ArubaOS-Switch and ArubaOS-CX Transceiver Guide

(Edition 8)

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Chapter 1 Overview 5
Conventions 5
Note on product images 5
Port numbering in examples 5
Symbols 5
Types of transceiver modules and network cables 6
Data rate 7
Transmission distance 7
Central wavelength 8
Fiber 8
Fiber types 8
Fiber diameter 9
Connector 10
Optical parameters 11
Copper transceiver modules 12
Transmission distance 12
Connector 12
Identification of 4x4 part numbers 13

Chapter 2 QSFP28 modules 15
QSFP28 optical transceiver modules that use MPO connectors 15
Models, specifications, and compatibility 15
QSFP28 optical transceiver modules that use LC connectors 16
Models, specifications, and compatibility 16
QSFP28 DAC (copper cables) 19
Models, specifications, and compatibility 19

Chapter 3 QSFP+ modules 20
QSFP+ optical transceiver modules that use MPO connectors 20
Models, specifications, and compatibility 20
QSFP+ optical transceiver modules that use LC connectors 22
Models, specifications, and compatibility 22
QSFP+ DAC (copper cables) 24
Models, specifications, and compatibility 25
QSFP+ 40G AOC (Active Optical Cable) 26
Models, specifications, and compatibility 26

Chapter 4 SFP56 modules 27
SFP56 Direct Attach over Copper (DAC) cables 27
Models, specifications, and compatibility 27

Chapter 5 SFP28 modules 29
SFP28 optical transceiver modules 29
Models, specifications, and compatibility 29
25G Direct Attach over Copper (DAC) cables 30
Models, specifications, and compatibility 31

SFP28 25G AOC (Active Optical Cable)..... 32
Models, specifications, and compatibility..... 32

Chapter 6 SFP+ modules..... 34
SFP+ optical transceiver modules..... 34
Models, specifications, and compatibility..... 34
10G SFP+ copper transceiver modules..... 45
Models, specifications, and compatibility..... 45
SFP+ DAC cables..... 48
Models, specifications, and compatibility..... 48

Chapter 7 SFP modules..... 55
Gigabit SFP optical transceiver modules..... 55
Models, specifications, and compatibility..... 55
100-Megabit SFP optical transceiver modules..... 64
Models, specifications, and compatibility..... 64
Gigabit BIDI optical transceiver modules..... 71
Models, specifications, and compatibility..... 71
Gigabit SFP copper transceiver modules..... 75
Models, specifications, and compatibility..... 75

Chapter 8 Support for HPE Servers and Systems products..... 81

Chapter 9 Websites..... 83

Chapter 10 Support and other resources..... 84
Accessing Hewlett Packard Enterprise Support..... 84
Accessing updates..... 84
Remote support..... 85
Warranty information..... 85
Regulatory information..... 86
Documentation feedback..... 86

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

NOTE: 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.

Symbols

Table 1: *Symbols*

Convention	Description
⚠	An alert that calls attention to important information that if not understood or followed can result in personal injury.
△	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
ⓘ	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
💡	An alert that provides helpful information.

Types of transceiver modules and network cables

Table 2: *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) 1 - 5m reaches	N/A
QSFP+ module (transceiver)	QSFP+ optical transceiver module	MPO 12-strand or LC 2-strand
	QSFP+ DAC (copper cable for interconnecting devices) 1 - 5m reaches QSFP+ AOC (Active Optical Cable) for interconnecting devices) 7m to 30m reaches	N/A
SFP56 module	SFP56 DAC (copper cable for interconnecting devices) SFP56 optics (50G) and 50G AOCs	N/A - twinax cable permanently attached Will be available in the future; awaiting market viability
SFP28 module	SFP28 same size as SFP+ (optical)	LC 2-strand
	SFP28 DAC (copper cable for interconnecting devices) 0.65m to 5m reaches	N/A - twinax cable permanently attached
	SFP28 active optical cable(for interconnecting devices) 7m to 30m reaches	N/A 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)	N/A
	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

Table Continued

Transceiver module type		Connector head
	Gigabit SFP optical transceiver module	
	1G SFP copper transceiver module	RJ-45 (1G requires Cat5e for maximum supported distances.)

NOTE:

- 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, Active Optical Cables (AOC) and Direct Attach over Copper (DAC) products provide the following levels of data rates:

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

Transmission distance

The transmission distance of optical transceiver modules is divided into short and long-range types. A distance of 2 km (1.24 miles) and below is considered a short-range type. A distance of 10 km (6.21 miles) is considered a long-range type. Transmission distances provided by optical transceiver modules are limited by certain loss and dispersion suffered during the transmission of fiber signals over fibers.

- Loss is the optical energy loss due to the absorption, dispersion, and leakage over the media when light travels through optical fibers. This loss increases in direct ratio to transmission distance.
- Dispersion occurs mainly because light waves of different wavelengths travel at different rates over the same medium. This causes different wave components of optical signals to reach the receiving end early or late as the transmission distance increases causing impulse broadening. Impulse broadening makes the signal values indistinguishable (data loss). Different wavelengths traveling down the same fiber are called modes, and this data loss is known as intermodal dispersion.

To meet different transmission distance requirements, choose suitable optical transceiver modules according to actual networking conditions.

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. For more information, see Table 2. 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 3: *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.

Table 4: *Multimode fiber specifications*

Interface types	Central wavelength (nm)	Fiber grade	Transmission distance
1000BASE-SX	850	OM1	< 275 m (902.23 ft)
		OM2	< 550 m (1804.46 ft)
10GBASE-SR	850	OM1	< 33 m (108.27 ft)

Table Continued

Interface types	Central wavelength (nm)	Fiber grade	Transmission distance
		OM2	< 82 m (269.03 ft)
		OM3	< 300 m (984.25 ft)
		OM4	< 400m (1312.34 ft)
10GBASE-LRM [1]	1310	OM1	< 220 m (721.78 ft)
		OM2	< 220 m (721.78 ft)
		OM3	< 220 m (721.78 ft)
		OM4	< 220 m (721.78 ft)
		SMF	<300m (987.25 ft)

[1] LRM technology requires a PHY behind the SFP port. Not all 10G SFP (or higher) can support the use of a 10G LRM transceiver. Check the compatibility chart for your switch series to see if 10G LRM is supported.

