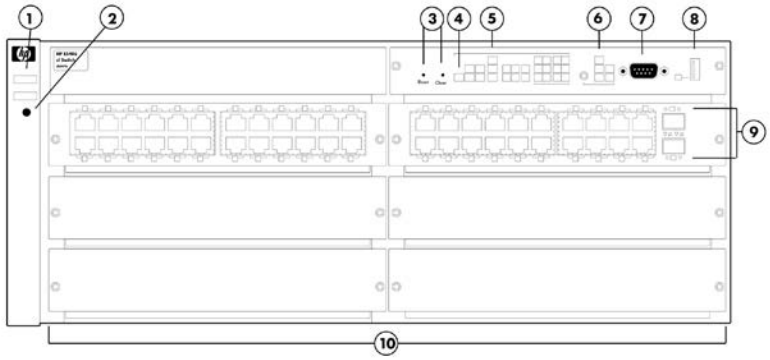
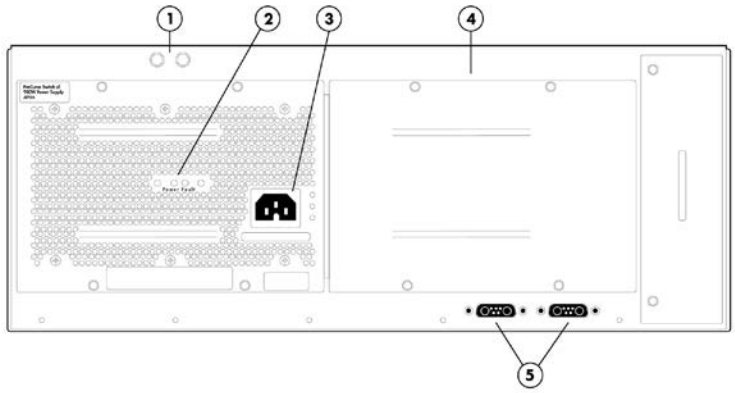
Overview

Aruba 5400 zl Switch Series



HP 5406-48G zl Switch

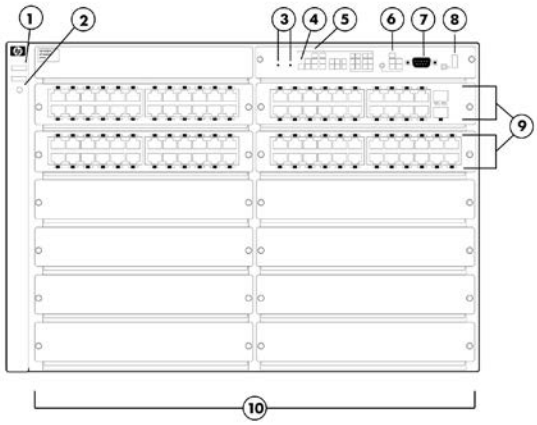
1 Power and Fault LEDs	6 LED Mode Select button and indicator LEDs
2 Locator LED	7 Console Port
3 Reset and Clear buttons	8 Auxiliary Port
4 Self Test LED	9 Module Link and Mode LEDs
5 Status LEDs for the Fans, Power Supplies, and Switch Modules	10 Switch Modules and slots with Link and Mode LEDs for each port located on each module



HP 5406-48G zl Switch Rear View

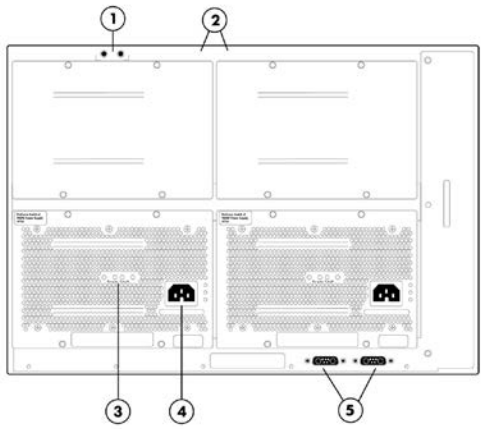
1 Grounding lug mounting holes	3 AC power connector
2 Power and Fault LEDs	4 Slot for installing optional redundant power supply
	5 External PoE power connectors

Overview



HP 5412-92G zl Switch

1 Power and Fault LEDs	6 LED Mode Select button and indicator LEDs
2 Locator LED	7 Console Port
3 Reset and Clear buttons	8 Auxiliary Port
4 Self Test LED	9 Module Link and Mode LEDs
5 Status LEDs for the Fans, Power Supplies, and Switch Modules	10 Switch Modules and slots with Link and Mode LEDs for each port located on each module



HP 5412-92G zl Switch Rear View

1 Grounding lug mounting holes	3 Slot for installing optional redundant power supply
2 Power and Fault LEDs	4 AC power connector
	5 External PoE power connectors

Models

HP 5406 zl Switch with Premium Software	J9642A
HP 5412 zl Switch with Premium Software	J9643A
HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software	J9533A
HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software	J9532A
HP 5406-44G-PoE+-4G-SFP v2 zl Switch with Premium Software	J9539A
HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software	J9540A

Overview

HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software J9866A

Key Features

- Advanced access layer, distribution, and core
- Integrated L2-to-L4 intelligent edge feature set
- Enterprise-class performance and security
- AllianceOne integrated
- Scalable 10/100/1000 and 10GbE connectivity

Product overview

The Aruba 5400 zl Switch Series consists of advanced intelligent switches in the HPE modular chassis product line, which includes 6-slot and 12-slot chassis as well as associated zl modules and bundles. The foundation for the switch series is a purpose-built, programmable Hewlett Packard Enterprise ProVision ASIC that allows the most demanding networking features, such as quality of service (QoS) and security, to be implemented in a scalable, yet granular, fashion. With 10/100/1000 and 10GbE connectivity; PoE+ and non-PoE options; integrated L3 features; and Hewlett Packard Enterprise AllianceOne solutions, the 5400 zl Switch Series offers excellent investment protection, flexibility, and scalability as well as ease of deployment, operation, and maintenance.

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

Unified Wired and Wireless

- **HTTP redirect function**
  supports HPE Intelligent Management Center (IMC) bring your own device (BYOD) solution

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
- **Layer 4 prioritization**
  enables prioritization based on TCP/UDP port numbers
- **Traffic prioritization**
  allows real-time traffic classification into eight priority levels mapped to eight queues
- **Bandwidth shaping**
  - **Port-based rate limiting**
    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
  - **Guaranteed minimum**
    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,

Overview

source port, and DiffServ

Management

- **Remote intelligent mirroring**
  mirrors selected ingress/egress traffic based on an ACL, port, MAC address, or VLAN to a local or remote HPE 8200 zl, 6600, 6200 yl, 5400 zl, or 3500 switch anywhere on the network
- **RMON, XRMON, and sFlow v5**
  provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**
  advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- **Uni-Directional Link Detection (UDLD)**
  monitors a cable between two switches and shuts down the ports on both ends if the cable is broken, turning the bidirectional link into a unidirectional one; this prevents network problems such as loops
- **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
- **Dual flash images**
  provide independent primary and secondary operating system files for backup while upgrading
- **Multiple configuration files**
  can be stored 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

Connectivity

- **IEEE 802.3az Energy Efficient Ethernet**
  lowers power consumption in periods of low link usage (supported on v2 zl 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 to IEEE 802.3 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 pre-standard PoE devices (refer to the list of supported devices in the product FAQs, which

Overview

can be accessed at 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**
  automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- **IPv6**
  - **IPv6 host**
    enables switches to be managed in an IPv6 network
  - **Dual stack (IPv4 and IPv6)**
    transitions from 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 network traffic
  - **IPv6 routing**
    supports static and OSPFv3 routing protocols
  - **6in4 tunneling**
    supports encapsulation of IPv6 traffic in IPv4 packets
  - **Security**
    provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown

Performance

- **High-speed, high-capacity architecture**
  1 Tbps crossbar switching fabric provides intra-module and inter-module switching with 585.6 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 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
- **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 (HPE 5400 series)**

Overview

provides uninterrupted power and allows hot-swapping of the redundant power supplies when installed

- **Hot-swappable modules (5400 zl series)**
  permits modules, mini-GBICs, and power supplies in a redundant power supply configuration to be added or swapped without interrupting the network
- **Sparing simplicity**
  includes 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

Layer 2 switching

- **VLAN support and tagging**
  supports the IEEE 802.1Q standard and 2,048 VLANs simultaneously
- **IEEE 802.1v protocol VLANs**
  isolate select non-IPv4 protocols automatically into their own VLANs
- **GARP VLAN Registration Protocol**
  allows automatic learning and dynamic assignment of 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 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 modules

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

Layer 3 routing

- **Static IP routing**
  provides manually configured routing for both IPv4 and IPv6 networks
- **Routing Information Protocol (RIP)**

Overview

provides RIPv1 and RIPv2 routing

- **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

Security

- **Access control lists (ACLs)**
  provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on per-VLAN or per-port basis
- **Multiple user authentication methods**
  - **IEEE 802.1X users per port**
    provides authentication of multiple IEEE 802.1X users per port
  - **Web-based authentication**
    authenticates from a Web browser for clients that do not support IEEE 802.1X supplicant
  - **MAC-based authentication**
    client is authenticated with the RADIUS server based on the client's MAC address
  - **Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port**
    switch port accepts up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- **Virus throttling**
  detects traffic patterns typical of worm-type viruses and either throttles or entirely prevents the virus from spreading across the routed VLANs or bridged interfaces without requiring external appliances
- **DHCP protection**
  blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Secure management access**
  securely encrypts 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
- **Identity-driven ACL**
  enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
- **STP BPDU port protection**
  blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged 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**

Overview

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**
  can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **Security banner**
  displays a customized security policy when users log in to the switch

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)**
  is a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **PoE allocations**
  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 v2.0**
  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

Overview

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.

