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Edition 10



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The transceivers listed in this document represent the currently available and End of Sale products at the time of this publication. Not all transceiver products are supported in every switch available from Aruba. Consult the QuickSpecs for the applicable switch product for a list of supported transceiver products. QuickSpecs can be found at http://www.hpe.com/networking/resourcefinder

Conventions

This section describes the conventions used in the documentation.

Note on Product Images



Product images in this guide may differ from actual product.

Port Numbering in Examples

The port numbers in this document are for illustration only and might be unavailable on your device.

Types of transceiver modules and network cables

Table 1: Types of transceiver modules and network cables

Transceiver module type		Connector head
QSFP28 module (transceiver)	QSFP28 optical transceiver module	MPO 12-strand or LC 2-strand
	QSFP28 DAC (copper cable for interconnecting devices) 1m to 5m reaches	Twinax cable permanently attached
	QSFP28 AOC (Active Optical Cable for interconnecting devices) 7m to 30m reaches	Optical cable permanently attached
QSFP+ module (transceiver)	QSFP+ optical transceiver module	MPO 12-strand or LC 2-strand
	QSFP+ DAC (copper cable for interconnecting devices) 1 - 5m reaches	Twinax cable permanently attached
	QSFP+ AOC (Active Optical Cable for interconnecting devices) 7m to 30m reaches	Optical cable permanently attached
SFP56 module	SFP56 optics (50G) and 50G AOCs	Will be available in the

Transceiver module type		Connector head
		future; awaiting market viability
	SFP56 DAC (copper cable for interconnecting devices)	Twinax cable permanently attached
SFP28 module	SFP28 same size as SFP+ (optical)	LC 2-strand
	SFP28 DAC (copper cable for interconnecting devices) 0.65m to 5m reaches	Twinax cable permanently attached
	SFP28 AOC (Active Optical Cable for interconnecting devices) 3m to 15m reaches	Optical cable permanently attached
SFP+ module (transceiver)	SFP+ optical transceiver module	LC 2-strand or 1-strand (for BiDi)
	SFP+ DAC (copper cable for interconnecting devices)	Twinax cable permanently attached
	10GBASE-T copper transceiver module	RJ-45 (Requires Cat6a for maximum supported distances. Shielded 6a cable recommended to eliminate EMI issues.)
Small form-factor pluggable (SFP) module (transceiver)	100-Megabit SFP optical transceiver module	LC 2-strand
	Gigabit SFP optical transceiver module	
	1G SFP copper transceiver module	RJ-45 (1G requires Cat5e for maximum supported distances.)



- The available transceiver modules and network cables vary by device models and are subject to change over time. For the most up-to-date list of transceiver modules and network cables, contact your Aruba sales representative or technical support engineer.
- For information about the transceiver modules and network cables available for each device model, see the Datasheets or QuickSpecs for the applicable switch product. Refer to the tables within this guide for the specific switch model.

Data Rate

Data rate is the number of bits transmitted per second. The unit of measure for data rate is Megabits per second (Mbps) or Gigabits per second (Gbps). Transceiver modules, optical, Direct Attach over Copper (DAC), and Active Optical Cables (AOC) products provide the following levels of data rates:

- 100 Gbps (optical, DAC, and AOC)
- 50 Gbps (DAC only at this time)
- 40 Gbps (optical, DAC, and AOC)
- 25 Gbps (optical, DAC, and AOC)
- 10 Gbps (optical, DAC, and RJ45 10GBASE-T)
- 1000 Mbps (also known as Gigabit) (optical and RJ45 1GbT)
- 100 Mbps (also known as Fast Ethernet) (optical only)

Transmission distance

Through UTP or STP cables, signals can be transmitted over a distance of 100 m (328.08 ft.) only. This behavior occurs because signals attenuate during transmission through the UTP cables.

Attenuation refers to the dissipation of the power of a transmitted signal as it travels over a cable.

Attenuation occurs because signal transmission suffers certain resistance from the cable, which weakens the signals as they travel over the cable. When signals are transmitted over a long distance, signal strength decreases significantly, causing the signal-to-noise ratio to drop below the accepted level. This decrease makes it impossible to distinguish between signals and noise, which results in data loss.

Patch panel and punch down blocks also affect attenuation; that is, they can be a source of issues resulting in shorter distances or data loss.

10GBASE-T connections require Category 6a as a minimum for proper 10G speeds up to the 100m distance dictated by the IEEE 802.3ae standard for a fixed 10GBASE-T port. The JL563A transceiver has a limit of 30m max distance due to limited power available to the transceiver (vs a fixed 10GBASE-T port). Anything less (Cat 6, 5e, 5) will compromise the distance that 10G over copper can achieve.

Shielded Twisted Pair (STP) Cat 6a cable is recommended when using the 10GBase-T transceiver (JL563A).

Use of STP prevents EMI events from affecting data traffic carried on the wire - known as Crosstalk or Alien Crosstalk. Large EMI events from electronically noisy environments may be coupled onto unshielded cabling and cause temporary packet errors. Fixed 10G ports have designs to counteract these types of bit error conditions, that the 10GBASE-T transceiver cannot counteract consistently. Using STP Cat6a cables mitigate the errors significantly. All packet loss errors observed in extensive testing are considered recoverable by the host system with the JL563A transceiver.

Central Wavelength

Central wavelength (wl) represents the wave band used for optical signal transmission. The following central wavelengths are available for common optical transceiver modules representing three wavebands:

- 850 nm waveband: Used for short-reach transmission.
- 1310 nm and 1550 nm waveband: Used for middle-reach and long-haul transmission.

Fiber

Fiber Types

Fibers are classified as multimode fibers and single-mode fibers.

Multimode fibers

Multimode fibers (MMFs) have thicker fiber cores and can transport light in multiple modes. However, the intermodal dispersion is greater and worsens as the transmission distance increases.

Multimode fibers can be classified into multiple grades according to their diameters and modal bandwidth. The modal bandwidth of a multimode fiber is determined by the expression of the maximum modulation frequency pulse that can pass a fiber × the fiber length. The modal bandwidth is a comprehensive index reflecting the optical characteristics of a multimode fiber.

International Telecommunication Union (ITU) defines multimode fiber types in its G series standards. The commonly used multimode fiber is defined in the ITU G.651 standard. The G.651-compliant fiber transmits light at the wavelength range 800 nm to 900 nm or 1200 nm to 1350 nm.

Table 2: Multimode fiber grades

Fiber mode	Fiber grade	Fiber diameter (μm)	Modal bandwidth at 850 nm (MHz*km)
Multimode fiber	OM1	62.5/125	200
	OM2	50/125	500
	OM3	50/125	2000
	OM4	50/125	4700

Other factors that influence the transmission distance of multimode fibers include interface type, central wavelength, and fiber grade. The modal bandwidth values shown above are for the fiber grades listed. There are multimode fibers that have different modal bandwidth characteristics and do not necessarily match the OM1 - OM4 grades. See the individual transceiver specifications for distances supported when using MMF OM1-OM4. OM5 is a grade of multimode fiber that is primarily designed for short wave division multiplexing (SWDM) used by 40G speeds and higher. There usually is no distance advantage for 10G thru 40G speeds that use single wavelengths over a fiber.

Single-mode fibers

Single-mode fibers (SMFs) have a small core size, typically 9 μm or 10 μm, and can transmit light in only one mode. Single-mode fibers suffer little intermodal dispersion and are suitable for long-haul communication. Single-mode fibers transmit light at the central wavelength of 1310 nm or 1550 nm.

Telecommunication Industries Alliance (TIA)/Electronic Industries Alliance (EIA) defines that single-mode fibers use yellow outer jackets with the mark "SM".

ITU defines single-mode fiber types in its G series standards. The most commonly used single-mode fibers are defined in ITU G.652 and G.655 standards. The following table describes features of the G.652 and G.655-compliant fibers.

Table 3: Features of G.652- and G.655-compliant fibers

Single-mode fiber type	Wavelength (nm)	Features	Applications
G.652-compliant fiber (standard single-mode fiber)	1260 to 1360 1530 to 1565	Zero dispersion at 1310 nm	Connecting transceiver modules with a central wavelength of 1310 nm or 1550 nm.
G.655-compliant fiber (non-zero dispersion shifted fiber)	1530 to 1565	Near-zero dispersion around 1550 nm	For 1550 nm wavelength-division multiplexing (WDM) transmissions.

Fiber Diameter

Fiber diameter is expressed as core diameter/cladding diameter, in µm. For example, 9/125 µm means that the fiber core diameter is 9 µm and the fiber cladding diameter is 125 µm.

For the HPE devices, the following fiber diameters are recommended:

- **G.651 standard multimode fiber:** 50/125 µm or 62.5/125 µm
- **G.652 standard single-mode fiber:** 9/125 µm
- **G.655 non zero dispersion shifted single-mode fiber:** 9/125 µm

Splitting of QSFP+ and QSFP28 ports

Quad-SFP (QSFP+ and QSFP28) ports allow for four channels of lower-bandwidth communication.

AOS-CX release 10.05 introduced this feature for select switches and modules. Split port is not available for ArubaOS-Switch products.

- A QSFP+ 40G port can be split into four(4) 10G speed ports
- A QSFP28 100G port can be split into four(4) 25G speed ports

Most QSFP28 ports can be used with either 40G or 100G optics, DAC or AOC cables. Not all QSFP28 port can be split into channels of 10G or 25G: what's required are MACs and PHYs that can support both 10G and 25G speeds. Some designs will allow only splitting into the four (4) channels at 10G because they lack a 25G MAC (for example, the Aruba 8400 Switch Series JL366A 6port 40G/100G module). Some switches/modules also limit only certain ports to be split because of design combinations of PHY/Ports or limitations of the maximum number of MACs in a switching ASIC.

An example CLI configuration for port 1/1/52:

```
switch(config-if)# interface 1/1/52
switch(config-if)# split
This command will disable the specified port, clear its configuration,
and split it into multiple interfaces. The split interfaces will not
be available until the next system or line module reboot.

Continue (y/n)? y
switch(config-if)# show interface brief
--------------------------------------------------------------------------------
Port      Native Mode   Type       Enabled Status  Reason          Speed  Description
          VLAN                                                     (Mb/s)
--------------------------------------------------------------------------------
1/1/52:1 --     routed QSFP+DA3x4 yes     up                      10000  Aruba-AP
1/1/52:2 --     routed QSFP+DA3x4 yes     up                      10000  --
```

```
1/1/52:3 --     routed QSFP+DA3x4 yes     down    Waiting for link --     --
1/1/52:4 --     routed QSFP+DA3x4 yes     down    Waiting for link --     --
```

AOS-CX release 10.05 and 10.06 requires the config to be saved and the switch or module to be rebooted to take on the new configuration for the port.

DAC Breakout Cables

Figure 1 *DAC Breakout cables*



DAC Breakout cables typically have a QSFP-type connector on one end and four (4) SFP-type connectors at the other end.

DAC cables are passive devices and used for short (<5m lengths) distances. 40G breakout and 100G breakout DACs look the same, but they are different parts (different Part Type information encoded on both ends).

40G splits to 4x 10G identify as a 4 channel 10G cable on the QSFP+ side, and the SFP+ ends identify as a 10G DAC part.

100G splits to 4x 25G in a similar manner. Usually the QSFP28 port is configured as an either/or 100G or 40G so the individual 4 channels are limited to the same speed on the SFP ends (either 25G or 10G). The cable speed is not configurable and cannot be mixed. QSFP28 cables are always 100G and QSFP+ cables are always 40G. A QSFP28 cable, at the time of this publication, cannot be used as a 40G connection nor split into 4 x 10G links.

Breakout Optical Cables

Figure 2 *Breakout Optical Cables*



Parallel optical technologies such as 40G SR4/eSR4 and 100G SR4 optical transceivers can also split into four separate optical streams to connect to 10G SR or 25G SR/eSR optics on the opposite end of the link using fiber breakout cables.

LR4/ER4 technologies use a Singlemode Fiber (SMF) in each direction, and multiplex (combine) 4 different wavelengths over a single fiber in each direction (hence LR4/ER4 use a 2-fiber LC connector). The wavelengths are de-muxed on the receive side. Unlike SR4 technologies, where each channel can be split into separate channels, LR4/ER4 technologies cannot be split into separate 10G or 25G LR technologies.

Aruba does not offer PLR4 technology.

The fiber breakout cable used is an MPO to 4x LC type of cable with Multimode Fiber (MMF) pairs in a specific configuration (see above MPO Fiber channel assignment).

The LC ends can be connected to your fiber patch panel to reach the end of the link to a 10G or 25G SR/eSR transceiver (depending on which speed is being split). Ensure you obtain a female (no pins) MPO 12-fiber connector mapped to only 4 LC connectors of Multimode Fiber of OM3 or better. Fiber breakout cables that have 6 LC connectors are usually mapped for a different type of application and cannot be used with 40G or 100G transceivers.

The distance this optically split link can support is determined by the 40G or 100G transceiver, not the 10G or 25G transceiver on the other end of the link. For example, a 100G SR4 can reach 70m over OM3 or 100m over OM4 -- this is the same distance as a 25G SR on the other end of the links. Using a 25G eSR4 (JL485A) transceiver with a longer reach of 200m over OM3 or 400m over OM4 will not accomplish the longer reach, but it is indeed optically compatible and can link to the 100G SR4 limits of 70m/100m.

The following optical breakout cables can be used with 40G SR4/eSR4 to split into 4x10G SR, or with 100G SR4 to split into 4x25G SR compatible streams.

These cables are ordered from the HPE Compute and Server or Storage business units and may not be available to Aruba-only resellers.

Fiber breakout cables (from HPE Server products)

- (Server SKU) R1N86A, HPE 12 Fiber MPO to 4xLC MM 3m Cbl
- (Storage SKU) K2Q46A, HPE MPO to 4 x LC 5m Cable
- (Storage SKU) K2Q47A, HPE MPO to 4 x LC 15m Cable

It is important that the LC connectors map to the 4 channels in this manner:

MPO connector Fiber numbers	LC connector	Logical interface (using port 52 as an example)
1 and 12	LC #1	1/1/52:1
2 and 11	LC #2	1/1/52:2
3 and 10	LC #3	1/1/52:3
4 and 9	LC #4	1/1/52:4
5 thru 8 are unused		

As of the AOS-CX 10.05 release, the following switches and modules are capable of splitting a QSFP+ or QSFP28 port with the noted restrictions. Configure the ports for split mode. 10.05 and 10.06 require the configuration to be saved and the switch to be rebooted to enable the split operation on the ports.

Part Number (PN)	Description	Port info
Aruba 8320 Series		

Part Number (PN)	Description	Port info
JL479A JL579A JL581A	Aruba 8320 48 10/6 40 X472 5 2 Bdl Aruba 8320 32 40G X472 5 2 Bdl Aruba 8320 48 T/6 40 X472 5 2 Bdl	49-54 (40G) 5-28 (40G - center 24 ports) 49-54 (40G)
Aruba 8325 48Y8C models JL635A (base system) JL624A - Port-to-Power model (FB) JL625A - Power-to-Port model (BF) **Aruba 8325 32C models** JL636A (base system) JL626A - Port-to-Power model (FB) JL627A - Power-to-Port model (BF)	Displayed by `show system` Aruba 8325-48Y8C FB 6 F 2 PS Bdl Aruba 8325-48Y8C BF 6 F 2 PS Bdl Displayed by `show system` Aruba 8325-32C FB 6 F 2 PS Bdl Aruba 8325-32C BF 6 F 2 PS Bdl	49-56 (40G or 100G) 49-56 (40G or 100G) 1-32 (40G or 100G) 1-32 (40G or 100G)
Aruba 8360 32Y4C models JL717A (base system) JL700A Port-to-Power model JL701A Power-to-Port model **Aruba 8360 16Y2C models** JL718A (base system) JL702A Port-to-Power model JL703A Power-to-Port model **Aruba 8360 48XT4C models** JL720A (base system) JL706A Port-to-Power model JL707A Power-to-Port model **Aruba 8360-12C models** JL721A (base system) JL708A Port-to-Power model JL709A Power-to-Port model **Aruba 8360 24XF2C models** JL722A (base system) JL710A Port-to-Power model JL711A Power-to-Port model	Displayed by `show system` Aruba 8360-32Y4C Prt2Pwr3F2PS Bdl Aruba 8360-32Y4C Pwr2Prt3F2PS Bdl Displayed by `show system` Aruba 8360-16Y2C Prt2Pwr3F2PS Bdl Aruba 8360-16Y2C Pwr2Prt3F2PS Bdl Displayed by `show system` Aruba 8360-48XT4C Prt2Pwr3F2PS Bdl Aruba 8360-48XT4C Pwr2Prt3F2PS Bdl Displayed by `show system` Aruba 8360-12C Pwr2Prt3F2PS Bdl Aruba 8360-12C Prt2Pwr3F2PS Bdl Displayed by `show system` Aruba 8360-24XF2C Prt2Pwr3F2PS Bdl Aruba 8360-24XF2C Pwr2Pwr3F2PS Bdl	33-36 (40G or 100G) 33-36 (40G or 100G) 17-18 (40G or 100G) 17-18 (40G or 100G) NO SUPPORT for Split ports 1-12 (40G or 100G) 1-12 (40G or 100G) 25-26 (40G or 100G) 25-26 (40G or 100G)
Aruba 8400X modules JL365A JL366A	Aruba 8400X 8p 40G QSFP+ Adv Mod Aruba 8400X 6p 40G/100G QSFP28 Adv Mod	1-8 (40G) 1-6 Only capable of 40G split into 4 x 10G

Part Number (PN)	Description	Port info
		JL366A modules do not have 25G MACs to support split 100G

Aruba 6400 modules with QSFP28 ports do not have Split Mode enabled in AOS-CX as of the 10.05 and 10.06 releases. AOS-Switch products do not allow splitting of QSFP+ ports.

Optical Parameters

This guide provides average transmit and receive power ranges for transceiver modules.

