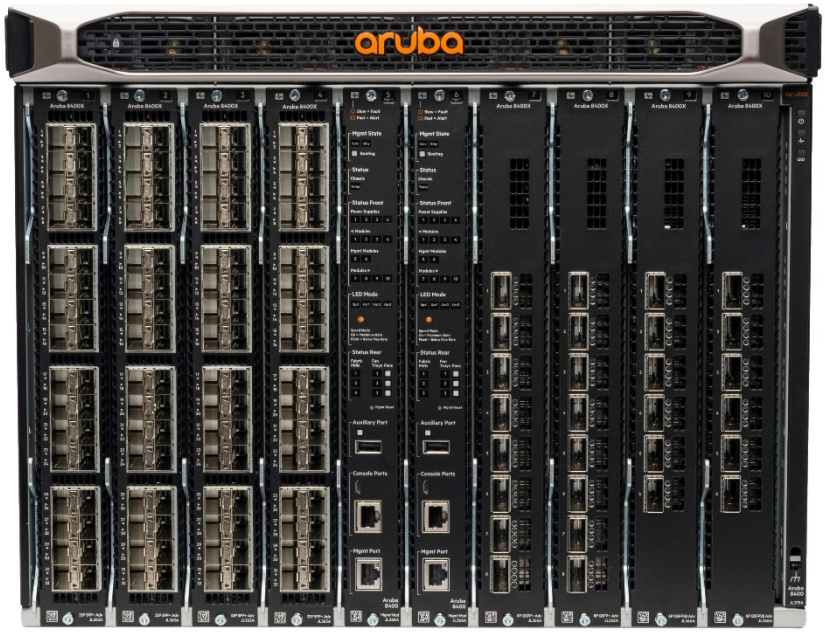
Overview

Aruba 8400 Switch Series



Product overview

The past several decades in networking have been defined by static, closed networking solutions designed for the client-server era. Aruba is introducing the Aruba 8400 campus core and aggregation switch, a game-changing solution offering a flexible and innovative approach to dealing with the new application, security and scalability demands of the mobilecloud and IoT era.

The 8400 provides industry-leading line rate 10GbE/40GbE/100GbE connectivity in a compact 8 slot chassis. Together with the compact 1U Aruba 8320 Switch, the 8400 rounds out Aruba's Mobile First switching portfolio with an enterprise core and aggregation solution that ensures higher performance and higher uptime.

The 8400 is based on the new ArubaOS-CX, a modern software system for the enterprise core that automates and simplifies many critical and complex network tasks, delivers enhanced fault tolerance and facilitates zero-service disruption during planned or unplanned control-plane events. The key innovations in ArubaOS-CX are its micro-services style modular architecture, REST APIs, Python scripting capabilities, Aruba Network Analytics Engine and Aruba Virtual Switching Extension (VSX).

ArubaOS-CX is based on a modular architecture that allows individual process re-startability and upgrades. It's REST APIs and Python scripting enables fine-grained programmability of the switch functions and its unique Aruba Network Analytics Engine provides the ability to monitor and troubleshoot the network easily.

Aruba's new virtualization technology, Aruba VSX, takes advantage of the ArubaOS-CX modern architecture, and delivers best in class high availability required by campus core and aggregation solutions.

Overview

The Network Analytics Engine framework is made up of a time series database and associated REST APIs.

The time series database may be used to store configuration and operational state. Customers can use ArubaOS-CX REST APIs, Python scripting capabilities and time series data to write software modules for trouble shooting problems. The time series data may also be used to analyze trends, identify anomalies and predict future capacity requirements.

Key features

- High performance 19.2 terabits per second switching (1.2Tbps/slot) capacity
- Carrier-class high availability with Aruba Virtual Switching Extension (VSX), redundant management, power, and fabric
- ArubaOS-CX enables automation and usability using built-in REST APIs and Python scripts
- Intelligent monitoring and visibility with Aruba Network Analytics Engine
- Advanced Layer 2/3 feature set includes BGP, OSPF, VRF, and IPv6
- Compact 8U chassis with high density, line rate 10GbE/40GbE/100GbE connectivity

Features and benefits

Product architecture

- **ArubaOS-CX**.
  - Modular, Linux based and built with OVSDB to support a database-centric operating system.
  - Distributed architecture with separation of data and control planes.
  - Includes independent monitoring and restart of individual software modules, and enhanced software process serviceability functions.
  - Allows individual software modules to be upgraded for higher availability.
- **Aruba Network Analytics Engine (NAE)**
  A first of a kind built-in framework for monitoring, troubleshooting and capacity planning. NAE provides automatic base-lining to automatically generate thresholds for alerts which eliminates manual configuration of thresholds.