HP 5406 zl Switch with Premium Software — J9642A

- 1 Power Supply required
- 4U - Height

HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software — J9533A

- 44 autosensing 10/100/1000 port — See Configuration
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included — **NOTE:**1, 5, 9
- 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers)
- 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 4U - Height

PDU Cable NA/MEX/TW/JP — J9533A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9533A#B2C

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — J9533A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 5406-44G-PoE+-4G-SFP v2 zl Switch with Premium Software — J9539A

- 44 autosensing 10/100/1000 port — See Configuration
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included — **NOTE:**2, 5, 9
- 1 - J9535A HP 20-port GT PoE+/4-port SFP v2 zl Mod included (min=0 \ max=4 SFP Transceivers)
- 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 4U - Height

PDU Cable NA/MEX/TW/JP — J9539A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9539A#B2C

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — J9539A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software — J9866A

Configuration

- 8 RJ-45 10GbE ports — See Configuration
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included — **NOTE:**1, 5, 9
- 1 - J9546A HP 8-port 10GBASE-T v2 zl Module included
- 1 - J9538A HP 8-port 10GbE SFP+ v2 zl Module included (min=0 \ max=8 SFP+ Transceivers)
- 4U - Height

PDU Cable NA/MEX/TW/JP — J9866A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9866A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — J9866A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 5412 zl Switch with Premium Software — J9643A
- 2 Power Supplies required
- 7U - Height

HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software — J9532A
- 92 autosensing 10/100/1000 port — See Configuration
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included — **NOTE:**1, 5, 9
- 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included(min=0 \ max=2 SFP+ Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

PDU Cable NA/MEX/TW/JP — J9532A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9532A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — J9532A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software — J9540A
- 92 autosensing 10/100/1000 port — See Configuration
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included — **NOTE:**2, 5, 9
- 1 - J9535A HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

PDU Cable NA/MEX/TW/JP — J9540A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

Configuration

PDU Cable ROW J9540A#B2C

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord J9540A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

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
HP 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

Note 5 **If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch . (Offered only in North America, Mexico Taiwan, and Japan)**

Note 9 **Localization required on orders without #B2B, #B2C or #B2E options.**

Box Level Integration CTO Models

CTO Solution Sku

Configuration

HP 54xx Configure-to-order Switch • SSP trigger sku	J9809A

CTO Switch Chassis

HP 5406 zl Switch with Premium Software • 1 Power Supply required • 4U - Height	J9642A See Configuration **NOTE:**4, 10
HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software • 44 autosensing 10/100/1000 port • 1 - J9306A HP 1500 W PoE+ zl Power Supply included • 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers) • 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included • 4U - Height	J9533A See Configuration **NOTE:**1, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J9533A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J9533A#B2C
High Volt Switch to Wall Power Cord • NEMA L6-20P Cord (NA/MEX/JP/TW)	J9533A#B2E
HP 5406-44G-PoE+-4G-SFP v2 zl Switch with Premium Software • 44 autosensing 10/100/1000 port • 1 - J9306A HP 1500 W PoE+ zl Power Supply included • 1 - J9535A HP 20-port GT PoE+/4-port SFP v2 zl Mod included (min=0 \ max=4 SFP Transceivers) • 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included • 4U - Height	J9539A See Configuration **NOTE:** 2, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J9539A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J9539A#B2C
High Volt Switch to Wall Power Cord • NEMA L6-20P Cord (NA/MEX/JP/TW)	J9539A#B2E
HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software • 8 RJ-45 10GbE ports	J9866A See Configuration

Configuration

- 1 - J9306A HP 1500 W PoE+ zl Power Supply included **NOTE:**1, 4, 8, 10, 12
- 1 - J9546A HP 8-port 10GBASE-T v2 zl Module included
- 1 - J9538A HP 8-port 10GbE SFP+ v2 zl Module included (min=0 \ max=8 SFP+ Transceivers)
- 4U - Height

PDU Cable NA/MEX/TW/JP J9866A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW J9866A#B2C

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord J9866A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 5412 zl Switch with Premium Software J9643A

- 2 Power Supplies required See Configuration
- 7U - Height **NOTE:**4, 10

HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software J9532A

- 92 autosensing 10/100/1000 port See Configuration
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included **NOTE:**1, 4, 8, 10, 12
- 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included(min=0 \ max=2 SFP+ Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

PDU Cable NA/MEX/TW/JP J9532A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW J9532A#B2C

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord J9532A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software J9540A

- 92 autosensing 10/100/1000 port See Configuration
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included **NOTE:**2, 4, 8, 10, 12
- 1 - J9535A HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

PDU Cable NA/MEX/TW/JP J9540A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

Configuration

PDU Cable ROW J9540A#B2C

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord J9540A#B2E

- NEMA L6-20P Cord (NA/MEX/JP/TW)

Configuration Rules:

Note 1 **The following Transceivers install into this Chassis : (Use #0D1 or #B01 if switch is CTO) - if applicable**

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
HP 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 Chassis : (Use #0D1 if switch is CTO) - if applicable**

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

Note 4 **Localization required on orders without #B2B, #B2C or #B2E options.**

Note 8 **If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch . (Offered only in North America, Mexico Taiwan, and Japan)**

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**

Configuration

Enablement. (Min 1/Max 1 Switch per SSP)

Note 12 If this Switch is selected, Then a Minimum of 1 factory integrated accessory must be ordered and integrated to CTO chassis. See Menu below, option must have a #0D1 to be integrated to the CTO Chassis.

Rack Level Integration CTO Models

CTO Switch Chassis

HP 5406 zl Switch with Premium Software — J9642A
- 1 Power Supply required
- 4U - Height

See Configuration
NOTE:11

HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software — J9533A
- 44 autosensing 10/100/1000 port
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included
- 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers)
- 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 4U - Height

See Configuration
NOTE:1, 4, 11

PDU Cable NA/MEX/TW/JP — J9533A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9533A#B2C
- C15 PDU Jumper Cord (ROW)

HP 5406-44G-PoE+-4G-SFP v2 zl Switch with Premium Software — J9539A
- 44 autosensing 10/100/1000 port
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included
- 1 - J9535A HP 20-port GT PoE+/4-port SFP v2 zl Mod included (min=0 \ max=4 SFP Transceivers)
- 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 4U - Height

See Configuration
NOTE:2, 4, 11

PDU Cable NA/MEX/TW/JP — J9539A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9539A#B2C
- C15 PDU Jumper Cord (ROW)

HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software — J9866A
- 8 RJ-45 10GbE ports
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included
- 1 - J9546A HP 8-port 10GBASE-T v2 zl Module included

See Configuration
NOTE:1, 4, 11

Configuration

- 1 - J9538A HP 8-port 10GbE SFP+ v2 zl Module included (min=0 \ max=8 SFP+ Transceivers)
- 4U - Height

PDU Cable NA/MEX/TW/JP J9866A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW J9866A#B2C
- C15 PDU Jumper Cord (ROW)

HP 5412 zl Switch with Premium Software J9643A
- 2 Power Supplies required See Configuration
- 7U - Height **NOTE:11**

HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software J9532A
- 92 autosensing 10/100/1000 port See Configuration
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included **NOTE:1, 4, 11**
- 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included(min=0 \ max=2 SFP+ Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

PDU Cable NA/MEX/TW/JP J9532A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW J9532A#B2C
- C15 PDU Jumper Cord (ROW)

HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software J9540A
- 92 autosensing 10/100/1000 port See Configuration
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included **NOTE:2, 4, 11**
- 1 - J9535A HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

PDU Cable NA/MEX/TW/JP J9540A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW J9540A#B2C
- C15 PDU Jumper Cord (ROW)

Configuration Rules:

Note 1 **The following Transceivers install into this Chassis : (Use #0D1 or #B01 if switch is CTO) - if applicable**

HPE X121 1G SFP LC SX Transceiver J4858C

Configuration

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
HP 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 Chassis : (Use #0D1 if switch is CTO) - if applicable**

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

Note 4 **Localization required on orders without #B2B, #B2C or #B2E options.**

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.**

Modules

J9642A only - System (std 0 // max=6) User Selection (min 0 / max=6) per Chassis
J9643A only - System (std 0 // max=12) User Selection (min 0 / max=12) per Chassis
J9533A, J9539A, J9866A only - System (std 2 // max=6) User Selection (min 0 / max=4) per Chassis
J9532A, J9540A only - System (std 4 // max=12) User Selection (min 0 / max=8) per Chassis

I/O Modules

HPE 20-port Gig-T PoE+/4-port SFP v2 zl Module	J9535A
• min=0 \ max=4 SFP Transceivers	See Configuration **NOTE:1**
HPE 24-port SFP v2 zl Module	J9537A

Configuration

• min=0 \ max=24 SFP Transceivers	See Configuration **NOTE:1**
HPE 12-port Gig-T PoE+/12-port SFP v2 zl Module	J9637A
• min=0 \ max=12 SFP Transceivers	See Configuration **NOTE:1**
HPE 20-port Gig-T/4-port SFP v2 zl Module	J9549A
• min=0 \ max=4 SFP Transceivers	See Configuration **NOTE:1**
HPE 8-port 10GbE SFP+ v2 zl Module	J9538A
• min=0 \ max=8 SFP+ Transceivers	See Configuration **NOTE:5**
HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 zl Module	J9536A
• min=0 \ max=2 SFP+ Transceivers	See Configuration **NOTE:5**
HPE 20-port Gig-T/2-port 10GbE SFP+ v2 zl Module	J9548A
• min=0 \ max=2 SFP+ Transceivers	See Configuration **NOTE:5**
HPE 8-port 10GbE SFP+ v2 zl Module	J9546A
• No Transceivers	
HP 20-port Gig-T / 4-port Mini-GBIC zl Module	J8705A
• min=0 \ max=4 SFP Transceivers	See Configuration **NOTE:12**
HPE 24-port Gig-T PoE+ v2 zl Module	J9534A
• No Transceivers	
HP 24-port 10/100 PoE+ zl Module	J9478A
• No Transceivers	
HPE 24-port 10/100 PoE+ v2 zl Module	J9547A
• No Transceivers	
HPE 24-port Gig-T v2 zl Module	J9550A
• No Transceivers	
HP MSM775 zl Premium Controller Module	J9840A
• No Transceivers	See Configuration **NOTE:10**

Configuration

HP Survivable Branch Communication zl Module powered by Microsoft Lync • No Transceivers. Double Height Module, takes up 2 Vertical slots*	J9485A See Configuration **NOTE:4, 6, 7, 8, 9**
HPE Advanced Services v2 zl Module with HDD • No Transceivers	J9857A See Configuration **NOTE:11**
HPE Advanced Services v2 zl 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 2 **The following Transceivers install into this Module: (Use #0D1 or #B01 if switch is CTO) - if applicable**