- 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 5: *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.652 standard single-mode fiber:** 9/125 µm
- **G.655 non zero dispersion shifted single-mode fiber:** 9/125 µm
- **G.651 standard multimode fiber:** 50/125 µm or 62.5/125 µm

Connector

CAUTION: Cover the connector with a dust cap when it is not connected to any optical fibers.

Connectors connect transceiver modules to the corresponding transmission media. The transceiver modules available for Aruba products use the following types of connectors:

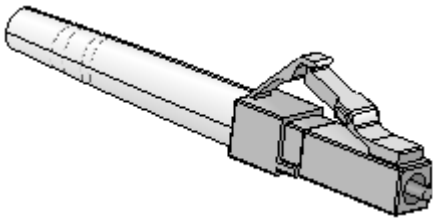
- Lucent connector or local connector (LC).

  Single LC connectors (also known as Simplex) are typically used for 1G & 10G BiDi (Bidirectional) optics.

  Dual LC connectors (Duplex) are typically used in normal optical types.

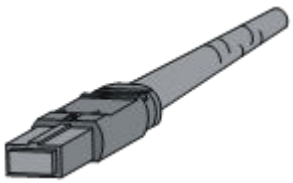
  NOTE: 40G BiDi uses only Duplex fiber versus MPO (see below) for 40G SR4 applications.

  Figure 1: *LC connector (a simplex connector is shown)*

- Multifiber Push On (MPO) connector.

  Figure 2: *MPO connector*

  The 40G QSFP+ MPO transceiver modules use only female MPO connectors, which have guide holes in the end face of the MPO connector (the transceiver has guide pins within the MPO receptacle).

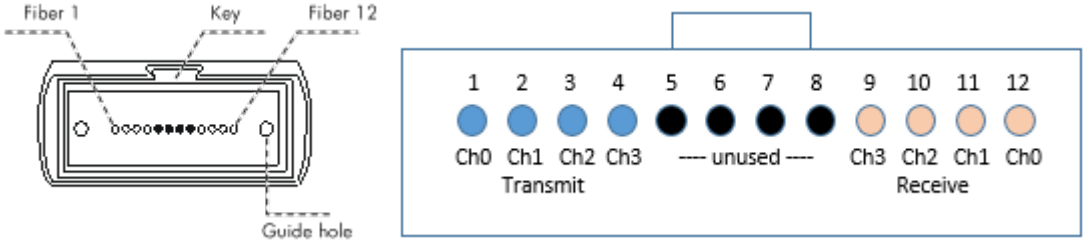
  MPO connectors are classified as the following types based on the polish type:

  - **Physical contact (PC):** End face polished flat.
  - **Angle-polished contact (APC):** End face polished with an angle, typically 8°.

MPO connectors are available with 12 fibers or 24 fibers:

12-fiber MPO connector (40G, SR4, eSR4, and 100G SR4 transceivers use 8 of the available 12 fibers. The four center fibers are unused.)

Figure 3: *End face of a 12-fiber connector and channel assignment*



MPO transceivers typically use four channels to communicate. These channels are assigned using the outer eight fibers (the center four are unused).

Transmit channels are one set of four fibers, and the receive channels are on the other set of four fibers. Because of this, the cables used and fiber cable connections from endpoint to endpoint effectively create a crossover connection.

Be aware that using two crossover cables in series cancels this effect and no connection will be established. An odd number of crossovers combined with straight-thru fiber connections will effect a crossover connection.

The channel layout indicates that the left four fibers are Transmit, and must reach the opposite transceiver Receive channels (and in proper channel order).

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 power

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

Use of attenuators

Transceivers are designed to transmit light pulses at a power level that accounts 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 affect the transmit level to 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).

Copper transceiver modules

Copper transceiver modules transmit signals over Category-5, -5e, -6, and -6a unshielded twisted pair (UTP). 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 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 4: *RJ-45 connector*

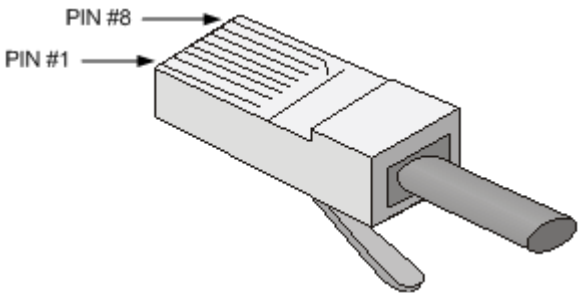


Table 6: *RJ-45 GE connector pin assignment for Gigabit connections*

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# (also called a Product Number or Part Number) may be fulfilled by two or more vendor parts providing similar functionality. A 4x4 part number is of the form *nnnn-nnnn* and is printed on the transceiver, DAC, or AOC label. For example, JL309A can have a 1990-4680 or 1990-4678 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 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 Aruba no longer actively ships, but remains as fully supported in specific switches.