Transmit power

Transmit power is the power at which the transmitter of an optical transceiver module transmits optical signals, in dBm.

Receive sensitivity

Receive power is the power at which the receiver of an optical transceiver module receives optical signals, in dBm.

Using attenuators (for short test cables)

Transceivers are designed to transmit light pulses at power levels that account for loss in the fiber optic cabling, and meets the receiver input thresholds of the link partner optical transceiver.

If you are using a fiber cable with less light loss than expected (for example, in a test environment and you do not have a 40km spool of SMF available), use attenuators to reduce the transmit level to be within the receive sensitivity of the other transceiver -- you will need to condition both fibers (sends in both directions). If not done, you risk overdriving the Receive end and permanently damaging the transceiver. For example, a 40G ER4 has a highest transmit level of 4.5dBm, but the Receive Sensitivity can be no higher than -4.5dBm. That means there must be at least a 9dBm loss on the light level to be within the standards (4.5 - (-4.5) = 9dBm required). Attenuation required = (highest transmit power) - (highest receive sensitivity).

Copper Transceiver Modules

Copper transceiver modules transmit signals over Category-5, -5e, -6, and -6a unshielded twisted pair (UTP) or shielded twisted pair (STP). UTP transmission cover shorter distances than fiber transmission and can be used in small-sized networks only. 10G over twisted pair requires the use of Category 6 and 6a.

Copper transceivers are supported in 1G SFP and 10G SFP+ ports where listed in the compatibility tables.

Transmission distance

Through UTP or STP cables, signals can be transmitted over a distance of 100 m (328.08 ft.) only. This behavior occurs because signals attenuate during transmission through the UTP cables.

Attenuation refers to the dissipation of the power of a transmitted signal as it travels over a cable.

Attenuation occurs because signal transmission suffers certain resistance from the cable, which weakens the signals as they travel over the cable. When signals are transmitted over a long distance, signal strength decreases significantly, causing the signal-to-noise ratio to drop below the accepted level. This decrease makes it impossible to distinguish between signals and noise, which results in data loss.

Patch panel and punch down blocks also affect attenuation; that is, they can be a source of issues resulting in shorter distances or data loss.

10GBASE-T connections require Category 6a as a minimum for proper 10G speeds up to the 100m distance dictated by the IEEE 802.3ae standard for a fixed 10GBASE-T port. The JL563A transceiver has a limit of 30m max distance due to limited power available to the transceiver (vs a fixed 10GBASE-T port). Anything less (Cat 6, 5e, 5) will compromise the distance that 10G over copper can achieve.

Shielded Twisted Pair (STP) Cat 6a cable is recommended when using the 10GBase-T transceiver (JL563A).

Use of STP prevents EMI events from affecting data traffic carried on the wire - known as Crosstalk or Alien Crosstalk. Large EMI events from electronically noisy environments may be coupled onto unshielded cabling and cause temporary packet errors. Fixed 10G ports have designs to counteract these types of bit error conditions, that the 10GBASE-T transceiver cannot counteract consistently. Using STP Cat6a cables mitigate the errors significantly. All packet loss errors observed in extensive testing are considered recoverable by the host system with the JL563A transceiver.

Connector

Registered Jack-45 (RJ-45) twisted-pair connectors are used as connectors for copper transceiver modules.

Figure 3 *RJ-45 connector*

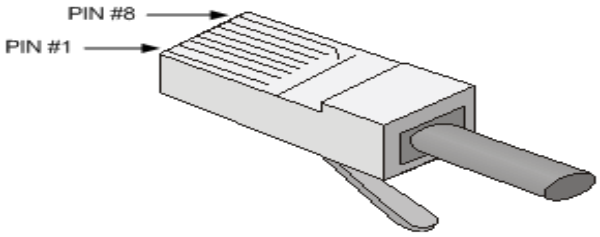


Table 4: RJ-45 GE connector pin assignment for Gigabit connections

Pin	Signal	Function
1	MX_0+	Data transmit/receive
2	MX_0-	Data transmit/receive
3	MX_1+	Data transmit/receive
4	MX_2+	Data transmit/receive
5	MX_2-	Data transmit/receive
6	MX_1-	Data transmit/receive
7	MX_3+	Data transmit/receive
8	MX_3-	Data transmit/receive

Identification of 4x4 Part Numbers

A SKU# (Stock Keeping Unit, also called a Product Number or Part Number) may be fulfilled by one or more vendor parts providing similar functionality. A 4x4 (or "4 by 4") part number is of the form *nnnn-nnnn* and

is printed on the transceiver, DAC, or AOC label. For example, J9151E (10G LR) may have 1990-4727 or 1990-4694 as the associated 4x4 part number.

4x4 part numbers are referenced in the:

- specification tables, to identify parts that support DOM (Digital Optical Monitoring) capabilities. (Some older vendor parts do not support DOM.)
- compatibility tables, where necessary, to identify supported combinations of switch or module with the identified transceiver, along with the minimum software version required.

In December 2017, Aruba introduced Revision D (and, in 2019, a Rev E 10G LR optic) versions of 100M, 1G, and 10G products. Revision D transceivers and DACs eliminated previous alternative vendors, so that you can be assured that only certified vendor parts are supported on AOS-CX Series Switch products. Earlier Revision A, B, or C product may have alternative vendors that Aruba no longer actively ships, but remain fully supported in specific switches. The specifications for Revision D transceiver products are the same as the specified Revision A, B, and C SKUs. Where support for a Revision A, B, or C transceiver existed on an earlier switch product, Revision D parts are also supported.

Some switch products will specify Revision D (and, in some cases, Rev E 10G LR optic) transceivers for full support, while other products may support earlier (older) revision transceivers – and some with specific 4x4 part numbers.

To cross-reference the Transceiver/DAC product against the switch product to identify the minimum software required for transceiver support, always refer to the Datasheet or QuickSpecs for the switch product to see the current list of supported transceivers. Refer to the compatibility tables within this document .

To use CLI commands to display data for an installed transceiver, see the following examples.

```
switch# show int 1/10/6 transceiver
---------------------------------------------------------
Port      Type        Product   Serial          Part
                      Number    Number          Number
---------------------------------------------------------
1/10/6    QSFP+SR4    JH231A    XX57nnnnnn      1990-5555
```

```
switch# show int 1/10/6 dom
-------------------------------------------------------------------------------------
--
Port    Type      Channel#  Temperature  Voltage   Tx Bias  Rx Power      Tx Power
                            (Celsius)    (Volts)   (mA)     (mW/dBm)      (mW/dBm)
-------------------------------------------------------------------------------------
--
1/10/6  QSFP+SR4  1         26.00         3.32     6.72     0.02, -16.99  0.58, -
2.37
                  2         26.00         3.32     6.79     0.02, -16.99  0.59, -
2.29
                  3         26.00         3.32     6.68     0.03, -15.23  0.59, -
2.29
                  4         26.00         3.32     6.82     0.03, -15.23  0.60, -
2.22
```

```
switch# show interfaces transceiver f2 detail
Transceiver in F2
   Interface Index    : 162
   Type               : QSFP+SR4
```

```
  Model              : JH231A
  Connector Type     : MPO
  Wavelength         : 850nm
  Transfer Distance  : 100m (50um OM3), 150m (50um OM4)
  Diagnostic Support : DOM
  Serial Number      : XX57nnnnnn
Status
  Temperature : 33.332C
  Voltage     : 3.3208V

           Tx Bias  Rx Power       Tx Power
 Channel#  (mA)     (mW/dbM)       (mW/dbM)
 --------- -------- -------------- --------------
 1         6.904    0.5622, -2.501 0.5822, -2.349
 2         6.706    0.5922, -2.275 0.5856, -2.324
 3         6.894    0.6321, -1.992 0.5813, -2.356
 4         6.792    0.5111, -2.915 0.5651, -2.479
 Current Alarms:
   Channel 1 :
      Tx bias low alarm
      Rx power low warning
   Channel 2 :
      Tx bias low alarm
      Rx power low warning
 Current Errors:
   Channel 1 :
      Rx Loss of Signal
   Channel 2 :
      Rx Loss of Signal
   Channel 3 :
      Rx Loss of Signal
   Channel 4 :
      Rx Loss of Signal
```

100G QSFP28 Optical Transceiver Modules that use MPO Connectors

See Connector for information regarding MPO connectors and cable requirements.

Figure 4 *QSFP28 optical transceiver module that use MPO connectors*



Models, Specifications, and Compatibility

QSFP28 optical transceiver modules provide a transmission rate of 100 Gbps.

Table 5: Specifications for QSFP28 optical transceiver modules that use MPO connectors

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Modal bandwidth (MHz*km)	Transmission distance
Aruba 100G QSFP28 MPO SR4 100m 12-fiber MPO MMF Transceiver (JL309A)	YES (1990-4680, 1990-4678)	850	MMF	50/125	2000 (OM3) 4700 (OM4)	70 m (229.66 ft) 100 m (328.08 ft)

SR4 is not supported for use over MMF OM1 or OM2 fiber. (The IEEE standard does not state a specification.) Use MPO Female connectors (no pins) with MPO transceivers.

100G SR4 optics can be used by a QSFP28 port that can be "split" into four channels of 25G (available on select switch models/modules on identified ports).

The following optical breakout cables can be used with 100G SR4 to split into 4x 25G SR compatible streams. These cables are ordered from the HPE Compute and Server or Storage business units and may not be available to Aruba-only resellers.

Fiber breakout cables (from HPE Server products):

- (Server SKU) R1N86A, HPE 12 Fiber MPO to 4xLC MM 3m Cbl
- (Storage SKU) K2Q46A, HPE MPO to 4 x LC 5m Cable
- (Storage SKU) K2Q47A, HPE MPO to 4 x LC 15m Cable

See Splitting of QSFP+ and QSFP28 ports.

Table 6: Specifications for QSFP28 optical transceiver modules that use MPO connectors

Product name (SKU)	Connector	Optical parameters (dBm)	
		Transmit power	Receive power
Aruba 100G QSFP28 MPO SR4 100m 12-fiber MPO MMF Transceiver (JL309A)	MPO (PC polished, 12-fiber)	-8.4 to +2.4	-10.3 to +2.4

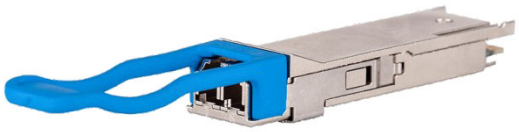
Table 7: Compatibility for the QSFP28 optical transceiver modules that use MPO connectors.

Product name (SKU)	Minimum software required	Comments
Aruba 6400 12p 40G/100G QSFP28 Module (R0X45A)	10.04.2000	Aruba 6400 modules with QSFP28 ports do not have Split Mode enabled in AOS-CX as of the 10.05 and 10.06 releases.
Aruba 8325 32C models JL636A displayed by CLI (`show system`) ■ JL626A - Port-to-Power model (FB) ■ JL627A - Power-to-Port model (BF)	10.03.0030	100G SR4 can be optically split as of: 10.05.0001
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	10.03.0030	100G SR4 can be optically split as of: 10.05.0001
Aruba 8360 32Y4C models JL717A displayed by CLI (`show system`) ■ JL700A - Port-to-Power model (FB) ■ JL701A - Power-to-Port model (BF)	10.06.0001	100G SR4 can be optically split as of: 10.06.0001
Aruba 8360 16Y2C models JL718A displayed by CLI (`show system`) ■ JL702A - Port-to-Power model (FB) ■ JL703A - Power-to-Port model (BF)	10.06.0001	100G SR4 can be optically split as of: 10.06.0001

Product name (SKU)	Minimum software required	Comments
Aruba 8360 48XT4C models JL720A displayed by CLI (`show system`) ▪ JL706A - Port-to-Power model (FB) ▪ JL707A - Power-to-Port model (BF)	10.06.0001	Cannot split the SR4 optics into four channels (lack of enough MACs)
Aruba 8360 12C models JL721A displayed by CLI (`show system`) ▪ JL708A - Port-to-Power model (FB) ▪ JL709A - Power-to-Port model (BF)	10.06.0001	100G SR4 can be optically split as of: 10.06.0001
Aruba 8360 24XF2C models JL722A displayed by CLI (`show system`) ▪ JL710A - Port-to-Power model (FB) ▪ JL711A - Power-to-Port model (BF)	10.06.0001	100G SR4 can be optically split as of: 10.06.0001
Aruba 8400X Module: 6p 40G/100G QSFP28 Advanced Module (JL366A)	10.00.0005	10.00.0005 provided 100G product support. 10.00.0006 provides additional support for 40G on the JL366A. 8400 JL366A QSFP28 module cannot split 100G SR4 into 25G streams (no 25G MAC).

100G QSFP28 Optical Transceiver Modules that use LC Connectors

Figure 5 *QSFP28 optical transceiver module that use LC connectors*



Models, Specifications, and Compatibility

QSFP28 optical transceiver modules provide a transmission rate of 100 Gbps and use LC connectors.

Table 8: Specifications for QSFP28 optical transceiver modules that use LC connectors

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Transmission distance
Aruba 100G QSFP28 LC CWDM4 2km SMF	YES (1990-4644,	Four lanes: 1264.5 to 1277.5	SMF	9/125	2km (1.24 miles)

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Transmission distance
Transceiver (R0Z30A)	1990-4643)	1284.5 to 1297.5 1304.5 to 1317.5 1324.5 to 1337.5			
Aruba 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver (JL310A)	YES (1990-4681)	Four lanes: 1294.53 ~ 1296.59 1299.02 ~ 1301.09 1303.54 ~ 1305.63 1308.09 ~ 1310.19	SMF	9/125	10km (6.21 miles)
Aruba 100G QSFP28 LC ER4L 40km SMF Transceiver (JL743A)	YES (1254-5112)	Four lanes: 1294.53 to 1296.59 1299.02 to 1301.09 1303.54 to 1305.63 1308.09 to 1310.19	SMF	9/125	40km (24.86 miles) Requires FEC

Table 9: Specifications for QSFP28 optical transceiver modules that use LC connectors

Product name (SKU)	Connector	Optical parameters (dBm)	
		Transmit power	Receive power
Aruba 100G QSFP28 LC CWDM4 2km SMF Transceiver (R0Z30A)	LC	-6.5 to 2.5 per lane	-11.5 to 2.5 per lane
Aruba 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver (JL310A)	LC	-4.3 to +4.5 per lane	-10.6 to +4.5 per lane
Aruba 100G QSFP28 LC ER4L 40km SMF Transceiver (JL743A)	LC	-2.5 to 6.5 per lane	-20.5 to -3.5 per lane

Table 10: Compatibility for the QSFP28 optical transceiver modules that use LC connectors

Product name (SKU)	Minimum software required	Comments
Aruba 6400 Module: 12p 40G/100G QSFP28 Module (R0X45A)	R0Z30A (CWDM4 2km): Not supported JL310A (LR4 10km): 10.04.2000 JL743A (ER4L 40km): Not supported	

Product name (SKU)	Minimum software required	Comments
Aruba 8325 32C models (JL626A/JL627A)	R0Z30A (CWDM4 2km): 10.03.0030 JL310A (LR4 10km): 10.03.0030 JL743A (ER4L 40km): 10.04.3000; ports 29-32 only	JL743A (100G ER4L) is limited to quantity 4 and only allowed in ports 29-32 (last 4 ports) to limit possible heat issues.
Aruba 8325 48Y8C models (JL624A/JL625A)	R0Z30A (CWDM4 2km): 10.03.0030 JL310A (LR4 10km): 10.03.0030 JL743A (ER4L 40km): 10.04.3000; ports 49, 51, 53, and 55 only	JL743A (100G ER4L) is limited to quantity 4 and only allowed in ports 49, 51, 53, and 55 (top row) to limit possible heat issues.
Aruba 8360 all models	R0Z30A (CWDM4 2km): Not supported JL310A (LR4 10km): 10.06.0001 JL743A (ER4L 40km): Not supported	
Aruba 8400X Module: 6p 40G/100G QSFP28 Advanced Module (JL366A)	R0Z30A (CWDM4 2km): 10.06.0001 JL310A (LR4 10km): 10.00.0005 JL743A (ER4L 40km): 10.04.3000	10.00.0005 provides support for 100G products. 10.00.0006 provides additional support for 40G on the JL366A.

100G QSFP28 DAC and Breakout DAC (copper cables)

Figure 6 *QSFP28 DAC and breakout DAC (copper cable)*





Models, Specifications, and Compatibility

Table 11: Specifications for QSFP28 copper cables

Product name (SKU)	Cable length	Data rate	Description
Aruba 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable (R0Z25A)	1 m (3.28 ft)	100 Gbps	Used for interconnecting 100-Gigabit QSFP28 ports
Aruba 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable (JL307A)	3 m (9.8 ft)	100 Gbps	Used for interconnecting 100-Gigabit QSFP28 ports
Aruba 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable (R0Z26A)	5 m (16.4 ft)	100 Gbps	Used for interconnecting 100-Gigabit QSFP28 ports

The following breakout DAC cable is offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

AOS-CX releases 10.05 and later support a `split` command configured on 100G QSFP28 ports.

See Splitting of QSFP+ and QSFP28 ports for more information.



As of the AOS-CX 10.05 release, the configuration requires a save and reboot of the switch or module. See the *Monitoring Guide* for details on the `split` command.