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
HP 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 3 **The following Transceivers install into this Module: (Use #0D1 if switch is CTO) - if applicable**

HP X131 10G X2 SC LR Transceiver	J8437A

Note 4 **The following Upgrades install into this Module:**

Sangoma 2-port T1/E1/J1 Telephony Card	J9488A
Sangoma 4-port T1/E1/J1 Telephony Card	J9489A

Configuration

	Sangoma 4-port FXO Telephony Card	J9516A
	Sangoma 4-port FXS Telephony Card	J9482A
	Sangoma 2-p FXO / 2-p FXS Telephony Card	J9518A
	Sangoma 1-port T1/E1/J1 Telephony Card	J9487A
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
	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
	HP 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	For Switches: J9643A, J9532A, J9540A; If this module is selected, Then Max = 4 Modules of any combination or pairing of the following modules: J9485A. Double Height Modules occupy 2 vertical slots.	
Note 7	If this module is selected, Then show following message: For better airflow, This module must be located on left side only in the following Switches: J9642A, J9533A, J9539A, J9866A For better airflow, It is preferred, but not required, that This module be located on left side only in the following Switches: J9643A, J9532A, J9540A.	
Note 8	For Switches J9642A, J9533A, J9539A, J9866A; If this module is selected, Then Max = 3 SLOTS on left side of chassis only, of any combination or pairing of the following modules: J9485A. Double Height Modules occupy 2 vertical slots.	
Note 9	This module occupies 2 Vertical Slots.	
Note 10	Maximum of this Module per Chassis: J9642A min=0\max=5 per Chassis J9533A, J9539A, J9866A, min=0\max=4 per Chassis	

Configuration

J9643A, J9532A, J9540A, min=0\max=6 per Chassis
There are no restrictions on which slots these modules may go in.

Note 11 Maximum of this Module per Chassis:
J9642A, J9533A, J9539A, J9866A, min=0\max=4 per Chassis
J9643A, J9532A, J9540A, min=0\max=6 per Chassis
There are no restrictions on which slots these modules may go in.

Note 12 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
HPE X121 1G SFP RJ45 T Transceiver	J8177C

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
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

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
HP 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

X2 Transceivers

HP X131 10G X2 SC LR Transceiver	J8437A

Internal Power Supplies

Configuration

J9642ASystem (std 0 // max 2) User Selection (min 1 / max 2)
J9533A, J9866A and J9539A System (std 1 // max 2) User Selection (min 0 / max 1)
J9643A System (std 0 // max 4) User Selection (min 2 / max 4)
J9532A and J9540A System (std 2 // max 4) User Selection (min 0 / max 2)

HPE 1500W PoE+ zl Power Supply • includes 1 x c15, 1500w	J9306A See Configuration **NOTE:**1, 2, 6
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J9306A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J9306A#B2C
High Volt Switch to Wall Power Cord • NEMA L6-20P Cord (NA/MEX/JP/TW)	J9306A#B2E
HPE 875W zl Power Supply • includes 1 x c15, 875w	J8712A See Configuration **NOTE:**1, 2, 5, 6
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J8712A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J8712A#B2C
High Volt Switch to Wall Power Cord • NEMA L6-20P Cord (NA/MEX/JP/TW)	J8712A#B2E
HPE 1500W zl Power Supply • includes 1 x c19	J8713A See Configuration **NOTE:**1, 2, 5, 6
PDU Cable NA/MX/TW/JP • C19 PDU Jumper Cord (NA/MX/TW/JP)	J8713A#B2B
PDU Cable ROW • C19 PDU Jumper Cord (ROW)	J8713A#B2C
High Volt Switch to Wall Power Cord • NEMA L6-20P Cord (NA/MEX/JP/TW)	J8713A#B2E

Configuration Rules:

Configuration

Note 1 Power Supplies cannot be mixed for a switch enclosure

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

Note 5 This power supply is not supported on the J9533A, J9539A, J9532A, J9866A and J9540A 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)

Remarks:

If Power Supply is added to switch with power supply, then Switch and Power Supply localization must match.

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)

Cables

Multi-Mode Cables

HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A

Switch Enclosure Options

Configuration

External Redundant Power Supplies

HP zl Power Supply Shelf • Height = 3U	J8714A See Configuration **NOTE:1**

Configuration Rules:

Note 1 This power supply is not supported on the J9821A, J9868A, J9823A, J9824A, J9822A, J9825A and J9826A switches.

Remarks: This shelf allows the addition of 2 extra J9306A - HPE 1500 W PoE+ zl Power Supply in order to increase the number of POE+ ports.

Cables included: includes two 2 m PoE (EPS) cables; cables can be used to carry PoE power to the connected switch; no extra cables are needed for a complete solution. Flexible mounting: the power shelf can be mounted forward or rear facing in a rack; in a four-post rack, two power shelves can be mounted front to front, requiring only 3U of rack space.

Survivable Branch Communication Upgrades

Sangoma 2-port T1/E1/J1 Telephony Card	J9488A
Sangoma 4-port T1/E1/J1 Telephony Card	J9489A
Sangoma 4-port FXO Telephony Card	J9516A
Sangoma 4-port FXS Telephony Card	J9482A
Sangoma 2-p FXO / 2-p FXS Telephony Card	J9518A
Sangoma 1-port T1/E1/J1 Telephony Card	J9487A

Remarks: The Sangoma Telephony Cards are accessories to the J9485A.

US Federal Government certifications

HP zl Chassis FIPS 10K Rack Mounting Kit	J9708A See Configuration **NOTE:1**
HP 16mm x 32mm Tmpr-Evidence (20) Labels	J9740A See Configuration **NOTE:1**
HP 16mm x 32mm Tmpr-Evidence (120) Label	J9709A See Configuration **NOTE:1**
HP 5406 zl FIPS Opacity Shield Kit	J9710A See Configuration

Configuration

	NOTE:1
HP 5412 zl FIPS Opacity Shield Kit	J9711A See Configuration NOTE:1
HPE 5406 zl High Performance Fan Tray	J9721A See Configuration NOTE:1
HPE 5412 zl High Performance Fan Tray	J9722A See Configuration NOTE:1

Configuration Rules:

Note 1 Do not display in Watson.

Technical Specifications

HP 5406 zl Switch with Premium Software (J9642A)	**I/O ports and slots**	6 open module slots Supports a maximum of 48 10-GbE ports or 144 autosensing 10/100/1000 ports or 144 mini-GBICs, or a combination	
	Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	
	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	23.55 lb (10.68 kg)
	Memory and processor	**Gigabit Module**	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
		10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
		Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
	Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
	Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
		10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
		Throughput	up to 282.1 Mpps
		Routing/Switching capacity	379.2 Gbps
		Switch fabric speed	379.2 Gbps
		Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
		MAC address table size	64000 entries
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
		Altitude	up to 10,000 ft (3 km)
		Acoustic	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
	Electrical characteristics	**Frequency**	50/60 Hz
		Achieved Miercom Certified Green Award	
		Description	Chassis ships without power supplies. Two power supply slots are available; three different

Technical Specifications

			power supplies are available. See power supply products for additional specifications.
		Maximum heat dissipation	2450 BTU/hr (2584 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
		Voltage	100 - 127 / 200 - 240 VAC, rated
	Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
	Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
	Immunity	**EN**	EN 55024, CISPR 24
		ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
		Radiated	IEC 61000-4-3; 3 V/m
		EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
		Surge	IEC 61000-4-5; 1 kV/2 kV AC
		Conducted	IEC 61000-4-6; 3 V
		Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
		Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
		Harmonics	EN 61000-3-2, IEC 61000-3-2
		Flicker	EN 61000-3-3, IEC 61000-3-3
	Management	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
	Notes	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C)	
	Services	Refer to the Hewlett Packard Enterprise website at **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.	
HP 5412 zl Switch with Premium Software (J9643A)	**I/O ports and slots**	12 open module slots Supports a maximum of 96 10-GbE ports or 288 autosensing 10/100/1000 ports or 288 mini-GBICs, or a combination	
	Power supplies	4 power supply slots 2 minimum power supplies required (ordered separately)	
	Physical characteristics	**Dimensions**	17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)
		Weight	34.94 lb (15.85 kg)
	Memory and processor	**Gigabit Module**	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
		10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
		Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB

Technical Specifications

		flash Mb, 128 MB compact flash, 256 MB DDR SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
	10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
	Throughput	up to 564.2 Mpps
	Routing/Switching capacity	758.4 Gbps
	Switch fabric speed	758.4 Gbps
	Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
	MAC address table size	64000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 64 dB, Pressure: 57.5 dB ISO 7779, ISO 9296
Electrical characteristics	**Frequency**	50/60 Hz
	Description	Chassis ships without power supplies. Four power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
	Maximum heat dissipation	4900 BTU/hr (5169 kJ/hr), (max. non-PoE); 7400 BTU/hr (7,807 kJ/hr) (max. using PoE)
	Voltage	100 - 127 / 200 - 240 VAC, rated
Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	Surge	IEC 61000-4-5; 1 kV/2 kV AC
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz

Technical Specifications

		Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
		Harmonics	EN 61000-3-2, IEC 61000-3-2
		Flicker	EN 61000-3-3, IEC 61000-3-3
	Management		HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
	Notes		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).
	Services		Refer to the Hewlett Packard Enterprise website at **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.
HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software (J9533A)	**Included accessories**		1 HP 20-port Gig-T PoE+ / 2-port 10GbE SFP+ v2 zl Module (J9536A) 1 HP 1500W PoE+ zl Power Supply (J9306A) 1 HP 24-port Gig-T PoE+ v2 zl Module (J9534A)
	Ports		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 10-GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 16 10-GbE ports or 140 autosensing 10/100/1000 ports or 100 mini-GBICs, or a combination
	Power supplies		2 power supply slots 1 minimum power supply required includes: 1 x J9306A (HP 1500W PoE+ zl Power Supply)
	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	46.08 lb (20.9 kg)
	Memory and processor	**Gigabit Module**	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
		10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
		Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
	Mounting and enclosure		Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only
	Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
		10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
		Throughput	up to 282.1 Mpps
		Routing/Switching	379.2 Gbps

