DATA SHEET

ARUBA 5400R ZL2 SWITCH SERIES

PRODUCT OVERVIEW

The Aruba 5400R zl2 Switch Series is an industry-leading mobile campus access solution with HPE Smart Rate multi-gigabit ports for high-speed connectivity and bandwidth for next wave 802.11ac devices. It brings enterprise-class resiliency and innovative flexibility and scalability to mobile-first networks. The Aruba 5400R delivers robust virtualization with AllianceOne solutions, hitless failover, enhanced QoS, and security with advanced Layer 3 features with no add-on software licensing required.

Based on the 6th generation ProVision ASIC, the Aruba 5400R zl2 Switch Series has a high-speed, high-capacity architecture with 2 Tbps crossbar switching fabric with low 2.1µ latency, unprecedented programmability, and leading edge SDN applications. This series offers flexible connectivity options with 6 or 12 slot compact chassis, line rate 40 GbE, up to 96 line rate 10GbE ports and up to 288 ports of PoE+. The Aruba 5400R is SDN ready with OpenFlow support and provides a consistent wired/wireless user experience with ClearPass Policy Manager and Airwave Network Management.

KEY FEATURES

- Powerful Aruba Layer 3 modular switch series delivers high-performance, low latency and resiliency.
- HPE Smart Rate for high speed multi gigabit bandwidth and PoE+ power.
- Scalable line rate 40GbE for wireless traffic aggregation.
- Ready for innovative SDN applications with OpenFlow support.
- Supports ClearPass Policy Manager and Airwave Network Management.

FEATURES AND BENEFITS

Software-defined networking

- OpenFlow supports OpenFlow 1.0 and 1.3 specifications to enable SDN by allowing separation of the data (packet forwarding) and control (routing decision) paths
- Fully flexible OpenFlow creates custom OpenFlow pipelines (processing stages) on-demand to support new SDN applications (requires v3 modules)

Unified Wired and Wireless

- NEW ClearPass Policy Manager support unified wired and wireless policies using Aruba ClearPass Policy Manager
- HTTP redirect function supports HPE Intelligent Management Center (IMC) bring your own device (BYOD) solution
- NEW Switch auto-configuration automatically configures switch for rogue AP detection, add VLAN, and set PoE priority when Aruba AP is detected

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
- 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 increased bandwidth
  - Classifier-based rate limiting uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port
  - Reduced bandwidth provides per-port, per-queue egress-based reduced 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 8200 zl, 6600, 6200 yl, 5400 zl, 5400R, 3500, or 3800 Switch located 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) advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- Management simplicity provides common software features and CLI implementation across all HP ProVision-based switches (including the zl and yl switches)
- Command authorization leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents activity
- Friendly port names allows assignment of descriptive names to ports
- Dual flash images provides independent primary and secondary operating system files for backup while upgrading
- Multiple configuration files stores easily to the flash image
- Comware CLI
  - Comware-compatible CLI bridges the experience of Hewlett Packard Enterprise Comware CLI users who are using the ProVision CLI
  - Display and fundamental Comware CLI commands are natively embedded in the switch CLI; display output is formatted as on Comware-based switches; fundamental commands provide Comware-familiar initial switch setup
  - Configuration Comware CLI commands when Comware commands are entered, CLI help is elicited to formulate the correct ProVision software CLI command
- Unidirectional Link Detection (UDLD) support HPE UDLD and DLDP protocols to monitor a cable between two switches and shut down the ports on both ends if a broken link is detected, preventing network problems such as loops
- NEW Zero-Touch ProVisioning (ZTP) uses settings in DHCP to enable ZTP with Aruba AirWave Network Management

Connectivity

- IEEE 802.3az Energy Efficient Ethernet lowers power consumption in periods of low link usage (supported on v2 and higher 10/100/1000 and 10/100 modules)
- 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
- IEEE 802.3at Power over Ethernet Plus provides up to 30 W per port, for up to 288 ports simultaneously, for PoE- and PoE+-powered devices, such as video IP phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras
- Prestandard PoE support detects and provides power to prestandard PoE devices; see the list of supported devices in the product FAQ at www.hp.com/networking
- High-density port connectivity provides up to 12 interface module slots and up to 288 wire-speed 10/100/1000 PoE-enabled ports or 96 10-GbE ports per system
- Jumbo frames on Gigabit Ethernet and 10-Gigabit Ethernet ports, jumbo frames allow high-performance remote backup and disaster-recovery services
- Auto-MDIX provides automatic adjustments for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- NEW IPv6
  - IPv6 host enables switch management in an IPv6 network
  - Dual stack (IPv4 and IPv6) transitions 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 traffic
  - IPv6 routing supports static, RIPng, OSPFv3 routing protocols
  - 6in4 tunneling supports encapsulation of IPv6 traffic in IPv4 packets
  - Security provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown, and ND snooping

