

### Overview

## Aruba 5400R z12 Switch Series

### Models

Aruba 5406R z12 Switch	J9821A
Aruba 5412R z12 Switch	J9822A
HP 5406R-44G-PoE+/2SFP+ (No PSU) v2 z12 Switch	J9823A
HP 5412R-92G-PoE+/2SFP+ (No PSU) v2 z12 Switch	J9825A
HP 5406R-44G-PoE+/4SFP (No PSU) v2 z12 Switch	J9824A
HP 5412R-92G-PoE+/4SFP (No PSU) v2 z12 Switch	J9826A
HP 5406R-8XGT/8SFP+ (No PSU) v2 z12 Switch	J9868A
Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch	JL001A
Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ / 8-port SFP+ (No PSU) v3 z12 Switch	JL002A
Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch	JL003A
Aruba 5406R 16-port SFP+ (No PSU) v3 z12 Switch	JL095A

### Key Features

- High performance advanced Layer 3 modular switch with VSF stacking, low latency and resiliency.
- Security and network management tools with ClearPass Policy Manager and AirWave support.
- HPE Smart Rate for high speed multi gigabit bandwidth and PoE+ power.
- Scalable with line rate 40GbE for wireless traffic aggregation.
- Optimized for innovative SDN applications with OpenFlow support.

### Product overview

The Aruba 5400R z12 Switch Series is an industry-leading mobile campus access solution with HPE Smart Rate multi-gigabit ports for high speed 802.11ac devices. It delivers enterprise-class resiliency with innovative flexibility and scalability for customers creating digital workplaces that are optimized for mobile users with an integrated wired and wireless approach. This series brings scalable aggregation with Virtual Switching Framework (VSF) stacking technology, hitless failover, and Fast Software Upgrade for 5400R VSF stacks. The advanced Layer 2 and 3 feature set includes OSPF, IPv6, IPv4 BGP, Tunneled Node, robust QoS and policy-based routing with no software licensing required.

Based on a powerful ProVision ASIC, the Aruba 5400R z12 Switch Series has a high-speed, high-capacity architecture with 2 Tbps crossbar switching fabric with low 2.1µ latency, unprecedented programmability, and supports innovative SDN applications. This series offers flexible connectivity options with 6 or 12 slot compact chassis, line rate 40GbE, up to 96 line rate 10GbE ports and up to 288 ports of PoE+. The 5400R is SDN optimized with OpenFlow support and is easy to deploy and manage with advanced security and network management tools like Aruba ClearPass Policy Manager and Aruba AirWave.

### 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)

## Overview

### Unified Wired and Wireless

- **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
- **Switch auto-configuration**  
automatically configures switch for different settings such as VLAN, CoS, PoE max power, and PoE priority when an Aruba access point is detected.
- **User role**  
defines a set of switch-based policies in areas such as security, authentication, and QoS. A user role can be assigned to a group of users or devices, using switch configuration or ClearPass.
- **Per-port tunneled node**  
provides a secured tunnel to transport network traffic on a per-port basis to an Aruba Controller. Authentication and network policies will be applied and enforced at the Controller
- **Static IP visibility**  
provides a way for ClearPass to do accounting for clients with static IP address

### 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 HPE 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 HPE 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**  
allow assignment of descriptive names to ports

## Overview

- **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
- **Zero-Touch ProVisioning (ZTP)**  
simplifies installation of the switch infrastructure using the Aruba Activate-based or a DHCP-based process with AirWave Network Management
- **IP service level agreements (SLA) for voice**  
monitor quality of voice traffic using the UDP jitter and UDP jitter for VoIP tests.

## 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: <http://www.hpe.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
- **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**

## Overview

- 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

- **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).
- **Fast Software Upgrade**
  - reduces downtime of the VSF stack during an upgrade by sequentially upgrading the members in the stack shrinking the downtime to a few seconds (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**
  - HPE 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

## Overview

### Layer 2 switching

- **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
- **GVRP and MVRP**  
allows automatic learning and dynamic assignment of VLANs
- **VxLAN**  
encapsulation (tunneling) protocol for overlay network that enables a more scalable virtual network deployment (requires v3 modules)
- **VLAN support and tagging**  
supports the IEEE 802.1Q standard and 4094 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
- **DHCP server**  
centralizes and reduces the cost of IPv4 address management
- **Bidirectional Forwarding Detection (BFD)**  
monitor link connectivity 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
- **Routing Information Protocol (RIP)**  
provides RIPv1, RIPv2, and RIPv6 routing

### Security

## Overview

- **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
- **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. MACsec software support not yet available for modules with Smart Rate ports (requires v3)

## Overview

modules)

- **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

## Convergence

- **IP multicast routing**

includes PIM Sparse and Dense modes to route IP multicast traffic

- **IP multicast snooping** (data-driven IGMP)

automatically prevents flooding of IP multicast traffic

- **LLDP-MED (Media Endpoint Discovery)**

defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to configure automatically network devices such as IP phones

- **PoE allocations**

support 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 <http://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 <http://www.hpe.com/networking/support>; for details on the software releases available with your product purchase, refer to <http://www.hpe.com/networking/warrantysummary>