Performance

- **High-speed fully distributed architecture**
  Provides up to 19.2 Tbps switching capacity with up to 7.142 billion packets per second (BPPS) for throughput; all switching and routing is performed in the line modules; meets the demands of bandwidth-intensive applications today and in the future
- **Scalable system design**
  Provides investment protection to support future technologies and higher-speed connectivity

Connectivity

- **High-density port connectivity**
  Supports up to 8 line modules; a 32-port 10 Gigabit Ethernet with MACsec in hardware (not software), an 8-port 40 Gigabit Ethernet, and a 6-port 40/100 Gigabit Ethernet module.
- **Jumbo frames**
  Allows high-performance backups and disaster-recovery systems; provides a maximum frame size of 9K bytes
- **Packet storm protection**
  Protects against unknown broadcast, unknown multicast, or unicast storms with user-defined thresholds

Overview

Quality of Service (QoS)

- **Powerful QoS feature**
  Supports the following congestion actions: strict priority (SP) queuing and deficit weighted round robin (DWRR)

Resiliency and high availability

- **High availability for campus core**
  Aruba Virtual Switching Extension* (VSX) is a high availability technology solution designed using the best features of existing HA technologies such as Multi-chassis Link Aggregation (MC-LAG) and Virtual Switching Framework (VSF). Aruba VSX enables a distributed and redundant architecture that is highly available during upgrades inherently by architecture design. High availability is delivered through redundancy gained by deploying two chassis in the core with each chassis maintaining its independent control yet staying synchronizing information via the ArubaOS-CX unique database architecture.
- **Redundant and load-sharing fabrics, management, fan assemblies, and power supplies**
  Increases total performance and power availability while providing hitless, stateful failover
- **All hot-swappable modules**
  Allows replacement of modules without any impact on other modules
- **Separate data and control paths**
  Separates control from services and keeps service processing isolated; increases security and performance
- **Passive design system**
  All active chassis components are field replaceable for increased reliability.
- **Bidirectional forward detection (BFD)**
  Enable sub-second failure detection for rapid routing protocol re-balancing
- **VRRP**
  Allows groups of two routers to dynamically back each other up to create highly available routed environments
- **Unidirectional link detection (UDLD)**
  Monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks
- **IEEE 802.3ad LACP**
  Supports up to 128 link aggregation groups (LAGs), each with eight links per LAG; and provides support for static or dynamic groups and a user-selectable hashing algorithm
- **Multiple internal power supplies**
  Provides high reliability, requiring only two power supplies to support a fully populated Aruba 8400X and adding two more gives the solution N+N power redundancy

*Requires ArubaOS-CX 10.1 release.

Virtual private network (VPN)

- **Generic Routing Encapsulation (GRE)**
  Enables tunneling traffic from site to site over a Layer 3 path

Management

- **Management interface control**
  Enables or disables each of the following interfaces depending on security preferences: console port, or reset button
- **Industry-standard CLI with a hierarchical structure**
  Reduces training time and expenses, and increases productivity in multivendor installations
- **Management security**
  Restricts access to critical configuration commands; offers multiple privilege levels with password protection; local and remote syslog capabilities allow logging of all access
- **SNMP v2c/v3**
  Provides SNMP read and trap support of industry standard Management Information Base (MIB), and private extensions