Technical Specifications

	capacity	
	Switch fabric speed	379.2 Gbps
	Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
	MAC address table size	64000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
Electrical characteristics	**Frequency**	50/60 Hz
	Description	One J9306A installed. One open power supply slot is available; three different power supplies are available. See power supply products for additional specifications.
	Maximum heat dissipation	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	Voltage	110 - 127 / 200 - 240 VAC, rated
	Idle power	215 W
Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	Surge	IEC 61000-4-5; 1 kV/2 kV AC
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
Notes	Supported 1G SFP transceivers are revision "B" or later (product number	

Technical Specifications

		ends with the letter "B" or later; For example, J9142B, J8177C	
	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.	
HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software (J9532A)	**Included accessories**	3 HP 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 HP 20-port Gig-T PoE+ / 2-port 10GbE SFP+ v2 zl Module (J9536A) 2 HP 1500W PoE+ zl Power Supply (J9306A)	
	I/O ports and slots	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
		2 open 10-GbE SFP+ transceiver slots	
		8 open module slots	
		Supports a maximum of 32 10-GbE ports or 284 autosensing 10/100/1000 ports or 196 mini-GBICs, or a combination	
	Power supplies	4 power supply slots 2 minimum power supplies required includes: 2 x J9306A (HP 1500W PoE+ zl Power Supply)	
	Physical characteristics	**Dimensions**	17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)
		Weight	75.36 lb (34.18 kg)
	Memory and processor	**Gigabit Module**	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
		10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
		Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash Mb, 128 MB compact flash, 256 MB DDR SDRAM
	Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
	Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
		10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
		Throughput	up to 564.2 Mpps
		Routing/Switching capacity	758.4 Gbps
		Switch fabric speed	758.4 Gbps
		Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
		MAC address table size	64000 entries
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
		Operating relative	15% to 95% @ 131°F (55°C), noncondensing

Technical Specifications

	humidity	
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 64 dB, Pressure: 57.5 dB ISO 7779, ISO 9296
Electrical characteristics	**Frequency**	50/60 Hz
	Description	Two J9306A installed. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
	Maximum heat dissipation	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)
	Voltage	110 - 127 / 200 - 240 VAC, rated
	Idle power	312 W
Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	Surge	IEC 61000-4-5; 1 kV/2 kV AC
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
Notes	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).	
Services	Refer to the Hewlett Packard Enterprise website at **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.	

HP 5406-44G-PoE+-4G-	**Included accessories**	1 HP 24-port Gig-T PoE+ v2 zl Module (J9534A)

Technical Specifications

SFP v2 zl Switch with Premium Software (J9539A)		1 HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module (J9535A) 1 HP 1500W PoE+ zl Power Supply (J9306A)	
	Ports	44 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
		4 open mini-GBIC slots	
		4 open module slots	
		Supports a maximum of 16 10-GbE ports or 140 autosensing 10/100/1000 ports or 100 mini-GBICs, or a combination	
	Power supplies	2 power supply slots 1 minimum power supply required includes: 1 x J9306A (HP 1500W PoE+ zl Power Supply)	
	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	45.58 lb (20.68 kg)
	Memory and processor	**Gigabit Module**	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
		10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
		Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
	Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
	Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
		10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
		Throughput	up to 282.1 Mpps
		Routing/Switching capacity	379.2 Gbps
		Switch fabric speed	379.2 Gbps
		Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
		MAC address table size	64000 entries
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
		Altitude	up to 10,000 ft (3 km)
		Acoustic	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO

Technical Specifications

			9296
	Electrical characteristics	**Frequency**	50/60 Hz
		Description	One J9306A installed. One open power supply slot is available; three different power supplies are available. See power supply products for additional specifications.
		Maximum heat dissipation	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
		Voltage	110 - 127 / 200 - 240 VAC, rated
		Idle power	215 W
	Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
	Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
	Immunity	**EN**	EN 55024, CISPR 24
		ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
		Radiated	IEC 61000-4-3; 3 V/m
		EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
		Surge	IEC 61000-4-5; 1 kV/2 kV AC
		Conducted	IEC 61000-4-6; 3 V
		Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
		Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
		Harmonics	EN 61000-3-2, IEC 61000-3-2
		Flicker	EN 61000-3-3, IEC 61000-3-3
	Management	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
	Notes	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).	
	Services	Refer to the Hewlett Packard Enterprise website at **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.	
HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software (J9540A)	**Included accessories**	HP 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module (J9535A) 2 HP 1500W PoE+ zl Power Supply (J9306A)	
	Ports	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 open mini-GBIC slots 8 open module slots	

Technical Specifications

	Supports a maximum of 32 10-GbE ports or 284 autosensing 10/100/1000 ports or 196 mini-GBICs, or a combination	
Power supplies	4 power supply slots 2 minimum power supplies required includes: 2 x J9306A (HP 1500W PoE+ zl Power Supply)	
Physical characteristics	**Dimensions**	17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)
	Weight	74.86 lb (33.96 kg)
Memory and processor	**Gigabit Module**	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
	10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
	Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash Mb, 128 MB compact flash, 256 MB DDR SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
	10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
	Throughput	up to 564.2 Mpps
	Routing/Switching capacity	758.4 Gbps
	Switch fabric speed	758.4 Gbps
	Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
	MAC address table size	64000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 64 dB, Pressure: 57.5 dB ISO 7779, ISO 9296
Electrical characteristics	**Frequency**	50/60 Hz
	Description	Two J9306A installed. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
	Maximum heat dissipation	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)

Technical Specifications

		Voltage	110 - 127 / 200 - 240 VAC, rated
		Idle power	312 W
	Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
	Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
	Immunity	**EN**	EN 55024, CISPR 24
		ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
		Radiated	IEC 61000-4-3; 3 V/m
		EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
		Surge	IEC 61000-4-5; 1 kV/2 kV AC
		Conducted	IEC 61000-4-6; 3 V
		Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
		Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
		Harmonics	EN 61000-3-2, IEC 61000-3-2
		Flicker	EN 61000-3-3, IEC 61000-3-3
	Management	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
	Notes	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).	
	Services	Refer to the Hewlett Packard Enterprise website at **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.	
HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software (J9866A)	**Included accessories**	1 HP 8-port 10GbE SFP+ v2 zl Module (J9538A) 1 HP 1500W PoE+ zl Power Supply (J9306A) 1 HP 8-port 10GBASE-T v2 zl Module (J9546A)	
	Ports	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 32 10GbE ports or 96 autosensing 10/100/1000 ports or 96 mini-GBICs, or a combination	
	Power supplies	2 power supply slots 1 minimum power supply required includes: 1 x J9306A (HP 1500W PoE+ zl Power Supply)	
	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	46.08 lb (20.9 kg)
	Memory and processor	**10G module**	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM

Technical Specifications

	Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); Horizontal surface mounting only	
Performance	**1000 Mb Latency**	< 3.7 µs (FIFO 64-byte packets)
	10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
	Throughput	up to 282.1 Mpps
	Routing/Switching capacity	379.2 Gbps
	Switch fabric speed	379.2 Gbps
	Routing table size	10000 entries (IPv4), 5000 entries (IPv6)
	MAC address table size	64000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
Electrical characteristics	**Frequency**	50/60 Hz
	Description	One J9306A product is installed. One open power supply slot is available; three different power supplies are available. See power supply products for additional specifications.
	Maximum heat dissipation	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	Voltage	110 - 127 / 200 - 240 VAC, rated
	Idle power	215 W
Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	Surge	IEC 61000-4-5; 1 kV/2 kV AC
	Conducted	IEC 61000-4-6; 3 V

Technical Specifications

	Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management		HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
Notes		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; For example, J9142B, J8177C).
Services		Refer to the Hewlett Packard Enterprise website at **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.

Standards and protocols (applies to all products in series)

BGP

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

Device Management

RFC 1591 DNS (client)
HTML and telnet management

General Protocols

IEEE 802.1ad Q-in-Q
IEEE 802.1AX-2008 Link Aggregation
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3af Power over Ethernet
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 951 BOOTP

Technical Specifications

RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 BOOTP Extensions
RFC 1918 Address Allocation for Private Internet
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 2548 (MS-RAS-Vendor only)
RFC 3046 DHCP Relay Agent Information Option
RFC 3576 Ext to RADIUS (CoA only)
RFC 3768 VRRP
RFC 4675 RADIUS VLAN & Priority
UDLD (Uni-directional Link Detection)

IP Multicast

RFC 3376 IGMPv3 (host joins only)
RFC 3973 PIM Dense Mode
RFC 4601 PIM Sparse Mode

IPv6

RFC 1981 IPv6 Path MTU Discovery
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

Technical Specifications

	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
MIBs	IEEE 802.1ap (MSTP and STP MIB's only) RFC 1155 Structure & ID of Mgmt Info for TCP/IP Internets RFC 1213 MIB II RFC 1493 Bridge MIB RFC 1724 RIPv2 MIB RFC 1850 OSPFv2 MIB RFC 2021 RMONv2 MIB RFC 2096 IP Forwarding Table MIB RFC 2578 Structure of Management Information Version 2 (SMIv2) RFC 2613 SMON MIB RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2665 Ethernet-Like-MIB RFC 2668 802.3 MAU MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2787 VRRP MIB RFC 2863 The Interfaces Group MIB RFC 2925 Ping MIB RFC 2932 IP (Multicast Routing MIB) RFC 2933 IGMP MIB RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU)
Network Management	IEEE 802.1AB Link Layer Discovery Protocol (LLDP) RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events) RFC 3176 sFlow RFC 5424 Syslog Protocol ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED) SNMPv1/v2c/v3 XRMON
OSPF	RFC 2328 OSPFv2 RFC 3101 OSPF NSSA RFC 5340 OSPFv3 for IPv6

Technical Specifications

QoS/CoS	RFC 2474 DiffServ Precedence, including 8 queues/port RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF)
Security	IEEE 802.1X Port Based Network Access Control RFC 1492 TACACS+ RFC 2865 RADIUS (client only) RFC 2866 RADIUS Accounting RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP) Secure Sockets Layer (SSL) SSHv2 Secure Shell

Accessories

Aruba 5400 zl Switch Series accessories

Modules

HPE 8-port 10GbE SFP+ v2 zl Module	J9546A
HPE 8-port 10GbE SFP+ v2 zl Module	J9538A
HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 zl Module	J9536A
HPE 20-port Gig-T PoE+/4-port SFP v2 zl Module	J9535A
HPE 24-port SFP v2 zl Module	J9537A
HPE 12-port Gig-T PoE+/12-port SFP v2 zl Module	J9637A
HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 zl Module	J9536A
HPE 24-port Gig-T PoE+ v2 zl Module	J9534A
HPE 24-port Gig-T v2 zl Module	J9550A
HPE 20-port Gig-T/4-port SFP v2 zl Module	J9549A
HPE 20-port Gig-T/2-port 10GbE SFP+ v2 zl Module	J9548A
HPE 24-port 10/100 PoE+ v2 zl Module	J9547A

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 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

Cables

HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
HP 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

Accessories

HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A

Power Supply

HPE 1500W PoE+ zl Power Supply	J9306A
HPE 1500W zl Power Supply	J8713A
HPE 875W zl Power Supply	J8712A

EPS/RPS

HP zl Power Supply Shelf	J8714A

License

HP 5400 zl Premium License	J8994A
HP MSM Additional 40 Access Point E-LTU	J9371AAE

WLAN

HP MSM775 zl Premium Controller Module	J9840A

Accessory Product Details

NOTE: Details are not available for all accessories. The following specifications were available at the time of publication.