Performance

- High-speed, high-capacity architecture 2 Tbps crossbar switching fabric provides intra-module and inter-module switching with 785.7 million pps throughput on the purpose-built ProVision ASICs
- Selectable queue configurations allows for increased performance by selecting the number of queues and associated memory buffering that best meet the requirements of the network applications

Resiliency and high availability

- NEW Virtual Switching Framework (VSF) creates one virtual resilient switch from two switches; servers or switches can be attached using standard LACP for automatic load balancing and high availability; simplify network operation by reduce the need for complex protocols like Spanning Tree Protocol (STP), Equal-Cost Multipath (ECMP), and VRRP (requires v3 modules)
- Virtual Router Redundancy Protocol (VRRP) allows groups of two routers to dynamically back each other up to create highly available routed environments for IPv4 and IPv6 networks
- Nonstop switching improves network availability to better support critical applications such as unified communication and mobility; interface and fabric modules continue switching traffic during failover from active to standby management module
- Nonstop routing enhances Layer 3 high availability; OSPFv2/v3 and VRRP will continue to operate and route network traffic during failover from an active to a standby management module
- Redundant management and power provide enhanced system availability and continuity of operations
- 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 Hewlett Packard Enterprise port trunking support up to 144 trunks, each with up to eight 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
- Optional redundant power supply provides uninterrupted power and allows hot-swapping of the redundant power supplies when installed
- Hot-swappable modules allows dissimilar modules, and power supplies in a redundant power supply configuration to be added or swapped without interrupting the network
- Sparing simplicity zl-common accessories (interface modules and power supplies)
- Uplink Failure Detection provides active-standby network path redundancy for servers that are configured for active-standby NIC teaming
- SmartLink provides easy-to-configure link redundancy of active and standby links

Layer 2 switching

- 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
- 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
- MAC-based VLAN provides granular control and security; uses RADIUS to map a MAC address/user to specific VLANs (requires v2 or higher modules)
- Rapid Per-VLAN Spanning Tree (RPVST+) allows each VLAN to build a separate spanning tree to improve link bandwidth usage; is compatible with PVST+
- Hewlett Packard Enterprise switch meshing dynamically load balances across multiple active redundant links to increase available aggregate bandwidth; allows concurrent Layer 3 routing with v2 or higher modules
- NEW GVRP and MVRP allows automatic learning and dynamic assignment of VLANs
- NEW VxLAN encapsulation (tunneling) protocol for overlay network that enables a more scalable virtual network deployment (requires v3 modules)
- NEW VLAN support and tagging supports the IEEE 802.1Q standard and 4096 VLANs simultaneously

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 Open Standard Path First (OSPF), improving diagnostic capability
- Route maps provide more control during route redistribution; allow filtering and altering of route metrics
- DHCPserver centralizes and reduces the cost of IPv4 address management
- NEW Bidirectional Forwarding Detection (BFD) enables link connectivity monitoring and reduces network convergence time for OSPFv2, and VRRP (requires v3 modules)

Layer 3 routing

- Static IP routing provides manually configured routing for both IPv4 and IPv6 networks
- OSPF provides OSPFv2 for IPv4 routing and OSPFv3 for IPv6 routing
- Policy-based routing uses a classifier to select traffic that can be forwarded based on policy set by the network administrator (requires v2 or higher modules)
- Border Gateway Protocol (BGP) provides IPv4 Border Gateway Protocol routing, which is scalable, robust, and flexible
- NEW Routing Information Protocol (RIP) provides RIPv1, RIPv2, and RIPng routing