Overview

- **sFlow® (RFC 3176)**
  Provides scalable ASIC-based wire speed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **Remote monitoring (RMON)**
  Uses standard SNMP to monitor essential network functions and supports events, alarms, history, and statistics groups as well as a private alarm extension group
- **TFTP, and SFTP support**
  Offers different mechanisms for configuration updates;; trivial FTP (TFTP) is a simpler method using User Datagram Protocol (UDP); Secure File Transfer Protocol (SFTP) runs over an SSH tunnel to provide additional security
- **Debug and sampler utility**
  Supports ping and traceroute for both IPv4 and IPv6
- **Network Time Protocol (NTP)**
  Synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so the devices can provide diverse applications based on the consistent time
- **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
- **Dual flash images**
  Provides independent primary and secondary operating system files for backup while upgrading

Layer 2 switching

- **VLAN**
  Supports up to 4,094 port-based or IEEE 802.1Q-based VLANs; and supports MAC-based VLANs
- **Bridge Protocol Data Unit (BPDU) tunneling**
  Transmits STP BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- **Port mirroring**
  Duplicates port traffic (ingress and egress) to monitoring port; supports 4 mirroring groups, with an unlimited number of ports per group
- **STP**
  Supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- **Internet Group Management Protocol (IGMP)**
  Controls and manages the flooding of multicast packets in a Layer 2 network
- **Rapid Per-VLAN Spanning Tree+ (RPVST+)**
  Allows each VLAN to build a separate spanning tree to improve link bandwidth usage in network environments with multiple VLANs

Layer 3 services

- **Address Resolution Protocol (ARP)**
  Determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **UDP helper**
  Redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP)**
  Simplifies the management of large IP networks; DHCP Relay enables DHCP operation across subnets
- **Domain Name System (DNS)**
  Provides a distributed database that translates domain names and IP addresses, which simplifies network design; supports client and server

Overview

Layer 3 routing

- **Static IPv4 routing**
  Provides simple manually configured IPv4 routing
- **Open shortest path first (OSPF)**
  Delivers faster convergence; uses link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Border Gateway Protocol 4 (BGP-4)**
  Delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks
- **IP performance optimization**
  Provides a set of tools to improve the performance of IPv4 networks; includes directed broadcasts, customization of TCP parameters, support of ICMP error packets, and extensive display capabilities
- **Static IPv6 routing**
  Provides simple manually configured IPv6 routing
- **Dual IP stack**
  Maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- **OSPFv3 for IPv6**
  Delivers faster convergence; uses link-state routing interior gateway protocol (IGP), which supports ECMP, NSSA, and IPSEC authentication for increased security and graceful restart for faster failure recovery
- **Equal-Cost Multipath (ECMP)**
  Enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth

Security

- **Access control list (ACL)**
  Supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header
- **Remote Authentication Dial-In User Service (RADIUS)**
  Eases security access administration by using a password authentication server
- **Terminal Access Controller Access-Control System (TACACS+)**
  Delivers an authentication tool using TCP with encryption of the full authentication request, providing additional security
- **Management access security**
  Aruba OS CX provides for both on-box as well as off-box authentication for administrative access. RADIUS or TACACS+ can be used to provide encrypted user authentication. Additionally, TACACS+ can also provide user authorization services
- **Secure shell (SSHv2)**
  Uses external servers to securely log in to a remote device; with authentication and encryption, it protects against IP spoofing and plain-text password interception; increases the security of Secure FTP (SFTP) transfers
- **TAA Compliance**
  The Aruba 8400, a TAA-compliant product, with the ArubaOS-CX uses FIPS 140-2 validated cryptography for protection of sensitive information

Multicast

- **IGMP Snooping**
  Allows multiple VLANs to receive the same IPv4 multicast traffic, lessening network bandwidth demand by reducing multiple streams to each VLAN
- **Protocol Independent Multicast (PIM)**
  Defines modes of IPv4 multicasting to allow oneto-many and many-to-many transmission of information; supports PIM, Sparse Mode (SM)

Overview

- **Internet Group Management Protocol (IGMP)**
  Utilizes Any-Source Multicast (ASM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3

Additional information

- **Green initiative support**
  Provides support for RoHS and WEEE regulations

Warranty and support

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

Configuration

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

Standard Switch Enclosures

Aruba 8400 8-slot Chassis/3xFan Trays/18xFans/Cable Manager/X462 Bundle — JL375A

- Bundle includes: 8-slot chassis, 3x Fan Trays, 18x Fans, Cable Manager, X462 Rack Rail Kit
- 3 Fabric Module Slots
- 2 Management Module Slots
- 4 Power Supply Slots
- 8 Line Module Slots
- Includes 3 Fan Tray Bundles (JL371A) with 0 open FT Slots
- Includes 1 2-Post Rack Kit (JL374A)
- 8U - Height