## Configuration

### Build To Order:

**BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.**

Aruba 5406R z12 Switch	J9821A
<ul style="list-style-type: none"><li>• 1 Power Supply required</li><li>• 1 Fan Tray Included</li><li>• 1 Management module included</li><li>• 1 RJ-45 out-of-band management port</li><li>• 4U - Height</li></ul>	
Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ / 8-port SFP+ (No PSU) v3 z12 Switch	JL002A
<ul style="list-style-type: none"><li>• 1 Power Supply required</li><li>• 8 RJ-45 10GbE PoE+ ports</li><li>• 1 - J9995A Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module included</li><li>• 1 - J9993A Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=8 SFP+ Transceivers)</li><li>• 1 Fan Tray Included</li><li>• 1 Management module included</li><li>• 1 RJ-45 out-of-band management port</li><li>• 4U - Height</li></ul>	See Configuration <b>NOTE: 1</b>
Aruba 5406R 16-port SFP+ (No PSU) v3 z12 Switch	JL095A
<ul style="list-style-type: none"><li>• 1 Power Supply required</li><li>• 2 - J9993A Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=16 SFP+ Transceivers)</li><li>• 1 Fan Tray Included</li><li>• 1 Management module included</li><li>• 1 RJ-45 out-of-band management port</li><li>• 4U - Height</li></ul>	See Configuration <b>NOTE: 1</b>
Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch	JL003A
<ul style="list-style-type: none"><li>• 1 Power Supply required</li><li>• 1 - J9990A Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=4 SFP Transceivers)</li><li>• 1 - J9986A Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module included</li><li>• 1 Fan Tray Included</li><li>• 1 Management module included</li><li>• 1 RJ-45 out-of-band management port</li><li>• 4U - Height</li></ul>	See Configuration <b>NOTE: 2</b>
Aruba 5412R z12 Switch	J9822A
<ul style="list-style-type: none"><li>• 2 Power Supplies required</li><li>• 1 Fan Tray Included</li><li>• 1 Management module included</li><li>• 1 RJ-45 out-of-band management port</li><li>• 7U - Height</li></ul>	



## Configuration

### HP 5412R-92G-PoE+/4SFP (No PSU) v2 z12 Switch

- 2 Power Supplies required
- 1 - J9535A HPE 20-port Gig-T PoE+/4-port SFP v2 z1 Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HPE 24-port Gig-T PoE+ v2 z1 Module included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

J9826A  
See Configuration  
**NOTE: 2**

### Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch

- 2 Power Supplies required
- 1 - J9990A Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9986A Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Modules included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

JL001A  
See Configuration  
**NOTE: 2**

### Configuration Rules:

#### NOTE 1

The following Transceivers install into this Chassis :

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X132 10G SFP+ LC ER Transceiver	J9153A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC LRM Transceiver	J9152A
HPE X132 10G SFP+ LC SR Transceiver	J9150A
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
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A

#### NOTE 2

The following Transceivers install into this switch:

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X111 100M SFP LC FX Transceiver	J9054C

## Box Level Integration CTO Models

## Configuration

### CTO Solution SKU

HPE 54xx Configure-to-order Switch

J9809A

- SSP trigger SKU

### CTO Switch Chassis

Aruba 5406R z12 Switch

J9821A

- 1 Power Supply required
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

See Configuration

**NOTE: 10**

Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ / 8-port SFP+ (No PSU) v3 z12 Switch

JL002A

- 1 Power Supply required
- 8 RJ-45 10GbE PoE+ ports
- 1 - J9995A Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module included
- 1 - J9993A Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=8 SFP+ Transceivers)
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

See Configuration

**NOTE: 1, 10**

Aruba 5406R 16-port SFP+ (No PSU) v3 z12 Switch

JL095A

- 1 Power Supply required
- 2 - J9993A Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=16 SFP+ Transceivers)
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

See Configuration

**NOTE: 1, 10**

Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch

JL003A

- 1 Power Supply required
- 1 - J9990A Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=4 SFP Transceivers)
- 1 - J9986A Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

See Configuration

**NOTE: 2, 10**

Aruba 5412R z12 Switch

J9822A

- 2 Power Supplies required
- 1 Fan Tray Included
- 1 Management module included

See Configuration

**NOTE: 10**

## Configuration

- 1 RJ-45 out-of-band management port
- 7U - Height

### HP 5412R-92G-PoE+/4SFP (No PSU) v2 z12 Switch

- 2 Power Supplies required
- 1 - J9535A HPE 20-port Gig-T PoE+/4-port SFP v2 z1 Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HPE 24-port Gig-T PoE+ v2 z1 Module included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

J9826A  
See Configuration  
**NOTE: 2, 10**

### Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch

- 2 Power Supplies required
- 1 - J9990A Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9986A Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Modules included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

JL001A  
See Configuration  
**NOTE: 2, 10**

### Configuration Rules:

#### NOTE 1

The following Transceivers install into this Chassis :

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X132 10G SFP+ LC ER Transceiver	J9153A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC LRM Transceiver	J9152A
HPE X132 10G SFP+ LC SR Transceiver	J9150A
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
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A

#### NOTE 2

The following Transceivers install into this switch:

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B

## Configuration

HPE X111 100M SFP LC FX Transceiver

J9054C

**NOTE 10** If the Switch Chassis is to be Factory Integrated (CTO), Then the #0D1 is required on the Switch Chassis and integrated to the J9809A - HPE 5400 CTO Enablement. (Min 1/Max 1 Switch per SSP)

## Rack Level Integration CTO Models

### CTO Switch Chassis

Aruba 5406R z12 Switch

- 1 Power Supply required
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U – Height

J9821A  
See Configuration  
**NOTE: 11**

Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ / 8-port SFP+ (No PSU) v3 z12 Switch

- 1 Power Supply required
- 8 RJ-45 10GbE PoE+ ports
- 1 - J9995A Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module included
- 1 - J9993A Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=8 SFP+ Transceivers)
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

JL002A  
See Configuration  
**NOTE: 1, 11**

Aruba 5406R 16-port SFP+ (No PSU) v3 z12 Switch

- 1 Power Supply required
- 2 - J9993A Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=16 SFP+ Transceivers)
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

JL095A  
See Configuration  
**NOTE: 1, 11**

Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch

- 1 Power Supply required
- 1 - J9990A Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=4 SFP Transceivers)
- 1 - J9986A Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 4U - Height

JL003A  
See Configuration  
**NOTE: 2, 11**

Aruba 5412R z12 Switch

- 2 Power Supplies required
- 1 Fan Tray Included

J9822A  
See Configuration  
**NOTE: 11**

## Configuration

- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

### HP 5412R-92G-PoE+/4SFP (No PSU) v2 z12 Switch

- 2 Power Supplies required
- 1 - J9535A HPE 20-port Gig-T PoE+/4-port SFP v2 z1 Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HPE 24-port Gig-T PoE+ v2 z1 Module included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

J9826A

See Configuration

**NOTE: 2, 11**

### Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch

- 2 Power Supplies required
- 1 - J9990A Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9986A Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Modules included
- 1 Fan Tray Included
- 1 Management module included
- 1 RJ-45 out-of-band management port
- 7U - Height

JL001A

See Configuration

**NOTE: 2, 11**

### Configuration Rules:

#### NOTE 1

The following Transceivers install into this Chassis :

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X132 10G SFP+ LC ER Transceiver	J9153A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC LRM Transceiver	J9152A
HPE X132 10G SFP+ LC SR Transceiver	J9150A
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
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A

#### NOTE 2

The following Transceivers install into this switch:

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HP X122 1G SFP LC BX-D Transceiver	J9142B

## Configuration

HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X111 100M SFP LC FX Transceiver	J9054C

**NOTE 11** If the CTO Switch Chassis needs to be racked, Then the CTO Base Model needs to integrate (with #0D1) to the HPE Rack.