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
  - Web-based authentication authenticates from a Web browser for clients that do not support IEEE 802.1X supplicant
  - MAC-based authentication client is authenticated with the RADIUS server based on the 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
- Virus throttling detects traffic patterns typical of worm-type viruses and either throttles or entirely prevents the virus from spreading 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 delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3
- 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
- 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
- STP root guard protects the root bridge from malicious attacks or configuration mistakes
- 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 encrypts all transmitted data for secure remote 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 and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file
- Management Interface Wizard helps secure management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB at the desired level
- Switch management logon security helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication
- Security banner displays a customized security policy when users log in to the switch
- IEEE 802.1AE MACsec provides security on a link between two switch ports (1Gbps or 10Gbps) using standard encryption and authentication based on pre-shared key. (requires v3 modules)
- NEW Private VLAN provides network security by restricting peer-to-peer communication to prevent a variety of malicious attacks; typically a switch port can only communicate with other ports in the same community and/or an uplink port, regardless of VLAN ID or destination MAC address

Convergences

- IP multicast routing includes PIM Sparse and Dense modes to route IP multicast traffic
- IP multicast snooping (data-driven IGMP) prevents flooding of IP multicast traffic
- LLDP-MED (Media Endpoint Discovery) defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as 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
- Auto VLAN configuration for voice
  - RADIUS VLAN uses a standard RADIUS attribute and LLDP-MED to automatically configure a VLAN for IP phones
  - CDPv2 uses CDPv2 to configure legacy IP phones
- Local MAC Authentication assigns attributes such as VLAN and QoS using locally configured profile that can be a list of MAC prefixes

Warranty and support

- Limited Lifetime Warranty
  See www.hpe.com/networking/warrantysummary for warranty and support information included with your product purchase.
- Software releases to find software for your product, refer to www.hpe.com/networking/support; for details on the software releases available with your product purchase, refer to www.hpe.com/networking/warrantysummary

SPECIFICATIONS

	Aruba 5406R zl2 Switch (J9821A)	Aruba 5412R zl2 Switch (J9822A)	Aruba 5406R-44G-PoE+/2SFP+ (No PSU) v2 zl2 Switch (J9823A)
Included accessories			
	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5412R zl2 Switch Fan Tray (J9832A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A) 1 Aruba 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 Aruba 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 zl Module (J9536A)
I/O ports and slots			
	6 open module slots Supports a maximum of 144 auto-sensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination	12 open module slots Supports a maximum of 288 auto-sensing 10/100/1000 ports or 288 SFP ports or 96 SFP+ ports or 96 HPE Smart Rate Multi-Gigabit or 24 40GbE ports, or a combination	44 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 open 10GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 144 auto-sensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40 GbE ports, or a combination

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Power supplies			
	2 power supply slots 1 minimum power supply required (ordered separately)	4 power supply slots 2 minimum power supplies required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)
Fan tray			
	Includes: 1 x J9831A 1 fan tray slot	Includes: 1 x J9832A 1 fan tray slot	Includes: 1 x J9831A 1 fan tray slot
Physical characteristics			
Dimensions	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)	17.5 (w) x 17.75 (d) x 12.1 (h) in (44.45 x 45.09 x 30.73 cm) (7U height)	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)
Weight	24.5 lb (11.11 kg)	38.1 lb (17.28 kg)	28.11 lb (12.75 kg)
Memory and processor			
	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
Mounting and enclosure			
	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only
Performance			
	IPv6 Ready Certified	IPv6 Ready Certified	IPv6 Ready Certified
1000 Mb Latency	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)
10 Gbps Latency	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)
40 Gbps Latency	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)
Throughput	up to 571.4 Mpps	up to 1142.8 Mpps	up to 571.4 Mpps
Routing/Switching capacity	960 Gbps	1920 Gbps	960 Gbps
Switch fabric speed	1015 Gbps	2030 Gbps	1015 Gbps
Routing table size	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)
MAC address table size	64000 entries	64000 entries	64000 entries

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Environment			
Operating temperature	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed
Operating relative humidity	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
80plus.org Certification	Gold	Gold	Gold
Description	Does not come with power supply. Two power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Four power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
Maximum heat dissipation	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7,807 kJ/hr) (max. using PoE)	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
Voltage	100 - 127/200 - 240 VAC, rated (depending on power supply chosen)	100 - 127/200 - 240 VAC, rated (depending on power supply chosen)	110 - 127/200 - 240 VAC, rated (depending on power supply chosen)
Idle power			215 W
Notes	Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.	Heat dissipation does not include heat dissipated by the PoE-powered devices themselves. When more than four power cords are installed in a 5412R zl2 switch chassis, additional installation requirements are needed. Refer to the Aruba 5400R zl2 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.
Safety			
	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
Emissions			
	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A

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Immunity			
EN	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002
Radiated	IEC 61000-4-3; 3 V/m	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)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
Conducted	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms
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	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	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	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management			
	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)
Notes			
	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).
Services			
	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.