Aruba 8400 1x Mgmt Mod 3x PS 2x 8400X Fabric Mod 1x 32p 10G Mod and 1x 8p 40G Mod Bundle — JL376A
See Configuration
NOTE: 1, 2, 3, 5

- Bundle includes: 8-slot chassis, 3x Fan Trays, 18x Fans, Cable Manager, X462 Rack Rail Kit, 1x Management Module, 3x Power Supplies, 2x Fabric Modules, 1x 32p 10G Module, 1x 8p 40G Module
- Includes 2 Fabric Modules (JL367A) with 1 open FM slot
- Includes 1 Management Modules (JL368A) with 1 open MM slot
- Includes 3 Power Supplies (JL372A) with 1 open PS slot
- Includes 2 Line Modules (Qty 1 of JL363A and JL365A) with 6 open LM slots
- Includes 3 Fan Tray Bundles (JL371A) with 0 open FT Slots
- Includes 1 2-Post Rack Kit (JL374A)
- Min=0 \ Max= 32 SFP/SFP+ 1G/10G Transceivers
- Min=0 \ Max = 8 QSFP+ 40G Transceiver
- 8U - Height

PDU Cable NA/MEX/TW/JP — JL376A#B2B

- C19 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — JL376A#B2C

- C19 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord — JL376A#B2E

- HPE 2.5m C19 to NEMA 6-20P 250V 20Amp Non-locking Power Cord(JL351A)

No Power Cord — JL376A#AC3

- No Localized Power Cord Selected

Configuration Rules:

Note 1 The following Transceivers install into this Module: (Use BTO only when adding to 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

Configuration

	Aruba 1G SFP LC SX 500m OM2 MMF Transceiver	J4858D
	Aruba 1G SFP LC LX 10km SMF Transceiver	J4859D
	Aruba 1G SFP LC LH 70km SMF Transceiver	J4860D
	Aruba 1G SFP RJ45 T 100m Cat5e Transceiver	J8177D
Note 2	The following Transceivers install into this Module: (Use BTO only when adding to switch)	
	Aruba 10GBASE-T SFP+ RJ45 30m Cat6A Transceiver	JL563A
	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 X132 10G SFP+ LC ER Transceiver	J9153A
	Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver	J9150D
	Aruba 10G SFP+ LC LR 10km SMF Transceiver	J9151D
	Aruba 10G SFP+ LC LRM 220m OM2 MMF Transceiver	J9152D
	Aruba 10G SFP+ LC ER 40km SMF Transceiver	J9153D
	Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281D
	Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D
	Aruba 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285D
	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
Note 3	The following Transceivers install into this Module: (Use BTO only when adding to switch)	
	Aruba 40G QSFP+ LC ER4 40km SMF Transceiver	Q9G82A
	HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
	HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
	HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A
	Aruba 40G QSFP+ LC Bidirectional 150m MMF 2-strand Transceiver	JL308A
	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
Note 5	Localization required on orders without #B2B, #B2C, #B2E, or #AC3 options.	

Remarks:

OCA Blue **NOTE:** Locking Power Cord (JL335A) L6-20P is available through the Watson Accessories tab

OCA Only Model Selection Form -
HPE Offering > Aruba > Switches - ArubaOS:
8400 Switch Series

Modules

Redundant Management Module

For Switch JL375A System (std 0 // max 2) User Selection (min 0 // max 2) per enclosure
For Switch JL376A System (std 1 // max 2) User Selection (min 0 // max 1) per enclosure

Aruba 8400 Management Module	JL368A

Configuration

Fabric Modules

For Switch JL375A System (std 0 // max 3) User Selection (min 0 // max 3) per enclosure
For Switch JL376A System (std 2 // max 3) User Selection (min 0 // max 1) per enclosure

Aruba 8400X 7.2Tbps Fabric Module — JL367A

Line Module

For Switch JL375A System (std 0 // max 8) User Selection (min 0 // max 8) per enclosure
For Switch JL376A System (std 2 // max 8) User Selection (min 0 // max 6) per enclosure