Table 12: Specifications for HPE QSFP28 breakout DAC cables (from HPE Server products)

Product name (SKU)	Cable length	Data rate
HPE 100Gb QSFP28 to 4x25Gb SFP28 3m DAC (845416-B21)	3m (9.84 ft)	100G to 4 x 25G

Table 13: Compatibility for the QSFP28 DAC and breakout DAC copper cables

Product name (SKU)	Minimum software required	Comments
Aruba 6400 12p 40G/100G QSFP28 Module (R0X45A)	JL307A: 10.03.0030 R0Z25A/R0Z26A: Not supported 845416-B21: Not supported	
Aruba 8325 32C models JL636A displayed by CLI (`show system`) ■ JL626A - Port-to-Power model (FB) ■ JL627A - Power-to-Port model (BF)	JL307A: 10.03.0030 R0Z25A/R0Z26A: 10.04.2000 845416-B21: 10.05.0001 (Requires `split` command)	All 32 QSFP28 ports can be 'split' 10.05.0001: only the QSFP28 end is supported in the switch. SFP28 end is not supported at this time
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	JL307A: 10.03.0030 R0Z25A/R0Z26A: 10.04.2000 845416-B21: 10.05.0001 (Requires `split` command)	All 8 QSFP28 ports can be 'split' 10.05.0001: only QSFP28 end is supported in the switch. SFP28 end is not supported at this time
8360 32Y4C models JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model	JL307A, R0Z25A/R0Z26A: 10.06.0001 845416-B21: 10.06.0001 (Requires `split` command)	33-36 (all QSFP28 ports can be split) 10.06.0001: only the QSFP28 end is supported in the switch. SFP28 end is not supported at this time
8360 16Y2C models JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model	JL307A, R0Z25A/R0Z26A: 10.06.0001 845416-B21: 10.06.0001 (Requires `split` command)	17-18 (all QSFP28 ports can be split) 10.06.0001: only the QSFP28 end is supported in the switch. SFP28 end is not supported at this time
8360 48XT4C models JL720A displayed by CLI (`show system`) ■ JL706A Port-to-Power model ■ JL707A Power-to-Port model	JL307A, R0Z25A/R0Z26A: 10.06.0001 845416-B21: NO SUPPORT for Split ports	Hardware does not support Splitting of any of the QSFP28 ports
Aruba 8360-12C models JL721A displayed by CLI (`show system`) ■ JL708A Port-to-Power model ■ JL709A Power-to-Port model	JL307A, R0Z25A/R0Z26A: 10.06.0001 845416-B21: 10.06.0001 (Requires split command)	1-12 (all QSFP28 ports can be split) There are no SFP28 ports on this model
8360 24XF2C models JL722A displayed by CLI (`show system`)	JL307A, R0Z25A/R0Z26A: 10.06.0001	25-26 (all QSFP28 ports can be split)

Product name (SKU)	Minimum software required	Comments
▪ JL710A Port-to-Power model ▪ JL711A Power-to-Port model	845416-B21: 10.06.0001 (Requires `split` command)	There are no SFP28 ports on this model
Aruba 8400X Module: 6p 40G/100G QSFP28 Advanced Module (JL366A)	JL307A: 10.00.0005 R0Z25A/R0Z26A: 10.06.0001 845416-B21: Not supported nor any type of 100G Split Cable (or Split SR4 optic)	8400 JL366A 6p QSFP28 module cannot support splitting 100G ports into 4x25G speed (no 25G MAC available on the JL366A module)

100G QSFP28 AOC and Breakout AOC (active optical cables)

Figure 7 *QSFP28 100G AOC (active optical cable) and breakout AOC*



Models, Specifications, and Compatibility

Table 14: Specifications for QSFP28 100G active optical cables

Product name (SKU)	Cable length	Data rate
Aruba 100G QSFP28 to QSFP28 7m AOC (R0Z27A)	7 m (22.96 ft)	100 Gbps
Aruba 100G QSFP28 to QSFP28 15m AOC (R0Z28A)	15 m (49.21ft)	100 Gbps
Aruba 100G QSFP28 to QSFP28 30m AOC (R0Z29A)	30 m (98.42 ft)	100 Gbps

The following 100G breakout AOC cables are offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

AOS-CX release 10.05 and later supports a `split` command configured on 100G QSFP28 ports.

As of the AOS-CX 10.05 release, the configuration requires a save and reboot of the switch or module. See the *Monitoring Guide* for details on the `split` command.

Table 15: Specifications for HPE QSFP28 breakout 100G active optical cables (from HPE Server products)

Product name (SKU)	Cable length	Data rate
HPE QSFP28 to 4x25G SFP28 7m AOC (845420-B21)	7 m (22.96 ft)	4 x 25Gbps
HPE QSFP28 to 4x25G SFP28 15m AOC (845424-B21)	15 m (49.21ft)	4 x 25Gbps

Table 16: Compatibility for the QSFP28 100G active optical cables

Product name (SKU)	Minimum software required (R0Z27A, R0Z28A, R0Z29A, 845420-B21, 845424-B21)	Comments
Aruba 6400 Module: 12p 40G/100G QSFP28 Module (R0X45A)	Not supported	
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	R0Z27A, R0Z28A, R0Z29A: 10.06.0001 845420-B21, 845424-B21: 10.06.0001 (Requires `split` command)	845420-B21, 845424-B21: either QSFP28 or SFP28 ends are supported for use The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.
Aruba 8325 32C models JL636A displayed by CLI (`show system`) ■ JL626A - Port-to-Power model (FB) ■ JL627A - Power-to-Port model (BF)	R0Z27A, R0Z28A, R0Z29A: 10.06.0001 845420-B21, 845424-B21: 10.06.0001 (Requires `split` command)	845420-B21, 845424-B21: only QSFP28 supported for use in this 8325 model
Aruba 8360 series	Not supported	
Aruba 8400X Module: 6p 40G/100G QSFP28 Advanced Module (JL366A)	R0Z27A, R0Z28A, R0Z29A: 10.06.0001 845420-B21, 845424-B21: Only	845420-B21, 845424-B21: Only the SFP28 ends are supported

Product name (SKU)	Minimum software required (R0Z27A, R0Z28A, R0Z29A, 845420-B21, 845424-B21)	Comments
	the 25G end of these 4x25G AOC are supported with 10.06.0001	for use with 10.06.0001

40G QSFP+ Optical Transceiver Modules that use MPO Connectors

Figure 8 *QSFP+ optical transceiver module that uses MPO connectors*



Models, Specifications, and Compatibility

QSFP+ optical transceiver modules provide a transmission rate of 40 Gbps and use Multifiber Push On (MPO) connectors.

40G SR4 and eSR4 are not supported for use over MMF OM1 or OM2 quality fiber. (The IEEE standard does not state a specification). Use MPO female connectors for use with the MPO transceivers. See Overview for information regarding MPO connectors and cable requirements.

Table 17: Specifications for QSFP+ optical transceiver modules that use MPO connectors

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Modal bandwidth (MHz*km)	Transmission distance
HPE X142 40G QSFP+ MPO SR4 Transceiver (JH231A)	YES (1990-4554)	850	MMF	50/125	2000 (OM3) 4700 (OM4)	100 m (328.08 ft) 150 m (492.12 ft)
HPE X142 40G QSFP+ MPO eSR4 300M XCVR (JH233A)	YES (1990-4555)	850	MMF	50/125	2000 (OM3) 4700 (OM4)	300 m (984.25 ft) 400 m (1312.34 ft)

40G SR4/eSR4 optics can be used by a QSFP28/QSFP+ port that can be "split" into four channels of 10G (available on select switch models/modules on identified ports).

The following optical spilt cables can be used with 40G SR4/eSR4 to split into 4x 10G SR compatible streams. These cables are ordered from the HPE Compute and Server or Storage business units and may not be available to Aruba-only resellers.

Fiber breakout cables (from HPE Server products):

- (Server SKU) R1N86A, HPE 12 Fiber MPO to 4xLC MM 3m Cbl
- (Storage SKU) K2Q46A, HPE MPO to 4 x LC 5m Cable
- (Storage SKU) K2Q47A, HPE MPO to 4 x LC 15m Cable

AOS-CX release 10.05 and latersupports a `split` command configured on 100G QSFP28 or 40G QSFP+ ports. See Splitting of QSFP+ and QSFP28 ports.

Table 18: Specifications for QSFP+ optical transceiver modules that use MPO connectors

Product name (SKU)	Connector	Optical parameters (dBm)	
		Transmit power	Receive power
HPE X142 40G QSFP+ MPO SR4 Transceiver (JH231A)	MPO (PC polished, 12-fiber)	–7.6 to 0	–9.5 to +2.4
HPE X142 40G QSFP+ MPO eSR4 300M XCVR (JH233A)	MPO (PC polished, 12-fiber)	–7.6 to 0	–9.9 to +2.4

Table 19: Compatibility for the QSFP+ optical transceiver modules that use MPO connectors

Product name (SKU)	Minimum software required	Comments
Aruba 3810M/2930M 1QSFP+ 40GbE Module (JL078A)	All	No optical split capability on AOS-Switch series: 3810M, 2930M, 5400R
Aruba 3810M 24G 1-slot Switch 2QSFP+ 40GbE Module (JL079A)	All	
Aruba 20p PoE+ / 1p 40GbE QSFP+ v3 zl2 Module (J9992A)	KB.15.17	
Aruba 2p 40GbE QSFP+ v3 zl2 Module (J9996A)	KB.15.17	
Aruba 6400 12p 40G/100G QSFP28 Module (R0X45A)	10.04.2000	No support for splitting of SR4 optics
Aruba 8320 48p SFP/SFP+ & 6p 40G QSFP+ Switch (JL479A)	10.00.0006	40G SR4/eSR4 can be optically split as of: 10.05.0001 JL579A limits to only ports 5-28 See Splitting of QSFP+ and QSFP28 ports.
Aruba 8320 32p 40G QSFP+ Switch (JL579A)	10.00.0012	
Aruba 8320 48p G /6p 40G QSFP+ Switch (JL581A)	10.00.0012	
Aruba 8325 32C models JL636A displayed by CLI (`show system`) ■ JL626A - Port-to-Power model (FB)	10.03.0030	40G SR4/eSR4 can be optically split: 10.05.0001 See Splitting of QSFP+ and QSFP28 ports.

Product name (SKU)	Minimum software required	Comments
▪ JL627A - Power-to-Port model (BF)		
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ▪ JL624A - Port-to-Power model (FB) ▪ JL625A - Power-to-Port model (BF)	10.03.0030	40G SR4/eSR4 can be optically split: 10.05.0001 See Splitting of QSFP+ and QSFP28 ports.
8360 32Y4C models JL717A displayed by CLI (`show system`) ▪ JL700A Port-to-Power model ▪ JL701A Power-to-Port model	JH231A, JH233A: 10.06.0001	40G SR4/eSR4 can be optically split as of: 10.06.0001 See Splitting of QSFP+ and QSFP28 ports.
8360 16Y2C models JL718A displayed by CLI (`show system`) ▪ JL702A Port-to-Power model ▪ JL703A Power-to-Port model	JH231A, JH233A: 10.06.0001	40G SR4/eSR4 can be optically split as of: 10.06.0001 See Splitting of QSFP+ and QSFP28 ports.
8360 48XT4C model JL720A displayed by CLI (`show system`) ▪ JL706A Port-to-Power model ▪ JL707A Power-to-Port model	JH231A, JH233A: 10.06.0001	8360 48XT4C does not support split ports
8360 12C models JL721A displayed by CLI (`show system`) ▪ JL708A Port-to-Power model ▪ JL709A Power-to-Port model	JH231A, JH233A: 10.06.0001	40G SR4/eSR4 can be optically split as of: 10.06.0001 See Splitting of QSFP+ and QSFP28 ports.
8360 24XF2C models JL722A displayed by CLI (`show system`) ▪ JL710A Port-to-Power model ▪ JL711A Power-to-Port model	JH231A, JH233A: 10.06.0001	40G SR4/eSR4 can be optically split as of: 10.06.0001 See Splitting of QSFP+ and QSFP28 ports.
Aruba 8400X Modules: 8p 40G QSFP+ Advanced Module (JL365A)	All	40G SR4/eSR4 can be optically split: 10.05.0001
Aruba 8400X Modules: 6p 40G/100G QSFP28 Advanced Module (JL366A)	10.00.0006	10.00.0005 supports 100G products. 10.00.0006 provides additional support for 40G on the JL366A.

Product name (SKU)	Minimum software required	Comments
		JL366A module: 40G SR4/eSR4 can be optically split: 10.05.0001 See Splitting of QSFP+ and QSFP28 ports.

40G QSFP+ optical Transceiver Modules that use LC Connectors

Figure 9 *QSFP+optical transceiver module that uses LC connectors*



Models, Specifications, and Compatibility

QSFP+ optical transceiver modules provide a transmission rate of 40 Gbps and use LC connectors.

Table 20: Specifications for QSFP+ transceiver modules that use LC connectors

Product name (SKU)	DOM - Digital Optical Monitoring (4x4)	Central wl (nm)	Fiber mode	Fiber dia-meter (µm)	Modal bandwidth (MHz*km)	Transmission dis-tance
Aruba 40G QSFP+ LC BiDi 150m MMF XCVR (JL308A)	YES (1990-4679)	Dual 20Gb/s: ▪ 850 ▪ 900	MMF	50/125	2000 (OM3) 4700 (OM4)	100m (328.08 ft) 150m (492.12 ft) Not supported on OM1/OM2.
HPE X142 40G QSFP+ LC LR4 SM Transceiver (JH232A)	YES (1990-4556)	Four lanes: ▪ 1271 ▪ 1291 ▪ 1311 ▪ 1331	SMF	9/125	N/A	10km (6.21 miles)
Aruba 40G QSFP+ LC ER4 40km SMF Transceiver (Q9G82A)	YES (1990-4734)	Four lanes: ▪ 1271 ▪ 1291 ▪ 1311 ▪ 1331	SMF	9/125	N/A	30km (18.6 miles) over SMF for No-FEC 40km (24.86 miles) requires FEC (Forward Error Correction) on both ends of the engineered link using this optic to achieve this maximum distance

Table 21: Specifications for QSFP+ transceiver modules that use LC connectors

Product name (SKU)	Optical parameters (dBm)	
	Transmit power	Receive power
Aruba 40G QSFP+ LC BiDi 150m MMF Transceiver (JL308A)	-4 to +5	-6 to +5
HPE X142 40G QSFP+ LC LR4 SM Transceiver (JH232A)	-7 to +2.3 per lane	-13.7 to +2.3 per lane
Aruba 40G QSFP+ LC ER4 40km SMF XCVR (Q9G82A)	-2.7 to 4.5 dBm	-21.2 to -4.5 dBm (Use attenuators to match power levels.)

Table 22: Compatibility for the QSFP+ optical transceiver modules that use LC connectors

Product name (SKU)	Minimum software required	Comments
Aruba 3810M/2930M 1QSFP+ 40GbE Module (JL078A)	JH232A: all JL308A: KB.16.04.0008 or WC.16.04.0008 Q9G82A: Not supported	
Aruba 3810M 2QSFP+ 40GbE Module (JL079A)	JH232A: all JL308A: KB.16.04.0008 Q9G82A: Not supported	The JL079A 2p 40G module is not supported in the 2930M series nor on the 3810M 16SFP+ 2-slot switch (JL075A).
Aruba 20p PoE+ / 1p 40GbE QSFP+ v3 zl2 Module (J9992A)	JH232A: KB.15.17 JL308A: KB.16.04.0008 Q9G82A: Not supported	
Aruba 2p 40Gb E QSFP+ v3 zl2 Module (J9996A)	JH232A: KB.15.17 JL308A: KB.16.04.0008 Q9G82A: Not supported	
Aruba 6400 12p 40G/100G QSFP28 Module (R0X45A)	JH232A/JL308A/Q9G82A: 10.04.2000	
Aruba 8320 48p SFP/SFP+ & 6p 40G QSFP+ Switch (JL479A)	JH232A: 10.00.0006 JL308A: 10.00.0006 Q9G82A: 10.00.0018	
Aruba 8320 32p 40G QSFP+ Switch (JL579A)	JH232A: 10.00.0012 JL308A: 10.00.0012 Q9G82A: 10.00.0018	

Product name (SKU)	Minimum software required	Comments
Aruba 8320 48p G /6p 40G Q SFP+ Switch (JL581A)	JH232A: 10.00.0012 JL308A: 10.00.0012 Q9G82A: 10.00.0018	
Aruba 8325 32C models JL636A displayed by CLI (`show system`) ■ JL626A - Port-to-Power model (FB) ■ JL627A - Power-to-Port model (BF)	JH232A, JL308A, Q9G82A: 10.03.0030	
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	JH232A, JL308A, Q9G82A: 10.03.0030	
Aruba 8360 series	JH232A, JL308A, Q9G82A: 10.06.0001	
Aruba 8400X Modules: 8p 40G QSFP+ Advanced Module (JL365A)	JH232A: all JL308A: all Q9G82A: 10.00.0018	
Aruba 8400X Modules: 6p 40G/100G QSFP28 Advanced Module (JL366A)	JH232A: 10.00.0006 JL308A: 10.00.0006 Q9G82A: 10.00.0018	10.00.0005 provides support for 100G products. 10.00.0006 provides additional support for 40G on the JL366A.

40G QSFP+ DAC and Breakout DAC (copper cables)

Figure 10 *QSFP+ DAC and breakout DAC copper cables*





Direct Attach over Copper (DAC) cables have a minimum bend radius of typically 4x the diameter of the cable (approximately a 1" (2.5cm) bend radius). Handle DAC cables carefully to ensure that you do not crimp or bend the cable beyond a 1" radius; otherwise, you risk damaging the cable.

Table 23: Specifications for QSFP+ copper cables

Product name (SKU)	Cable length	Data rate
HPE X242 40G QSFP+ to QSFP+ 1m DAC Cable (JH234A)	1 m (3.28 ft)	40 Gbps
HPE X242 40G QSFP+ to QSFP+ 3m DAC Cable (JH235A)	3 m (9.84 ft)	
HPE X242 40G QSFP+ to QSFP+ 5m DAC Cable (JH236A)	5 m (16.40 ft)	

The following DAC breakout cable is offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

AOS-CX releases 10.05 and later support a `split` command configured on 100G QSFP28 ports.



As of the AOS-CX 10.05 release, the configuration requires a save and reboot of the switch or module. See the *Monitoring Guide* for details on the `split` command.

See Splitting of QSFP+ and QSFP28 ports for more information.