HPE 8-port 10GbE SFP+ v2 zl Module (J9546A)	**Ports**	8 RJ-45 10-GbE ports; Duplex: full only	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.1 lb. (0.95 kg)
		Full configuration weight	2.1 lb. (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
		Fiber type	Single Mode
	Notes	Max Distance upto 100m with qualified 10Gbase-T Cat7(Shielded), Cat6a (Shielded/Unshielded) and Cat6 (Shielded, tested to 350Mhz TIA/EIA TSB-155A) cables. Max Distance upto 55m with Cat6 (unshielded, tested to 350Mhz TIA/EIA TSB-155A)	
	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.	

HPE 8-port 10GbE SFP+ v2 zl Module (J9538A)	**Ports**	8 open 10-GbE SFP+ transceiver slots	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.09 lb (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J9538A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).	

Accessory Product Details

	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.
HPE 20-port Gig-T PoE+/2-port 10GbE SFP+ v2 zl Module (J9536A)	**Ports**		2 open 10-GbE SFP+ transceiver slots 20 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
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.1 lb. (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling		Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;
	Notes		When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).
	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.
HPE 20-port Gig-T PoE+/4-port SFP v2 zl Module (J9535A)	**Ports**		4 open mini-GBIC (SFP) slots 20 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
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.1 lb. (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative	15% to 95% @ 131°F (55°C), noncondensing

Accessory Product Details

		humidity	
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
	Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).	
	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.	
HPE 24-port SFP v2 zl Module (J9537A)	**Ports**	24 open mini-GBIC (SFP) slots	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.01 lb. (0.91 kg)
	Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When installed in a zl chassis, the J8706A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).	
	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.	
HPE 12-port Gig-T PoE+/12-port SFP v2 zl Module (J9637A)	**Ports**	12 open mini-GBIC (SFP) slots 12 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	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.1 lb. (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing

Accessory Product Details

		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling		Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T
	Notes		When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).
	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.
HP 20-port Gig-T / 4-port Mini-GBIC zl Module (J8705A)	**Ports**		4 open mini-GBIC (SFP) slots 20 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.2 lb. (1 kg)
	Notes		When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J8705A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).
	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.
HPE 24-port Gig-T PoE+ v2 zl Module (J9534A)	**Ports**		24 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
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.0 lb. (0.98 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)

Accessory Product Details

		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (-40°C), noncondensing
	Cabling	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
	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.	
HP 24-port 10/100 PoE+ zl Module (J9478A)	**Ports**	24 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Media Type: Auto-MDIX; Duplex: half or full	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.0 lb. (0.98 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling	Cable type: 100BASE-TX: Category 5 (or better), 100 Ω unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100BASE-TX;	
	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.	
HPE 24-port 10/100 PoE+ v2 zl Module (J9547A)	**Ports**	24 RJ-45 autosensing 10/100 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: half or full	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.0 lb. (0.98 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative	15% to 95% @ 131°F (55°C), noncondensing

Accessory Product Details

		humidity	
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling	Cable type: 100BASE-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100BASE-TX;	
	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.	
HPE 24-port Gig-T v2 zl Module (J9550A)	**Ports**	24 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.0 lb. (0.98 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (-40°C), noncondensing
	Cabling	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
	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.	
HPE 20-port Gig-T/4-port SFP v2 zl Module (J9549A)	**Ports**	4 open mini-GBIC (SFP) slots 20 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)

Accessory Product Details

		Weight	2.1 lb. (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
	Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J9549A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).	
	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.	
HPE 20-port Gig-T/2-port 10GbE SFP+ v2 zl Module (J9548A)	**Ports**	2 open 10-GbE SFP+ transceiver slots 20 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	Physical characteristics	**Dimensions**	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		Weight	2.1 lb. (0.95 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
	Cabling	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
	Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.	

Accessory Product Details

			When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).
	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.
HP Extended Services zl Module with Riverbed Steelhead RiOS Application (J9517A)	**Physical characteristics**	**Dimensions**	9.75(d) x 8.13(w) x 3.5(h) in. (24.77 x 20.65 x 8.89 cm)
		Weight	4.5 lb. (2.04 kg)
	Environment	**Operating temperature**	32ºF to 122ºF (0ºC to 50ºC); **Important**: See **NOTE** for 50°C temperature spec rules
		Operating relative humidity	15% to 90% @ 122ºF (50ºC), non-condensing
		Non-operating/ Storage temperature	14ºF to 149ºF (-10ºC to 65ºC)
		Non-operating/ Storage relative humidity	15% to 95% @ 149ºF (65ºC), non-condensing
		Alitude	up to 10,000 ft. (3 km)
	Notes		5400 series switches operating temperature specifications apply to when the services module is installed; 40°C when any services module is installed in the right side of the chassis, and 50°C when all services modules are installed in the left side. Up to four services modules can be installed in a 5412zl/8212zl chassis simultaneously. When the services module is installed, the maximum relative humidity for the switch drops from 95% to 90%. This product does not support Riverbed Services Platform (RSP) functionality.
	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.

HPE Advanced Services v2 zl Module with HDD (J9857A)

Physical characteristics	**Dimensions**	8.13(w) x 9.75(d) x 1.75(h) in (20.65 x 24.77 x 4.45 cm) (1U height)
	Weight	3.00 lb (1.36 kg)
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)

Accessory Product Details

	Nonoperating/Storage relative humidity	15% to 90% @ 149°F (65°C), noncondensing
	Altitude	up to 9,842 ft (3 km)
Electrical characteristics	**Maximum heat dissipation**	133/287 BTU/hr (140.32/302.78 kJ/hr)
	Idle power	84 W
	Maximum power rating	39 W
Management	command-line interface	
Notes	The services module can be used with VMware certified applications. • The HDD has a maximum operational wet bulb temperature of 28°C • The HDD has a maximum non-operational wet bulb temperature of 28°C • Up to four services modules can be installed in a 5406 zl chassis. There are no restrictions on where the modules can go in the chassis • Up to three services modules can be installed in an 8206 zl chassis. There are no restrictions on where the modules can go in the chassis • Up to six services modules can be installed in a 5412 or 8212 zl chassis. There are no restrictions on where the modules can go in the chassis	
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.	

HPE Advanced Services v2 zl Module with SSD (J9858A)

Physical characteristics	**Dimensions**	8.13(w) x 9.75(d) x 1.75(h) in (20.65 x 24.77 x 4.45 cm) (1U height)
	Weight	2.75 lb (1.36 kg)
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 90% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
Electrical characteristics	**Maximum heat dissipation**	133/290 BTU/hr (140.32/280.63 kJ/hr)
	Idle power	85 W
	Maximum power rating	37 W
Management	command-line interface	
Notes	The services module can be used with VMware certified applications. • The SSD has a maximum operational wet bulb temperature of 28°C • The SSD has a maximum non-operational wet bulb temperature of 28°C • Up to four services modules can be installed in a 5406 zl chassis. There are no restrictions on where the modules can go in the chassis • Up to three services modules can be installed in an 8206 zl chassis. There are no restrictions on where the modules can go in the chassis	

Accessory Product Details

	• Up to six services modules can be installed in a 5412 or 8212 zl chassis. There are no restrictions on where the modules can go in the chassis
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.

HP X131 10G X2 SC ER Transceiver (J8438A) HP X131 10G X2 SC ER Transceiver: An X2 format 10-gigabit transceiver with SC connectors using ER technology.	**Ports**		1 SC 10-GbE port (IEEE 802.3ae Type 10GBASE-ER); Duplex: full only
	Connectivity	**Connector type**	SC
		Wavelength	1550 nm
	Physical characteristics	**Dimensions**	3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)
		Weight	0.35 lb. (0.16 kg)
		Transceiver form factor	X2
	Environment	**Operating temperature**	32ºF to 104ºF (0ºC to 40ºC)
		Operating relative humidity	15% to 95%, noncondensing
	Electrical characteristics	**Power consumption typical**	3 W
		Power consumption maximum	4.5 W
	Cabling		Cable type:: Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1;
		Cable length	2m to 30km (max 40km on engineered links)
		Fiber type	Single Mode
	Notes		Conditioning patch cord cables are not supported For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.
	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.