Aruba 8400X 32-port 10GbE SFP/SFP+ with MACsec Advanced Module — JL363A
- min=0 \ max=32 SFP\SFP+ Transceivers

See Configuration
NOTE: 1, 2

Aruba 8400X 8-port 40GbE QSFP+ Advanced Module — JL365A
- min=0 \ max=8 QSFP+ Transceivers

See Configuration
NOTE: 3

Aruba 8400X 6-port 40GbE/100GbE QSFP28 Advanced Module — JL366A
- min=0 \ max=6 QSFP+\QSFP28 Transceivers

See Configuration
NOTE: 3, 4

Configuration Rules:

Note 1 — The following Transceivers install into this Module: (Use BTO only when adding to 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
Aruba 1G SFP LC SX 500m OM2 MMF Transceiver	J4858D
Aruba 1G SFP LC LX 10km SMF Transceiver	J4859D
Aruba 1G SFP LC LH 70km SMF Transceiver	J4860D
Aruba 1G SFP RJ45 T 100m Cat5e Transceiver	J8177D

Note 2 — The following Transceivers install into this Module: (Use BTO only when adding to switch)

Aruba 10GBASE-T SFP+ RJ45 30m Cat6A Transceiver	JL563A
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 X132 10G SFP+ LC ER Transceiver	J9153A
Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver	J9150D
Aruba 10G SFP+ LC LR 10km SMF Transceiver	J9151D
Aruba 10G SFP+ LC LRM 220m OM2 MMF Transceiver	J9152D
Aruba 10G SFP+ LC ER 40km SMF Transceiver	J9153D
Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281D
Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D
Aruba 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285D
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

Configuration

Note 3	The following Transceivers install into this Module: (Use BTO only when adding to switch)	
	Aruba 40G QSFP+ LC ER4 40km SMF Transceiver	Q9G82A
	HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
	HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
	HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A
	Aruba 40G QSFP+ LC Bidirectional 150m MMF 2-strand Transceiver	JL308A
	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
Note 4	The following Transceivers install into this Module: (Use BTO only when adding to switch)	
	Aruba 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL307A
	Aruba 100G QSFP28 MPO SR4 100m 12-fiber MPO OM3 MMF Transceiver	JL309A
	Aruba 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver	JL310A

Transceivers

SPF Transceivers

HPE X121 1G SFP LC SX Transceiver	J4858C
HPE X121 1G SFP LC LX Transceiver	J4859C
HPE X121 1G SFP LC LH Transceiver	J4860C
Aruba 1G SFP LC SX 500m OM2 MMF Transceiver	J4858D
Aruba 1G SFP LC LX 10km SMF Transceiver	J4859D
Aruba 1G SFP LC LH 70km SMF Transceiver	J4860D
Aruba 1G SFP RJ45 T 100m Cat5e Transceiver	J8177D

SPF+ Transceivers

Aruba 10GBASE-T SFP+ RJ45 30m Cat6A Transceiver	JL563A
NOTE: Limit 12 per switch/module, only to be installed in ports 1-12	
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 X132 10G SFP+ LC ER Transceiver	J9153A
Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver	J9150D
Aruba 10G SFP+ LC LR 10km SMF Transceiver	J9151D
Aruba 10G SFP+ LC LRM 220m OM2 MMF Transceiver	J9152D
Aruba 10G SFP+ LC ER 40km SMF Transceiver	J9153D
Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281D
Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D
Aruba 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285D
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

QSFP+ Transceivers

Configuration

Aruba 40G QSFP+ LC ER4 40km SMF Transceiver	Q9G82A
HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A
HPE X242 40G QSFP+ to QSFP+ 1m Direct Attach Copper Cable	JH234A
HPE X242 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable	JH235A
HPE X242 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	JH236A
Aruba 40G QSFP+ LC Bidirectional 150m MMF 2-strand Transceiver	JL308A

Remarks

OCA Blue **NOTE:**
A maximum qty of 12 XCVRs (JL563A) can be installed into ports 1-12 within the JL376A Switch or JL363A Module.