Table 24: Specifications for HPE QSFP+ breakout DAC cables (from HPE Server products)

Product name (SKU)	Cable length	Data rate
HPE BLc 40G QSFP+ 4x10G SFP+ 3m DAC Cbl (721064-B21)	3m (9.84ft)	40G to 4 x 10G

Table 25: Compatibility for the QSFP+ DAC and breakout DAC copper cables

Product name (SKU)	Minimum software required	Comments
Aruba 3810M/2930M 1QSFP+ 40GbE Module (JL078A)	JH234A, JH235A, JH236A: All 721064-B21: Not supported	
Aruba 3810M 2QSFP+ 40GbE Module (JL079A)	JH234A, JH235A, JH236A: All 721064-B21: Not supported	The JL079A module is not supported in the 2930M series nor on the 3810M 16SFP+ 2-slot Switch (JL075A)
Aruba 20p PoE+ / 1p 40GbE QSFP+ v3 zl2 Module (J9992A)	JH234A, JH235A, JH236A: KB 15.17 721064-B21: Not supported	
Aruba 2p 40GbE QSFP+ v3 zl2 Module (J9996A)	JH234A, JH235A, JH236A: KB 15.17 721064-B21: Not supported	

Product name (SKU)	Minimum software required	Comments
Aruba 6400 12p 40G/100G QSFP28 Module (R0X45A)	JH234A, JH235A, JH236A: 10.04.2000 721064-B21: Not supported	
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch (JL479A)	JH234A, JH235A, JH236A: 10.00.0012 721064-B21: 10.05.0001 (Requires `split` command)	721064-B21: 10.05.0001 Only the QSFP end is supported
Aruba 8320 32p 40G QSFP+ Switch (JL579A)	JH234A, JH235A, JH236A: 10.00.0012 721064-B21: 10.05.0001 (see comments)	8320 JL579A only allows splitting of ports 5-28 (center 24 ports). 721064-B21: 10.05.0001 Only the QSFP end is supported
Aruba 8320 48p 10GBT 6p 40G QSFP+ Switch (JL581A)	JH234A, JH235A, JH236A: 10.03.0030 721064-B21: 10.05.0001 (Requires `split` command)	721064-B21: 10.05.0001 Only the QSFP end is supported
Aruba 8325 32C models JL636A displayed by CLI (`show system`) ■ JL626A - Port-to-Power model (FB) ■ JL627A - Power-to-Port model (BF)	JH234A, JH235A, JH236A: 10.00.0012 721064-B21: 10.05.0001 (Requires `split` command)	8325 JL636A allows splitting of all 32 ports. 721064-B21: 10.05.0001 Only the QSFP end is supported
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	JH234A, JH235A, JH236A: 10.03.0030 721064-B21: 10.05.0001 (Requires `split` command)	8325 JL635A allows splitting of all 8 ports 721064-B21: 10.05.0001 Only the QSFP end is supported
Aruba 8360 32Y4C models JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model	JH234A, JH235A, JH236A: 10.06.0001 721064-B21: 10.06.0001 (Requires `split` command)	
Aruba 8360 16Y2C models JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model	JH234A, JH235A, JH236A: 10.06.0001 721064-B21: 10.06.0001 (Requires `split` command)	
Aruba 8360 48XT4C models JL720A displayed by CLI (`show system`)	JH234A, JH235A, JH236A: 10.06.0001	8360 48XT4C model does not support split port

Product name (SKU)	Minimum software required	Comments
▪ JL706A Port-to-Power model ▪ JL707A Power-to-Port model	721064-B21: Can NEVER be supported	
Aruba 8360 12C models JL721A displayed by CLI (`show system`) ▪ JL708A Port-to-Power model ▪ JL709A Power-to-Port model	JH234A, JH235A, JH236A: 10.06.0001 721064-B21: 10.06.0001 (Requires `split` command)	
Aruba 8360 24XF2C models JL722A displayed by CLI (`show system`) ▪ JL710A Port-to-Power model ▪ JL711A Power-to-Port model	JH234A, JH235A, JH236A: 10.06.0001 721064-B21: 10.06.0001 (Requires `split` command)	
Aruba 8400X Module: 8p 40G QSFP+ Adv Module (JL365A)	JH234A, JH235A, JH236A: 10.00.0002 721064-B21: Not supported	8400 JL365A 8p QSFP+ module allows splitting of all 8 ports
Aruba 8400X Module: 6p 40G/100G QSFP28 Adv Module (JL366A)	JH234A, JH235A, JH236A: 10.00.0006 721064-B21: Not supported	JL366A 6p QSFP28 module no support for breakout 40G DACs

40G QSFP+ AOC and Breakout AOC (active optical cables)

Figure 11 *QSFP+ 40G AOC and breakout AOC (active optical cables)*



Models, Specifications, and Compatibility

Table 26: Specifications for QSFP+ 40G active optical cables

Product name (SKU)	Cable length	Data rate
Aruba 40G QSFP+ to QSFP+ 7m AOC (R0Z22A)	7m (22.96 ft)	40 Gbps
Aruba 40G QSFP+ to QSFP+ 15m AOC (R0Z23A)	15m (49.21 ft)	
Aruba 40G QSFP+ to QSFP+ 30m AOC (R0Z24A)	30m (98.42 ft)	

The following 40G breakout AOC cable is offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

AOS-CX release 10.05 and later supports a `split` command configured on 100G QSFP28 ports.



As of the AOS-CX 10.05 and 10.06 releases, the configuration requires a save and reboot of the switch or module. See the *Monitoring Guide* for details on the `split` command.

Table 27: Specifications for HPE QSFP+ breakout 40G active optical cables (from HPE Server products)

Product name (SKU)	Cable length	Data rate
HPE BLc QSFP+ to 4x10G SFP+ AOC 15m Opt (721076-B21)	7m (22.96 ft)	4 x 10G

Table 28: Compatibility for the QSFP+ 40G active optical cables

Product name (SKU)	Minimum software required	Comments
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch (JL479A)	R0Z22A,R0Z23A,R0Z24A: Not supported 721076-B21: 10.06.0001 (Requires `split` command)	721076-B21: Both QSFP and SFP+ ends are supported
Aruba 8320 32p 40G QSFP+ Switch (JL579A)	R0Z22A,R0Z23A,R0Z24A: Not supported 721076-B21: 10.06.0001 (Requires `split` command)	8320 JL579A only allows splitting of ports 5-28 (center 24 ports). 721076-B21: Only the QSFP end is supported
Aruba 8320 48p 10GBT 6p 40G QSFP+ Switch (JL581A)	R0Z22A,R0Z23A,R0Z24A: Not supported 721076-B21: 10.06.0001 (Requires `split` command)	721076-B21: Only the QSFP end is supported
Aruba 8325 32C models JL636A displayed by CLI (`show system`)	R0Z22A, R0Z23A, R0Z24A: 10.03.0040 721076-B21: 10.06.0001 (Requires	721076-B21: Only the QSFP end is supported

Product name (SKU)	Minimum software required	Comments
▪ JL626A - Port-to-Power model (FB) ▪ JL627A - Power-to-Port model (BF)	`split` command)	
Aruba 8325 48Y8C models JL635A displayed by CLI (`show system`) ▪ JL624A -Port-to-Powermodel(FB) ▪ JL625A - Power-to-Port model (BF)	R0Z22A, R0Z23A, R0Z24A: 10.03.0040 721076-B21: 10.06.0001 (Requires `split` command)	721076-B21: Both QSFP+ and SFP+ ends are supported The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the Installation Guide for details.
Aruba 8360 32Y4C models JL717A displayed by CLI (`show system`) ▪ JL700A Port-to-Power model ▪ JL701A Power-to-Port model	R0Z22A, R0Z23A, R0Z24A: Not supported 721076-B21: Not supported	The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF (1G/10G) model. See the *Installation Guide* for details.
Aruba 8360 16Y2C models JL718A displayed by CLI (`show system`) ▪ JL702A Port-to-Power model ▪ JL703A Power-to-Port model	R0Z22A, R0Z23A, R0Z24A: Not supported 721076-B21: Not supported	
Aruba 8360 48XT4C models JL720A displayed by CLI (`show system`) ▪ JL706A Port-to-Power model ▪ JL707A Power-to-Port model	R0Z22A, R0Z23A, R0Z24A: Not supported 721076-B21: Not supported	
Aruba 8360 12C models JL721A displayed by CLI (`show system`) ▪ JL708A Port-to-Power model ▪ JL709A Power-to-Port model	R0Z22A, R0Z23A, R0Z24A: Not supported 721076-B21: Not supported	
Aruba 8360 24XF2C models JL722A displayed by CLI (`show system`) ▪ JL710A Port-to-Power model ▪ JL711A Power-to-Port model	R0Z22A, R0Z23A, R0Z24A: Not supported 721076-B21: Not supported	
Aruba 8400X 32p SFP/SFP+ 10G MACsec Module (JL363A)	721076-B21: (10G SFP+ ends) 10.06.0001	721076-B21: 10G SFP+ end supported by 10.06.0001

Product name (SKU)	Minimum software required	Comments
Aruba 8400X 8p 40G QSFP+ Adv Module (JL365A)	R0Z22A, R0Z23A, R0Z24A: not supported 721076-B21: 10.06.0001 (Requires `split` command)	721076-B21: QSFP+ end supported in this module
Aruba 8400X 6p 40G/100G QSFP28 Adv Module (JL366A)	R0Z22A, R0Z23A, R0Z24A: not supported 721076-B21: 10.06.0001 (Requires `split` command)	721076-B21: QSFP+ end supported in this module
Aruba 8400X 32p 25G SFP28 Module (JL687A)	721076-B21: (10G SFP+ ends) 10.06.0001	721076-B21: 10G SFP+ end supported by 10.06.0001 JL687A 32p 25G module requires configuration of "interface groups" (groups of 4 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.

SFP56 Direct Attach over Copper (DAC) Cables

Always refer to the Datasheet or QuickSpecs for the switch product to see the current list of supported transceivers.

Figure 12 *SFP56 DAC cable*



Direct Attach over Copper (DAC) cables have a minimum bend radius of typically 4x the diameter of the cable (approximately a 1" bend radius). Handle DAC cables carefully to ensure that you do not crimp or bend the cable beyond a 1" radius; otherwise, you risk damaging the cable.

Models, Specifications, and Compatibility

Table 29: Specifications for SFP56 copper cables

Product name (SKU)	Cable length	Data rate
Aruba 50G SFP56 to SFP56 0.65m DAC Cable (R0M46A)	0.65m (2.13 ft)	50Gbps
Aruba 50G SFP56 to SFP56 3m DAC Cable (R0M47A)	3m (9.84 ft)	

Table 30: Compatibility for the SFP56 DAC copper cables

Product name	SKU	Minimum software required R0M46A, R0M47A	Comments
Aruba 6300 Switch Series	All models M and F	10.04.0001	Used for stacking

Product name	SKU	Minimum soft-ware required R0M46A, R0M47A	Comments
Aruba 6400 Switch Series	Not supported	Not supported	No support for 50G DACs. Use 40G or 100G DACs and R0X45A 40G/100G module

SFP28 Optical Transceiver Modules

SFP28 ports are 25G speed ports and similar in size to a 10G SFP+ or 1G SFP port. They have supporting circuitry to enable 25G speed transceiver, DAC, and AOC components.

Although 10G and 1G transceiver products may 'fit' into an SFP28 port, the particular switch model or module may be limited in supporting lower speeds.

See Types of transceiver modules and network cables for information regarding the type of connectors used by SFP28 port products.

25G as a standard does not specify any distance over MMF OM1 or OM2 fiber. There is no guarantee for distance. Always refer to the Datasheet or QuickSpecs for the switch product to see the current list of supported transceivers.

Figure 13 *SFP28 optical transceiver modules*



Models, Specifications, and Compatibility

SFP28 optical transceiver modules provide a transmission rate of 25 Gbps and use LC connectors.

Table 31: Specifications for SFP28 optical transceiver modules

Product name (SKU)	DOM- Digital Optical Monitoring (4x4 part number)	Central wl (nm)	Fiber mode	Fiber Diameter	Modal bandwidth (MHz*km)	Transmission distance
Aruba 25G SFP28 LC SR 100m MMF XCVR (JL484A)	Yes (partial)	850	MMF	50/125	2000 (OM3)	70m (229.66 ft)
					4700 (OM4)	100m (328.08 ft)
Aruba 25G SFP28 LC eSR 400m MMF XCVR (JL485A)	Yes (partial)	850	MMF	50/125	2000 (OM3)	200m (656.16 ft)
					4700 (OM4)	400m (1,312.34 ft)
Aruba 25G SFP28 LC LR 10km SMF Transceiver (JL486A)	Yes (partial)	1310	SMF	9/125	n/a	10km (6.21 miles)

Table 32: Specifications for SFP28 optical transceiver modules

Product name (SKU)	Optical parameters (dBm)	
	Transmit power	Receive power
Aruba 25G SFP28 LC SR 100m MMF XCVR (JL484A) '	-8.4 to +2.4	-10.3 to +2.4
Aruba 25G SFP28 LC eSR 400m MMF XCVR (JL485A)	-8.4 to+2.4	-10.3 to +2.4
Aruba 25G SFP28 LC LR 10km SMF Transceiver (JL486A)	-7.0 to+2.0	-13.3 to +2.0

Table 33: Compatibility for the SFP28 transceiver modules

Product name	SKU	Minimum soft-ware required	Comments
Aruba 6300 series	All models M and F Except JL762A	10.04.0001 10.04.3000	
Aruba 6400 Modules	R0X39B, R0X40B, R0X41A, R0X42A, R0X43A	10.04.1000 Only supported in SFP56 ports	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series R0X43A: 25G optics are not supported in 10G SFP+ ports
	R0X44A	10.04.2000 Supported in all SFP28 ports	
Aruba 8325 48Y8C models	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	10.02.0001	The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.
Aruba 8360 32Y4C models	JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model	10.06.0001	The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can

Product name	SKU	Minimum soft-ware required	Comments
			individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF (1G/10G) model See the *Installation Guide* for details.
Aruba 8360 16Y2C models	JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model	10.06.0001	
Aruba 8400X Modules	JL687A	10.04.2000	JL687A 32p 25G module requires configuration of "interface groups" (groups of 4 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.

25G SFP28 Direct Attach over Copper (DAC) cables

Always refer to the Datasheet or QuickSpecs for the Switch product to see the current list of supported transceivers.

Figure 14 *SFP28 DAC copper cable*



Direct Attach over Copper (DAC) cables have a minimum bend radius of typically 4x the diameter of the cable (approximately a 1" bend radius). Handle DAC cables carefully to ensure that you do not crimp or bend the cable beyond a 1" radius; otherwise, you risk damaging the cable.

Models, Specifications, and Compatibility

Table 34: Specifications for SFP28 DACs

Product name (SKU)	Cable length	Data rate
Aruba 25G SFP28 to SFP28 0.65m DAC Cable (JL487A)	0.65m (2.13 ft)	25 Gbps
Aruba 25G SFP28 to SFP28 3m DAC Cable (JL488A)	3m (9.8ft)	
Aruba 25G SFP28 to SFP28 5m DAC Cable (JL489A)	5m (16.40 ft)	

The following DAC cables are offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING TRANSCEIVER AND CABLE COMPATIBILITY MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

Table 35: Specifications for HPE SFP28 DACs (from HPE Server Products)

Product name (SKU)	Cable length	Data rate
HPE 25Gb SFP28 to SFP28 3m DAC (844477-B21)	3m (9.84 ft)	25 Gbps
HPE 25Gb SFP28 to SFP28 5m DAC (844480-B21)	5m (16.40 ft)	

Table 36: Compatibility for the SFP28 DACs

Product name	SKU	Minimum software required	Comments
Aruba 6300 Switch Series	All models M and F	JL487A, JL488A, JL489A: 10.04.0001 844477-B21 & 844480-B21: Not supported	
Aruba 6400 modules with SFP56 ports	R0X39B, R0X40B R0X41A, R0X42A, R0X43A	JL487A, JL488A, JL489A: 10.04.1000 Only supported in SFP56 ports 844477-B21 & 844480-B21: Not supported	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series R0X43A: 25G DACs are not supported in 10G SFP+ ports
	R0X44A	JL487A, JL488A, JL489A: 10.04.2000 Supported in all SFP28 ports 844477-B21 & 844480-B21: Not supported	
Aruba 8325 48Y8C models	JL635A displayed by CLI (`show system`)	JL487A, JL488A, JL489A: 10.03.0030 844477-B21 & 844480-	The 8325 requires configuration of

Product name	SKU	Minimum software required	Comments
	■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	B21: 10.04.1000	"interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details. 844477-B21 & 844480-B21: verified against HPE interconnects listed in Support for HPE Servers and Systems products
8360 32Y4C models	JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model	10.06.0001 844477-B21 & 844480-B21: 10.06.0001	The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers.All other ports canindividually auto-detect thespeed of the inserted xcvr.Not applicable to the 24XF(1G/10G) model. See the *Installation Guide* for details.

Product name	SKU	Minimum software required	Comments
8360 16Y2C models	JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model	10.06.0001 844477-B21 & 844480-B21: 10.06.0001	
Aruba 8400X Modules	JL687A	JL487A: Not Supported JL488A, JL489A: 10.04.2000 844477-B21, 844480-B21: 10.06.0001	JL487A 0.65m DAC not supported The JL687A module requires configuration of "interface groups" (groups of 4 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.