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	Aruba 5412R-92G-PoE+/2SFP+ (No PSU) v2 zl2 Switch (J9825A)	Aruba 5406R-44G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9824A)	Aruba 5412R-92G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9826A)
Included accessories			
	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5412R zl2 Switch Fan Tray (J9832A) 3 Aruba 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 Aruba 20-port Gig-T PoE /2-port 10GbE SFP+ v2 zl Module (J9536A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A) 1 Aruba 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 Aruba 20-port Gig-T PoE+/4-port SFP v2 zl Module (J9535A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5412R zl2 Switch Fan Tray (J9832A) 3 Aruba 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 Aruba 20-port Gig-T PoE+/4-port SFP v2 zl Module (J9535A)
I/O ports and slots			
	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 open 10GbE SFP+ transceiver slots 8 open module slots Supports a maximum of 288 auto-sensing 10/100/1000 ports or 288 SFP ports or 96 SFP+ ports or 96 HPE Smart Rate Multi-Gigabit or 24 40GbE ports, or a combination	44 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 open mini-GBIC (SFP) slots 4 open module slots Supports a maximum of 144 auto-sensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 open mini-GBIC (SFP) slots 8 open module slots Supports a maximum of 288 auto-sensing 10/100/1000 ports or 288 SFP ports or 96 SFP+ ports or 96 HPE Smart Rate Multi-Gigabit or 24 40GbE ports, or a combination
Power supplies			
	4 power supply slots 2 minimum power supplies required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)	4 power supply slots 2 minimum power supplies required (ordered separately)
Fan tray			
	Includes: 1 x J9832A 1 fan tray slot	Includes: 1 x J9831A 1 fan tray slot	Includes: 1 x J9832A 1 fan tray slot
Physical characteristics			
Dimensions	17.5 (w) x 17.75 (d) x 12.1 (h) in (44.45 x 45.09 x 30.73 cm) (7U height)	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)	17.5 (w) x 17.75 (d) x 12.1 (h) in (44.45 x 45.09 x 30.73 cm) (7U height)
Weight	24.5 lb (11.11 kg)	38.1 lb (17.28 kg)	28.11 lb (12.75 kg)
Memory and processor			
	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 Mb internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 Mb internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM

SPECIFICATIONS

	Aruba 5412R-92G-PoE+/2SFP+ (No PSU) v2 zl2 Switch (J9825A)	Aruba 5406R-44G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9824A)	Aruba 5412R-92G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9826A)
Mounting and enclosure			
	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only
Performance			
	IPv6 Ready Certified	IPv6 Ready Certified	IPv6 Ready Certified
1000 Mb Latency	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)
10 Gbps Latency	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)
40 Gbps Latency	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)
Throughput	up to 1142.8 Mpps	up to 571.4 Mpps	up to 1142.8 Mpps
Routing/Switching capacity	1920 Gbps	960 Gbps	1920 Gbps
Switch fabric speed	2030 Gbps	1015 Gbps	2030 Gbps
Routing table size	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)
MAC address table size	64000 entries	64000 entries	64000 entries
Environment			
Operating temperature	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed
Operating relative humidity	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296

SPECIFICATIONS

	Aruba 5412R-92G-PoE+/2SFP+ (No PSU) v2 zl2 Switch (J9825A)	Aruba 5406R-44G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9824A)	Aruba 5412R-92G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9826A)
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
80plus.org Certification	Gold	Gold	Gold
Description	Does not come with power supply. Four open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Four open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
Maximum heat dissipation	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)
Voltage	100 - 127/200 - 240 VAC, rated (depending on power supply chosen)	100 - 127/200 - 240 VAC, rated (depending on power supply chosen)	110 - 127/200 - 240 VAC, rated (depending on power supply chosen)
Idle power	312 W	215 W	312 W
Notes	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves. When more than four power cords are installed in a 5412R zl2 switch chassis, additional installation requirements are needed. Refer to the Aruba 5400R zl2 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves. When more than four power cords are installed in a 5412R zl2 switch chassis, additional installation requirements are needed. Refer to the Aruba 5400R zl2 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.
Safety			
	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
Emissions			
	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A
Immunity			
EN	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002
Radiated	IEC 61000-4-3; 3 V/m	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)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
Conducted	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms
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	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	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	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3

SPECIFICATIONS

	Aruba 5412R-92G-PoE+/2SFP+ (No PSU) v2 zl2 Switch (J9825A)	Aruba 5406R-44G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9824A)	Aruba 5412R-92G-PoE+/4SFP (No PSU) v2 zl2 Switch (J9826A)
Management			
	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)
Notes			
	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).
Services			
	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.