QSFP28 Transceivers

Aruba 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL307A
Aruba 100G QSFP28 MPO SR4 100m 12-fiber MPO OM3 MMF Transceiver	JL309A
Aruba 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver	JL310A

Internal Power Supplies

For Switch JL375A System (std 0 // max 4) User Selection (min 0 // max 4) per enclosure
For Switch JL376A System (std 3 // max 4) User Selection (min 0 // max 1) per enclosure

Aruba X382 54VDC 2700W AC Power Supply • includes 1 x c19, 2750w	JL372A See Configuration **NOTE:** 1
PDU Cable NA/MEX/TW/JP • C19 PDU Jumper Cord (NA/MEX/TW/JP)	JL372A#B2B
PDU Cable ROW • C19 PDU Jumper Cord (ROW)	JL372A#B2C
High Volt Switch to Wall Power Cord • HPE 2.5m C19 to NEMA 6-20P 250V 20Amp Non-locking Power Cord(JL351A)	JL372A#B2E
No Power Cord • No Localized Power Cord Selected	JL372A#AC3

Configuration Rules:

Note 1 Localization (Wall Power Cord) required on orders without #B2B, #B2C, (PDU Power Cord) or #B2E. (See Localization Menu)

Remarks:

Drop down under power supply should offer the following options and results:

Configuration

Switch/Router to PDU Power Cord - #B2B in NA, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)
High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)
No Localized Power Cord Selected - #AC3 Option

OCA Blue **NOTE:** Locking Power Cord (JL335A) L6-20P is available through the Watson Accessories tab

Switch Options

Fan Trays

For Switch JL375A System (std 3 // max 3) User Selection (min 0 // max 0) per enclosure
For Switch JL376A System (std 3 // max 3) User Selection (min 0 // max 0) per enclosure

Aruba 8400 1 Fan Tray and 6 Fans Bundle	JL371A

Remarks:

OCA Blue **NOTE:** 3 Fan Tray Bundles are included with the JL375A and JL376A Switch Bundle

Rack Kits

For Switch JL375A System (std 1 // max 1) User Selection (min 0 // max 0) per enclosure
For Switch JL376A System (std 1 // max 1) User Selection (min 0 // max 0) per enclosure

Aruba X462 2-post Rack Rail Kit	JL374A

Remarks:

OCA Blue **NOTE:** 1 Rack Mount Kit is included with the JL375A and JL376A Switch Bundle

Accessories

Spares

For Switch JL375A System (std 0 // max 99) User Selection (min 0 // max 99) per enclosure
For Switch JL376A System (std 0 // max 99) User Selection (min 0 // max 99) per enclosure

Aruba 8400 8-slot Chassis/3xFan Trays/18xFans/Cable Manager/X462 Bundle	JL375A
Aruba X382 54VDC 2700W AC Power Supply	JL372A
Aruba 8400 1 Fan Tray and 6 Fans Bundle	JL371A
Aruba 8400 Fan for X731 Fan Tray	JL370A
Aruba X731 Fan Tray	JL369A
Aruba X462 2-post Rack Rail Kit	JL374A
Aruba X464 4-post Rack Rail Kit	JL373A
Aruba X2C2 RJ45 to DB9 Console Cable	JL448A