25G SFP28 AOC (Active Optical Cable)

Figure 15 *SFP28 25G AOC (Active Optical Cable)*



Models, Specifications, and Compatibility

Table 37: Specifications for SFP28 25G active optical cables

Product name (SKU)	Cable length	Data rate
Aruba 25G SFP28 to SFP28 3m AOC (R0M44A)	3m (9.84 ft)	25 Gbps
Aruba 25G SFP28 to SFP28 7m AOC (R0M45A)	5m (16.40 ft)	
Aruba 25G SFP28 to SFP28 15m AOC (R0Z21A)	15m (49.21 ft)	

The following Active Optical Cable (AOC) products are offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

Table 38: Specifications for HPE SFP28 AOCs (from HPE Server Products)

Product name (SKU)	Cable length	Data rate
HPE QSFP28 to 4x25G SFP28 7m AOC (845420-B21)	7m (22.9ft)	25 Gbps
HPE QSFP28 to 4x25G SFP28 15m AOC (845424-B21)	15m (49.2ft)	

Table 39: Compatibility for the SFP28 25G active optical cables

Product Name	SKU	Minimum soft-ware required R0M44A, R0M45A, R0Z21A	Comments
Aruba 8325 Switch Series	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	R0M44A, R0M45A, R0Z21A: 10.03.0040 845420-B21, 845424-B21: 10.06.0001	The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.
8360 32Y4C models	JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model	R0M44A, R0M45A, R0Z21A: 10.06.0001	The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface

Product Name	SKU	Minimum soft-ware required R0M44A, R0M45A, R0Z21A	Comments
			Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF (1G/10G) model. See the *Installation Guide* for details.
8360 16Y2C models	JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model	R0M44A, R0M45A, R0Z21A: 10.06.0001	
Aruba 8400X Modules	JL687A	R0M44A, R0M45A, R0Z21A, 845420-B21, 845424-B21: 10.06.0001	The JL687A module requires configuration of "interface groups" (groups of 4 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.

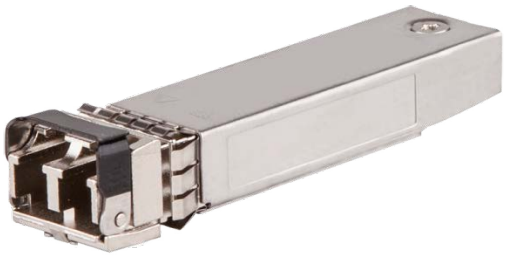
SFP+ Optical Transceiver Modules

In December 2017, Aruba introduced Revision D versions of 100M, 1G, and 10G transceivers. Revision D products are structured to be specific alternate vendors as sources for the SKU#. Earlier Revision A, B, or C product may have alternate vendors that we no longer actively ship, but remain as fully supported in earlier and current products.

Some switch products will be specifying Revision D or Revision E (as is the case for the 8325 requiring J9151E or later) transceivers for full support, while other products may support earlier (older) revision transceivers – and some with specific 4x4 part numbers (see Identification of 4x4 Part Numbers for more information).

Always refer to the Datasheet or QuickSpecs for the Switch product to see the current list of supported transceivers.

Figure 16 *SFP+ optical transceiver modules*



- Although a 10G SFP+ transceiver module is the same physical dimensions of a 1G SFP transceiver, a 10G transceiver will NOT operate in a 1G-only SFP port.
- Many, although not all, 10G SFP+ ports have support to use a 1G SFP transceiver (or even a 100Mbps FX SFP transceiver).

  See the QuickSpec for the switch product and verify if the 1G or 100Mbps SFP transceiver is supported in the 10G SFP+ port.

Models, Specifications, and Compatibility

SFP+ optical transceiver modules provide a transmission rate of 10.31 Gbps and use LC connectors.

The specifications for Revision D and E transceiver products are the same as the specified Revision A, B, C SKUs. Where support for a Revision A, B, or C transceiver existed, Revision D or E parts are also supported. Not all earlier revisions can be re-used on newer products: Check the tables below and compare the 4x4 number of the part to the list of supported 4x4 numbers. See Identification of 4x4 Part Numbers for more information.

Table 40: Specifications for SFP+ optical transceiver modules

Product Name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Bandwidth (MHz*km)	Transmission distance
HPE X132 10G SFP+ LC SR Transceiver (J9150A) Aruba 10G SFP+ LC SR 300m MMF XCVR (J9150D) Aruba 10G SFP+ LC SR 300m MMF TAA XCVR (JL748A)	Yes (1990-4391, 1990-4635, 1990-4634, 1990-4175)	850	MMF	50/125	4700 (OM4) 2000 (OM3) 500 (OM2) 400	400m (1312.34 ft) 300 (984.25 ft) 82m (269.03 ft) 66m (216.54 ft)
				62.5/125	200 (OM1) 160	33m (108.27 ft) 26m (85.30 ft)
HPE X132 10G SFP+ LC LRM Transceiver (J9152A) Aruba 10G SFP+ LC LRM 220m MMF XCVR (J9152D)	Yes (1990-4485) See note below regarding MCP.	1310	MMF	50/125	1500 500 (OM2) 400	220m (721.78 ft) 220m (721.78 ft) 100m (328.08 ft)
				62.5/125	200 (OM1) 160	220m (721.78 ft) 220m (721.78 ft)
			SMF	9/125	N/A	300m (987.25 ft)
HPE X132 10G SFP+ LC LR Transceiver (J9151A) Aruba 10G SFP+ LC LR 10km SMF XCVR (J9151D and J9151E) Aruba 10G SFP+ LC LR 10km SMF TAA XCVR (JL749A)	Yes J9151A/J9151D: (1990-4657, 1990-4694) JL749A: (1990-4751, 1990-4752)	1310	SMF	9/125	N/A	10km (6.21 miles)
HPE X132 10G SFP+ LC ER Transceiver (J9153A) Aruba 10G	Yes (1990-4365, 1990-4656)	1550	SMF	9/125	N/A	40km (24.86 miles)

Product Name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Bandwidth (MHz*km)	Transmission distance
SFP+ LC ER 40km SMF XCVR (J9153D)						

J9152D 10G LRM (Long Reach Multimode) with 4x4 1990-4485 is tuned so that it does not require a Mode Conditioning Patch (MCP) cable. Older J9152A with 4x4 numbers other than 1990-4485 may require an MCP when you use OM1 or OM2 fiber cables. Never use mode conditioning patch cables for OM3 or OM4 fiber types. For more information about mode conditioning patch cables, see related sections in the IEEE 802.3 standard.

10G LRM transceivers require an Electronic Dispersion Compensation (EDC) behind the SFP+ port to support 10G LRM technology. Switches with note "(or any type of 10G LRM technology)" cannot support any type of 10G LRM transceiver (even under Unsupported Transceiver mode).

Table 41: Specifications for SFP+ optical transceiver modules

Product name (SKU)	Optical parameters (dBm)	
	Transmit power	Receive power
HPE X132 10G SFP+ LC SR Transceiver (J9150A) Aruba 10G SFP+ LC SR 300m MMF XCVR (J9150D) Aruba 10G SFP+ LC SR 300m MMF TAA XCVR (JL748A)	–7.3 to –1	–9.9 to +0.5
HPE X132 10G SFP+ LC LRM Transceiver (J9152A) Aruba 10G SFP+ LC LRM 220m MMF XCVR (J9152D)	–6.5 to +0.5	–6.5 to +1.5
HPE X132 10G SFP+ LC LR Transceiver (J9151A) Aruba 10G SFP+ LC LR 10km SMF XCVR (J9151D/J9151E) Aruba 10G SFP+ LC LR 10km SMF TAA XCVR (JL749A)	–8.2 to +0.5	–14.4 to +0.5
HPE X132 10G SFP+ LC ER Transceiver (J9153A) Aruba 10G SFP+ LC ER 40km SMF XCVR (J9153D)	–4.7 to +4	–15.8 to –1

Table 42: Compatibility for the SFP+ optical transceiver module

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
2530 Switch Series	J9853A, J9854A, J9855A, J9856A	All	All	Unlisted models do not have SFP+ ports.
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	All (J9150A/J9150D and J9151A/J9151D only) J9152A/J9152D (LRM) is not supported in any 2540 model	All	J9152A/J9152D (or any type of 10G LRM technology) is not supported in any 2540 model
2910al Switch Series	J9008A	All	W.15.07.0002	Unlisted models do not have SFP+ ports.
2920 Switch Series	J9726A, J9727A, J9728A, J9729A, J9836A	All		For use in an installed J9731A Aruba 2920 2-port 10GbE SFP+ Module.
2930F Switch Series	JL253A, JL254A, JL255A, JL256A, JL258A, JL263A, JL264A, JL558A, JL559A	J9150A/J9150D and J9151A/J9151D/J9151E: All versions JL748A/JL749A (TAA XCVRs): 16.10.0006 J9152A/J9152D (or any type of 10G LRM technology) is not supported in any 2930F model	All	Unlisted models do not have SFP+ ports. J9152A/J9152D (or any type of 10G LRM technology) is not supported in any 2930F model.
2930M Switch Series	JL319A, JL320A, JL321A, JL322A, JL323A, JL324A	J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D:All versions JL748A/JL749A (TAA XCVRs): 16.10.0006	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
	R0M67A, R0M68A	J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D: WC.16.05.*xxxx* JL748A/JL749A (TAA XCVRs): 16.10.0006	WC.16.05	

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
3500yl Switch Series	J8692A, J8693A, J9310A, J9311A	K.14.50 and later	K.15.02.0004 and later	For use in an installed J9312A 10GbE 2-port SFP+/2-port CX4 yl Module.
3800 Switch Series	J9575A, J9576A, J9573A, J9574A, J9584A	All	All	Unlisted models do not have SFP+ ports.
3810M Switch Series	JL071A, JL072A, JL073A, JL074A, JL076A	J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D:All versions JL748A/JL749A (TAA XCVRs): 16.10.0006	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module
	JL075A	J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D:All versions JL748A/JL749A (TAA XCVRs): 16.10.0006	All	For use in the JL075A SFP+ ports or in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module
5400zl Switch Series	J9309A	K.14.39	K.15.02.0004	The J9309A 4-port SFP+ module supports only 10G transceivers. 10G ER (J9153A/D) transceivers are limited to a maximum of two transceivers per J9309A or J9538A modules when used in a 5400zl or 8200zl chassis.
	J9538A, J9548A, J9536A	K.15.02.0004	K.15.02.0004	
5400R Switch Series	J9538A, J9548A, J9536A	J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D:All versions JL748A/JL749A (TAA XCVRs): 16.10.0006	All	
	J9990A, J9993A	J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D:KB.15.17 JL748A/JL749A (TAA XCVRs): 16.10.0006	KB.15.17	

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
Aruba 6100 Switch Series	All models	10.06.0001 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 6100 Series	J9153D 10G ER not supported on the 6100 series	Only the listed 4x4 parts are fully supported J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151A/J9151D ■ 1990-4657 ■ 1990-4727 ■ 1990-4694 J9151E ■ 1990-4727 ■ 1990-4694 J9152A/J9152D (or any type of 10G LRM technology) is not supported on the 6100 Series
6120 Switch Series	516733-B21 (6120XG)	All	Not supported	498358-B21 (6120G/XG) has 1GB SFP and 10G XFP or CX4 ports and does not support these SFP+ transceivers.
6200yl Switch Series	J8992A	K.14.50	K.15.02.0004	J8992A fixed SFP ports are 1GB and do not support these SFP+ transceivers. For use in an installed J9312A 10GbE 2-port SFP+/2-port CX4 yl Module.
Aruba 6200 Switch Series	All models	J9150A/J9150D and J9151A/J9151D/J9151E: 10.04.1000 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	10.04.1000 Only the listed 4x4 parts are fully supported J9153A/J9153D ■ 1990-4365 ■ 1990-4656	Only the listed 4x4 parts are fully supported J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151A/J9151D ■ 1990-4657

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	■ 1990-4727 ■ 1990-4694 J9151E ■ 1990-4727 ■ 1990-4694 J9152A/J9152D (or any type of 10G LRM technology) is not supported on the 6200 Series
Aruba 6300 Switch Series	All models (M and F) except JL762A	J9150A/J9150D and J9151A/J9151D/J9151E: 10.04.1000 Except JL762A: 10.04.3000 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	10.04.0001 J9153A/J9153D ■ 1990-4365 ■ 1990-4656	J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151A/J9151D ■ 1990-4657 ■ 1990-4727 ■ 1990-4694 J9151E ■ 1990-4727 ■ 1990-4694 J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 6300 series
Aruba 6400 Modules	R0X39B, R0X40B R0X41A, R0X42A, R0X43A	J9150A/J9150D and J9151A/J9151D/J9151E: 10.04.1000 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	10.04.1000	R0X38A/R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 modules. J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151A/J9151D ■ 1990-4657 ■ 1990-4727 ■ 1990-4694 J9151E ■ 1990-4727 ■ 1990-4694

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
	R0X44A	J9150A/J9150D and J9151A/J9151D/J9151E: 10.04.2000 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	10.04.2000 J9153A/J9153D ■ 1990-4365 ■ 1990-4656	J9152A/J9152D (or any type of 10G LRM technology) is not supported in any of the 6400 modules
6600 Switch Series	J9264A, J9265A	K.14.03	K.15.02.0004	
	J9452A	K.14.24	K.15.02.0004	
8200zl Switch Series	J9309A	K.14.39	K.15.02.0004	The J9309A four-port SFP+ module only supports 10G transceivers.
	J9538A, J9548A, J9536A	K.15.02.0004	K.15.02.0004	10G ER (J9153A/D) transceivers are limited to a maximum of two transceivers per J9309A or J9538A modules when used in a 5400zl or 8200zl chassis.
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	J9150A/J9150D and J9151A/J9151D/J9151E: 10.03.0001 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	All	Only the listed 4x4 parts are fully supported J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151A/J9151D ■ 1990-4657 ■ 1990-4727 ■ 1990-4694 J9151E ■ 1990-4727 ■ 1990-4694 J9152A/J9152D (or any type of 10G LRM technology) is not supported on the 8320 Series

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
Aruba 8325 48Y8C Switch	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	J9150A/J9150D and J9151E: 10.03.0030 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	10.03.0030 Only the listed 4x4 parts are fully supported J9153A/J9153D ■ 1990-4365 ■ 1990-4656	Only the listed 4x4 parts are fully supported J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 8325 is only compatible with J9151E or later. Do not attempt to use J9151D or earlier. J9151E ■ 990-4727 ■ 990-4694 J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 8325 switches. The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed).. See the *Installation Guide* for details.
Aruba 8360 Switch Series	8360 32Y4C models JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model 8360 16Y2C models JL718A displayed by CLI 8360 16Y2C models JL718A displayed by CLI (`show system`)	10.06.0001 JL748A/JL749A (TAA XCVRs): Not supported J9152A/J9152D (or any type of 10G LRM technology) is not supported in this series	10.06.0001 Only the listed 4x4 parts are fully supported J9153A/J9153D ■ 1990-4365 ■ 1990-4656	Only the listed 4x4 parts are fully supported J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151A/J9151D ■ 1990-4657 ■ 1990-4727 ■ 1990-4694 J9151E ■ 1990-4727 ■ 1990-4694 J9152A/J9152D (or any

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
	■ JL702A Port-to-Power model ■ JL703A Power-to-Port model 8360 24XF2C models JL722A displayed by CLI (`show system`) ■ JL710A Port-to-Power model ■ JL711A Power-to-Port model			type of 10G LRM technology) is not supported on this series. The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF(1G/10G) model. See the *Installation Guide* for details.
Aruba 8400X modules	JL363A JL687A	For JL363A module: J9150A/J9150D and J9151A/J9151D/J9151E, J9152A/J9152D: 10.00.0001 JL748A/JL749A (TAA XCVRs): Not supported 10G LRM technology is supported only on the JL363A module For JL687A module: J9150A/J9150D and J9151A/J9151D/J9151E, J9152A/J9152D: 10.04.2000 J9152A/J9152D (or any type of 10G LRM technology) is not supported in the JL687A	JL363A: All JL687A: 10.04.2000	Only the listed 4x4 parts are fully supported J9150A/J9150D ■ 1990-4391 ■ 1990-4175 ■ 1990-4635 ■ 1990-4634 J9151E ■ 1990-4727 ■ 1990-4694 JL363A module: supports J9152A/J9152D ■ 1990-4485 JL687A module does NOT support J9152A/J9152D (or any type of 10G LRM technology).

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
		module.		The JL687A module requires configuration of "interface groups" (groups of 4 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed) See the *Installation Guide* for details.

J9152D 10G LRM with 4x4 1990-4485 is tuned so that it does not require the use of a mode conditioning patch (MCP) cable. Using an MCP with a J9152D will reduce the light levels and may trigger an "Rx power low" alarm. Older J9152A with 4x4 #s other than 1990-4485 may require an MCP when you use OM1 or OM2 fiber cables. Never use mode conditioning patch cables for OM3 or OM4 fiber types. For more information about mode conditioning patch cables, see related parts in the IEEE 802.3 standard.

10G SFP+ Copper Transceiver Modules

Figure 17 *10G SFP+ copper transceiver module*



Models, specifications, and compatibility

Table 43: Specifications for SFP+ copper transceiver modules

Product name (SKU)	Transmission distance	Data rate	Cable type	Connector type
Aruba 10GBASE-T SFP+ RJ45 30m Cat6A XCVR (JL563A)	30 m (98.43 ft)	10G	STP Cat6A**	RJ-45

**See Transmission distance

Table 44: Compatibility for SFP+ copper transceiver modules

Product name	SKU	Minimum software required (JL563A)	Comments
Aruba 6100 Switch Series	All models	Not supported	Not supported
Aruba 6200 Switch Series	All models	10.04.1000	JL563A does not support flow control and only operates at 10G speed (does not auto-negotiate to 1G)
Aruba 6300 Switch Series	All models M and F	10.04.0001	JL563A can be used in all SFP+ or SFP56 ports; no quantity limit. JL563A does not support flow control and only operates at 10G speed (does not auto-negotiate to 1G).
Aruba 6400 Modules	R0X39B, R0X40B, R0X41A, R0X42A, R0X43A	10.04.1000	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series JL563A can be used in all SFP+ , SFP28, or SFP56 ports; no quantity limit. JL563A does not support flow control and only operates at 10G speed (does not auto-negotiate to 1G).
	R0X44A	10.04.2000	
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	10.01.0011	JL563A does not support flow control and only operates at 10G speed (does not auto-negotiate to 1G). It is only supported in ports 1 – 12. Use in any other port generates an incompatible interface error (meaning the port does not support the use of this transceiver); move to a supported port. A maximum of 12 JL563A transceivers can be used in a switch.
Aruba 8325 48Y8C	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	10.03.0030	JL563A does not support flow control and only operates at 10G speed (does not auto-negotiate to 1G). A maximum of 12 JL563A transceivers can be used in a switch. It is only supported in the top two rows, ports 1 - 17. It is disallowed in ports 3, 6, 9, 12, and 15. Use in any other port generates an incompatible interface error (meaning the port does not support the use of this transceiver); move to a supported port. The 8325 requires configuration of "interface groups(groups of 12 ports)

Product name	SKU	Minimum software required (JL563A)	Comments
			to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.
Aruba 8360 Switch Series	8360 32Y4C models JL717A displayed by CLI (show system) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model 8360 16Y2C models JL718A displayed by CLI (show system) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model 8360 24XF2C models JL722A displayed by CLI (show system) ■ JL710A Port-to-Power model ■ JL711A Power-to-Port model	10.06.0001	JL563A does not support flow control and only operates at 10G speed (does not auto-negotiate to 1G). JL563A transceivers can be used in all SFP or SFP28 ports in the 8360 switch (unlike the 8320 & 8325). The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF(1G/10G) model. See the *Installation Guide* for details.
Aruba 8400X Modules	JL363A JL687A	10.00.0018 10.04.2000	JL563A does not support 1G operation; only 10G. It is only supported in ports 1 - 12. A maximum of 12 JL563A transceivers can be used in the JL363A module. The JL687A 32p 25G module can support the use of the JL563A transceiver in all 32 ports. The JL687A module requires configuration of "interface groups" (groups of 4 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.