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
```

QSFP28 optical transceiver modules that use MPO connectors

See Chapter 1, "Overview", for information regarding MPO connectors and cable requirements.

Figure 5: *QSFP28 optical transceiver module that use MPO connectors*

Models, specifications, and compatibility

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

Table 7: *Specifications for QSFP28 optical transceiver modules that use MPO connectors (1)*

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)

NOTE: 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.

Table 8: *Specifications for QSFP28 optical transceiver modules that use MPO connectors (2)*

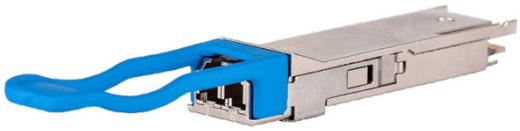
Product name (SKU)	Connector	Optical parameters (dBm)	
		Transmit power	Receive power
Aruba 100G QSFP28 MPO SR4 100m 12-fiber MPO MMF Transceiver (JL309A)	MPO (PC polished, 12-fiber)	-8.4 to +2.4	-10.3 to +2.4

Table 9: *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 8325 32C models (JL626A/JL627A)	10.03.0030	
Aruba 8325 48Y8C models (JL624A/ JL625A)	10.03.0030	
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.

QSFP28 optical transceiver modules that use LC connectors

Figure 6: *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 10: *Specifications for QSFP28 optical transceiver modules that use LC connectors (1)*

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 LC CWDM4 2km SMF Transceiver (R0Z30A)	YES (1990-4644, 1990-4643)	Four lanes: 1264.5 to 1277.5 1284.5 to 1297.5 1304.5 to 1317.5 1324.5 to 1337.5	SMF	9/125	N/A	2 km (1.24 miles)
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	N/A	10 km (6.21 miles)
Aruba 100G QSFP28 LC ER4L 40km SMF Transceiver (JL743A)	YES	Four lanes: 1294.53 to 1296.59 1299.02 to 1301.09 1303.54 to 1305.63 1308.09 to 1310.19	SMF		N/A	30km (18.64 miles) without FEC 40km (24.86 miles) Requires FEC

Table 11: *Specifications for QSFP28 optical transceiver modules that use LC connectors (2)*

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 12: *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	
Aruba 8325 32C models (JL626A/JL627A)	R0Z30A (CWDM4 2km): 10.03.0030 JL310A (LR4 10km): 10.03.0030 JL743A (ER4L 40km): Not supported	
Aruba 8325 48Y8C models (JL624A/ JL625A)	R0Z30A (CWDM4 2km): 10.03.0030 JL310A (LR4 10km): 10.03.0030 JL743A (ER4L 40km): Not supported	
Aruba 8400X Module: 6p 40G/100G QSFP28 Advanced Module (JL366A)	R0Z30A (CWDM4 2km): Not supported JL310A (LR4 10km): 10.00.0005 JL743A (ER4L 40km): Not supported	10.00.0005 provides support for 100G products. 10.00.0006 provides additional support for 40G on the JL366A.

QSFP28 DAC (copper cables)

Figure 7: *QSFP28 DAC (copper cable)*

Models, specifications, and compatibility

Table 13: *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

Table 14: *Compatibility for the QSFP28 copper cables*

Product name (SKU)	Minimum software required	Comments
Aruba 6400 12p 40G/100G QSFP28 Module (R0X45A)	JL307A: 10.04.2000 R0Z25A/R0Z26A: not supported	
Aruba 8325 32C models (JL626A/JL627A)	JL307A: 10.03.0030 R0Z25A/R0Z26A: 10.04.1000	
Aruba 8325 48Y8C models (JL624A/ JL625A)	JL307A: 10.03.0030 R0Z25A/R0Z26A: 10.04.1000	
Aruba 8400X Module: 6p 40G/100G QSFP28 Advanced Module (JL366A)	JL307A: 10.00.0020 R0Z25A/R0Z26A: not supported	

QSFP+ optical transceiver modules that use MPO connectors

See Chapter 1, " Overview", for information regarding MPO connectors and cable requirements.

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.

NOTE: 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.

Table 15: *Specifications for QSFP+ optical transceiver modules that use MPO connectors (1)*

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 (1312.33 ft)

Table 16: *Specifications for QSFP+ optical transceiver modules that use MPO connectors (2)*

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 17: *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	
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	
Aruba 8320 48p SFP/SFP+ & 6p 40G QSFP+ Switch (JL479A)	10.00.0006	
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 (JL626A/JL627A)	10.03.0030	
Aruba 8325 48Y8C models (JL624A/ JL625A)	10.03.0030	
Aruba 8400X Modules: 8p 40G QSFP+ Advanced Module (JL365A)	All	
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.

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 18: *Specifications for QSFP+ transceiver modules that use LC connectors (1)*

Product name (SKU)	DOM - Digital Optical Monitoring (4x4)	Central wl (nm)	Fiber mode	Fiber diameter (µm)	Modal bandwidth (MHz*km)	Transmission distance
Aruba 40G QSFP+ LC BiDi 150m MMF XCVR (JL308A)	YES (1990-4679)	Dual 20Gb/s: • 850 • 900	MMF	50/125	2000 (OM3) 4700 (OM4)	100 m (328.08 ft) 150 m (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	10 km (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	30 km (18.6 miles) over SMF for No-FEC 40 km (24.86 miles)

Table 19: *Specifications for QSFP+ transceiver modules that use LC connectors (2)*

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 20: *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 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 40GbE 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	

Table Continued

Product name (SKU)	Minimum software required	Comments
Aruba 8320 48p G /6p 40G QSFP+ Switch (JL581A)	JH232A: 10.00.0012 JL308A: 10.00.0012 Q9G82A: 10.00.0018	
Aruba 8325 32C models (JL626A/JL627A)	10.03.0030	
Aruba 8325 48Y8C models (JL624A/ JL625A)	10.03.0030	
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.

QSFP+ DAC (copper cables)

Figure 10: *QSFP+ DAC copper cables*

IMPORTANT: 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 21: *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)	

Table 22: *Compatibility for the QSFP+ copper cables*

Product name (SKU)	Minimum software required	Comments
Aruba 3810M/2930M 1QSFP+ 40GbE Module (JL078A)	All	
Aruba 3810M 2QSFP+ 40GbE Module (JL079A)	All	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)	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	
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch (JL479A)	All	
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 (JL626A/JL627A)	10.03.0030	
Aruba 8325 48Y8C models (JL624A/ JL625A)	10.03.0030	