Technical Specifications

Series Specifications

Line modules and slots	Supports a maximum of 256 10GbE (SFP/SFP+) ports, or 64 40GbE (QSFP+) ports, or 48 ports 40/100GbE (QSFP28) combination	
	Eight slots for line modules	
Module VoQ	1.5GB for JL363A and JL365A	
	3GB for JL366A	
Additional ports and slots	2 Management Module slots	
	3 Fabric Module slots	
	4 Power Supply slots	
Power supplies	4 power supply slots	
	2 minimum power supply required for a fully loaded chassis (or with 8 Line Modules)	
Fan tray	Included with JL376A	
Physical characteristics	**Dimensions**	17.4(w) x 26(d) x 13.8(h) in. (44.1 x 66.0 x 35.1 cm) (8U height)
	Weight	-Empty configuration weight: 76 lbs (34 kg) -JL376A weight: 164 lbs (74 kg) -Full configuration weight: 241 lbs (109 kg)
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); horizontal surface mounting only	
Reliability	99.999%	
Environment	**Operating**	32°F to 104°F (-0°C to 40°C) with 5% to 95%, non-condensing
	Non-Operating	-40°F to 158°F (-40°C to 70°C) with 5% to 95%, non-condensing
	Max Operating Altitude	Up to 10,000ft (3.048 Km)
	Max Non-Operation Altitude	Up to 30,000ft (9.144 Km)
	Acoustics	Sound Power (LWAd) 7.3 Bel Sound Pressure (LpAm) (Bystander) 55.6 dB
Electrical characteristics	**Frequency**	47-63 Hz
	AC voltage	90 – 140/180 – 264 VAC
	DC voltage	
	Current	16 A
	Power output	2750 W
Safety	EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +A2:2013; EN62368-1:2014; IEC 60950-1:2005 Ed.2; Am 1:2009+A2:2013; IEC62368-1, Ed. 2; IEC60825:2007 (Applies to products with lasers); UL60950-1, CSA 22.2 No 60950-1; UL62368-1 Ed. 2	
Emissions	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2; IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC; (CFR 47, Part 15) Class A; GB9254; EN55032:2012 Class A; CISPR32:2012 Class A	
Immunity	**Generic**	Directive 2014/35/EU
	EN	EN 55024:2010+ A1:2001 + A2:2003; ETSI EN 300 386 V1.3.3
	ESD	EN 61000-4-2
	Radiated	EN 61000-4-3
	EFT/Burst	EN 61000-4-4

Technical Specifications

	Surge	EN 61000-4-5
	Conducted	EN 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	EN 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	SNMP, RJ45 for Serial Console, USB-Type A for file management only, RJ45 Ethernet for OOBM	
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)

- IEEE 802.1AB-2009
- IEEE 802.1AE
- IEEE 802.1ak-2007
- IEEE 802.1t-2001
- IEEE 802.1AX-2008 Link Aggregation
- IEEE 802.1p Priority
- IEEE 802.1Q VLANs
- IEEE 802.1s Multiple Spanning Trees
- IEEE 802.1w Rapid Reconfiguration of Spanning Tree
- IEEE 802.3ad Link Aggregation Control Protocol (LACP)
- IEEE 802.3ae 10-Gigabit Ethernet
- IEEE 802.3ba 40 and 100 Gigabit Ethernet Architecture
- IEEE 802.3z 1000BASE-X
- RFC 768 UDP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 768 User Datagram Protocol
- RFC 813 Window and Acknowledgement Strategy in TCP
- RFC 815 IP datagram reassembly algorithms
- RFC 879 TCP maximum segment size and related topics
- RFC 896 Congestion control in IP/TCP internetworks
- RFC 917 Internet subnets
- RFC 919 Broadcasting Internet Datagrams
- RFC 922 Broadcasting Internet Datagrams in the Presence of Subnets (IP_BROAD)
- RFC 925 Multi-LAN address resolution
- RFC 1215 Convention for defining traps for use with the SNMP
- RFC 1256 ICMP Router Discovery Messages
- RFC 1393 Traceroute Using an IP Option
- RFC 1591 Domain Name System Structure and Delegation
- RFC 1981 Path MTU Discovery for IP version 6
- RFC 1997 BGP Communities Attribute
- RFC 1998 An Application of the BGP Community Attribute in Multi-home Routing
- RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option
- RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol
- RFC 2918 Route Refresh Capability for BGP-4

Technical Specifications

- RFC 2934 Protocol Independent Multicast MIB for IPv4
- RFC 3137 OSPF Stub Router Advertisement
- RFC 3176 InMon Corporation's sFlow: A Method for Monitoring Traffic in Switched and Routed Networks
- RFC 3509 Alternative Implementations of OSPF Area Border Routers
- RFC 3623 Graceful OSPF Restart
- RFC 4486 Subcodes for BGP Cease Notification Message
- RFC 4724 Graceful Restart Mechanism for BGP
- RFC 4940 IANA Considerations for OSPF
- RFC 5187 OSPFv3 Graceful Restart
- RFC 6987 OSPF Stub Router Advertisement
- RFC 7047 The Open vSwitch Database Management Protocol
- RFC 4251 The Secure Shell (SSH) Protocol
- RFC 4271 A Border Gateway Protocol 4 (BGP-4)
- RFC 4291 IP Version 6 Addressing Architecture
- RFC 4292 IP Forwarding Table MIB
- RFC 4293 Management Information Base for the Internet Protocol (IP)