SPECIFICATIONS

	Aruba 5406R-8XGT/8SFP+ (No PSU) v2 zl2 Switch (J9868A)	Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL001A)	Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ and 8-port SFP+ (No PSU) v3 zl2 Switch (JL002A)
Included accessories			
	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A) 1 Aruba 8-port 10GbE SFP+ v2 zl Module (J9538A) 1 Aruba 8-port 10GBASE-T v2 zl Module (J9546A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5412R zl2 Switch Fan Tray (J9832A) 3 Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 zl2 Module (J9986A) 1 Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 zl2 Module (J9990A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A) 1 Aruba 8-port 1G/10GbE SFP+ MACsec v3 zl2 Module (J9993A) 1 Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 zl2 Module (J9995A)
I/O ports and slots			
	92 RJ-45 autosensing 10/100/1000 8 RJ-45 10GbE ports (IEEE 802.3an-2006 Type 10GBASE-T) 8 open 10GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 144 auto-sensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 open 10GbE SFP+ transceiver slots 8 open module slots Supports a maximum of 288 auto-sensing 10/100/1000 ports or 288 SFP ports or 96 SFP+ ports or 96 HPE Smart Rate Multi-Gigabit or 24 40GbE ports, or a combination	8 RJ-45 HPE Smart Rate Multi-Gigabit ports 8 open 10GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 144 auto-sensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination
Power supplies			
	2 power supply slots 1 minimum power supply required (ordered separately)	4 power supply slots 2 minimum power supplies required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)
Fan tray			
	Includes: 1 x J9831A 1 fan tray slot	Includes: 1 x J9832A 1 fan tray slot	Includes: 1 x J9831A 1 fan tray slot
Physical characteristics			
Dimensions	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)	17.5 (w) x 17.75 (d) x 12.1 (h) in (44.45 x 45.09 x 30.73 cm) (7U height)	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)
Weight	28.11 lb (12.75 kg)	45.19 lb (20.5 kg)	28.11 lb (12.75 kg)

SPECIFICATIONS

	Aruba 5406R-8XGT/8SFP+ (No PSU) v2 zl2 Switch (J9868A)	Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL001A)	Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ and 8-port SFP+ (No PSU) v3 zl2 Switch (JL002A)
Memory and processor			
	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM 11 @ 450 MHz; Packet buffer size: 18 MB Internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM 11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
Mounting and enclosure			
	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only
Performance			
	IPv6 Ready Certified		
1000 Mb Latency	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)
10 Gbps Latency	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)
40 Gbps Latency	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)
Throughput	up to 571.4 Mpps	up to 1142.8 Mpps	up to 571.4 Mpps
Routing/Switching capacity	960 Gbps	1920 Gbps	960 Gbps
Switch fabric speed	1015 Gbps	2030 Gbps	1015 Gbps
Routing table size	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)
MAC address table size	64000 entries	64000 entries	64000 entries
Environment			
Operating temperature	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed
Operating relative humidity	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296

SPECIFICATIONS

	Aruba 5406R-8XGT/8SFP+ (No PSU) v2 zl2 Switch (J9868A)	Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL001A)	Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ and 8-port SFP+ (No PSU) v3 zl2 Switch (JL002A)
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
80plus.org Certification	Gold	Gold	Gold
Description	Does not come with power supply. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Four open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
Maximum heat dissipation	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
Voltage	100 - 127/200 - 240 VAC, rated (depending on power supply chosen)	100 - 127/200 - 240 VAC, rated (depending on power supply chosen)	110 - 127/200 - 240 VAC, rated (depending on power supply chosen)
Idle power	215 W	312 W	215 W
Notes	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves. When more than four power cords are installed in a 5412R zl2 switch chassis, additional installation requirements are needed. Refer to the Aruba 5400R zl2 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.
Safety			
	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
Emissions			
	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A