Enter the following menu selections as integrated to the CTO Model X server above if order is factory built.

## Modules

### Management Modules

(J9821A, JL002A, JL095A, JL003A, J9822A, J9826A, JL001A) System (std 1 // max 2) User Selection (min 0 / max 1)

Aruba 5400R z12 Management Module	J9827A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	

### I/O Modules

J9821A only - System (std 0 // max=6) User Selection (min 0 / max=6) per Chassis

J9822A only - System (std 0 // max=12) User Selection (min 0 / max=12) per Chassis

JL002A, JL095A, JL003A only - System (std 2 // max=6) User Selection (min 0 / max=4) per Chassis

J9826A, JL001A only - System (std 4 // max=12) User Selection (min 0 / max=8) per Chassis

HPE 20-port Gig-T PoE+/4-port SFP v2 z1 Module	J9535A
<ul style="list-style-type: none"> <li>min=0 \ max=4 SFP Transceivers</li> </ul>	See Configuration <b>NOTE: 1</b>

Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module	J9991A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	

Aruba 20-port 10/100/1000BASE-T PoE+ MACsec / 1-port 40GbE QSFP+ v3 z12 Module	J9992A
<ul style="list-style-type: none"> <li>min=0 \ max=1 QSFP+ Transceiver</li> </ul>	See Configuration <b>NOTE: 6</b>

HPE 24-port SFP v2 z1 Module	J9537A
<ul style="list-style-type: none"> <li>min=0 \ max=24 SFP Transceivers</li> </ul>	See Configuration <b>NOTE: 1</b>

Aruba 24-port 1GbE SFP MACsec v3 z12 Module	J9988A
<ul style="list-style-type: none"> <li>min=0 \ max=24 SFP Transceivers</li> </ul>	See Configuration <b>NOTE: 1</b>

HPE 12-port Gig-T PoE+/12-port SFP v2 z1 Module	J9637A
<ul style="list-style-type: none"> <li>min=0 \ max=12 SFP Transceivers</li> </ul>	See Configuration <b>NOTE: 1</b>

## Configuration

Aruba 12-port 10/100/1000BASE-T PoE+ / 12-port 1GbE SFP MACsec v3 z12 Module <ul style="list-style-type: none"><li>min=0 \ max=12 SFP Transceivers</li></ul>	J9989A See Configuration <b>NOTE: 1</b>
HPE 20-port Gig-T/4-port SFP v2 z1 Module <ul style="list-style-type: none"><li>min=0 \ max=4 SFP Transceivers</li></ul>	J9549A See Configuration <b>NOTE: 1</b>
HPE 8-port 10GbE SFP+ v2 z1 Module <ul style="list-style-type: none"><li>min=0 \ max=8 SFP+ Transceivers</li></ul>	J9538A See Configuration <b>NOTE: 5</b>
Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module <ul style="list-style-type: none"><li>min=0 \ max=8 SFP+ Transceivers</li></ul>	J9993A See Configuration <b>NOTE: 1, 5</b>
HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 z1 Module <ul style="list-style-type: none"><li>min=0 \ max=2 SFP+ Transceivers</li></ul>	J9536A See Configuration <b>NOTE: 5</b>
Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module <ul style="list-style-type: none"><li>min=0 \ max=4 SFP+ Transceivers</li></ul>	J9990A See Configuration <b>NOTE: 1, 5</b>
HPE 20-port Gig-T/2-port 10GbE SFP+ v2 z1 Module <ul style="list-style-type: none"><li>min=0 \ max=2 SFP+ Transceivers</li></ul>	J9548A See Configuration <b>NOTE: 5</b>
HPE 8-port 10GBASE-T v2 z1 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9546A
Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9995A
HPE 24-port Gig-T PoE+ v2 z1 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9534A
Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9986A
HPE 24-port 10/100 PoE+ v2 z1 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9547A
HPE 24-port Gig-T v2 z1 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9550A
Aruba 24-port 10/100/1000BASE-T MACsec v3 z12 Module <ul style="list-style-type: none"><li>No Transceivers</li></ul>	J9987A

## Configuration

Aruba 2-port 40GbE QSFP+ v3 z12 Module

- min=0 \ max=2 QSFP+ Transceivers

J9996A

See Configuration  
**NOTE: 6**

HPE Advanced Services v2 z1 Module with HDD

- No Transceivers

J9857A

See Configuration  
**NOTE: 11**

HPE Advanced Services v2 z1 Module with SSD

- No Transceivers

J9858A

See Configuration  
**NOTE: 11**

### Configuration Rules:

#### NOTE 1

The following Transceivers install into this Module: (Use #0D1 if switch is CTO) - if applicable

HPE X111 100M SFP LC FX Transceiver	J9054C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X121 1G SFP RJ45 T Transceiver	J8177C

#### NOTE 5

The following Transceivers install into this Module: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
HPE X121 1G SFP RJ45 T Transceiver	J8177C
HPE X132 10G SFP+ LC ER Transceiver	J9153A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC LRM Transceiver	J9152A
HPE X132 10G SFP+ LC SR Transceiver	J9150A
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
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A

#### NOTE 6

The following Transceivers install into this Module: (Use #0D1 or #B01 if switch is CTO) - if applicable

HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A
HPE X242 40G QSFP+ to QSFP+ 1m Direct Attach Copper Cable	JH234A



## Configuration

HPE X242 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable	JH235A
HPE X242 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	JH236A

### NOTE 11

Maximum of this Module per Chassis:  
 J9821A, J9868A, JL002A, JL095A, J9823A, J9824A, JL003A min=0\max=4 per Chassis  
 J9822A, J9825A, J9826A, JL001A min=0\max=6 per Chassis  
 There are no restrictions on which slots these modules may go in.