SFP+ DAC Cables

Figure 18 *SFP+ DAC cable*



Direct Attach over Copper (DAC) cables have a minimum bend radius of typically 4x the diameter of the cable (approximately a 1" bend radius). Handle DAC cables carefully to ensure that you do not crimp or bend the cable beyond a 1" radius; otherwise, you risk damaging the cable.

Where support for a Revision A, B, or C transceiver existed, Revision D or E parts are also supported. Not all earlier revisions can be re-used on newer product: Check the tables below and compare the 4x4 number of the part to the list of supported 4x4 numbers. See Identification of 4x4 Part Numbers for more information.

Models, Specifications, and Compatibility

The specifications for Revision D transceiver products are the same as the specified Revision A, B, and C SKUs.

Table 45: Specifications for SFP+ DACs

Product name (SKU)	Cable length	Data rate
HPE X242 10G SFP+ to SFP+ 1m DAC Cable (J9281B) Aruba 10G SFP+ to SFP+ 1m DAC Cable (J9281D)	1 m (3.28 ft)	10 Gbps
HPE X242 10G SFP+ to SFP+ 3m DAC Cable (J9283B) Aruba 10G SFP+ to SFP+ 3m DAC Cable (J9283D)	3 m (9.84 ft)	
HPE X242 10G SFP+ to SFP+ 7m DAC Cable (J9285B) Aruba 10G SFP+ to SFP+ 7m DAC Cable (J9285D)	7 m (22.97 ft)	



10G 7m DACs require a PHY behind the SFP+ port to support >5m DAC technology. Switches with a note "or any type of 7m DAC is not supported" cannot support any type of 10G 7m DAC (even under Unsupported Transceiver mode). 5m DACs may work with Allow-Unsupported-Transceiver enabled.

The following DAC cables are offered by HPE Servers and Systems and ordered using the specified part number (these cables may not be available to order for Aruba-only partners). See the SERVER NETWORKING TRANSCEIVER AND CABLE COMPATIBILITY MATRIX for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

Table 46: Specifications for HPE SFP+ DACs (from HPE Server Products)

Product name (SKU)	Cable length	Data rate
HPE BLc 10G SFP+ SFP+ 3m DAC Cable (487655-B21)	3m (9.84 ft)	10 Gbps
HPE BLc 10G SFP+ SFP+ 5m DAC Cable (537963-B21)	5m (16.40 ft)	

Table 47: (AOS-Switch) Compatibility for the SFP+ DACs (and specifics for HPE Server cables)

Pro duct name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
2530 Switch Series	J9853A, J9854A, J9855A, J9856A	All	Unlisted models do not have SFP+ ports.
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	All (J9281B/J9281D andJ9283B/J9283D only. See comments for exception)	J9285B/J9285D or any type of 7m DAC is not supported in any of these series.
2910al Switch	J9145A, J9146A,	W.14.28	For use in the J9008A 2-port

Pro duct name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
Series	J9147A, J9148A		10GbE SFP+ al module.
2920 itch Series	J9726A, J9727A, J9728A, J9729A, J9836A	All	The SFP ports on the models listed do not support these 10G SFP+ cables. For use in an installed J9731A Aruba 2920 2-port 10GbE SFP+ .
2930F Switch Series	JL253A, JL254A, JL255A, JL256A, JL258A, JL263A, JL264A, JL558A, JL559A	All (J9281B/J9281D and J928 3B/J9283D only. See comment for exception)	Unlisted models do not have 10G SFP+ports. J9285B/J9285D or any type of 7m DAC is not supported in any of these series.
2930M Switch Series	JL319A, JL320A, JL321A, JL322A, JL323A, JL324A	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module J9285B/9285D (7m DAC) is supported in all 2930M models.
3500yl Switch Series	J8692A, J8693A, J9310A, J9311A	K.14.50	For use in an installed J9312A 10GbE 2-port SFP+/2-port CX4 yl Module.
3800 Switch Series	J9575A, J9576A, J9573A, J9574A, J9584A	All	Unlisted models not do not have SFP+ ports.
3810M Switch Series	JL071A, JL072A, JL073A, JL074A, JL076A	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
	JL075A	All	For use in the JL075A SFP+ ports or used in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
5400zl Switch Series	J9309A	K.14.39	The J9309A 4-port SFP+ module only supports 10G transceivers.

Pro duct name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
	J9538A, J9548A, J9536A	K.15.02.0004	
5400R Switch Series	J9538A, J9548A, J9536A	All	
	J9990A, J9993A	KB.15.17	
6120 Switch Series	516733-B21	All	
6200yl Switch Series	J8992A	K.14.50	J8992A fixed SFP ports are 1GB and do not support these SFP+ copper cables. For use in an installed J9312A 10GbE 2-port SFP+/2-port CX4 yl Module.
6600 Switch Series	J9264A, J9265A, J9452A	K.14.32	
8200zl Switch Series	J9309A	K.14.39	The J9309A 4-port SFP+ module only supports 10G transceivers.
	J9538A, J9548A, J9536A	K.15.02.0004	

Table 48: (AOS-CX)Compatibility for the SFP+ DACs (and specifics for HPE Server cables)

Product name	SKU	Minimum software required (J9281D, J9283D, J9285D, 487655-B21, 537963-B21)	Comments
Aruba 6100 Switch Series	All models	J9281B/J9281D, J9283B/J9283D: not supported 487655-B21, 537963-B21: not supported	J9285B/J9285D or any type of 7m DAC technology is not supported in any of these series.
Aruba 6200 Switch Series	All models	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.04.1000 487655-B21and 537963-	Only the listed 4x4 parts are fully supported: J9281B/J9281D ■ 8121-1151 ■ 8121-1300

Product name	SKU	Minimum software required (J9281D, J9283D, J9285D, 487655-B21, 537963-B21)	Comments
		B21: not supported	J9283B/J9283D ■ 8121-1152 ■ 8121-1298 J9285B/J9285D or any type of 7m DAC is not supported any 6200 model.
Aruba 6300 Switch Series	All models M and F	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.04.0001 487655-B21and 537963-B21: not supported	Only the listed 4x4 parts are fully supported J9281B/J9281D ■ 8121-1151 ■ 8121-1300 J9283B/J9283D ■ 8121-1152 ■ 8121-1298 J9285B/J9285D or any type of 7m DAC is not supported in any 6300 model.
Aruba 6400 Modules	R0X39B, R0X40B R0X41A, R0X42A,R0X43A	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.04.1000 487655-B21and 537963-B21: not supported	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series. J9281B/J9281D ■ 8121-1151 ■ 8121-1300 J9283B/J9283D ■ 8121-1152 ■ 8121-1298 J9285B/J9285D or any type of 7m DAC is not supported in any 6400 modules.
	R0X44A	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.04.2000 487655-B21and 537963-B21: not supported	
Aruba 8320 48p 10G SFP /SFP+ and 6p 40G QSFP+ Switch	JL479A	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.00.0006 487655-B21and 537963-B21: 10.04.1000	Only the following 4x4 part numbers are supported: J9281D ■ 8121-1151 ■ 8121-1300 J9283D: ■ 8121-1152 ■ 8121-1298 J9285B/J9285D or any type of 7m DAC is not supported in the 8320

Product name	SKU	Minimum software required (J9281D, J9283D, J9285D, 487655-B21, 537963-B21)	Comments
			models. 487655-B21 and 537963- B21: See Support for HPE Servers and Systems products for HPE Interconnect support.
Aruba 8325 48Y8C Switch	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.02.0001 487655-B21and 537963-B21: 10.04.1000	Only the following 4x4 part numbers are supported: J9281D: ■ 8121-1151 ■ 8121-1300 J9283D: ■ 8121-1152 ■ 8121-1298 J9285B/J9285D or any type of 7m DAC is not supported in the 8325 models. 487655-B21 and 537963- B21: See Support for HPE Servers and Systems products for HPE Interconnect support. The 8325 requires configuration of "interface groups" (in groups of 12 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.
Aruba 8360 Switch Series	8360 32Y4C models JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model 8360 16Y2C models JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model	J9281B/J9281D and J9283B/J9283D only. See comment for exception): 10.06.0001 487655-B21and 537963-B21: 10.06.0001	Only the following 4x4 part numbers are supported: J9281B/J9281D: ■ 8121-1151 ■ 8121-1300 J9283B/J9283D: ■ 8121-1152 ■ 8121-1298 J9285B/J9285D or any type of 7m DAC is not supported in the 8360 models. 487655-B21 and 537963- B21: See

Product name	SKU	Minimum software required (J9281D, J9283D, J9285D, 487655-B21, 537963-B21)	Comments
	■ JL703A Power-to-Port model 8360 24XF2C models JL722A displayed by CLI (`show system`) ■ JL710A Port-to-Power model ■ JL711A Power-to-Port model		Support for HPE Servers and Systems products for HPE Interconnect support. The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF (1G/10G) model. See the *Installation Guide* for details.
Aruba 8400X modules	JL363A	J9281D, J9283D, J9285D: 10.00.0003 487655-B21and 537963-B21: 10.06.0001	Only the following 4x4 part numbers are supported: J9281B/J9281D: ■ 8121-1151, ■ 8121-1300 J9283B/J9283D: ■ 8121-1152, ■ 8121-1298 J9285B/J9285D: ■ 8121-1154, ■ 8121-1305 ■ 8121-1724 JL687A 32p 25G module requires configuration of "interface groups" (groups of 4 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the 8400 *Installation Guide* for details.
	JL687A	J9281D, J9283D, J9285D: 10.04.2000 487655-B21and 537963-B21: 10.06.0001	

Gigabit SFP Optical Transceiver Modules

In December 2017, Aruba introduced Revision D versions of 100M, 1G, and 10G transceivers. Revision D products are structured to be specific alternative vendors as sources for the SKU#. Earlier Revision A, B, or C product may have alternative vendors that we no longer actively ship, but remain as fully supported in earlier and current products.

Some switch products will be specifying Revision D transceivers for full support, while other products may support earlier (older) revision transceivers – and some with specific 4x4 part numbers (see Identification of 4x4 Part Numbers for more information).

Always refer to the Datasheet or QuickSpecs for the Switch product to see the current list of supported transceivers.

Figure 19 *Gigabit or 100-Megabit SFP optical transceiver module*



- Although a 10G SFP+ transceiver module has the same physical dimensions of a 1G SFP transceiver, a 10G transceiver will NOT operate in a 1G SFP port.
- Many, although not all, 10G SFP+ ports have support to use a 1G SFP transceiver (or even a 100Mbps FX SFP transceiver). See the QuickSpec for the Switch product and verify if the 1G or 100Mbps SFP transceiver is supported in the 10G SFP+ port.

Models, Specifications, and Compatibility

Gigabit SFP optical transceiver modules use LC connectors.

The specifications for Revision D transceiver products are the same as the specified Revision A, B, and C SKUs. Where support for a Revision A, B, or C transceiver existed, Revision D or E parts are also supported. Not all earlier revisions can be re-used on newer product: Check the tables below and compare the 4x4 number of the part to the list of supported 4x4 numbers. See Identification of 4x4 Part Numbers for more information.

Table 49: Specifications for Gigabit SFP optical transceiver modules

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Modal bandwidth (MHz*km)	Transmission distance
HPE X121 1G SFP LC SX Transceiver (J4858C) Aruba 1G SFP LC SX 500m MMF XCVR (J4858D) Aruba 1G SFP LC SX 500m MMF TAA XCVR (JL745A)	Yes (1990-4395 & 1990-4415)	850	MMF	50/125	500 (OM2) 400	550m (1804.46 ft) 500 m (1640.42 ft)
				62.5/125	200 (OM1) 160	275m (902.23 ft) 220m (721.78 ft)
HPE X121 1G SFP LC LX Transceiver (J4859C) Aruba 1G SFP LC LX 10km SMF XCVR (J4859D) Aruba 1G SFP LC LX 10km SMF TAA XCVR (JL746A)	Yes (1990-4116, 1990-4414, & 1990-4608)	1310	SMF	9/125	N/A	10km (6.21 miles)
			MMF	50/125	500 or 400	550m (1804.46 ft)
			MMF	62.5/125	500	550m (1804.46 ft)
HPE X121 1G SFP LC LH Transceiver (J4860C) Aruba 1G SFP LC LH 70km SMF XCVR (J4860D)	Yes (1990-4363)	1550	SMF	9/125	N/A	70km (43.49 miles)

Table 50: Specifications for Gigabit SFP optical transceiver modules

Product name (SKU)	Optical parameters (dBm)	
	Transmit power	Receive power
HPE X121 1G SFP LC SX Transceiver (J4858C) Aruba 1G SFP LC SX 500m MMF XCVR (J4858D)	–9.5 to 0	–17 to –3

Product name (SKU)	Optical parameters (dBm)	
	Transmit power	Receive power
Aruba 1G SFP LC SX 500m MMF TAA XCVR (JL745A)		
HPE X121 1G SFP LC LX Transceiver (J4859C) Aruba 1G SFP LC LX 10km SMF XCVR (J4859D) Aruba 1G SFP LC LX 10km SMF TAA XCVR (JL746A)	–9.5 to –3	–20 to –3
HPE X121 1G SFP LC LH Transceiver (J4860C) Aruba 1G SFP LC LH 70km SMF XCVR (J4860D)	0 to +5	–22 to –3

Table 51: Compatibility for Gigabit SFP optical transceiver modules

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
2510 Switch Series	J9019A/B, J9020A, J9279A, J9280A	All	
2520 Switch Series	J9137A, J9138A, J9298A, J9299A	All	
2530 Switch Series	J9772A, J9773A, J9774A, J9775A, J9776A, J9777A, J9778A, J9779A, J9780A, J9781A, J9782A, J9783A, J9853A, J9854A, J9855A, J9856A	All	
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	All	
2600 Switch Series	J4899A/B/C, J4900A/B/C, J8164A, J8165A, J8762A	H.08.98	
2610 Switch Series	J9085A, J9086A, J9087A, J9088A, J9089A	All	
2615-8-PoE Switch	J9565A	All	
2620 Switch Series	J9623A, J9624A, J9625A, J9626A, J9627A	All	
2800 Switch Series	J4903A, J4904A	i.08.103	
2810 Switch Series	J9021A, J9022A	All	

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
2900 Switch Series	J9049A, J9050A	T.13.45	
2910al Switch Series	J9145A, J9146A, J9147A, J9148A	All	For use in the SFP ports on the models listed, and in the J9008A 2-port 10GbE SFP+ al module.
2915-8G-PoE Switch	J9562A	All	
2920 Series Switches	J9726A, J9727A, J9728A, J9729A, J9836A	All	For use in the SFP ports on the models listed. Also for use in the dual-speed SFP+ ports of the J9731A 2-Port 10GbE SFP+ Module.
2930F Series Switches	JL253A, JL254A, JL255A, JL256A, JL258A, JL259A, JL260A, JL261A, JL262A, JL263A, JL264A, JL557A, JL558A, JL559A	J4858C/D, J4859C/D, J4860C/D: All WC Software JL745A, JL746A (TAA XCVRs): WC 16.10.0006	
2930M Switch Series	JL319A, JL320A, JL321A, JL322A, JL323A, JL324A	J4858C/D, J4859C/D, J4860C/D: All WC Software JL745A, JL746A (TAA XCVRs): WC 16.10.0006	For use in SFP ports on switch and an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
3400cl Switch Series	J4905A, J4906A	All	
3500 Series Switches	J9470A, J9471A, J9472A, J9473A	K.14.31	
3500yl Switch Series	J8692A, J8693A	All	For use in the SFP ports on the models listed, and in an installed J9312A 10GbE 2-port SFP+/2-port CX4 yl Model
	J9310A, J9311A	K.14.50	
3800 Switch Series	J9573A, J9574A, J9575A, J9576A, J9584A	All	
3810M Switch Series	JL071A, JL072A, JL073A, JL074A, JL076A, JL075A	J4858C/D, J4859C/D, J4860C/D: All Software JL745A, JL746A (TAA XCVRs): 16.10.0006	For use in the JL075A 3810M switch. Also for use in any 3810M switch with a JL083A Aruba 3810M/2930M 4SFP+ MACsec Module installed.
4200gl Switch Series	J4893A, J4908A	G.07.103	