SPECIFICATIONS

	Aruba 5406R-8XGT/8SFP+ (No PSU) v2 zl2 Switch (J9868A)	Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL001A)	Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ and 8-port SFP+ (No PSU) v3 zl2 Switch (JL002A)
Immunity			
EN	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002
Radiated	IEC 61000-4-3; 3 V/m	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)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
Conducted	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms
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	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	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	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management			
	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)
Notes			
	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C). HPE Smart Rate Multi-Gigabit Cabling; 1000BASE-T, 2.5 Gigabit, and 5 Gigabit Ethernet: Category 5e or better UTP or STP; 10GBASE-T: Category 6 or better (CAT6A recommended) UTP or STP
Services			
	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.

SPECIFICATIONS

	Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL003A)	Aruba 5406R 16-port SFP+ (No PSU) v3 zl2 Switch (JL095A)
Included accessories		
	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A) 1 Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 zl2 Module (J9986A) 1 Aruba 20-port 10/100/1000BASE-T PoE+/4-port 1G/10GbE SFP+ MACsec v3 zl2 Module (J9990A)	1 Aruba 5400R zl2 Management Module (J9827A) 1 Aruba 5406R zl2 Switch Fan Tray (J9831A) 2 Aruba 8-port 1G/10GbE SFP+ MACsec v3 zl2 Module (J9993A)
I/O ports and slots		
	44 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 open 10GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 144 autosensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination	16 open 10GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 144 autosensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48 HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination
Power supplies		
	2 power supply slots 1 minimum power supply required (ordered separately)	2 power supply slots 1 minimum power supply required (ordered separately)
Fan tray		
	Includes: 1 x J9831A 1 fan tray slot	Includes: 1 x J9831A 1 fan tray slot
Physical characteristics		
Dimensions	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)	17.5 (w) x 17.75 (d) x 6.9 (h) in (44.45 x 45.09 x 17.53 cm) (4U height)
Weight	28.11 lb (12.75 kg)	28.11 lb (12.75 kg)
Memory and processor		
	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal ARM 11 @ 450 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1; Packet buffer size: 13.5 MB internal ARM11 @ 550 MHz; Packet buffer size: 18 MB internal Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
Mounting and enclosure		
	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only

SPECIFICATIONS

	Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL003A)	Aruba 5406R 16-port SFP+ (No PSU) v3 zl2 Switch (JL095A)
Performance		
1000 Mb Latency	< 2.8 µs (FIFO 64-byte packets)	< 2.8 µs (FIFO 64-byte packets)
10 Gbps Latency	< 1.8 µs (FIFO 64-byte packets)	< 1.8 µs (FIFO 64-byte packets)
40 Gbps Latency	< 1.5 µs (FIFO 64-byte packets)	< 1.5 µs (FIFO 64-byte packets)
Throughput	up to 571.4 Mpps	up to 571.4 Mpps
Routing/Switching capacity	960 Gbps	960 Gbps
Switch fabric speed	1015 Gbps	1015 Gbps
Routing table size	10000 entries (IPv4), 5000 entries (IPv6)	10000 entries (IPv4), 5000 entries (IPv6)
MAC address table size	64000 entries	64000 entries
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed, 0°C to 35°C with FIPS Opacity Shield installed
Operating relative humidity	15% to 95% @ 113°F (45°C), noncondensing	15% to 95% @ 113°F (45°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
80plus.org Certification	Gold	Gold
Description	Does not come with power supply. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	Does not come with power supply. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
Maximum heat dissipation	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
Voltage	110 - 127/200 - 240 VAC, rated (depending on power supply chosen)	110 - 127/200 - 240 VAC, rated (depending on power supply chosen)
Idle power	215 W	215 W
Notes	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.	Idle power is the actual power consumption of the device with no ports connected. Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.
Safety		
	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
Emissions		
	FCC part 15 Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; EN 55022/CISPR 22 Class A

SPECIFICATIONS

	Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 zl2 Switch (JL003A)	Aruba 5406R 16-port SFP+ (No PSU) v3 zl2 Switch (JL095A)
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002	IEC 61000-4-2; 4 kV CD, 8 kV AD; HP ENV. 765.002
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, 1kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
Conducted	IEC 61000-4-6; 3 Vrms	IEC 61000-4-6; 3 Vrms
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	EN 61000-3-3, IEC 61000-3-3
Management		
	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)	Aruba AirWave Network Management; IMC – Intelligent Management Center; Command-line interface; Web browser; Configuration menu; Out-of-band management (RJ-45 Ethernet); SNMP manager; Out-of-band management (serial RS-232c or micro usb)
Notes		
	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).	Supported 1G SFP transceivers are revision “B” or later (product number ends with the letter “B” or later; For example, J9142B, J8177C).
Services		
	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.	Refer to the Hewlett Packard Enterprise website at www.hpe.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 Hewlett Packard Enterprise sales office.