Aruba 8400X Module: 8p 40G QSFP+ Adv Module (JL365A)	All	
Aruba 8400X Module: 6p 40G/100G QSFP28 Adv Module (JL366A)	10.00.0006	

QSFP+ 40G AOC (Active Optical Cable)

Figure 11: *QSFP+ 40G AOC (Active Optical Cable)*

Models, specifications, and compatibility

Table 23: *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)	

Table 24: *Compatibility for the QSFP+ 40G active optical cables*

Product name (SKU)	Minimum software required	Comments
8325 Switch Series (JL624A, JL625A)	10.03.0040	

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*

IMPORTANT:

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 25: *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)	50 Gbps
Aruba 50G SFP56 to SFP56 3m DAC Cable (R0M47A)	3m (9.84 ft)	

Table 26: *Compatibility for the SFP56 DAC copper cables*

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

SFP28 optical transceiver modules

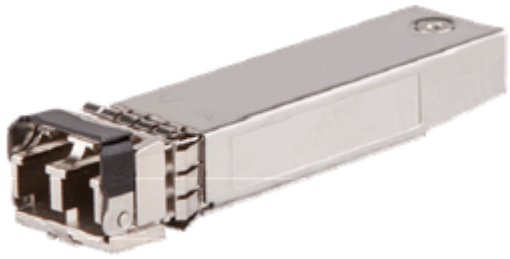
SFP28 ports are 25G speed ports and similar in size to a 10G SFP+ or 1G SFP port. They have supporting circuitry to enable 25G speed transceiver, DAC, and AOC components.

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 Chapter 1, "Overview" for information regarding the type of connectors used by SFP28 port products.

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 27: *Specifications for SFP28 optical transceiver modules (1)*

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)	300m (229.66 ft)
					4700 (OM4)	400m (328.08 ft)
Aruba 25G SFP28 LC LR 10km SMF Transceiver (JL486A)	Yes (partial)	1310	SMF	9/125	n/a	10km (6.21 miles)

Table 28: *Specifications for SFP28 optical transceiver modules (2)*

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

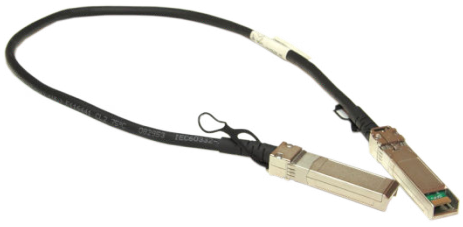
Table 29: *Compatibility for the SFP28 transceiver modules*

Product name	SKU	Minimum software required	Comments
Aruba 6300 series	All models M and F	10.04.0001	
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 25G optics only supported in the SFP56 ports R0X43A: 25G optics are not supported in 10G SFP+ ports
	R0X44A	10.04.2000	
Aruba 8325 48Y8C models	JL624A, JL625A	10.02.0001	
Aruba 8400 Modules	JL687A	10.04.2000	

25G 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*



IMPORTANT:

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 30: *Specifications for SFP28 copper cables*

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 (9.84 ft)	
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 31: *Specifications for HPE SFP28 copper cables*

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 32: *Compatibility for the SFP28 DAC copper cables*

Product name	SKU	Minimum software required JL487A, JL488A, JL489A	Comments
6300 Switch Series (M and F)	All models	10.04.0001 844477-B21 & 844480-B21: not supported	
6400 modules with SFP56 ports	R0X39B, R0X40B R0X41A, R0X42A, R0X43A	10.04.1000	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series 25G DACs only supported in the SFP56 ports

Table Continued

Product name	SKU	Minimum software required JL487A, JL488A, JL489A	Comments
	R0X44A	10.04.2000 844477-B21 & 844480-B21: not supported	R0X43A: 25G DACs are not supported in 10G SFP+ ports
8325 48Y8C models	JL624A, JL625A	10.03.0030 844477-B21 & 844480-B21: 10.04.1000	844477-B21 & 844480-B21: verified against HPE interconnects listed in **Support for HPE Servers and Systems products**
Aruba 8400 Modules	JL687A	JL487A: Not Supported JL488A & JL489A: 10.04.2000 84477-B21, 844480-B21: Not supported	JL487A 0.65m DAC not supported

SFP28 25G AOC (Active Optical Cable)

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

Models, specifications, and compatibility

Table 33: *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)	

Table 34: *Compatibility for the SFP28 25G active optical cables*

Product Name	SKU	Minimum software required R0M44A, R0M45A, R0Z21A	Comments
8325 Switch Series	JL624A, JL625A	10.03.0040	

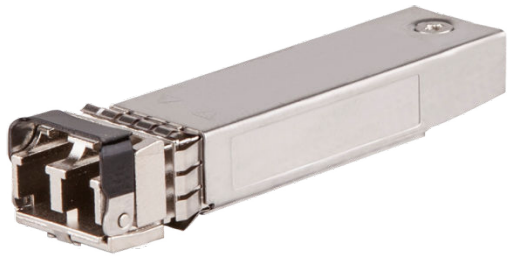
SFP+ optical transceiver modules

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 Chapter 1, "Overview", for information regarding 4x4 part numbers).

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*



NOTE:

- 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.

Table 35: *Specifications for SFP+ optical transceiver modules (1)*

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)	Yes (1990-4391, 1990-4175, 1990-4635, 1990-4634)	850	MMF	50/125	4700 (OM4) 2000 (OM3) 500 (OM2) 400	400 m (1312.34 ft) 300 m (984.25 ft) 82 m (269.03 ft) 66 m (216.54 ft)
				62.5/125	200 (OM1) 160	33 m (108.27 ft) 26 m (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	220 m (721.78 ft) 220 m (721.78 ft) 100 m (328.08 ft)
				62.5/125	200 (OM1) 160	220 m (721.78 ft) 220 m (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)	Yes (1990-4657, 1990-4694)	1310	SMF	9/125	N/A	10 km (6.21 miles)
HPE X132 10G SFP+ LC ER Transceiver (J9153A) Aruba 10G SFP+ LC ER 40km SMF XCVR (J9153D)	Yes (1990-4365, 1990-4656)	1550	SMF	9/125	N/A	40 km (24.86 miles)

NOTE: 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.

Table 36: *Specifications for SFP+ optical transceiver modules (2)*

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)	–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)	–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 37: *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)	
1850 Switch Series	JL169A	J9150A/J9150D: All J9151A/J9151D: All J9152A/J9152D: All	J9153A/J9153D is not supported on the 1850 Switch Series.	Unlisted models do not have SFP+ ports.
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 (LRM) 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.

Table Continued

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
2930F Switch Series	JL253A, JL254A, JL255A, JL256A, JL258A, JL263A, JL264A, JL558A, JL559A	All (J9150A/J9150D and J9151A/J9151D/J9151E only) J9152A/J9152D (LRM) 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	All	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module.
	R0M67A, R0M68A	WC.16.05	WC.16.05	
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	All	All	For use in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module
	JL075A	All	All	For use in the JL075A SFP+ ports or in an installed JL083A Aruba 3810M/2930M 4SFP+ MACsec Module