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
4200vl Switch Series	J8776A, J9033A	All	
5300xl Switch Series	J4878A/B, J4907A	E.10.36	
5400zl Switch Series	J8705A, J8706A	All	
	J9308A, J9309A	K.14.34	The J9309A 4-port SFP+ module only supports 10G transceivers.
	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	K.15.02.0004	The J9538A 8-port SFP+ v2 module supports both 1G and 10G transceivers.
5400R Switch Series	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	J4858C/D, J4859C/D, J4860C/D: All Software JL745A, JL746A (TAA XCVRs): 16.10.0006	The J9538A 8-port SFP+ v2 module supports both 1G and 10G transceivers.
	J9988A, J9989A, J9990A, J9993A	KB.15.17	
Aruba 6100 Switch Series	All models	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.06.0001 JL745A, JL746A (TAA XCVRs): Not supported	Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116 ■ 1990-4414 J4860C/J4860D: ■ 1990-4363
6108 Switch	J4902A	H.07.88	
6120 Switch Series	498358-B21, 516733-B21	SX, LX: all versions LH: not supported	
6200yl-24G-mGBIC Switch	J8992A	All	
Aruba 6200 Switch Series	All models	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.04.0001 JL745A, JL746A (TAA XCVRs): Not supported	Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
			■ 1990-4414 J4860C/J4860D: ■ 1990-4363
Aruba 6300 Switch Series	All models	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.04.0001 JL745A, JL746A (TAA XCVRs): Not supported	
Aruba 6400 Modules	R0X39B, R0X40B R0X41A, R0X42A,R0X43A	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.04.1000 JL745A, JL746A (TAA XCVRs): Not supported	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series. Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116 ■ 1990-4414 J4860C/J4860D: ■ 1990-4363
	R0X44A	For R0X44A module: J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.04.2000 JL745A, JL746A (TAA XCVRs): Not supported	
6600 Switch Series	J9263A, J9264A	K.14.03	
	J9451A	K.14.24	
8100fl Switch	J8735A	All	
8200zl Switch Series	J8705A, J8706A	All	
	J9308A	K.14.34	
	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	K.15.02.0004	The J9309A 4-port SFP+ module only supports 10G transceivers The J9538A 8-port SFP+ v2 module supports both 1G and 10G transceivers.
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.03.0001 JL745A, JL746A (TAA XCVRs): Not supported	Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116 ■ 1990-4414 J4860C/J4860D: ■ 1990-4363

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
Aruba 8325 Switch Series	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB) ■ JL625A - Power-to-Port model (BF)	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.03.0010 JL745A, JL746A (TAA XCVRs): Not supported	Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116 ■ 1990-4414 J4860C/J4860D: ■ 1990-4363 The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details. 1G optics at the opposite end of the link must NOT enable auto-negotiation and operate in full duplex mode.
Aruba 8360 Switch Series	8360 32Y4C models JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model 8360 16Y2C models JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model 8360 24XF2C models JL722A displayed by CLI (`show system`) ■ JL710A Port-to-Power model ■ JL711A Power-to-Port model	J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.06.0001 JL745A, JL746A (TAA XCVRs): Not supported	Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116 ■ 1990-4414 J4860C/J4860D: ■ 1990-4363 The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. Not applicable to the 24XF

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
			(1G/10G) model See the *Installation Guide* for details.
Aruba 8400X Modules	JL363A JL687A	For JL363A module: J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.00.0018 JL745A, JL746A (TAA XCVRs): Not supported For JL687A module: J4858C/J4858D, J4859C/J4859D, J4860C/J4860D: 10.04.2000 JL745A, JL746A (TAA XCVRs): Not supported	Only the following 4x4 part numbers are supported: J4858C/J4858D: ■ 1990-4395 ■ 1990-4415 J4859C/J4859D: ■ 1990-4116 ■ 1990-4414 J4860C/J4860D: ■ 1990-4363 JL687A 32p 25G module requires configuration of "interface groups" (groups of 4 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details. JL687A: 1G optics at the opposite end of the link must NOT enable auto-negotiation and operate in full duplex mode (does not apply to the JL363A module)
9300m Switch Series	J4885A, J4894A	All	
9408sl Switch	J8684A	All	

100-Megabit SFP Optical Transceiver Modules

Figure 20 *Gigabit or 100-Megabit SFP optical transceiver module*



Models, Specifications, and Compatibility

100 Megabit SFP optical transceiver modules use LC connectors. The 100FX transceivers enabled by Aruba Switches use an SGMII (Serial Gigabit MII) interface with 8B/10B encoding.

Other 100FX transceivers that use 4B/5B encoding cannot be enabled (even with UT-mode).

The specifications for Revision D transceiver products are the same as the specified Revision A, B, and C SKUs.

Table 52: Specifications for 100-Megabit SFP optical transceiver modules

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Transmission distance
HPE X111 100M SFP LC FX Transceiver (J9054C) Aruba 100M SFP LC FX 2km MMF XCVR (J9054D)	Yes (1990-4483 EOL, 1990-4360)	1310	MMF	50/125 62.5/125	2km (1.24 miles)

Table 53: Specifications for 100–Megabit SFP optical transceiver modules

Product name (SKU)	Optical parameters (dBm)	
	Transmit power	Receive power
HPE X111 100M SFP LC FX Transceiver (J9054C) Aruba 100M SFP LC FX 2km MMF XCVR (J9054D)	–19 to –14	–30 to –14

Table 54: Compatibility for the 100-Megabit SFP optical transceiver module

Product name	SKU	Minimum software required	Comments
2510-24 Switch	J9019A/B	Q.10.04	

Product name	SKU	Minimum software required	Comments
2510-48 Switch	J9020A	All	
2510G Switch Series	J9279A, J9280A	All	
2520 Switch Series	J9137A, J9138A	All	
2520G Switch Series	J9298A, J9299A	J9054B: All J9054C: J.14.32	
2530 Switch Series	J9772A, J9773A, J9774A, J9775A, J9776A, J9777A, J9778A, J9779A, J9780A, J9781A, J9782A, J9783A, J9853A, J9854A, J9855A, J9856A	For J9853A, J9854A, J9855A, and J9856A: Not supported For all other switches: All	For use in the SFP ports of the 2530 Series Switches. (The J9853A, J9854A, J9855A, and J9856A models have 1G/10G SFP+ ports that do not support these 100Mbps transceiver modules.)
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	All	
2610 Switch Series	J9085A, J9086A, J9087A, J9088A, J9089A	All	
2615-8-PoE Switch	J9565A	J9054B: All J9054C: A.14.07	
2620 Switch Series	J9623A, J9624A, J9625A, J9626A, J9627A	All	
2800 Switch Series	J4903A, J4904A	J9054B/C 1990-3613 and J9054C 1990-4112: i.10.30 J9054C 1990-4483: Not supported	J9054C part number 1990-4483 is not supported
2810 Switch Series	J9021A, J9022A	N.10.07	
2900 Switch Series	J9049A, J9050A	T.12.01	
2910al Switch Series	J9145A, J9146A, J9147A, J9148A	All	
2915-8G-PoE Switch	J9562A	J9054B: All J9054C/J9054D: A.14.07	
2920 Series Switches	J9726A, J9727A, J9728A, J9729A, J9836A	All	Use in the SFP ports of the 2920 Series Switches. 100-FX is not supported in the SFP+ ports of the J9731A 2-Port 10GbE SFP+ Module

Product name	SKU	Minimum software required	Comments
2930F Switch Series	JL253A, JL254A, JL255A, JL256A, JL258A, JL263A, JL264A, JL259A, JL260A, JL261A, JL262A, JL557A, JL558A, JL559A	J9054B: is not supported in the 2930F Series Switches For J9054C/9054D: All	The 2930F Switch Series models with 1G/10G SFP+ ports added support for this J9054C/J9054D 100FX transceiver. The J9054C/J9054D are supported in models with 1G SFP ports.
2930M Switch Series	JL319A, JL320A, JL321A, JL322A, JL323A, JL324A	J9054B is not supported in the 2930M Series Switches. For J9054C/J9054D: All	For use in SFP ports on switch and an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
3500 Series Switches	J9470A, J9471A, J9472A, J9473A	J9054B/C 1990-3613: K.14.31 J9054C 1990-4112 and 1990-4483: K.15.08.0007 J9054D: K.15.08.0007	
3500yl Switch Series	J8692A, J8693A, J9310A, J9311A	For J8692A, J8693A: K.12.01 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483, and J9054D 1990-4483 and 1990-4360) For J9310A, J9311A: K.14.50 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483, and J9054D)	
3800 Switch Series	J9573A, J9574A, J9575A, J9576A, J9584A	For J9573A, J9574A, J9575A, J9576A: Not supported. For J9584A: All	Not supported for use in the following 3800 models: J9573A, J9574A, J9575A, and J9576A. The SFP+ ports do not support 100M operation. Supported in the J8584A 3800-24SFP-2SFP+ Switch
3810M Switch Series	JL071A, JL072A, JL073A, JL074A, JL076A	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
	JL075A	All	For use in the JL075A SFP+ ports. Also used in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
4100gl Switch Series	J4865A, J4887A	n/a	J9054C/J9054D 100FX is not supported.

Product name	SKU	Minimum software required	Comments
4200vl Switch Series	J8770A, J8771A, J8772A/B, J8773A	L.10.24	Supported: J9033A Switch vl 20-Port Gig-T + 4-Port SFP Module Not supported: J8776A Switch vl 4-Port Mini-GBIC Module
5300xl Switch Series	J4819A, J4850A	n/a	J9054C/J9054D 100FX is not supported.
5400zl Switch Series	J8697A, J8698A, J9642A, J9643A	For J8705A and J8706A modules: K.12.01 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007 For the J9308A module: K.14.34 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007 For J9537A, J9549A, J9535A, and J9637A modules: K.15.02.0004 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007	For use in: J8705A Switch zl 20-Port 10/100/1000 + 4-Port Mini-GBIC Module J8706A Switch zl 24-Port Mini-GBIC Module J9308A 20-Port 10/100/1000 PoE+ and 4-Port SFP zl Module J9537A 24-Port SFP v2 zl Module J9549A 20- Port Gig-T / 4-Port SFP v2 zl Module J9535A 20-Port Gig-T PoE+ / 4- Port SFP v2 zl Module J9637A 12-Port Gig- T PoE+ / 12-Port SFP v2 zl Module
5400R Switch Series	J9821A, J9822A, J9823A, J9824A, J9825A, J9826A, J9868A	For J9535A, J9537A, J9549A, and J9637A modules: All For the J9988A, J9989A, J9990A, and J9993A modules: KB.15.17 and later	For use in: J9537A 24-Port SFP v2 zl Module J9549A 20-Port Gig-T / 4-Port SFP v2 zl Module J9535A 20-Port Gig-T PoE+ / 4-Port SFP v2 zl Module J9637A 12-Port Gig-T PoE+ / 12-Port SFP v2 zl Module J9988A 24p 1GbE SFP v3 zl2 Module J9989A 12p PoE+ / 12p 1GbE SFP v3 zl2 Module J9990A 20p PoE+ / 4p SFP+ v3 zl2 Module J9993A 8p 1G/10GbE SFP+ v3 zl2 Module
Aruba 6100 Switch Series	All models	n/a	100FX is not supported for use in any 6100 model
6108 Switch	J4902A	n/a	100-FX is not supported
6120 Blade Switch Series	498358-B21, 516733-B21	n/a	100-FX is not supported

Product name	SKU	Minimum software required	Comments
6200yl-24G-mGBIC Switch	J8992A	K.12.01 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007	For use in all 24 ports of the J8992A Switch 6200yl- 24G-mGBIC
Aruba 6200 Switch Series	All models	n/a	100FX is not supported for use in any 6200 model
Aruba 6300 Switch Series	JL658A	10.04.0001	Only supported for use in SFP+ ports on JL658A. 100-FX is not supported for use in any SFP56 ports on other models. 100FX link level flow control: not supported.
Aruba 6400 Switch Series	R0X43A	10.04.1000	R0X43A 24p SFP+ module: Only supported in ports 1-24 (SFP+), NOT supported in ports 25-28 (SFP56 ports). R0X44A 48p SFP28: supported for use in ports 1-48 (SFP28 ports). 100-FX is NOT supported in any SFP56 port on any other 6400 module. 100FX does not support link-level flow control on the 6400.
	R0X44A	10.06.0001	
6600 Switch Series	J9263A, J9264A, J9265A, J9451A, J9452A	For J9263A, J9264A: K.14.03 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) For J9451A: K.14.24 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007	For use in the SFP ports of the J9263A 6600-24G Switch, the J9264A 6600-24G-4XG Switch, and the J9451A 6600-48G Switch (The J9265A 6600-24XG Switch and J9452A 6600- 48G-4XG Switch do not have SFP ports)
8100fl Switch Series	J8727A, J8728A	n/a	100-FX is not supported
8200zl Switch Series	J8715A/B, J9475A, J9640A, J9641A	For J8705A and J8706A modules: All (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007	For use in: J8705A Switch zl 20-Port 10/100/1000 + 4-Port Mini-GBIC Module J8706A Switch zl 24-Port Mini-GBIC Module J9308A 20-Port 10/100/1000 PoE+ and 4-Port SFP zl Module J9537A 24-Port SFP v2 zl Module

Product name	SKU	Minimum software required	Comments
		For the J9308A module: K.14.34 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007 For J9537A, J9549A, J9535A, and J9637A modules: K.15.02.0004 (for J9054B/C 1990-3613); K.15.08.0007 (for J9054C 1990-4112 and 1990-4483) J9054D: K.15.08.0007	J9549A 20- Port Gig-T / 4-Port SFP v2 zl Module J9535A 20-Port Gig-T PoE+ / 4- Port SFP v2 zl Module J9637A 12-Port Gig- T PoE+ / 12-Port SFP v2 zl Module
Aruba 8320 Switch Series	All	n/a	100Mbps Transceivers are NOT supported in the 8320 series.
Aruba 8325 Switch Series	All	n/a	100Mbps Transceivers are NOT supported in the 8325 series.
Aruba 8360 Switch Series	All models	n/a	100Mbps Transceivers are NOT supported in the 8360 series.
Aruba 8400X Modules	All	n/a	100Mbps Transceivers are NOT supported in the 8400 series.
9300m Switch Series	J4138A, J4139A, J4874A	n/a	100-FX is not supported.
9408sl Switch	J8680A	n/a	100-FX is not supported.

Gigabit BIDI Optical Transceiver Modules

Figure 21 *Gigabit BIDI optical transceiver module*



Models, Specifications, and Compatibility

Gigabit BIDI optical transceiver modules provide a transmission rate of 1,250 Mbps and use LC connectors.

- The J9142B/J9143B were End of Sale in April 2016 and are no longer available. Older J9142B/J9143B transceiver may work in switches using the "allow-unsupported-transceiver" feature. Consult your Aruba Sales team for alternative solutions. The information presented here is for compatibility use.
- BIDI optical transceiver modules use different central wavelengths in transmit and receive directions to implement bidirectional transmission of fiber signals over the same fiber.
- Use the HPE X122 1G SFP LC BX 10-D Transceiver (J9142B) and HPE X122 1G SFP LC BX 10-U Transceiver (J9143B) in pairs: a J9142B (-D = downlink) at one end of the connection and a J9143B (-U = uplink) at the other.

Table 55: Specifications for Gigabit BIDI optical transceiver modules

Product name (SKU)	DOM - Digital Optical Monitoring (4x4 part #)	Central wavelength (nm)		Fiber mode	Fiber diameter (µm)	Transmission distance
		Transmit end (TX)	Receive end (RX)			
HPE X122 1G SFP LC BX-D Transceiver (J9142B)	No	1490	1310	SMF	9/125	10km (6.21 miles)
HPE X122 1G SFP LC BX-U Transceiver (J9143B)	No	1310	1490			

Table 56: Specifications for Gigabit BIDI transceiver modules

Product name (SKU)	Optical parameters (dBm)	
	Transmit power.	Receive power.
HPE X122 1G SFP LC BX-D Transceiver (J9142B) HPE X122 1G SFP LC BX-U Transceiver (J9143B)	–9 to –3	–18.7 to –3

Table 57: Compatibility for Gigabit BIDI transceiver modules

Product name	SKU	Minimum software required (J9142B, J9143B)	Comments
2510-24 Switch	J9019A/B	Q.11.16	
2510-48 Switch	J9020A	U.11.10	
2510G–24 Switch	J9279A	Y.11.03	
2510G–48 Switch	J9280A	Y.11.03	
2520 Switch Series	J9137A, J9138A, J9298A, J9299A	All	
2530 Switch Series	J9772A, J9773A, J9774A, J9775A, J9776A, J9777A, J9778A, J9779A, J9780A, J9781A, J9782A, J9783A, J9853A, J9854A, J9855A, J9856A	All	
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	n/a	1G BX is not officially supported for use in the 2540 series.
2600 Switch Series	J4899A/B/C, 4900A/B/C, J8164A, J8165A, J8762A	H.10.72	
2610 Switch Series	J9085A, J9086A, J9087A, J9088A, J9089A	R.11.22	
2615-8-PoE Switch	J9565A	All	
2620 Switch Series	J9623A, J9624A, J9625A, J9626A, J9627A	All	
2800 Switch Series	J4903A, J4904A	i.10.69	
2810 Switch Series	J9021A, J9022A	N.11.14	
2900 Switch Series	J9049A, J9050A	T.13.45	

Product name	SKU	Minimum software required (J9142B, J9143B)	Comments
2910al Switch Series	J9145A, J9146A, J9147A, J9148A	All	
2915-8G-PoE Switch	J9562A	All	
2920 Series Switches	J9726A, J9727A, J9728A, J9729A, J9836A	All	
2930F Series Switches	JL253A, JL254A, JL255A, JL256A, JL258A, JL259A, JL260A, JL261A, JL262A, JL263A, JL264A	Supported for use with 16.07.0003 software. Enabled only through UT-Mode.	As of April 2016, the J9142B and J9143B 1G BX transceivers have been End of Sale. Contact your Aruba representative for alternative solutions.
2930M Switch Series	JL319A, JL320A, JL321A, JL322A, JL323A, JL324A, JL083A	Supported for use with 16.07.0003 software. Enabled only through UT-Mode.	As of April 2016, the J9142B and J9143B 1G BX transceivers have been End of Sale. Contact your Aruba representative for alternative solutions.
3500 Series Switches	J9470A, J9471A, J9472A, J9473A	K.14.31	
3500yl Switch Series	J8692A, J8693A	K.14.31	
	J9310A, J9311A	K.14.50	
3800 Switch Series	J9573A, J9574A, J9575A, J9576A, J9584A	All	
3810M Switch Series	JL075A, JL083A	All	As of April 2016, the J9142B and J9143B 1G BX transceivers have been End of Sale. Contact your Aruba representative for alternative solutions. For use in the JL075A 3810M switch or in any 3810M switch with a JL083A Aruba 3810M/2930M 4SFP+ MACsec Module installed.
4200vl Switch Series	J8776A, J9033A	L.11.16	
5300xl Switch Series	J4878A/B, J4907A	E.11.08	

Product name	SKU	Minimum software required (J9142B, J9143B)	Comments
5400zl Switch Series	J8705A, J8706A	K.13.45	
	J9308A	K.14.34	
	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	K.15.02.0004	
5400R Switch Series	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	All	As of April 2016, the J9142B and J9143B 1G BX transceivers have been End of Sale. Contact your Aruba representative for alternative solutions.
	J9988A, J9989A, J9990A, J9993A	KB.15.17	
Aruba 6100 Switch Series	All	n/a	1G BX transceivers are not officially supported.
6200yl-24G-mGBIC Switch	J8992A	K.13.45	
Aruba 6200 Switch Series	All	n/a	1G BX transceivers are not officially supported.
Aruba 6300 Switch Series	All	n/a	1G BX transceivers are not officially supported.
Aruba 6400 Switch Series	All	n/a	1G BX transceivers are not officially supported.
6600 Switch Series	J9263A, J9264A	K.14.03	
	J9451A	K.14.24	
8200zl Switch Series	J8705A, J8706A	K.13.45	
	J9308A	K.14.34	
	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	K.15.02.0004	
Aruba 8320 Switch Series	JL479A, JL579A	n/a	1G BX transceivers are not officially supported.
Aruba 8325 Switch Series	All	n/a	1G BX transceivers are not officially supported.
Aruba 8360 Switch Series	All	n/a	1G BX transceivers are not officially supported.