HP X131 10G X2 CX4 Transceiver (J8440C) HP X131 10G X2 CX4 Transceiver: An X2 format 10-gigabit CX4 transceiver.	**Ports**		1 CX4 10-GbE port (IEEE 802.3ak Type 10GBASE-CX4); Duplex: full only
	Connectivity	**Connector type**	CX4
	Physical characteristics	**Dimensions**	3.54(d) x 1.42(w) x 0.53(h) in. (8.99 x 3.61 x 1.35 cm)
		Weight	0.18 lb. (0.08 kg)
	Environment	**Operating temperature**	32ºF to 131ºF (0ºC to 55ºC)
		Operating relative humidity	15% to 95% @ 149ºF (65ºC), non-condensing
	Cabling		Maximum distance:

Accessory Product Details

		• 15 m using CX4 cables • 300 m using optical media converters and multimode fiber cable
	Notes	Use CX4 10-GbE cable (0.5-15 m) Includes a single 0.5 m cable.
	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.
HPE X111 100M SFP LC FX Transceiver (J9054C) HP X111 100M SFP LC FX Transceiver: An SFP format 100-megabit transceiver with LC connectors using FX technology.	**Ports**	1 LC 100BASE-FX port (IEEE 802.3u Type 100BASE-FX); Duplex: half or full
	Physical characteristics	Dimensions: 2.7(d) x 0.54(w) x 0.48(h) in. (6.86 x 1.38 x 1.22 cm) Weight: 0.06 lb. (0.03 kg)
	Environment	Operating temperature: 32ºF to 158ºF (0ºC to 70ºC) Operating relative humidity: 5% to 95% Nonoperating/Storage temperature: -40ºF to 185ºF (-40ºC to 85ºC) Nonoperating/Storage relative humidity: 5% to 85% Altitude: up to 10,000 ft. (3 km)
	Cabling	Type: • 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Maximum distance: • 2 km (full duplex) or 412 m (half duplex)
	Notes	Transmitter wavelength: 1310nm Power consumption is 1.1 watt maximum. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the J9054C 100-FX SFP-LC Transceiver" on the "HPE Mini-GBICs and SFPs" Manuals Web page.
	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.
HP X131 10G X2 SC LR Transceiver (J8437A) An X2 form-factor transceiver that supports the 10-Gigabit LR	**Ports**	1 SC 10-GbE port (IEEE 802.3ae Type 10GBASE-LR); Duplex: full only
	Connectivity	**Connector type** SC **Wavelength** 1310 nm
	Physical characteristics	**Dimensions** 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm) **Weight** 0.35 lb. (0.16 kg)

Accessory Product Details

standard, providing 10-Gigabit connectivity up to 10 km on single-mode fiber.		**Transceiver form factor**	X2
	Environment	**Operating temperature**	32ºF to 104ºF (0ºC to 40ºC)
		Operating relative humidity	15% to 95%, noncondensing
		Nonoperating/Storage temperature	-40ºF to 185ºF (-40ºC to 85ºC)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	2 W
		Power consumption maximum	3 W
	Cabling	Cable type:: Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1; Maximum distance: • 10 km	
		Cable length	2m to 10km with 9/125 ìm single-mode cable
		Fiber type	Single Mode
	Notes	Conditioning patch cord cables are not supported For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended	
	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.	
HP X112 100M SFP LC BX-D Transceiver (J9099B) A small form-factor pluggable (SFP) 100-Megabit BX (bi-directional) "downstream" transceiver that provides 100 Mbps full-duplex connectivity up to 10 km on one strand of singlemode fiber. The J9099B connects to the J9100B "upstream"	**Ports**	1 LC 100BASE-BX10 port (IEEE 802.3ah Type 100BASE-BX10-D); Duplex: full only	
	Physical characteristics	**Dimensions**	2.7(d) x 0.55(w) x 0.48(h) in. (6.86 x 1.39 x 1.22 cm)
		Weight	0.04 lb. (0.03 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, noncondensing
		Nonoperating/Storage temperature	-40ºF to 185ºF (-40ºC to 85ºC)
	Cabling	Type: Single-mode fiber optic, complying with ITU-T G.652;	

Accessory Product Details

transceiver, or to any IEEE-standard 100BASE-BX10-U ("upstream") device.			Maximum distance: • 0.5-10,000 m (single-mode fiber)
	Notes		Transmit wavelength: 1550 nm. Receive wavelength: 1310 nm. Power consumption is 1.1 watt maximum. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HPE BX Transceivers" on the "HPE Mini-GBICs and SFPs" Manuals Web page. The J9099B connects to the J9100B "upstream" transceiver, or to any IEEE-standard 100BASE-BX10-U ("upstream") device. (A 100-BX-D transceiver can only connect to a 100-BX-U product. You cannot connect two 100-BX-D transceivers together.)
	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.
HP X112 100M SFP LC BX-U Transceiver (J9100B) A small form-factor pluggable (SFP) 100-Megabit BX (bi-directional) "upstream" transceiver that provides 100 Mbps full-duplex connectivity up to 10 km on one strand of singlemode fiber. The J9100B connects to the J9099B "downstream" transceiver, or to any IEEE-standard 100BASE-BX10-D ("downstream") device.	**Ports**		1 LC 100BASE-BX10 port (IEEE 802.3ah Type 100BASE-BX10-U); Duplex: full only
	Physical characteristics	**Dimensions**	2.7(d) x 0.55(w) x 0.48(h) in. (6.86 x 1.39 x 1.22 cm)
		Weight	0.07 lb. (.03 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, noncondensing
		Nonoperating/Storage temperature	-40ºF to 185ºF (-40ºC to 85ºC)
	Cabling		Type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 0.5-10,000 m (single-mode fiber)
	Notes		For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HPE BX Transceivers" on the "HPE Mini-GBICs and SFPs" Manuals Web page. The J9100B connects to the J9099B "downstream" transceiver, or to any IEEE-standard 100BASE-BX10- D ("downstream") device. (A 100-BX-U transceiver can only connect to a 100-BX-D product. You cannot connect two 100-BX-U transceivers together.) Transmit wavelength: 1310 nm. Receive wavelength: 1550 nm. Power consumption is 1.1 watts maximum.

Accessory Product Details

	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.

HPE X132 10G SFP+ LC SR Transceiver (J9150A) A 10-Gigabit transceiver in SFP+ form-factor that supports the 10-Gigabit SR standard, providing 10-Gigabit connectivity up to 300 m on multimode fiber.	**Ports**		1 LC 10-GbE port (IEEE 802.3ae Type 10Gbase-SR); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	850 nm
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		Weight	0.04 lb. (0.02 kg)
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	0% to 85%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	0.6 W
		Power consumption maximum	0.8 W
	Cabling		Cable type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Maximum distance: • 2-26m with 62.5 µm multimode cable @ 160 MHz*km • 2-33m with 62.5 µm multimode cable @ 200 MHz*km • 2-66m with 50 µm multimode cable @ 400 MHz*km • 2-82m with 50 µm multimode cable @ 500 MHz*km • 2-300m with 50 µm multimode cable @ 2000 MHz*km
		Cable length	2-300m
		Fiber type	Multi Mode
	Notes		For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.
	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.

Accessory Product Details

HPE X132 10G SFP+ LC LR Transceiver (J9151A) A 10-Gigabit transceiver in SFP+ form-factor that supports the 10-Gigabit LR standard, providing 10-Gigabit connectivity up to 10 km on single-mode fiber.	**Ports**		1 LC 10-GbE port (IEEE 802.3ae Type 10Gbase-LR); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	1310 nm
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		Weight	0.04 lb. (.02 kg)
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	0% to 85%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	0.9 W
		Power consumption maximum	1 W
	Cabling		Cable type: Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1; Maximum distance: • 2m-10km with 9/125 µm single-mode cable
		Cable length	2m to 10km
		Fiber type	Single Mode
	Notes		Conditioning patch cord cables are not supported. For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.
	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.
HPE X132 10G SFP+ LC LRM Transceiver (J9152A) A 10-Gigabit transceiver in SFP+ form-factor that supports the 10-Gigabit LRM standard, for 10-Gigabit connectivity up to	**Ports**		1 LC 10-GbE port (IEEE 802.3aq Type 10Gbase-LRM); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	1310 nm
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		Weight	0.04 lb. (.02 kg)
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)

Accessory Product Details

220 m on legacy multimode fiber.		**Operating relative humidity**	0% to 85%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	0.7 W
		Power consumption maximum	1 W
	Cabling	Cable type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively (a mode conditioning patch cord may be needed in some multimode fiber installations); Maximum distance: • 0.5-220m with 62.5 µm multimode cable @ 160/500 MHz*km • 0.5-220m with 62.5 µm multimode cable @ 200/500 MHz*km • 0.5-100m with 50 µm multimode cable @ 400/400 MHz*km • 0.5-220m with 50 µm multimode cable @ 500/500 MHz*km • 0.5-220m with 50 µm multimode cable @ 1500/500 MHz*km	
		Cable length	0.5m to 220m
		Fiber type	Multi Mode
	Notes	For OM3 cable (50 µm multimode @ 1500/500 MHz*km), a mode-conditioning patch cord is not required. Other multimode cables may require mode-conditioning patch cords to achieve the maximum distances listed above. For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.	
	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.	
HPE X121 1G SFP LC LH Transceiver (J4860C) A small form-factor pluggable (SFP) Gigabit LH transceiver that provides a full-duplex Gigabit solution up to 70	**Ports**	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics); Duplex: full only	
	Physical characteristics	Dimensions: 2.17(d) x 0.60(w) x 0.46(h) in. (5.5 x 1.53 x 1.18 cm) Weight: 0.04 lb. (0.02 kg)	
	Environment	Operating temperature: -40°F to 185°F (-40°C to 85°C) Operating relative humidity: 0% to 95% @ 77°F (25°C), noncondensing Nonoperating/Storage temperature: -40°F to 185°F (-40°C to 85°C) Altitude: up to 10,000 ft. (3 km)	

Accessory Product Details

km on single-mode fiber.	**Cabling**	Cable type: • Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1; Maximum distance: • 10-70,000 m (single-mode fiber)
	Notes	Power consumption is 0.8 watts typical with 1 watt maximum at 100% utilization. For distances less than 20 km, a 10 dB attenuator must be used. For distances between 20 km and 40 km, a 5 dB attenuator must be used. Attenuators can be purchased from most cable vendors.
	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.
HPE X121 1G SFP LC SX Transceiver (J4858C) A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550 m on multimode fiber.	**Ports**	1 LC 1000BASE-SX port; Duplex: full only
	Physical characteristics	Dimensions: 2.24(d) x 0.54(w) x 0.48(h) in. (5.69 x 1.37 x 1.22 cm) Weight: 0.04 lb. (0.02 kg) Transceiver form factor: SFP
	Environment	Operating temperature: 32°F to 158°F (0°C to 70°C) Operating relative humidity: 5% to 85%, noncondensing Nonoperating/Storage temperature: -40°F to 203°F (-40°C to 85°C) Altitude: up to 10,000 ft. (3 km)
	Electrical characteristics	Power consumption typical: 0.4 W Power consumption maximum: 0.7 W
	Cabling	Type: • 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Maximum distance: • 2-220 m (62.5 µm core diameter, 160 MHz*km bandwidth • 2-275 m (62.5 µm core diameter, 200 MHz*km bandwidth • 2-500 m (50 µm core diameter, 400 MHz*km bandwidth) • 2-550 m (50 µm core diameter, 500 MHz*km bandwidth) Cable length: 2-550m Fiber type: Multi Mode
	Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.com/networking/services** for details on the service-