Accessories

Bundles, Modules and Accessories

Aruba 8400 Bundles

Aruba 8400 8-slot Chassis/3xFan Trays/18xFans/Cable Manager/X462 Bundle **NOTE:** includes: Aruba 8400 8-slot chassis, 3 x fan trays (JL369A), 18 x fans (JL370A), X462 2-post rack rail kit (JL374A), and a cable manager	JL375A
Aruba 8400 1x Mgmt Mod 3x PS 2x 8400X Fabric Mod 1x 32p 10G Mod and 1x 8p 40G Mod Bundle **NOTE:** includes Aruba 8400 8-slot chassis bundle (JL375A), 1 x management module (JL368A), 3 x power supplies (JL372A), 2 x 8400X fabric modules (JL367A), 1 x 32-port 10GbE module (JL363A), 1 x 8-port 40GbE module (JL365A)	JL376A

Modules

Aruba 8400X 32-port 10GbE SFP/SFP+ with MACsec Advanced Module	JL363A
Aruba 8400X 8-port 40GbE QSFP+ Advanced Module	JL365A
Aruba 8400X 6-port 40GbE/100GbE QSFP28 Advanced Module	JL366A
Aruba 8400X 7.2Tbps Fabric Module	JL367A
Aruba 8400 Management Module	JL368A

Accessories

Aruba X731 Fan Tray	JL369A
Aruba 8400 Fan for X731 Fan Tray	JL370A
Aruba 8400 1 Fan Tray and 6 Fans Bundle	JL371A

Power supply

Aruba X382 54VDC 2700W AC Power Supply	JL372A

Mounting kit

Aruba X464 4-post Rack Rail Kit	JL373A
Aruba X462 2-post Rack Rail Kit	JL374A

Console cable

Aruba X2C2 RJ45 to DB9 Console Cable	JL448A

Transceivers

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
HPE X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
HPE X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
HPE X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
HPE X132 10G SFP+ LC SR Transceiver	J9150A
HPE X132 10G SFP+ LC LR Transceiver	J9151A
HPE X132 10G SFP+ LC ER Transceiver	J9153A
HPE X132 10G SFP+ LC LRM Transceiver	J9152A
Aruba 10GBASE-T SFP+ RJ45 30m Cat6A Transceiver	JL563A[1,2]

Accessories

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
Aruba 40G QSFP+ LC Bidirectional 150m MMF 2-strand Transceiver	JL308A
HPE X142 40G QSFP+ MPO SR4 Transceiver	JH231A
HPE X142 40G QSFP+ MPO eSR4 300M Transceiver	JH233A
Aruba 40G QSFP+ LC ER4 40km SMF Transceiver	Q9G82A[1]
HPE X142 40G QSFP+ LC LR4 SM Transceiver	JH232A
Aruba 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL307A
Aruba 100G QSFP28 MPO SR4 100m 12-fiber MPO OM3 MMF Transceiver	JL309A
Aruba 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver	JL310A

[1] Available in CY18Q2
[2] Maximum of 12 10GBASE-T transceivers per module (JL363A)

Summary of Changes

Date	Version History	Action	Description of Change
02-Jul-2018	Version 9	Changed	Product overview, Key features, Features and benefits changed due to a Software feature update
04-Jun-2018	Version 8	Changed	Configuration section updated
07-May-2018	Version 7	Added	SKUs added: JL563A; Q9G82A
04-Dec-2017	Version 6	Changed	Updates made on the Configuration section
06-Nov-2017	Version 5	Changed	Updates made on Features and benefits
16-Oct-2017	Version 4	Changed	Updates on Product overview, Features and benefits, Technical Specifications.
25-Sep-2017	Version 3	Changed	Updates made on the Configuration section
11-Aug-2017	Version 2	Changed	Changes made on Features and benefits
07-Aug-2017	Version 1	Created	Document Creation

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