Table Continued

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
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	All	All	
	J9990A, J9993A	KB.15.17	KB.15.17	
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.

Table Continued

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
Aruba 6200 Switch Series	All models	10.04.1000 J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 6200 Series	10.04.1000 Only the listed 4x4 parts are fully supported J9153A/J9153D • 1990-4365 • 1990-4656	J9152A/J9152D (or any type of 10G LRM technology) is not supported on the 6200 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: Not Supported

Table Continued

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
Aruba 6300 Switch Series	All models (M and F)	10.04.0001 J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 6300 Modules	10.04.0001 J9153A/J9153D • 1990-4365 • 1990-4656	J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 6300 series 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: Not Supported
Aruba 6400 Modules	R0X39B, R0X40B R0X41A, R0X42A, R0X43A	10.04.1000	10.04.1000	R0X38A/R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 modules. J9152A/J9152D (or any type of 10G LRM technology) is not supported in any of the 6400 modules J9150A/J9150D • 1990-4391 • 1990-4175

Table Continued

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
	R0X44A	10.04.2000 J9152A/J9152D (or any type of 10G LRM technology) is not supported in any of the 6400 Modules	10.04.2000 J9153A/J9153D • 1990-4365 • 1990-4656	• 1990-4635 • 1990-4634 J9151A/J9151D • 1990-4657 • 1990-4727 • 1990-4694 J9152A/J9152D: Not Supported J9151E • 1990-4727 • 1990-4694
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.

Table Continued

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	All (J9150A/J9150D and J9151A/J9151D only) J9152A/J9152D (or any type of 10G LRM technology) is not supported in the 8320 JL479A	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 J9152A/J9152D (or any type of 10G LRM technology) is not supported on the 8320 Series J9151E • 1990-4727 • 1990-4694

Table Continued

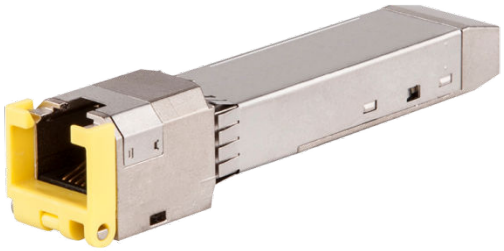
Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/J9153D)	
Aruba 8325 48Y8C Switch	JL624A, JL625A	10.03.0030 J9152A/J9152D (or any type of 10G LRM technology) is not supported in any of the 8325 switches	10.03.0030 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 • 1990-4727 • 1990-4694 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 (default is to use 25G transceivers / DACs). See the *Installation Guide* for details.
Aruba 8400X modules	JL363A JL687A	All 10.04.2000 J9152A/J9152D (or any type of 10G LRM technology) is not	JL363A: All JL687A: 10.04.2000	Only the listed 4x4 parts are fully supported J9150A/J9150D

Product name	SKU	Minimum software required		Comments
		10G-SR, LR, LRM (J9150A/J9150D, J9151A/J9151D/J9151E, J9152A/J9152D)	10G-ER (J9153A/ J9153D)	
		supported in the JL687A module.		• 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 10G LRM technology) 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 (default is to use 25G transceivers / DACs). See the Installation Guide for details.

NOTE: J9152D 10G LRM with 4x4 1990-4485 is tuned so that it does not require the use of a mode conditioning patch (MCP) cable. 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 38: *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 [1]	RJ-45

[1] See **Transmission distance**.

Table 39: *Compatibility for SFP+ copper transceiver modules*

Product name	SKU	Minimum software required (JL563A)	Comments
Aruba 6200 Switch Series	All models	10.04.1000	JL563A does not support 1G operation; only 10G.
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 1G operation; only 10G.
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 1G operation; only 10G.
	R0X44A	10.04.2000	

Table Continued

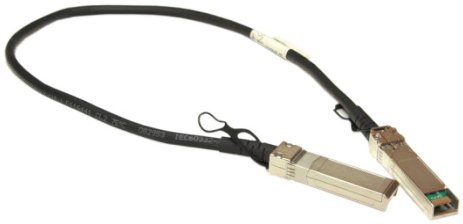
Product name	SKU	Minimum software required (JL563A)	Comments
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	10.01.0011	JL563A does not support 1G operation; only 10G. It is only supported in ports 1 – 12. A maximum of 12 JL563A transceivers can be used in a switch.

Table Continued

Product name	SKU	Minimum software required (JL563A)	Comments
Aruba 8325 48Y8C	JL624A , JL625A	10.03.0030	JL563A does not support 1G operation; only 10G. 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 another port. The 8325 requires configuration of "interface groups" to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (default is to use 25G transceivers / DACs). 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 (default is to use 25G transceivers / DACs). See the *Installation Guide* for details.

SFP+ DAC cables

Figure 18: *SFP+ DAC cable*



IMPORTANT: 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

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 parts are also supported.

Table 40: *Specifications for SFP+ DAC cables*

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)	

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 41: *Specifications for HPE SFP+ DAC cables*

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 42: *Compatibility for the SFP+ DAC cables*

Product name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
1850 Switch Series	JL169A	All	Unlisted models do not have SFP+ ports.
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 and J9283B/J9283D only. See comments for exception)	J9285B/J9285D or any type of 7m DAC is not supported in any of these series.
2910al Switch Series	J9145A, J9146A, J9147A, J9148A	W.14.28	For use in the J9008A 2-port 10GbE SFP+ al module.
2920 Switch 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 J9283B/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.

Table Continued

Product name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
5400zl Switch Series	J9309A	K.14.39	The J9309A 4-port SFP+ module only supports 10G transceivers.
	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.
Aruba 6200 Switch Series	All models	10.04.1000	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 any 6200 model.

Table Continued

Product name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