## Transceivers

### SFP Transceivers

HPE X111 100M SFP LC FX Transceiver	J9054C
HPE X121 1G SFP LC LH Transceiver	J4860C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP RJ45 T Transceiver	J8177C

### SFP+ Transceivers

HPE X132 10G SFP+ LC ER Transceiver	J9153A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC LRM Transceiver	J9152A
HPE X132 10G SFP+ LC SR Transceiver	J9150A
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
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A

### QSFP+ Transceivers

HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A
HPE X242 40G QSFP+ to QSFP+ 1m Direct Attach Copper Cable	JH234A
HPE X242 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable	JH235A
HPE X242 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	JH236A

## Internal Power Supplies

(J9821A, JL002A, JL095A, JL003A) System (std 0 // max 2) User Selection (min 1 / max 2)

(J9822A, J9826A, JL001A) System (std 0 // max 4) User Selection (min 2 / max 4)

Aruba 5400R 700W PoE+ z12 Power Supply

- includes 1 x c13, 700w

J9828A  
 See Configuration  
**NOTE: 2, 4, 6, 7**

## Configuration

PDU Cable NA/MEX/TW/JP	J9828A#B2B
<ul style="list-style-type: none"> <li>HPE 2.5M C15 to C14 N.A. Power Cord(J9943A)</li> </ul>	
PDU Cable ROW	J9828A#B2C
<ul style="list-style-type: none"> <li>HPE 2.5M C15 to C14 ROW Power Cord (J9944A)</li> </ul>	
High Volt Switch to Wall Power Cord	J9828A#B2E
<ul style="list-style-type: none"> <li>HPE 2.5m C15 to NEMA 6-20P 250V Non-locking Power Cord (JL336A)</li> </ul>	
No Power Cord	J9828A#AC3
<ul style="list-style-type: none"> <li>No Localized Power Cord Selected</li> </ul>	
Aruba 5400R 1100W PoE+ z12 Power Supply	J9829A
<ul style="list-style-type: none"> <li>includes 1 x c15, 1100w</li> </ul>	See Configuration <b>NOTE: 2, 4, 6, 7</b>
PDU Cable NA/MEX/TW/JP	J9829A#B2B
<ul style="list-style-type: none"> <li>HPE 2.5M C15 to C14 N.A. Power Cord(J9943A)</li> </ul>	
PDU Cable ROW	J9829A#B2C
<ul style="list-style-type: none"> <li>HPE 2.5M C15 to C14 ROW Power Cord (J9944A)</li> </ul>	
High Volt Switch to Wall Power Cord	J9829A#B2E
<ul style="list-style-type: none"> <li>HPE 2.5m C15 to NEMA 6-20P 250V Non-locking Power Cord (JL336A)</li> </ul>	
No Power Cord	J9829A#AC3
<ul style="list-style-type: none"> <li>No Localized Power Cord Selected</li> </ul>	
Aruba 5400R 2750W PoE+ z12 Power Supply	J9830B
<ul style="list-style-type: none"> <li>includes 2 x c19, 2750w</li> </ul>	See Configuration <b>NOTE: 2, 4, 6, 7</b>
PDU Cable NA/MEX/TW/JP	J9830B#B2B
<ul style="list-style-type: none"> <li>HPE 2.5m C19 to C20 250V PDU Power Cord (JL342A)</li> </ul>	
PDU Cable ROW	J9830B#B2C
<ul style="list-style-type: none"> <li>HPE 2.5m C19 to C20 250V PDU Power Cord (JL342A)</li> </ul>	
High Volt Switch to Wall Power Cord	J9830B#B2E
<ul style="list-style-type: none"> <li>HPE 2.5m C19 to NEMA 6-20P 250V 20Amp Non-locking Power Cord(JL351A)</li> </ul>	
No Power Cord	J9830B#AC3
<ul style="list-style-type: none"> <li>No Localized Power Cord Selected</li> </ul>	

### Configuration Rules:

**NOTE 2** Localization required on orders without #B2B, #B2C or #B2E options.

## Configuration

- NOTE 4** This power supply is ONLY supported on the J9821A, JL002A, JL095A, JL003A, J9822A, JL001A and J9826A switches.
- NOTE 6** If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch. (Offered only in NA, Mexico, Taiwan, and Japan)
- NOTE 7** Power Supplies can be mixed for a switch enclosure
- Remarks:** For J9828A, J9829A, J9830A/B: Power Supplies can be mixed for a switch enclosure. However, the three different power supplies each require different power cords, and the wall plug that is needed for J9830A is different from the wall plug that is needed for J9828A and J9829A. Moreover, full redundancy and N+1 redundancy are only supported with like power supplies.
- Drop down under power supply should offer the following options and results:  
 Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)  
 Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)  
 High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)  
 No Localized Power Cord Selected - #AC3 Option

## Cables

### Multi-Mode Cables

HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic 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

## Switch Enclosure Options

### Fan Trays

Aruba 5406R z12 Switch Fan Tray	J9831A
<ul style="list-style-type: none"> <li>Spare Only</li> </ul>	
Aruba 5412R z12 Switch Fan Tray	J9832A

## Configuration

- Spare Only

### Mounting Kit

HPE X450 4U/7U Universal 4-post Rackmount Kit

J9852A  
See Configuration  
**NOTE: 1, 2**

#### Configuration Rules:

- NOTE 1**            If this Mounting Kit is ordered with #OD1 then it integrates to the HPE Universal Rack. (not the switch)
- NOTE 2**            If switches J9821A, JL002A, JL095A, JL003A, J9822A, JL001A and J9826A are installed into a rack, Then this Rack Mounting kit is required.