STANDARDS AND PROTOCOLS (APPLIES TO ALL PRODUCTS IN SERIES)

BGP

- RFC 1997 BGP Communities Attribute
- RFC 2918 Route Refresh Capability
- RFC 4271 A Border Gateway Protocol 4 (BGP-4)
- RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
- RFC 5492 Capabilities Advertisement with BGP-4

Device management

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

General protocols

- IEEE 802.1ad Q-in-Q
- 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 802.3af Power over Ethernet
- 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 1918 Address Allocation for Private Internet
- 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
- RFC 5880 Bidirectional Forwarding Detection
- RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
- UDLD (Uni-directional Link Detection)

IP multicast

- RFC 3376 IGMPv3
- RFC 3973 PIM Dense Mode
- RFC 4601 PIM Sparse Mode

IPv6

- RFC 1981 IPv6 Path MTU Discovery
- RFC 2080 RIPng for IPv6
- RFC 2081 RIPng Protocol Applicability Statement
- RFC 2082 RIP-2 MD5
- 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 MLDv2 for IPv6
- RFC 4022 MIB for TCP
- RFC 4087 IP Tunnel MIB
- RFC 4113 MIB for UDP
- RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
- 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 OSPFv3 for IPv6
- RFC 5453 Reserved IPv6 Interface Identifiers
- RFC 5519 Multicast Group Membership Discovery MIB (MLDv2 only)

- RFC 5722 Handling of Overlapping IPv6 Fragments
- RFC 6620 FCFS SAVI
- draft-ietf-savi-mix

MIBs

- IEEE 802.1ap (MSTP and STP MIB's only)
- IEEE 8021-Bridge-MIB (2008)
- IEEE 8021-Q-Bridge-MIB (2008)
- RFC 1155 Structure & ID of Mgmt Info for TCP/IP Internets
- 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 2578 Structure of Management Information Version 2 (SMIv2)
- 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
- RFC 2932 IP (Multicast Routing MIB)
- RFC 2933 IGMP MIB
- RFC 4292 IP Forwarding Table MIB
- RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU
- RFC 7331 BFD 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
- RFC 5424 Syslog Protocol
- ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
- SNMPv1/v2c/v3 XRMON
- XRMON

OSPF

- RFC 2328 OSPFv2
- RFC 3101 OSPF NSSA
- RFC 5340 OSPFv3 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 802.1AE MAC Security Standard (MACSec)
- IEEE 802.1X Port Based Network Access Control
- RFC 1492 TACACS+
- RFC 2865 RADIUS (client only)
- RFC 2866 RADIUS Accounting
- RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
- Secure Sockets Layer (SSL)
- SSHv2 Secure Shell