Aruba 6300 Switch Series All models M and F		10.04.0001	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	10.04.1000	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	10.04.2000	
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 Continued

Product name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
Aruba 8320 48p 10G SFP/SFP+ and 6p 40G QSFP+ Switch	JL479A	All (J9281B/J9281D and J9283B/J9283D only. See comment for exception.) 487655-B21 & 537963-B21: 10.04.1000	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 8320 models. 487655-B21 and 537963-B21: See **https://h20195.www2.hpe.com/v2/getpdf.aspx/A00002507ENW.pdf?** for HPE Interconnect support.

Table Continued

Product name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
Aruba 8325 48Y8C Switch	JL624A, JL625A	10.03.0030 487655-B21 & 537963-B21: 10.04.1000	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 8325 models. 487655-B21 and 537963-B21: See **https://h20195.www2.hpe.com/v2/getpdf.aspx/A00002507ENW.pdf?** for HPE Interconnect support. The 8325 requires configuration of "interface groups" to enable use of 1G or 10G transceivers or DACs in the SFP28 ports (default is to use 25G transceivers / DACs). See the *Installation Guide* for details.
Aruba 8400X modules	JL363A JL687A	All 10.04.2000 487655-B21 & 537963-B21: not supported	Only the following 4x4 part numbers are supported: J9281B/J9281D: • 8121-1151, • 8121-1300 J9283B/J9283D: • 8121-1152, • 8121-1298 J9285B/J9285D:

Product name	SKU	Minimum software required (J9281B/J9281D, J9283B/J9283D, J9285B/J9285D)	Comments
			• 8121-1154, • 8121-1305 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 (default is to use 25G transceivers / DACs). See the 8400 *Installation Guide* for details.

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 Chapter 1, "Overview" for information regarding 4x4 part numbers).

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*

NOTE:

- 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 parts are also supported.

Table 43: *Specifications for Gigabit SFP optical transceiver modules (1)*

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)	Yes (1990-4395 & 1990-4415)	850	MMF	50/125	500 (OM2) 400	550 m (1804.46 ft) 500 m (1640.42 ft)
				62.5/125	200 (OM1) 160	275 m (902.23 ft) 220 m (721.78 ft)
HPE X121 1G SFP LC LX Transceiver (J4859C) Aruba 1G SFP LC LX 10km SMF XCVR (J4859D)	Yes (1990-4116, 1990-4414, & 1990-4608)	1310	SMF	9/125	N/A	10 km (6.21 miles)
			MMF	50/125	500 or 400	550 m (1804.46 ft)
			MMF	62.5/125	500	550 m (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	70 km (43.49 miles)

Table 44: *Specifications for Gigabit SFP optical transceiver modules (2)*

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
HPE X121 1G SFP LC LX Transceiver (J4859C) Aruba 1G SFP LC LX 10km SMF XCVR (J4859D)	–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 45: *Compatibility for Gigabit SFP optical transceiver modules*

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
1400 Switch Series	J9078A	All	
1410 Switch Series	J9561A	All	
1700 Switch Series	J9080A	VB.01.09	
1800 Switch Series	J9028A/B	PB.02.09	
1810 Switch Series	J9450A, J9660A	J4858C/J4858D: All J4859C/J4859D: All	Gig LH (J4850C/J4860D) is supported only in the J9450A model.
	J9801A, J9803A, J9834A	J4858C/J4858D: All J4859C/J4859D: All	Gig LH (J4860C/J4860D) is not supported.
1820 Switch Series	J9980A, J9981A, J9983A, J9984A	J4858C/J4858D: All J4859C/J4859D: All J4860C/J4860D: Not supported	Gig LH (J4860C/J4860D) is not supported on the 1820 series.
1850 Switch Series	JL169A	J4858C/JL4858D: All J4859C/J4859D: All J4860C/J4860D: Not supported	Gig LH (J4860C/J4860D) is not supported on the 1850 series. Other 1850 models not listed do not have SFP ports.
1920S	JL381A, JL382A, JL384A, JL385A, JL386A	J4858C/J4858D: All J4859C/J4859D: All J4860C/J4860D: Not supported	Gig LH (J4860C/J4860D) is not supported on the 1920S series. Models JL380A and JL383A do not include SFP ports.
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	

Table Continued

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
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	
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	All	
2930M Switch Series	JL319A, JL320A, JL321A, JL322A, JL323A, JL324A	All	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	

Table Continued

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
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	All	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	
4200vl Switch Series	J8776A, J9033A	All	
5300xl Switch Series	J4878A/B, J4907A	E.10.36	
5400zl 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. The J9538A 8-port SFP+ v2 module supports both 1G and 10G transceivers.
5400R Switch Series	J9537A, J9549A, J9535A, J9637A, J9538A, J9548A, J9536A	All	The J9309A 4-port SFP+ module only supports 10G transceivers. The J9538A 8-port SFP+ v2 module supports both 1G and 10G transceivers.
	J9988A, J9989A, J9990A, J9993A	KB.15.17	

Table Continued

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
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	10.04.1000	Only the following 4x4 part numbers are supported: J4858C/J4858D: • 1990-4395 • 1990-4415 J4859C/J4859D: • 1990-4116 • 1990-4414 J4860C/J4860D: 1990-4363
Aruba 6300 Switch Series	All models	10.04.0001	
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. 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	10.04.2000	

Table Continued

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
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	All	Only the following 4x4 part numbers are supported: J4858C/J4858D: • 1990-4395 • 1990-4415 J4859C/J4859D: • 1990-4116 • 1990-4414 J4860C/J4860D: 1990-4363

Table Continued

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
Aruba 8325 Switch Series	JL624A, JL625A	10.03.0010	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 (default is to use 25G transceivers / DACs). 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.

Table Continued

Product name	SKU	Minimum software required (J4858C/J4858D, J4859C/J4859D, J4860C/J4860D)	Comments
Aruba 8400X Modules	JL363A JL687A	10.00.0018 10.04.2000	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 (default is to use 25G transceivers / DACs). 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 specifications for Revision D transceiver products are the same as the specified Revision A, B, and C SKUs.