Accessory Product Details

		level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.
HPE X121 1G SFP LC LX Transceiver (J4859C) HP X121 1G SFP LC LX Transceiver: An SFP format gigabit transceiver with LC connectors using LX technology.	**Ports**	1 LC 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX); Duplex: full only
	Physical characteristics	Dimensions: 2.24(d) x 0.54(w) x 0.486(h) in. (5.69 x 1.37 x 1.23 cm) Weight:0.04 lb. (0.02 kg)
	Environment	Operating temperature: 32°F to 158°F (0°C to 70°C) Operating relative humidity: 0% to 85%, noncondensing Nonoperating/Storage temperature: -40°F to 212°F (-40°C to 100°C) Altitude: up to 10,000 ft. (3 km)
	Cabling	Type: • Either single mode or multimode; 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1; Maximum distance: • 2-550 m (multimode 62.5 µm core diameter, 500 MHz*km bandwidth) • 2-550 m (multimode 50 µm core diameter, 400 MHz*km bandwidth) • 2-550 m (multimode 50 µm core diameter, 500 MHz*km bandwidth) • 2-10,000 m (single-mode fiber)
	Notes	A mode conditioning patch cord may be needed in some multimode fiber installations. Wavelength: 1310nm Power Consumption: < 500mW Typical
	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.
HPE X121 1G SFP RJ45 T Transceiver (J8177C) HP X121 1G SFP RJ45 T Transceiver: An SFP format gigabit transceiver with	**Ports**	1 RJ-45 1000BASE-T port (IEEE 802.3ab Type 1000BASE-T); Duplex: full only
	Physical characteristics	Dimensions: 2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm) Weight: 0.06 lb. (0.03 kg)
	Environment	Operating temperature: 32°F to 158°F (0°C to 70°C); with 100 LFM airflow over the SFP module Operating relative humidity: 0% to 95% @ 75°F (25°C), noncondensing

Accessory Product Details

RJ45 connectors using 1000BaseT technology.		Nonoperating/Storage temperature: -40°F to 185°F (-40°C to 85°C) Nonoperating/Storage relative humidity: 0% to 95% @ 77°F (25°C), noncondensing Altitude: up to 10,000 ft. (3000 km)
	Cabling	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ù differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T; Maximum distance: • 100 m
	Notes	Power consumption is nominally 1 watt. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the J8177C 1000Base-T Mini-GBIC" on the "HPE Mini-GBICs and SFPs" Manuals Web page. The J8177C Gigabit copper mini-GBIC is not supported on dual-personality ports. The J8177C is capable of 100 Mb operation. This is supported on only the HPE 8200zl, 5400zl, and HPE 6200-24G-mGBIC yl Switches using software version K.12.21 or later. Use the "auto-100" port setting to enable 100 Mb operation. Important: The earlier J8177B does not support 100 Mb operation. When used in the Switch gl 20-Port 10/100/1000 Module (J4908A), the J8177C mini-GBIC can be installed in either the upper or lower mini-GBIC port, but will block access to the other port.
	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.

HP X122 1G SFP LC BX-D Transceiver (J9142B) A small form-factor pluggable (SFP) Gigabit-BX (bi-directional) "downstream" transceiver that provides a full-duplex Gigabit solution up to 10 km on one strand of single-mode fiber. The J9142B connects to the J9143B "upstream" transceiver, or to any	**Ports**		1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-D); Duplex: full only
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.46(h) in. (5.57 x 1.37 x 1.18 cm)
		Weight	0.04 lb. (0.02 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, non-condensing
		Non-operating/ Storage temperature	–40ºF to 185ºF –40ºC to 85ºC)
	Cabling		Type: Single-mode fiber optic, complying with ITU-T G.652;

Accessory Product Details

IEEE-standard 1000BASE-BX10-U ("upstream") device.		Maximum distance: • 0.5-10,000 m (single-mode fiber)
	Notes	Transmit wavelength: 1490 nm. Receive wavelength: 1310 nm. Power consumption is 1 watt maximum. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HPE BX Transceivers" on the "HPE Mini-GBICs and SFPs" Manuals Web page. The J9142B connects to the J9143B "upstream" transceiver, or to any IEEE-standard 1000BASE-BX10-U ("upstream") device. (A 1000-BX-D transceiver can only connect to a 1000-BX-U product. You cannot connect two 1000-BX-D transceivers together.)
	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.

HP X122 1G SFP LC BX-U Transceiver (J9143B) A small form-factor pluggable (SFP) Gigabit-BX (bi-directional) "upstream" transceiver that provides a full-duplex Gigabit solution up to 10 km on one strand of single-mode fiber. The J9143B connects to the J9142B "downstream" transceiver, or to any IEEE-standard 1000BASE-BX10-D ("downstream") device.	**Ports**		1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-U); Duplex: full only
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.46(h) in. (5.57 x 1.37 x 1.18 cm)
		Weight	0.04 lb. (0.02 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, non-condensing
		Non-operating/ Storage temperature	–40ºF to 185ºF –40ºC to 85ºC)
	Cabling		Type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 0.5-10,000 m (single-mode fiber)
	Notes		Transmit wavelength: 1310 nm. Receive wavelength: 1490 nm. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HPE BX Transceivers" on the "HPE Mini-GBICs and SFPs" Manuals Web page. The J9143B connects to the J9142B "downstream" transceiver, or to any IEEE-standard 1000BASE-BX10-D ("downstream") device. (A 1000-BX-U transceiver can only connect to a 1000-BX-D product. You cannot connect two 1000-BX-U transceivers together.) Power consumption is 1 watt maximum.
	Services		Refer to the Hewlett Packard Enterprise website at

Accessory Product Details

			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.
HPE X132 10G SFP+ LC ER Transceiver (J9153A)	**Ports**		1 LC 10-GbE port (IEEE 802.3ae Type 10GBASE-ER); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	1550 nm
	Physical characteristics	**Dimensions**	2.22(d) x 0.55(w) x 0.47(h) in. (5.65 x 1.39 x 1.19 cm)
		Weight	.04 lb., Fully loaded
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	1.3 W
		Power consumption maximum	1.5 W
	Cabling		Cable type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 40km
		Fiber type	Single Mode
	Notes		Check switch release notes for minimum version of software required to support this transceiver. Some switches have limits as to how many of this particular transceiver can be installed. See the release notes of the switch software/firmware being used for more details.
	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.
HPE X242 10G SFP+ to SFP+ 1m Direct Attach	**Connectivity**	Length	3.28 ft. (1 m)
	Physical characteristics	Weight	0.24 lb. (0.11 kg) the cable with an SFP+

Accessory Product Details

Copper Cable (J9281B)			transceiver at each end of the cable
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14ºF to 185ºF (-10ºC to 85ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	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.	
HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)	**Connectivity**	Length	10 ft. (3 m)
	Physical characteristics	Weight	.49 lb. (0.22 kg), Fully loaded the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14ºF to 185ºF (-10ºC to 85ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	Refer to the Hewlett Packard Enterprise website at	

Accessory Product Details

			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.
HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)	**Connectivity**	Length	22.97 ft. (7 m)
	Physical characteristics	Weight	1.02 lb., Fully loaded the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14ºF to 185ºF (-10ºC to 85ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	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.	
HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable (J9300A) A 1m direct attach copper cable with an XFP connector attached on one end and an SFP+ connector attached on the other end. This cable provides a low price connectivity option between switches/servers/ storage to interconnect XFP and SFP+ form	**Connectivity**	Length	3.28 ft. (1 m)
	Physical characteristics	Weight	.27 lb. (0.12 kg), Fully loaded cable with XFP transcevier on one end and SFP+ on the other end
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	32ºF to 158ºF (0ºC to 70ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Notes	XFP end consumes 2 watts SFP+ end consumes 0.036 watts	
	Services	Refer to the Hewlett Packard Enterprise website at	

Accessory Product Details

factors.			**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.
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable (J9301A) A 3m direct attach copper cable with an XFP connector attached on one end and an SFP+ connector attached on the other end. This cable provides a low price connectivity option between switches/servers/ storage to interconnect XFP and SFP+ form factors.	**Connectivity**	Length	9.84 ft. (3 m)
	Physical characteristics	Weight	.51 lb. (0.23 kg), Fully loaded cable with XFP transcevier on one end and SFP+ on the other end
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	32ºF to 158ºF (0ºC to 70ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Cabling	Maximum distance: • 3m Direct Attach Cable	
	Notes	XFP end consumes 2 watts SFP+ end consumes 0.036 watts	
	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.	
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable (J9302A) A 5m direct attach copper cable with an XFP connector attached on one end and an SFP+ connector attached on the other end. This cable provides a low price connectivity option between switches/servers/ storage to interconnect XFP and SFP+ form factors.	**Connectivity**	Length	16.4 ft. (5 m)
	Physical characteristics	Weight	.74 lb. (0.34 kg), Fully loaded cable with XFP transcevier on one end and SFP+ on the other end
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	32ºF to 158ºF (0ºC to 70ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Notes	XFP end consumes 2 watts SFP+ end conumes 0.036 watts	
	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.	

Accessory Product Details

HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable (AJ833A)	**Cabling**	**Cable type**: 50/125 μm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical glass: Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical glass: Bandwidth: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber and designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.
HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable (AJ834A)	**Cabling**	**Cable type**: 50/125 μm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one

Accessory Product Details

		end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.
HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable (AJ835A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um

Accessory Product Details

		multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable (AJ836A)	**Cabling**	**Cable type**: 50/125 μm core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: This specification defines the detail requirements for a tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters.

Accessory Product Details

		• Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable (AJ837A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.