ARUBA 5400R zl2 SWITCH SERIES ACCESSORIES

Modules

- Aruba 8-port 10GBASE-T v2 zl Module (J9546A)
- Aruba 8-port 10GbE SFP+ v2 zl Module (J9538A)
- Aruba 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 zl Module (J9536A)
- Aruba 20-port Gig-T PoE+/4-port SFP v2 zl Module (J9535A)
- Aruba 24-port SFP v2 zl Module (J9537A)
- Aruba 12-port Gig-T PoE+/12-port SFP v2 zl Module (J9637A)
- Aruba 24-port Gig-T PoE+ v2 zl Module (J9534A)
- Aruba 24-port 10/100 PoE+ v2 zl Module (J9547A) HP 24-port Gig-T v2 zl Module (J9550A)
- Aruba 20-port Gig-T/4-port SFP v2 zl Module (J9549A)
- Aruba 20-port Gig-T/2-port 10GbE SFP+ v2 zl Module (J9548A)
- Aruba Advanced Services v2 zl Module with HDD (J9857A)
- Aruba Advanced Services v2 zl Module with SSD (J9858A)
- Aruba 5400R zl2 Management Module (J9827A)
- Aruba 5400R 24-port 10/100/1000BASE-T PoE+ with MACsec v3 zl2 Module (J9986A)
- Aruba 5400R 24-port 10/100/1000BASE-T with MACsec v3 zl2 Module (J9987A)
- Aruba 5400R 24-port 1GbE SFP with MACsec v3 zl2 Module (J9988A)
- Aruba 5400R 12-port 10/100/1000BASE-T PoE+ and 12-port 1GbE SFP with MACsec v3 zl2 Module (J9989A)
- Aruba 5400R 20-port 10/100/1000BASE-T PoE+ and 4-port 1G/10GbE SFP+ with MACsec v3 zl2 Module (J9990A)
- Aruba 5400R 20-port 10/100/1000BASE-T PoE+ and 4-port 1/2.5/5/10GBASE-T PoE+ with MACsec v3 zl2 Module (J9991A)
- Aruba 5400R 20-port 10/100/1000BASE-T PoE+ and 1-port 40GbE QSFP+ with MACsec v3 zl2 Module (J9992A)

- Aruba 5400R 8-port 1G/10GbE SFP+ with MACsec v3 zl2 Module (J9993A) HP 5400R 8-port 1/2.5/5/10GBASE-T PoE+ with MACsec v3 zl2 Module (J9995A)
- Aruba 5400R 2-port 40GbE QSFP+ with MACsec v3 zl2 Module (J9996A)

Transceivers

- HPE X131 10G X2 SC ER Transceiver (J8438A)
- HPE X131 10G X2 SC SR Transceiver (J8436A)
- HPE X131 10G X2 CX4 Transceiver (J8440C)
- HPE X111 100M SFP LC FX Transceiver (J9054C)
- HPE X132 10G SFP+ LC SR Transceiver (J9150A)
- HPE X132 10G SFP+ LC LR Transceiver (J9151A)
- HPE X132 10G SFP+ LC LRM Transceiver (J9152A)
- HPE X121 1G SFP LC LH Transceiver (J4860C)
- HPE X121 1G SFP LC SX Transceiver (J4858C)
- HPE X121 1G SFP LC LX Transceiver (J4859C)
- HPE X121 1G SFP RJ45 T Transceiver (J8177C)
- HPE X122 1G SFP LC BX-D Transceiver (J9142B)
- HPE X122 1G SFP LC BX-U Transceiver (J9143B)
- HPE X132 10G SFP+ LC ER Transceiver (J9153A)
- HPE X142 40G QSFP+ LC LR4 SM Transceiver (JH232A)
- HPE X142 40G QSFP+ MPO SR4 Transceiver (JH231A)
- HPE X142 40G QSFP+ MPO CSR4 300M Transceiver (JH233A)

Cables

- HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)
- HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)
- HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)
- HPE X244 10G XFP to SFP+ 1m Direct Attach Copper Cable (J9300A)
- HPE X244 10G XFP to SFP+ 3m Direct Attach Copper Cable (J9301A)
- HPE X244 10G XFP to SFP+ 3m Direct Attach Copper Cable (J9302A)
- HPE 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)
- HPE 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)
- HPE 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)
- HPE 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)
- HPE 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)
- HPE 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)
- HPE 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)
- HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)
- HPE X242 40G QSFP+ to QSFP+ 1m Direct Attach Copper Cable (JH234A)
- HPE X242 40G QSFP+ to QSFP+ 3m DAC Cable (JH235A)
- HPE X242 40G QSFP+ to QSFP+ 5m DAC Cable (JH236A)

Power Supply

- Aruba 5400R 700W PoE+ zl2 Power Supply (J9828A)
- Aruba 5400R 1100W PoE+ zl2 Power Supply (J9829A)
- Aruba 5400R 2750W PoE+ zl2 Power Supply (J9830A)

Mounting Kit

- HP X450 4U/7U Universal 4-Post Rack Mounting Kit (J9852A)

HP 5406R zl2 Switch (J9821A)

- Aruba 5406R zl2 Switch Fan Tray (J9831A)

HP 5412R zl2 Switch (J9822A)

- Aruba 5412R zl2 Switch Fan Tray (J9832A)

HP 5406R-44G-PoE+/2SFP+ (No PSU) v2 zl2 Switch (J9823A)

- Aruba 5406R zl2 Switch Fan Tray (J9831A)

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