Table 46: *Specifications for 100-Megabit SFP optical transceiver modules (1)*

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	2 km (1.24 miles)

Table 47: *Specifications for 100–Megabit SFP optical transceiver modules (2)*

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 48: *Compatibility for the 100-Megabit SFP optical transceiver module*

Product name	SKU	Minimum software required	Comments
1410G Switch Series	J9559A, J9560A, J9561A	J9559A, J9560A: Not supported (no SFP ports) J9561A: All	For use in the SFP ports of the J9561A 1410-24G Switch
1810G Series Switches	J9450A, J9660A	For J9450A, J9660A: All	For use in the SFP ports of the J9450A 1810G-24 Switch and J9660A V1810-48G Switch. (The J9449A 1810G-8 Switch does not have SFP ports.)
1810G v2 Switch Series	J9801A, J9803A	All	For use in the SFP ports of the J9801A 1810-24 v2 and J9803A 1810-24G v2 Switches
PS1810 Switch	J9834A	All	For use in the SFP ports of the J9834A PS1810-24G Switch
1820 Switch Series	J9980A, J9981A, J9983A, J9984A	All	The J9054B 100-FX SFP-LC transceiver is not supported in the 1820G switches The J9054C part number 1990-4483 is not supported in these products. (Only the J9054C/J9054D part number 1990-4360 is supported.)
2510-24 Switch	J9019A/B	Q.10.04	
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	

Table Continued

Product name	SKU	Minimum software required	Comments
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	

Table Continued

Product name	SKU	Minimum software required	Comments
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
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)	

Table Continued

Product name	SKU	Minimum software required	Comments
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.
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

Table Continued

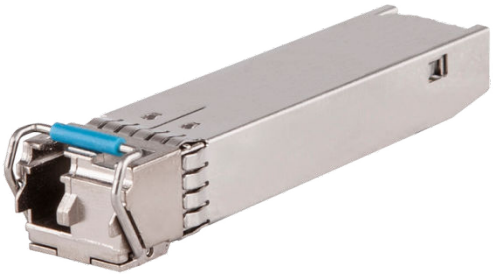
Product name	SKU	Minimum software required	Comments
5400R Switch Series	J9821A, J9822A, J9823A, J9824A, J9825A, J9826A, J9868A	For J9535A, J9537A, J9549A, and J9637A modules: All For the J9988A, J9989A, J9990A, and J9993A modules: KB.15.17 and later	For use in: J9537A 24-Port SFP v2 zl Module J9549A 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
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
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.
Aruba 6400 Switch Series	R0X43A	10.04.1000	Only supported for use in the SFP+ ports on R0X43A module. 100FX is not supported for use in the SFP28 or SFP56 ports of any other 6400 module.

Table Continued

Product name	SKU	Minimum software required	Comments
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 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
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 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.

NOTE:

- The J9142B/J9143B were End of Sale in April 2016 and are no longer available. Contact 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 49: *Specifications for Gigabit BIDI optical transceiver modules (1)*

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	10 km (6.21 miles)
HPE X122 1G SFP LC BX-U Transceiver (J9143B)	No	1310	1490			

Table 50: *Specifications for Gigabit BIDI transceiver modules (2)*

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 51: *Compatibility for Gigabit BIDI transceiver modules*

Product name	SKU	Minimum software required (J9142B, J9143B)	Comments
1400 Switch Series	J9078A	All	
1410 Switch Series	J9561A	All	
1700 Switch Series	J9080A	VB.02.00	
1800 Switch Series	J9028A/B	PB.03.00	
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	

Table Continued

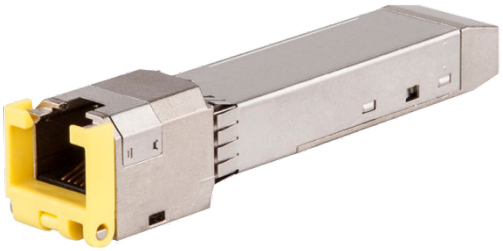
Product name	SKU	Minimum software required (J9142B, J9143B)	Comments
2800 Switch Series	J4903A, J4904A	i.10.69	
2810 Switch Series	J9021A, J9022A	N.11.14	
2900 Switch Series	J9049A, J9050A	T.13.45	
2910al Switch Series	J9145A, J9146A, J9147A, J9148A	All	
2915-8G-PoE Switch	J9562A	All	
2920 Series Switches	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	

Table Continued

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	
6200yl-24G-mGBIC Switch	J8992A	K.13.45	
Aruba 6200 Switch Series	All	n/a	1G BX transceivers are not supported.
Aruba 6300 Switch Series	All	n/a	1G BX transceivers are not supported.
Aruba 6400 Switch Series	All	n/a	1G BX transceivers are not 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 supported.
Aruba 8325 Switch Series	All	n/a	1G BX transceivers are not supported.
Aruba 8400X Modules	All	n/a	1G BX transceivers are not supported.

Gigabit SFP copper transceiver modules

Figure 22: *Gigabit SFP copper transceiver module*



Models, specifications, and compatibility

Table 52: *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)	100 m (328.08 ft)	1G 100Mbps[1]	Cat5e UTP/STP	RJ-45

[1] For certain products. See next table.

Table 53: *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
1810 Series Switches	J9660A, J9801A, J9803A, J9834A	All	
1820 Switch Series	J9980A, J9981A, J9983A, J9984A	All	
1920S Switch Series	JL381A, JL382A, JL384A, JL385A, JL386A	All	The JL380A and JL383A switches do not include SFP ports.
2510 Switch	J9020A	All	
2530 Switch Series	J9782A, J9781A, J9776A, J9775A, J9779A, J9778A, J9773A, J9772A, J9856A, J9855A, J9854A, J9853A	All	

Table Continued

Product name	SKU	Minimum software required (J8177C/ J8177D)	Comments
2540 Switch Series	JL354A, JL355A, JL356A, JL357A	All	
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	All	J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
2930M Switch Series	JL083A	All	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	All	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	

Table Continued

Product name	SKU	Minimum software required (J8177C/ J8177D)	Comments
4200vl Switch Series	J8776A, J9033A	All	
5300xl Switch Series	J4878A/B	E.09.22	
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	All	J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
	J9988A, J9989A, J9990A, J9993A	KB.15.17	J8177C/J8177D support both 100Mbps and 1G operation in this Switch Series.