## Technical Specifications

### Aruba 5406R z12 Switch (J9821A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5406R z12 Switch Fan Tray (J9831A)	
<b>I/O ports and slots</b>	6 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	
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)	
<b>Fan tray</b>	includes: 1 x J9831A 1 fan tray slot	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
	<b>Weight</b>	24.5 lb (11.11 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 Gigabit module</b>	ARM11 @ 450 MHz; Packet buffer size: 18 MB internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
IPv6 Ready Certified	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 571.4 Mpps
	<b>Routing/Switching capacity</b>	960 Gbps
	<b>Switch fabric speed</b>	1015 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	Does not come with power supply. Two power supply slots are available; three different power supplies are available. See power supply products for

## Technical Specifications

		additional specifications.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>Voltage</b>	100 - 127 / 200 - 240 VAC, rated
	<b>NOTES</b>	Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>		FCC part 15 Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		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)
<b>NOTES</b>		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.

### Aruba 5412R z12 Switch (J9822A)

<b>Included accessories</b>		1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5406R z12 Switch Fan Tray (J9831A)
<b>I/O ports and slots</b>		12 open module slots Supports a maximum of 288 autosensing 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
<b>Power supplies</b>		4 power supply slots 2 minimum power supplies required (ordered separately)
<b>Fan tray</b>		includes: 1 x J9832A 1 fan tray slot
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)
	<b>Weight</b>	38.1 lb (17.28 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 Gigabit module</b>	ARM11 @ 450 MHz; Packet buffer size: 18 MB internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB

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		DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
IPv6 Ready Certified	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 1142.8 Mpps
	<b>Routing/Switching capacity</b>	1920 Gbps
	<b>Switch fabric speed</b>	2030 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	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.
	<b>Maximum heat dissipation</b>	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7,807 kJ/hr) (max. using PoE)
	<b>Voltage</b>	100 - 127 / 200 - 240 VAC, rated
	<b>NOTES</b>	Heat dissipation does not include heat dissipated by the PoE-powered devices themselves. When more than four power cords are installed in a 5412R z12 switch chassis, additional installation requirements are needed. Refer to the HPE 5400R z12 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods

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	<b>interruptions</b>	
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	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)	
<b>NOTES</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.	

### HP 5406R-44G-PoE+/2SFP+ (No PSU) v2 z12 Switch (J9823A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5406R z12 Switch Fan Tray (J9831A) 1 HPE 24-port Gig-T PoE+ v2 z1 Module (J9534A) 1 HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 z1 Module (J9536A)	
<b>I/O ports and slots</b>	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 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	
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)	
<b>Fan tray</b>	includes: 1 x J9831A 1 fan tray slot	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
	<b>Weight</b>	28.11 lb (12.75 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 Gigabit module</b>	ARM11 @ 450 MHz; Packet buffer size: 18 MB internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
IPv6 Ready Certified	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 571.4 Mpps
	<b>Routing/Switching capacity</b>	960 Gbps
	<b>Switch fabric speed</b>	1015 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)



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	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	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.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
	<b>Idle power</b>	215 W
	<b>NOTES</b>	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.</p>
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	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)	
<b>NOTES</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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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### HP 5412R-92G-PoE+/2SFP+ (No PSU) v2 z12 Switch (J9825A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5412R z12 Switch Fan Tray (J9832A) 3 HPE 24-port Gig-T PoE+ v2 z1 Module (J9534A) 1 HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 z1 Module (J9536A)	
<b>I/O ports and slots</b>	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 autosensing 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	
<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required (ordered separately)	
<b>Fan tray</b>	includes: 1 x J9832A 1 fan tray slot	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)
	<b>Weight</b>	45.19 lb (20.5 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 Gigabit module</b>	ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b> IPv6 Ready Certified	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 1142.8 Mpps
	<b>Routing/Switching capacity</b>	1920 Gbps
	<b>Switch fabric speed</b>	2030 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz

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<b>80plus.org Certification</b>	Gold
<b>Description</b>	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.
<b>Maximum heat dissipation</b>	4900 BTU/hr (5169 kJ/hr), (max. non-PoE); 7400 BTU/hr (7,807 kJ/hr) (max. using PoE)
<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
<b>Idle power</b>	312 W
<b>NOTES</b>	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 z12 switch chassis, additional installation requirements are needed. Refer to the HPE 5400R z12 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.

<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<p><b>EN</b> EN 55024, CISPR 24</p> <p><b>ESD</b> IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002</p> <p><b>Radiated</b> IEC 61000-4-3; 3 V/m</p> <p><b>EFT/Burst</b> IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)</p> <p><b>Surge</b> IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC</p> <p><b>Conducted</b> IEC 61000-4-6; 3 Vrms</p> <p><b>Power frequency magnetic field</b> IEC 61000-4-8; 1 A/m, 50 or 60 Hz</p> <p><b>Voltage dips and interruptions</b> IEC 61000-4-11; &gt;95% reduction, 0.5 period; 30% reduction, 25 periods</p> <p><b>Harmonics</b> EN 61000-3-2, IEC 61000-3-2</p> <p><b>Flicker</b> EN 61000-3-3, IEC 61000-3-3</p>
<b>Management</b>	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)
<b>NOTES</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.

### HP 5406R-44G-PoE+/4SFP (No PSU) v2 z12 Switch (J9824A)

<b>Included accessories</b>	<ul style="list-style-type: none"> <li>1 Aruba 5400R z12 Management Module (J9827A)</li> <li>1 Aruba 5406R z12 Switch Fan Tray (J9831A)</li> <li>1 HPE 24-port Gig-T PoE+ v2 z1 Module (J9534A)</li> <li>1 HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 z1 Module (J9535A)</li> </ul>
<b>I/O ports and slots</b>	<ul style="list-style-type: none"> <li>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</li> <li>4 open SFP transceiver slots</li> <li>4 open module slots</li> <li>Supports a maximum of 144 autosensing 10/100/1000 ports or 144 SFP ports or 48 SFP+ ports or 48</li> </ul>

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		HPE Smart Rate Multi-Gigabit or 12 40GbE ports, or a combination
<b>Power supplies</b>		2 power supply slots 1 minimum power supply required (ordered separately)
<b>Fan tray</b>		includes: 1 x J9831A 1 fan tray slot
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
	<b>Weight</b>	26.19 lb (11.88 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 Gigabit module</b>	ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>		Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only
<b>Performance</b> IPv6 Ready Certified	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 571.4 Mpps
	<b>Routing/Switching capacity</b>	960 Gbps
	<b>Switch fabric speed</b>	1015 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	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.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
	<b>Idle power</b>	215 W
	<b>NOTES</b>	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

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	<b>devices themselves.</b>
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b> EN 55024, CISPR 24
	<b>ESD</b> IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b> IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b> IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b> IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b> IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b> IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b> IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b> EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b> EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	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)
<b>NOTES</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.

