aspx**

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