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	100Mbps speed is NOT supported for the J8177D when used in SFP+ on the 6200 Series. Only the following 4x4 part numbers are supported: J8177C/J8177D: • 1990-3816 • 1990-4606
Aruba 6300 Switch Series	All models Only 1G speed supported See Comments	10.04.0001	100Mbps speed is NOT supported for the J8177D when used in any port (SFP+ or SFP56) on the 6300 Series. Only the following 4x4 part numbers are supported: J8177C/J8177D: • 1990-3816 • 1990-4606
Aruba 6400 Switch Series	R0X39B, R0X40B R0X41A, R0X42A, R0X43A	10.04.1000	R0X39A/R0X40A (revision A) are no longer supported for use in the 6400 series

Table Continued

Product name	SKU	Minimum software required (J8177C/ J8177D)	Comments
	R0X44A	10.04.2000	100Mbps operation is NOT supported using J8177D in this series. Only the following 4x4 part numbers are supported: J8177C/J8177D: • 1990-3816 • 1990-4606
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	J8177D can only operate at 1G in the 8320 series. Only the following 4x4 part numbers are supported: J8177C/J8177D: • 1990-3816 • 1990-4606

Table Continued

Product name	SKU	Minimum software required (J8177C/ J8177D)	Comments
Aruba 8325 Switch Series	JL624A/JL625A	10.03.0030	100Mbps operation is NOT supported in this series. Only the following 4x4 part numbers are supported: J8177C/J8177D: • 1990-3816 • 1990-4606 RJ45 transceivers are only supported for use in the top 2 rows of ports (max of 24 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 (default is to use 25G transceivers / DACs). See the *Installation Guide* for details.
Aruba 8400X Modules	JL363A JL687A	10.00.0018 10.04.2000	Only the following 4x4 part numbers are supported: Only the following 4x4 part numbers are supported: J8177C/J8177D: • 1990-3816 • 1990-4606 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

Product name	SKU	Minimum software required (J8177C/ J8177D)	Comments
			in the SFP28 ports (default is to use 25G transceivers / DACs). 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

Aruba now supports select HPE Server and Systems interconnect products. This chapter shows the various 10G and 25G 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 8325-48Y8C 48 port of 1/10/25G and 8 port of 40/100G Front-to-Back Bundle (JL624A)
- Aruba 8325-48Y8C 48 port of 1/10/25G and 8 port of 40/100G Back-to-Front Bundle (JL625A)

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 for compatibility with HPE interconnect products (on hpe.com, search for "server networking transceiver and cable compatibility support matrix").

Table 54: *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 55: *10Gb SFP+ HPE Server adapters tested*

HPE SKU #	SKU Description
P11338-B21	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

Table 56: *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 57: *HPE DACs*

Cable Type	HIT SKU #	Description
10G DAC	487655-B21	HPE BLc 10G SFP+ SFP+ 3m DAC Cable
10G DAC	537963-B21	HPE BLc 10G SFP+ SFP+ 5m DAC Cable
25G DAC	844477-B21	HPE 25Gb SFP28 to SFP28 3m DAC
25G DAC	844480-B21	HPE 25Gb SFP28 to SFP28 5m DAC

See **SFP28 DAC (copper cables)** and **SFP+ DAC cables** to determine the minimum software required for the supported Aruba switches.

NOTE: Other HPE cables not listed have not been validated against any Aruba Switch. If there is no support for a particular cable listed, that Aruba switch is noted in the compatibility tables.

Networking Websites

Aruba Support Portal

asp.arubanetworks.com

Aruba Software and Documentation

asp.arubanetworks.com/downloads

Aruba Security Advisories

www.arubanetworks.com/support-services/security-bulletins

Hewlett Packard Enterprise Networking Software

www.hpe.com/networking/software

Hewlett Packard Enterprise Networking website

www.hpe.com/info/networking

Hewlett Packard Enterprise My Networking website

www.hpe.com/networking/support

Hewlett Packard Enterprise My Networking Portal

www.hpe.com/networking/mynetworking

Hewlett Packard Enterprise Networking Warranty

www.hpe.com/networking/warranty

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  https://www.hpe.com/info/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

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

Information to collect

- 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

Accessing updates

- 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 download product updates:

  Hewlett Packard Enterprise Support Center
  https://www.hpe.com/support/hpesc
  Hewlett Packard Enterprise Support Center: Software downloads
  https://www.hpe.com/support/downloads
  My HPE Software Center
  https://www.hpe.com/software/hpesoftwarecenter

- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates

- 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://www.hpe.com/support/AccessToSupportMaterials

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

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

Remote support and Proactive Care information

HPE Get Connected

https://www.hpe.com/services/getconnected

HPE Proactive Care services

https://www.hpe.com/services/proactivecare

HPE Datacenter Care services

https://www.hpe.com/services/datacentercare

HPE Proactive Care service: Supported products list

https://www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list

https://www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central

https://www.hpe.com/services/proactivecarecentral

Proactive Care service activation

https://www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

To view the warranty information for your product, see the links provided below:

HPE ProLiant and IA-32 Servers and Options

https://www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise and Cloudline Servers

https://www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

https://www.hpe.com/support/Storage-Warranties

HPE Networking Products

https://www.hpe.com/support/Networking-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 the Hewlett Packard Enterprise Support Center:

https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

https://www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

https://www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

https://www.hpe.com/info/environment

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