### HP 5412R-92G-PoE+/4SFP (No PSU) v2 z12 Switch (J9826A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5412R z12 Switch Fan Tray (J9832A) 3 HPE 24-port Gig-T PoE+ v2 z1 Module (J9534A) 1 HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 z1 Module (J9536A)
<b>I/O ports and slots</b>	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 SFP transceiver slots 8 open module slots Supports a maximum of 288 autosensing 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
<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required (ordered separately)
<b>Fan tray</b>	includes: 1 x J9832A 1 fan tray slot
<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height) <b>Weight</b> 45.4 lb (20.5 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b> Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal <b>v2 Gigabit module</b> ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal <b>v3 10G module</b> Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal <b>v2 10G module</b> ARM11 @ 550 MHz; Packet buffer size: 18 MB internal <b>v3 40G module</b> Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal <b>Management Module</b> Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB

## Technical Specifications

		DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
IPv6 Ready Certified	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 1142.8 Mpps
	<b>Routing/Switching capacity</b>	1920 Gbps
	<b>Switch fabric speed</b>	2030 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	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.
	<b>Maximum heat dissipation</b>	4900 BTU/hr (5169 kJ/hr), (max. non-PoE); 7400 BTU/hr (7,807 kJ/hr) (max. using PoE)
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
	<b>Idle power</b>	312 W
	<b>NOTES</b>	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 z12 switch chassis, additional installation requirements are needed. Refer to the HPE 5400R z12 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz

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	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	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)	
<b>NOTES</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C)	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.	

### HP 5406R-8XGT/8SFP+ (No PSU) v2 z12 Switch (J9868A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5406R z12 Switch Fan Tray (J9831A) 1 HPE 8-port 10GbE SFP+ v2 z1 Module (J9538A) 1 HPE 8-port 10GbE SFP+ v2 z1 Module (J9546A)	
<b>I/O ports and slots</b>	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 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	
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)	
<b>Fan tray</b>	includes: 1 x J9831A 1 fan tray slot	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
	<b>Weight</b>	28.11 lb (12.75 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 Gigabit module</b>	ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB Internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b> IPv6 Ready Certified	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 571.4 Mpps
	<b>Routing/Switching capacity</b>	960 Gbps
	<b>Switch fabric speed</b>	1015 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C); 0°C to 40°C with J8177C transceiver installed,

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		0°C to 35°C with FIPS Opacity Shield installed
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	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.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
	<b>Idle power</b>	215 W
	<b>NOTES</b>	<b>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.</b>
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>		FCC part 15 Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		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)
<b>NOTES</b>		<b>Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).</b>
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.

### Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch (JL001A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A)
	1 Aruba 5412R z12 Switch Fan Tray (J9832A)



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	3 Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module (J9986A)
	1 Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module (J9990A)
<b>I/O ports and slots</b>	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 autosensing 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
<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required (ordered separately)
<b>Fan tray</b>	includes: 1 x J9832A 1 fan tray slot
<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height) <b>Weight</b> 45.19 lb (20.5 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b> Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal <b>v2 Gigabit module</b> ARM11 @ 450 MHz; Packet buffer size: 18 Mb internal <b>v3 10G module</b> Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal <b>v2 10G module</b> ARM11 @ 550 MHz; Packet buffer size: 18 MB internal <b>v3 40G module</b> Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal <b>Management Module</b> Freescale P2020 dual core @ 1.2 MHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only
<b>Performance</b>	<b>1000 Mb Latency</b> < 2.8 $\mu$ s (FIFO 64-byte packets) <b>10 Gbps Latency</b> < 1.8 $\mu$ s (FIFO 64-byte packets) <b>40 Gbps Latency</b> < 1.5 $\mu$ s (FIFO 64-byte packets) <b>Throughput</b> up to 1142.8 Mpps <b>Routing/Switching capacity</b> 1920 Gbps <b>Switch fabric speed</b> 2030 Gbps <b>Routing table size</b> 10000 entries (IPv4), 5000 entries (IPv6) <b>MAC address table size</b> 64000 entries
<b>Environment</b>	<b>Operating temperature</b> 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 <b>Operating relative humidity</b> 15% to 95% @ 113°F (45°C), noncondensing <b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C) <b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 149°F (65°C), noncondensing <b>Altitude</b> up to 10,000 ft (3 km) <b>Acoustic</b> Power: 49 dB, Pressure: 35.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b> 50/60 Hz <b>80plus.org Certification</b> Gold <b>Description</b> Does not come with power supply. Four open power supply slots are

## Technical Specifications

		available; three different power supplies are available. See power supply products for additional specifications
	<b>Maximum heat dissipation</b>	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
	<b>Idle power</b>	312 W
	<b>NOTES</b>	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Heat dissipation does not include heat dissipated by the PoE-powered devices themselves. When more than four power cords are installed in a 5412R z12 switch chassis, additional installation requirements are needed. Refer to the HPE 5400R z12 Switches Quick Setup Guide and Safety/Regulatory Information manual for details.</p>
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>		FCC part 15 Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		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)
<b>NOTES</b>		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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 5406R 8-port 1/2.5/5/10GBASE-T PoE+ / 8-port SFP+ (No PSU) v3 z12 Switch (JL002A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5406R z12 Switch Fan Tray (J9831A) 1 Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module (J9993A) 1 Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module (J9995A)
<b>I/O ports and slots</b>	8 RJ-45 HPE Smart Rate Multi-Gigabit ports 8 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
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)
<b>Fan tray</b>	includes: 1 x J9831A 1 fan tray slot
<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm)

## Technical Specifications

	<b>Weight</b>	(4U height)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal
	<b>v2 Gigabit module</b>	ARM 11 @ 450 MHz; Packet buffer size: 18 MB internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 571.4 Mpps
	<b>Routing/Switching capacity</b>	960 Gbps
	<b>Switch fabric speed</b>	1015 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
	<b>Electrical characteristics</b>	<b>Frequency</b>
<b>80plus.org Certification</b>		Gold
<b>Description</b>		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.
<b>Maximum heat dissipation</b>		2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
<b>Voltage</b>		110 - 127 / 200 - 240 VAC, rated
<b>Idle power</b>		215 W
	<b>NOTES</b>	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.</p>
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002

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<b>Radiated</b>	IEC 61000-4-3; 3 V/m
<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
<b>Flicker</b>	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)

**NOTES** 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 <http://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.

### Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch (JL003A)

**Included accessories**

- 1 Aruba 5400R z12 Management Module (J9827A)
- 1 Aruba 5406R z12 Switch Fan Tray (J9831A)
- 1 Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module (J9986A)
- 1 Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module (J9990A)

**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

**Power supplies** 2 power supply slots  
1 minimum power supply required (ordered separately)

**Fan tray** 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)  
**Weight** 28.11 lb (12.75 kg)

**Memory and processor** **v3 Gigabit module** Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal  
**v2 Gigabit module** ARM11 @ 450 MHz; Packet buffer size: 18 MB internal  
**v3 10G module** Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal  
**v2 10G module** ARM11 @ 550 MHz; Packet buffer size: 18 MB internal  
**v3 40G module** Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal  
**Management Module** 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

## Technical Specifications

	surface mounting only		
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)	
	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)	
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)	
	<b>Throughput</b>	up to 571.4 Mpps	
	<b>Routing/Switching capacity</b>	960 Gbps	
	<b>Switch fabric speed</b>	1015 Gbps	
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)	
	<b>MAC address table size</b>	64000 entries	
<b>Environment</b>	<b>Operating temperature</b>	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	
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing	
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)	
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing	
	<b>Altitude</b>	up to 10,000 ft (3 km)	
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296	
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz	
	<b>80plus.org Certification</b>	Gold	
	<b>Description</b>	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	
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)	
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated	
	<b>Idle power</b>	215 W	
	<b>NOTES</b>	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.	
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950		
<b>Emissions</b>	FCC part 15 Class A; EN 55022/CISPR 22 Class A		
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24	
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002	
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m	
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC IEC 61000-4-6; 3 Vrms	
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms	
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	

## Technical Specifications

	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	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)	
<b>NOTES</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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.	

### Aruba 5406R 16-port SFP+ (No PSU) v3 z12 Switch (JL095A)

<b>Included accessories</b>	1 Aruba 5400R z12 Management Module (J9827A) 1 Aruba 5406R z12 Switch Fan Tray (J9831A) 2 Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module (J9993A)	
<b>I/O ports and slots</b>	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	
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)	
<b>Fan tray</b>	includes: 1 x J9831A 1 fan tray slot	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
	<b>Weight</b>	28.11 lb (12.75 kg)
<b>Memory and processor</b>	<b>v3 Gigabit module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal
	<b>v2 Gigabit module</b>	ARM 11 @ 450 MHz; Packet buffer size: 18 MB internal
	<b>v3 10G module</b>	Dual ARM Coretex A9 @ 1; Packet buffer size: 13.5 MB internal
	<b>v2 10G module</b>	ARM11 @ 550 MHz; Packet buffer size: 18 MB internal
	<b>v3 40G module</b>	Dual ARM Coretex A9 @ 1 GHz; Packet buffer size: 13.5 MB internal
	<b>Management Module</b>	Freescale P2020 dual core @ 1.2 GHz, 16 MB flash, 1 GB SD Card, 4 GB DDR3 SODIMM
<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 2.8 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 1.8 $\mu$ s (FIFO 64-byte packets)
	<b>40 Gbps Latency</b>	< 1.5 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 571.4 Mpps
	<b>Routing/Switching capacity</b>	960 Gbps
	<b>Switch fabric speed</b>	1015 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	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
	<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing

## Technical Specifications

	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 44 dB, Pressure: 31.7 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>80plus.org Certification</b>	Gold
	<b>Description</b>	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.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>Voltage</b>	110 - 127 / 200 - 240 VAC, rated
	<b>Idle power</b>	215 W
	<b>NOTES</b>	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Heat dissipation does not include heat dissipated by the PoE-powered devices themselves.</p>
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>		FCC part 15 Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD; HPE ENV. 765.002
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC, 1kV signal, 0.5 kV DC
	<b>Conducted</b>	IEC 61000-4-6; 3 Vrms
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		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)
<b>NOTES</b>		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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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### Standards and protocols (applies to all products in series)

<b>BGP</b>	RFC 1997 BGP Communities Attribute RFC 2918 Route Refresh Capability
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## Technical Specifications

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

### Denial of service protection

CPU DoS Protection

### Device Management

RFC 1591 DNS (client)  
RFC 2576 (Coexistence between SNMP V1, V2, V3)  
RFC 2579 (SMIv2 Text Conventions)  
RFC 2580 (SMIv2 Conformance)  
RFC 3416 (SNMP Protocol Operations v2)  
RFC 3417 (SNMP Transport Mappings)  
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 3575 IANA Considerations for RADIUS  
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



## Technical Specifications

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

## Technical Specifications

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 3411 SNMP Management Frameworks  
RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)  
RFC 3413 Simple Network Management Protocol (SNMP) Applications  
RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)  
RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)  
RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)  
RFC 5424 Syslog Protocol  
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)  
SNMPv1/v2c/v3  
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 2475 DiffServ Architecture  
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 1321 The MD5 Message-Digest Algorithm  
RFC 1492 TACACS+  
RFC 2818 HTTP Over TLS  
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