Accessory Product Details

HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable (AJ838A)	**Cabling**	**Cable type**: 50/125 μm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable (AJ839A)	**Cabling**	**Cable type**: 50/125 μm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one

Accessory Product Details

		end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core Diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	Refer to the Hewlett Packard Enterprise website at

Accessory Product Details

		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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	Refer to the Hewlett Packard Enterprise website at

Accessory Product Details

		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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	Refer to the Hewlett Packard Enterprise website at

Accessory Product Details

			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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)	**Notes**		Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HPE PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	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.
HP 1500 W PoE+ zl Power Supply ((J9306A)	**Physical characteristics**	**Dimensions**	6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
		Weight	7.5 lb. (3.2 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**AC voltage**	110-127/200-240 VAC
		Current	13/10 A
		Maximum power rating	1768 W
		Frequency	50/60 Hz
		Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical

Accessory Product Details

			maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The Maximum Power Rating at 120 volts is 1114 watts and at 240 volts is 1768 watts.
	Notes		Each J9306A supplies 600 W chassis power, 300 W of PoE/PoE+ power at 110-127 volts, and 900 W of PoE/PoE+ power at 200-240 volts. One J9306A can power the J8697A chassis. One J9306A can power the J9477A chassis. Two J9306A supplies are required to power the J8698A chassis. Two J9306A supplies are required to power the J8715A chassis.
	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.
HPE 1500W zl Power Supply (J8713A)	**Physical characteristics**	**Dimensions**	6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
		Weight	7.5 lb. (3.2 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**AC voltage**	200-240 VAC
		Current	10 A
		Maximum power rating	1800 W
		Frequency	50/60 Hz
		Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
	Notes		200–240 V only. Installation of the J8713A reduces the chassis altitude specification to 10,000 ft. (3677m). • J8713A supplies 600 W chassis power and 900 W PoE power. See the Ordering Guide for more details on power supply selection for PoE power. Units shipped to North America include a NEMA L6-20P twist lock power

Accessory Product Details

			cord. Non-locking NEMA 6-20P optionally available - see the Ordering Guide for more details. When used in the J8714A power shelf, the following specs apply (at full load): • Heat dissipation: 450 BTU/hr (475 kJ/hr) @ 220V • Maximum current: 5.1 A @ 220 V
	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.
HPE 875W zl Power Supply (J8712A)	**Physical characteristics**	**Dimensions**	6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
		Weight	7.05 lb. (3.2 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 131°F (55°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 158°F (70°C), noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**AC voltage**	100-127/200-240 VAC
		Current	12/5.7 A
		Maximum power rating	1050 W
		Frequency	50/60 Hz
		Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
	Notes		J8712A supplies 600 W chassis power and 273 W PoE power. One J8712A can power the J8697A chassis. Two J8712A supplies are required to power the J8698A chassis. Two J8712A supplies are required to power the J8715A chassis. See the Ordering Guide for more details on power supply selection for PoE power. When used in the J8714A power shelf, the following specs apply (at full load): • Heat dissipation: 250 BTU/hr (263 kJ/hr) @ 110 V, 210 BTU/hr (222 kJ/hr) @ 220 V • Maximum current: 3.2 A @ 110 V, 1.7 A @ 220 V
	Services		Refer to the Hewlett Packard Enterprise website at

Accessory Product Details

			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.
HP zl Power Supply Shelf (J8714A)	**Ports**		2 external power supply ports Restrictions: PoE power available depends on power supplies installed.
	Physical characteristics	**Dimensions**	9.73(d) x 17.44(w) x 5.2(h) in. (24.71 x 44.3 x 13.2 cm) (3U height)
		Weight	9.26 lb. (4.2 kg) (no power supplies installed)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Altitude	up to 10,000 ft. (3 km)
		Acoustic	Power: 52.9 dB Pressure: 42.9 dB
	Electrical characteristics	**Description**	Power draw and heat dissipation for the power shelf are dependent on the power supplies installed.
		Notes	For heat dissipation and power requirements of the power shelf, find and add together these figures for the 1 or 2 power supplies actually installed.
	Safety		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
	Emissions		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
	Immunity	**EN**	EN 55024, CISPR 24
		ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
		Radiated	IEC 61000-4-3; 3 V/m
		EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
		Surge	IEC 61000-4-5; 1 kV/2 kV AC
		Conducted	IEC 61000-4-6; 3 V
		Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
		Voltage dips and interruptions	IEC 61000-4-11; > 95% reduction, 0.5 period; 30% reduction, 25 periods
		Harmonics	EN 61000-3-2, IEC 61000-3-2
		Flicker	EN 61000-3-3, IEC 61000-3-3
	Notes		The HPE ProCurve Switch zl Power Supply Shelf has two slots for zl power supplies. It supplies PoE power only to zl switches. For yl switches, see the HPE ProCurve 620 Redundant/External Power Supply.

Accessory Product Details

		Power shelf depth includes 0.75 in. (1.9 cm) due to the power supply handles. Power supplies not included.
	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.
HP 5400 zl Premium License (J8994A)	**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.

Summary of Changes

Date	Version History	Action	Description of Change:
27-May-2016	From Version 40 to 41	Changed	Document name changed to Aruba 5400 zl Switch Series Product descriptions, Overview and Technical Specifications updated
01-Dec-2015	From Version 39 to 40	Changed	Overview and Technical Specifications updated
20-Mar-2015	From Version 38 to 39	Changed	Configuration menu for 5400zl split in to 2 menus: 5400 zl, and 5400R zl2
01-Dec-2014	From Version 37 to 38	Changed	Feature updates, Changes made on the entire document.
09-Oct-2014	From Version 36 to 37	Removed	SKU J8439A removed
		Changed	Accessory Product Details revised
10-Jun-2014	From Version 35 to 36	Changed	Updated Configuration Information to add the zl2 Switch Series information.
17-Feb-2014	From Version 33 to 35	Changed	SFP+ Transceivers were revised.
17-Jan-2014	From Version 32 to 33	Changed	Corrected a part number in the Accessories section.
09-Dec-2013	From Version 31 to 32	Changed	Build to Order, Box Level Integrated CTO Models, Rack Level Integrated CTO Models, Internal Power Supplies, Modules, and Cables were revised.
19-Aug-2013	From Version 30 to 31	Added	HPE 5406 8p10GT 8p10GE Swch and Psw was added to Configuration
15-Jul-2013	From Version 29 to 30	Changed	Updated the BTO section of the new Configuration section.
12-Jul-2013	From Version 28 to 29	Added	Configuration was added.
10-Jun-2013	From Version 27 to 28	Added	OM4 cables were added.
24-Sep-2012	From Version 26 to 27	Changed	The Features and Benefits section, Introduction, and Accessories sections were updated. Minor changes were made to each model's technical specifications.
27-Aug-2012	From Version 25 to 26	Changed	Updated the specifications for the HPE 8-port 10 GbE SFP+ v2 zl Module in Accessory Product Details.
25-Jun-2012	From Version 24 to 25	Changed	The Features and Benefits section, Models section, Introduction, and Accessories sections were updated. Minor changes were made to each model's technical specifications.
30-Mar-2012	From Version 23 to 24	Changed	The Features and Benefits section and Model names were updated.
27-Mar-2012	From Version 22 to 23	Added	HPE X242 SFP+ to SFP+ 10m Direct Attach Copper Cable and HPE X242 SFP+ to SFP+ 15m Direct Attach Copper Cable were added.
29-Nov-2011	From Version 21 to 22	Changed	The Features and Benefits section was updated.
09-Nov-2011	From Version 20 to 21	Changed	The names of the product series and models were updated throughout the document.

Summary of Changes

30-Sep-2011	From Version 19 to 20	Added	Accessory Product Details was added.
20-Jun-2011	From Version 17 to 19	Changed	The QuickSpecs was completely revised, including removing models.
15-Apr-2011	From Version 16 to 17	Removed	Removed the remaining mentions of ProCurve in the QS.
10-Dec-2010	From Version 15 to 16	Added	Added the two chassis models and also several new accessories.
15-Nov-2010	From Version 14 to 15	Changed	The QuickSpecs was completely revised, including adding several new models.
15-Sep-2010	From Version 13 to 14	Changed	The QuickSpecs was completely revised, including changing the title.
02-Jun-2010	From Version 12 to 13	Changed	Updated the Notes section of Technical Specifications. Updated Standards and Protocols Added new cables to the Accessories section.
19-Feb-2010	From Version 11 to 12	Removed	Removed an incompatible product from the Accessories section.
10-Feb-2010	From Version 10 to 11	Changed	The features, accessories, specifications: Notes have changed for this product.
02-Oct-2009	From Version 9 to 10	Added	Added 2 new service part numbers for the HPE ProCurve 5406zl-48G-PoE + Switch and HPE ProCurve 5412-96G-PoE + Switch
01-Sep-2009	From Version 8 to 9	Added	All mentions of the HPE ProCurve 5406zl-48G-PoE + Switch and HPE ProCurve 5412-96G-PoE + Switch
		Changed	Updates were made throughout the QuickSpecs.
28-Apr-2009	From Version 7 to 8	Added	Added several new products to the Accessories section.
17-Mar-2009	From Version 6 to 7	Changed	Changes were made throughout the entire QuickSpecs. Note the title has changed.
19-Jan-2009	From Version 5 to 6	Changed	Changes included updating the Standards and Protocols for all Switch specifications in the document, Features and Benefits within the Overview section and completely revising the Accessories section, adding IPv6 throughout the document and IEEE 802.1ad Q-in-Q to Layer 2 Switching and General Protocols
06-Feb-2008	From Version 4 to 5	Removed	Removed a reference to RFC 2784 from the document.
01-Dec-2007	From Version 3 to 4	Changed	This QuickSpecs was completely revised.
22-Feb-2007	From Version 2 to 3	Changed	Changes included updating the Standards and Protocols for all Switch specifications in the document, adding several new services, and adding several new modules to the Modules and RPS sections.
18-Aug-2006	From Version 1 to 2	Changed	Changes made throughout the QuickSpecs.

Summary of Changes

Sign up for updates

To learn more, visit: **http://www.hpe.com/networking**

c04111646 - 12436 - Worldwide - V41 - 27-May-2016

Hewlett Packard Enterprise