Product name	SKU	Minimum software required (J9142B, J9143B)	Comments
Aruba 8400X Modules	All	n/a	1G BX transceivers are not officially supported.

Gigabit SFP Copper Transceiver Modules

Figure 22 *Gigabit SFP copper transceiver module*



Models, Specifications, and Compatibility

Table 58: Specifications for SFP copper transceiver modules

Product name (SKU)	Transmission distance	Data rate	Cable type	Connector type
HPE X121 1G SFP RJ45 T Transceiver (J8177C) Aruba 1G SFP RJ45 T 100m Cat5e XCVR (J8177D) Aruba 1G SFP RJ45 T 100m Cat5e TAA XCVR(JL747A)	100 m (328.08 ft)	1G 100Mbps (For certain products. See next table.)	Cat5e UTP/STP	RJ-45

Table 59: Compatibility for SFP copper transceiver modules

The specifications for Revision D transceiver products are the same as the specified Revision A, B, and C SKUs.

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
2510 Switch	J9020A	All	
2530 Switch Series	J9782A, J9781A, J9776A, J9775A, J9779A, J9778A, J9773A, J9772A, J9856A, J9855A, J9854A, J9853A	All	
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	All	

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
2610 Switch Series	J9085A, J9086A, J9087A, J9088A, J9089A	All	
2620 Switch Series	J9623A, J9624A, J9625A, J9626A, J9627A	All	
2920 Series Switches	J9731A	All	J8177C/J8177D is not supported for use in the Dual-Personality ports of the 2920 Series Switches. For use ONLY in the J9731A module.
2930F Series Switches	JL253A, JL254A, JL255A, JL256A, JL258A, JL259A, JL260A, JL261A, JL262A, JL263A, JL264A, JL557A, JL558A, JL559A	J8177C/J8177D: All Software JL747A (TAA XCVRs): WC 16.10.0006	J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
2930M Switch Series	JL083A	J8177C/J8177D: All Software JL747A (TAA XCVRs): WC 16.10.0006	J8177C/J8177D are not supported for use in the Dual-Personality ports of the 2930M Series Switches. For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module. J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
3800 Switch Series	J9573A, J9574A, J9575A, J9576A, J9584A	All	
3810M Switch Series	JL075A, JL083A	J8177C/J8177D: All Software JL747A (TAA XCVRs): KB 16.10.0006	For use in the SFP+ ports of the JL075A 3810M switch. Also used in any 3810M switch with a JL083A Aruba 3810M/2930M 4SFP+ MACsec Module installed. J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
4100gl Switch Series	J4893A, J4908A	G.07.69	
4200vl Switch Series	J8776A, J9033A	All	
5300xl Switch Series	J4878A/B	E.09.22	

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
5400zl Switch Series	J8705A, J8706A	All	
	J9308A	K.14.34	
	J9537A, J9549A, J9535A, J9637A	K.15.02.0004	
5400R Switch Series	J9537A, J9549A, J9535A, J9637A	J8177C/J8177D: All Software JL747A (TAA XCVRs): KB 16.10.0006	J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
	J9988A, J9989A, J9990A, J9993A	KB.15.17 JL747A (TAA XCVRs): KB 16.10.0006	J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
Aruba 6100 Switch Series	All models	10.06.0001 JL747A (TAA XCVRs): Not supported	100Mbps speed is NOT supported for the J8177D when used in SFP+ on the 6100 Series. J8177D does not support link-level flow control on 6100. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640
6120 Blade Switch Series	498358-B21, 516733-B21	All	
6200yl-24G-mGBIC Switch	J8992A	All	
Aruba 6200 Switch Series	All models Only 1G speed supported See Comments	10.04.1000 JL747A (TAA XCVRs): Not supported	100Mbps speed is NOT supported for the J8177D when used in SFP+ on the 6200 Series. J8177D does not support link-level flow control on 6200. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640
Aruba 6300 Switch Series	All models M and F Only 1G speed supported See Comments	10.04.0001 JL747A (TAA XCVRs): Not supported	100Mbps speed is NOT supported for the J8177D when used in any port (SFP+ or SFP56) on the 6300 Series.

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
			J8177D does not support link-level flow control on 6300. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640
Aruba 6400 Switch Series	R0X39B, R0X40B R0X41A, R0X42A, R0X43A	10.04.1000 JL747A (TAA XCVRs): Not supported	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series 100Mbps speed is NOT supported for the J8177D when used in any port (SFP+, SFP28, or SFP56) on the 6400 series. J8177D does not support link-level flow control on 6400. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640
	R0X44A	10.04.2000 JL747A (TAA XCVRs): Not supported	
8100fl Switch Series	J8735A	CY.01.02.0050	
8200zl Switch Series	J8705A, J8706A	All	
	J9308A	K.14.34	
	J9537A, J9549A, J9535A, J9637A	K.15.02.0004	
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	All JL474A (TAA XCVRs): Not supported	100Mbps speed is NOT supported for the J8177D on the 8320 series. J8177D does not support link-level flow control on 8320. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640
Aruba 8325 Switch Series	JL635A displayed by CLI (`show system`) ■ JL624A - Port-to-Power model (FB)	10.03.0030 JL474A (TAA XCVRs): Not supported	100Mbps speed is NOT supported for the J8177D on the 8325 series. J8177D does not support link-level flow control on 8325.

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
	■ JL625A - Power-to-Port model (BF)		Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640 RJ45 transceivers are only supported for use in the top 2 rows of ports (max of 32 per switch). J8177C/J8177D will have a delay (~15 secs) before link up or down is properly displayed when a cable is inserted or removed. The 8325 requires configuration of "interface groups" (groups of 12 ports) to enable the use of 1G or 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details.
Aruba 8360 32Y4C models	JL717A displayed by CLI (`show system`) ■ JL700A Port-to-Power model ■ JL701A Power-to-Port model	10.06.0001 JL474A (TAA XCVRs): Not supported	J8177C/D can only operate at 1G in the 8360 series. J8177C/D does not support link-level flow control on 8360. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640 The 8360 32Y4C model requires configuration of "interface groups" only for ports 1-4 (as group #1) to enable the use of 10G transceivers / DACs in the SFP28 ports (Interface Groups default to 25G speed). Ports 1-4 on the 8360 32Y4C model do not support 1G transceivers. All other ports can individually auto-detect the speed of the inserted xcvr. See the *Installation Guide* for details.

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
Aruba 8360 16Y2C models	JL718A displayed by CLI (`show system`) ■ JL702A Port-to-Power model ■ JL703A Power-to-Port model	10.06.0001 JL474A (TAA XCVRs): Not supported	J8177C/D can only operate at 1G in the 8360 series. J8177C/D does not support link-level flow control on 8360. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640 All ports can individually auto-detect the speed of the inserted xcvr.
Aruba 8360 48XT4C models	JL720A displayed by CLI (`show system`) ■ JL706A Port-to-Power model ■ JL707A Power-to-Port model	J8177D not applicable	No SFP+ ports available
Aruba 8360 12C models	JL721A displayed by CLI (`show system`) ■ JL708A Port-to-Power model ■ JL709A Power-to-Port model	J8177D not applicable	No SFP+ ports available
Aruba 8360 24XF2C models	JL722A displayed by CLI (`show system`) ■ JL710A Port-to-Power model ■ JL711A Power-to-Port model	10.06.0001 JL474A (TAA XCVRs): Not supported	J8177C/D can only operate at 1G in the 8360 series. J8177C/D does not support link-level flow control on 8360. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640
Aruba 8400X Modules	JL363A JL687A	10.00.0018 10.04.2000 JL474A (TAA XCVRs): Not supported	J8177C/D can only operate at 1G in the 8400 series. J8177D does not support link-level flow control on 8400. Only the following 4x4 part numbers are supported: J8177C/J8177D: ■ 1990-3816 ■ 1990-4606 ■ 1990-4640

Product name	SKU	Minimum software required (J8177C/J8177D)	Comments
			JL687A notes: The 25G module (JL687A) requires configuration of "interface groups" (groups of 4 ports) to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (Interface Groups default to 25G speed). See the *Installation Guide* for details. The link state of ports on the JL687A module will always show UP if a transceiver is inserted and the interface is enabled, even if the cable is disconnected

Chapter 8
Support for HPE Servers and Systems products

Aruba now supports select HPE Server and Systems interconnect products. This chapter shows the various 10G and 25G DACs, 40G and 100G breakout DACs, and interconnect adapters tested and verified to work with selected Aruba switches.

Support of HPE products includes interoperability of HPE products with the following Aruba switches:

- Aruba 8320 48 port 10G with 6 ports of 40G Bundle (JL479A)
- Aruba 8320 48 port 1G/10GBASE-T and 6p 40G QSFP+ Bundle (JL581A)
- Aruba 8320 32 40G X472 5 2 Bdl (JL579A)
- Aruba 8325-48Y8C JL635A displayed by CLI (`show system`)
  - Aruba 8325-48Y8C JL624A - Port-to-Power model (FB)
  - Aruba 8325-48Y8C JL625A - Power-to-Port model (BF)
- Aruba 8325-32C JL636A displayed by CLI (`show system`)
  - Aruba 8325-32C JL626A - Port-to-Power model (FB)
  - Aruba 8325-32C JL627A - Power-to-Port model (BF)
- Aruba 8360 32Y4C JL717A displayed by CLI (`show system`)
  - Aruba 8360-32Y4C Prt2Pwr3F2PS JL700A - Port-to-Power model (FB)
  - Aruba 8360-32Y4C Pwr2Prt3F2PS JL701A - Power-to-Port model (BF)
- Aruba 8360 16Y2C JL718A displayed by CLI (`show system`)
  - Aruba 8360-16Y2C Prt2Pwr3F2PS JL702A - Port-to-Power model (FB)
  - Aruba 8360-16Y2C Pwr2Prt3F2PS JL703A - Power-to-Port model (BF)
- Aruba 8360 48XT4C JL720A displayed by CLI (`show system`)
  - Aruba 8360-48XT4C Prt2Pwr3F2PS JL706A - Port-to-Power model (FB)
  - Aruba 8360-48XT4C Pwr2Prt3F2PS JL707A - Power-to-Port model (BF)
- Aruba 8360-12C JL721A displayed by CLI (`show system`)
  - Aruba 8360-12C Pwr2Prt3F2PS JL708A - Port-to-Power model (FB)
  - Aruba 8360-12C Prt2Pwr3F2PS JL709A - Power-to-Port model (BF)
- Aruba 8360 24XF2C JL722A displayed by CLI (`show system`)
  - Aruba 8360-24XF2C Prt2Pwr3F2PS JL710A - Port-to-Power model (FB)
  - Aruba 8360-24XF2C Pwr2Pwr3F2PS JL711A - Power-to-Port model (BF

Interoperability implies that the Aruba switches have been verified to work with a combination of HPE (10G or25G) DACs or (10 or 25G) Aruba DACs and an HPE server adapter shown in the following tables.

Consult the SERVER NETWORKING TRANSCEIVER AND CABLE COMPATIBILITY MATRIX found on www.hpe.com for compatibility with HPE interconnect products (search for "server networking transceiver and cable compatibility support matrix").

Table 60: 10/25Gb HPE Server adapters tested

HPE SKU #	SKU Description
817749-B21	HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter
817753-B21	HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter
817709-B21	HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter
817718-B21	HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter

Table 61: 10Gb SFP+ HPE Server adapters tested

HPE SKU #	SKU Description
P11338-B**	HPE Ethernet 10Gb 2-port 548SFP+ Adapter
P08446-B21	HPE Ethernet 10Gb 2-port 524SFP+ Adapter
727055-B21	HPE Ethernet 10Gb 2-port 562SFP+ Adapter
727054-B21	HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter

**This SKU has gone end of sale.

Table 62: 10Gb Base-T HPE Server adapters tested

HPE SKU #	SKU Description
656596-B21	HPE Ethernet 10Gb 2-port 530T Adapter
700759-B21	HPE FlexFabric 10Gb 2-port 533FLR-T Adapter
817745-B21	HPE Ethernet 10Gb 2-port 562FLR-T Adapter
817738-B21	HPE Ethernet 10Gb 2-port 562T Adapter

Table 63: HPE DACs, breakout DACs, AOCs, and breakout fiber cables

Cable Type	HIT SKU #	Description
Same speed DACs and AOCs		
10G to 10G	487655-B21 537963-B21	HPE BLc 10G SFP+ SFP+ 3m DAC Cable HPE BLc 10G SFP+ SFP+ 5m DAC Cable
25G to 25G	844477-B21 844480-B21 845420-B21 845424-B21	HPE 25Gb SFP28 to SFP28 3m DAC HPE 25Gb SFP28 to SFP28 5m DAC HPE QSFP28 to 4x25G SFP28 7m AOC HPE QSFP28 to 4x25G SFP28 15m AOC
Breakout DACs and AOCs		
40G to 4x10G DAC	721064-B21	HPE BladeSystem c-Class 40G QSFP+ to 4x10G SFP+ 3m DAC

Cable Type	HIT SKU #	Description
40G to 4x10G AOC	721076-B21	HPE BLc QSFP+ to 4x10G SFP+ 15m AOC
100G to 4x25G DAC	845416-B21	HPE 100G QSFP28 to 4x25G SFP28 3m DAC
100G to 4x25G AOC 100G to 4x25G AOC	845420-B21 845424-B21	HPE QSFP28 to 4x25G SFP28 7m AOC HPE QSFP28 to 4x25G SFP28 15m AOC
Breakout Fiber cables		
MPO to LC use with 40G SR4/eSR4 or 100G SR4 transceivers	R1N86A K2Q46A K2Q47A	HPE 12 Fiber MPO to 4xLC MM 3m Cbl HPE MPO to 4 x LC 5m Cable HPE MPO to 4 x LC 15m Cable

See 25G SFP28 Direct Attach over Copper (DAC) cables and SFP+ DAC Cables to determine the minimum software required for the supported Aruba switches.

Other HPE cables not listed have not been validated against any Aruba Switch. Check the compatibility tables in this guide to determine if a HPE Server Cable is supported for use with the Aruba Switch.

Accessing Aruba Support

Aruba Support Services	https://www.arubanetworks.com/support-services/
Aruba Support Portal	https://asp.arubanetworks.com/
North America telephone	1-800-943-4526 (US & Canada Toll-Free Number) +1-408-754-1200 (Primary - Toll Number) +1-650-385-6582 (Backup - Toll Number - Use only when all other numbers are not working)
International telephone	https://www.arubanetworks.com/support-services/contact-support/

Be sure to collect the following information before contacting Support:

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Other websites that can be used to find information:

Airheads social forums and Knowledge Base	https://community.arubanetworks.com/
Software licensing	https://lms.arubanetworks.com/
End-of-Life information	https://www.arubanetworks.com/support-services/end-of-life/
Aruba software and documentation	https://asp.arubanetworks.com/downloads

Accessing updates

To download product updates:

Aruba Support Portal .

https://asp.arubanetworks.com/downloads .

If you are unable to find your product in the Aruba Support Portal, you may need to search My Networking, where older networking products can be found:

My Networking .

https://www.hpe.com/networking/support .

To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

https://support.hpe.com/portal/site/hpsc/aae/home/

Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HP Passport set up with relevant entitlements.

Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

To subscribe to eNewsletters and alerts:

https://asp.arubanetworks.com/notifications/subscriptions (requires an active Aruba Support Portal (ASP) account to manage subscriptions). Security notices are viewable without an ASP account.

Warranty information

To view warranty information for your product, go to https://www.arubanetworks.com/support-services/product-warranties/.

Regulatory Information

To view the regulatory information for your product, view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Aruba is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements, environmental data (company programs, product recycling, energy efficiency), and safety information and compliance data, (RoHS and WEEE). For more information, see https://www.arubanetworks.com/company/about-us/environmental-citizenship/.

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