## Accessories

### Aruba 5400R z12 Switch Series accessories

#### Modules

HPE 8-port 10GBASE-T v2 z1 Module	J9546A
HPE 8-port 10GbE SFP+ v2 z1 Module	J9538A
HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 z1 Module	J9536A
HPE 20-port Gig-T PoE+/4-port SFP v2 z1 Module	J9535A
HPE 24-port SFP v2 z1 Module	J9537A
HPE 12-port Gig-T PoE+/12-port SFP v2 z1 Module	J9637A
HPE 24-port Gig-T PoE+ v2 z1 Module	J9534A
HPE 24-port 10/100 PoE+ v2 z1 Module	J9547A
HPE 24-port Gig-T v2 z1 Module	J9550A
HPE 20-port Gig-T/4-port SFP v2 z1 Module	J9549A
HPE 20-port Gig-T/2-port 10GbE SFP+ v2 z1 Module	J9548A
Aruba 5400R z12 Management Module	J9827A
Aruba 24-port 10/100/1000BASE-T PoE+ MACsec v3 z12 Module	J9986A
Aruba 24-port 10/100/1000BASE-T MACsec v3 z12 Module	J9987A
Aruba 24-port 1GbE SFP MACsec v3 z12 Module	J9988A
Aruba 12-port 10/100/1000BASE-T PoE+ / 12-port 1GbE SFP MACsec v3 z12 Module	J9989A
Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1G/10GbE SFP+ MACsec v3 z12 Module	J9990A
Aruba 20-port 10/100/1000BASE-T PoE+ / 4-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module	J9991A
Aruba 20-port 10/100/1000BASE-T PoE+ MACsec / 1-port 40GbE QSFP+ v3 z12 Module	J9992A
Aruba 8-port 1G/10GbE SFP+ MACsec v3 z12 Module	J9993A
Aruba 8-port 1/2.5/5/10GBASE-T PoE+ MACsec v3 z12 Module	J9995A
Aruba 2-port 40GbE QSFP+ v3 z12 Module	J9996A

#### Transceivers

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 X132 10G SFP+ LC ER Transceiver	J9153A
HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A

#### Cables

HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
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## Accessories

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 LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic 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 Direct Attach Copper Cable	JH235A
HPE X242 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	JH236A

## Power Supply

Aruba 5400R 700W PoE+ z12 Power Supply	J9828A
Aruba 5400R 1100W PoE+ z12 Power Supply	J9829A
Aruba 5400R 2750W PoE+ z12 Power Supply	J9830B

## Mounting Kit

HPE X450 4U/7U Universal 4-post Rackmount Kit	J9852A
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## Aruba 5406R z12 Switch (J9821A)

Aruba 5406R z12 Switch Fan Tray	J9831A
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## Aruba 5412R z12 Switch (J9822A)

Aruba 5412R z12 Switch Fan Tray	J9832A
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## HP 5406R-44G-PoE+/2SFP+ (No PSU) v2 z12 Switch (J9823A)

Aruba 5406R z12 Switch Fan Tray	J9831A
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## HP 5412R-92G-PoE+/2SFP+ (No PSU) v2 z12 Switch (J9825A)

Aruba 5412R z12 Switch Fan Tray	J9832A
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## HP 5406R-44G-PoE+/4SFP (No PSU) v2 z12 Switch (J9824A)

Aruba 5406R z12 Switch Fan Tray	J9831A
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## HP 5412R-92G-PoE+/4SFP (No PSU) v2 z12 Switch (J9826A)

Aruba 5412R z12 Switch Fan Tray	J9832A
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**Accessories****HP 5406R-8XGT/8SFP+ (No PSU) v2 z12 Switch (J9868A)**

Aruba 5406R z12 Switch Fan Tray

J9831A

**Aruba 5412R 92GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch (JL001A)**

Aruba 5412R z12 Switch Fan Tray

J9832A

**Aruba 5406R 8-port 1/2.5/5/10GBASE-T PoE+ / 8-port SFP+ (No PSU) v3 z12 Switch (JL002A)**

Aruba 5406R z12 Switch Fan Tray

J9831A

**Aruba 5406R 44GT PoE+ and 4-port SFP+ (No PSU) v3 z12 Switch (JL003A)**

Aruba 5406R z12 Switch Fan Tray

J9831A

**Aruba 5406R 16-port SFP+ (No PSU) v3 z12 Switch (JL095A)**

Aruba 5406R z12 Switch Fan Tray

J9831A

## Summary of Changes

Date	Version History	Action	Description of Change
01-May-2017	From Version 16 to 17	Changed	Minor edit made on Technical Specifications
06-Feb-2017	From Version 15 to 16	Added	SKU added: J9830B
07-Nov-2016	From Version 14 to 15	Changed	Product overview, Key Features, Features and Benefits, Technical Specifications updated.
30-Sep-2016	From Version 13 to 14	Changed	Configuration section updated
01-Aug-2016	From Version 12 to 13	Changed	Adding #AC3 Option on Configuration Section. Minor changes on Features and Benefits
06-June-2016	From Version 11 to 12	Changed	Overview, Features and Benefits, Technical Specifications and Accessories updated
22-Apr-2016	From Version 10 to 11	Changed	SKU descriptions updated on all the document
08-Jan-2016	From Version 9 to 10	Changed	URLs updated
01-Dec-2015	From Version 8 to 9	Changed	QuickSpecs name changed to Aruba 5400R z12 Switch Series Product overview, Features and benefits, Technical Specifications and Accessories updated.
27-April-2015	From Version 7 to 8	Added	Accessories added: J9986A, J9987A, J9988A, J9989A, J9990A, J9991A, J9992A, J9993A, J9995A, J9996A, JH231A, JH232A, JH233A, JH234A, JH235A, JH236A Models added: JL001A, JL002A, JL003A, JLO95A
		Changed	Overview and Technical Specifications were updated
20-Mar-2015	From Version 6 to 7	Changed	Configuration menu for 5400zl split in to 2 menus: 5400 zl, and 5400R z12
17-Feb-2015	From Version 5 to 6	Changed	SKUs descriptions and Configuration menu updated
01-Dec-2014	From Version 4 to 5	Changed	Changes were made on the entire document
05-Sep-2014	From Version 3 to 4	Changed	Updated Configuration Menu
14-July-2014	From Version 2 to 3	Changed	Updated Overview section and Technical Specifications
17-June-2014	From Version 1 to 2	Changed	Updated I/O ports and slots in several models and also added the WLAN section to Accessories.



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