

Key Features

Deployment flexibility of 40 GbE, 10GbE or GbE modules

Smallest and lowest power 10GbE optic module form factor

Hot swappable to maximize uptime and simplify serviceability

Optical interoperability with XFP, X2 and XENPAK pluggable form factors

Flexibility of media and interface choice on a port-by-port basis

Support for DWDM to provide high-capacity bandwidth across a long-haul optical fiber network

Robust design for enhanced reliability

Overview

The Arista Small Form-Factor Pluggable (SFP) Optics Modules and Cables offer customers a wide variety of high-density and low-power 40 Gigabit, 10 Gigabit, 1 Gigabit, and 100 Megabit Ethernet connectivity options over fiber or copper media.

To accommodate an ever increasing spectrum of 10 and 40 Gigabit Ethernet applications, Arista offers nine transceiver types, each optimized for a different media and distance reach (SR4, CR4, CR, SRL, SR, LRM, LR, ER, and DWDM). In addition, the SFP+ ports also support three Gigabit Ethernet SFP transceiver types for single-mode fiber, multi-mode fiber, and Cat-5 copper.



10GBASE-CR Copper Cable



10GBASE-SRL SFP+



1000BASE-T SFP

10 Gigabit Ethernet SFP+ Options

PHY Type	Reach
10GBASE-SR	Up to 300m link length with 2000 MHz*km MMF (OM3). Optical interoperability with 10GBASE-SRL
10GBASE-SRL	Up to 100m link length with 2000 MHz*km MMF (OM3). Optical interoperability with 10GBASE-SR
10GBASE-LRM	Up to 220m link length with 50 μ m and 62.5 μ m MMF links
10GBASE-LR	Up to 10 km link length on standard single-mode fiber (SMF, G.652)
10GBASE-ER	Up to 40 km link length on standard single-mode fiber (SMF, G.652)
10GBASE-DWDM	Up to 40 km link length DWDM on standard single-mode fiber (SMF, G.652)
10GBASE-CR	Pre-terminated twin-ax copper cables with link lengths of 0.5m, 1m, 2m, 3m, 5m and 7m
10GBASE-CR (QSFP+)	Pre-terminated QSFP+ to 4 x SFP+ twin-ax copper cables with link lengths of 0.5m, 1m, 2m and 3m

40 Gigabit Ethernet QSFP+ Optic and Cable Options

PHY Type	Product Description
40GBASE-SR4	Up to 100m link length over parallel OM3 multi-mode fiber or 150m over OM4.
40GBASE-CR4	Pre-terminated QSFP+ to QSFP+ twin-ax copper cables with link lengths of 0.5m, 1m, 2m, 3m, 5m and 7m

Gigabit Ethernet SFP Options

PHY Type	Product Description
1000BASE-SX	Up to 550m link length with 500 MHz*km MMF (OM2)
1000BASE-LX	Up to 10 km link length on SMF and up to 550m on MMF*
1000BASE-T	Up to 100m link length over Category 5 copper cables, supporting both 100 Megabit and 1 Gigabit Ethernet

*To ensure that specifications are met over FDDI-grade OM1 and OM2 fibers, the transmitter should be coupled through a mode conditioning patch cord. No mode conditioning patch cord is required for applications over OM3.

Physical Characteristics

- SFP+ HxWxD: 12.3 x 13.7 x 56.5mm
- QSFP+ HxWxD: 12.7 x 18.4 x 71.0mm

Environmental Characteristics

- Operating Temperature 0 to 40C*
- Storage Temperature -40 to 70C
- Relative Humidity 5 to 95%
- Operating Altitude 0-10,000 ft

Power Requirements

- The maximum power consumption for Arista SFP and SFP+ modules (except for ER and DWDM) is less than 1 Watt.
- The maximum power consumption for Arista 40GBASE-SR4, SFP+ ER and DWDM modules is less than 1.5 Watts.

Safety

- Laser Class 1 21CFR-1040.10 LN#50
- Laser Class 1 IEC60825-1

IEEE Compliance

- 802.3ab 1000BASE-T
- 802.3z 1000BASE-X
- 802.3ae 10 Gigabit Ethernet
- 802.3ba 40 Gigabit Ethernet

Standards Compliance

- GR-20-CORE
- GR-326-CORE
- GR-1435-CORE

* Operating temperature for DWDM optics is 0 to 35C

All cables and cable assemblies used must be compliant with the standards specified in the standards section.

10 Gigabit Ethernet SFP+ Specifications

PHY Type	Connector Type	Wave-length (nm)	Cable Type	Core Size (um)	Modal Bandwidth (MHz*Km)	Tx power (dBm)	Rx power (dBm)	Operating Distance (m)
10GBASE-SR	LC	850	MMF	62.5	200	-7.3 to -1.3	-9.9 to -1.0	33m
				50.0	400			66m
				50.0	500			82m
				50.0	2000			300m
10GBASE-SRL	LC	850	MMF	62.5	200	-8.0 to -1.3	-9.9 to -1.0	11m
				50.0	400			22m
				50.0	500			27m
				50.0	2000			100m
10GBASE-LRM	LC	1310	MMF	62.5	500	-6.5 to 0.5	-8.4 to 0.5	220m
				50.0	400			100m
				50.0	500			220m
10GBASE-LR	LC	1310	SMF	G.652	-	-8.2 to 0.5	14.4 to 0.5	10km
10GBASE-ER	LC	1550	SMF	G.652	-	-4.7 to 4.0	-15.8 to -1.0	40km*
10GBASE-DWDM	LC	1563.86	SMF	G.652	-	0.0 to 4.0	-14.0 to -1.0	40km*
		1563.05						
		1562.23						
		1561.42						
		1560.61						
		1559.79						
		1558.98						
		1558.17						
		1557.36						
		1556.55						
		1555.75						
		1554.94						
		1554.13						
		1553.33						
		1552.52						
		1551.72						
		1550.92						
		1550.12						
		1549.32						
		1548.51						
		1547.72						
		1546.92						
		1546.12						
		1545.32						
		1544.53						
		1543.73						
		1542.94						
		1542.14						
1541.35								
1540.56								
1539.77								
1538.98								
1538.19								
1537.40								
1536.61								
1535.82								
1534.04								

* Links beyond 30 km over single-mode fiber are considered engineered links as per IEEE 802.3ae.

**To ensure that specifications are met over FDDI-grade OM1 and OM2 fibers, the transmitter should be coupled through a mode conditioning patch cord. No mode conditioning patch cord is required for applications over OM3.

Minimum cabling distance for -LR, -SR, -SX, -LX modules is 2m and 0.5m for -LRM modules according to IEEE standards

Optics Modules and Cables | Technical Specifications

10 Gigabit Ethernet SFP+ Specifications (Cont'd)

PHY Type	Connector Type	Wavelength (nm)	Cable Type	Core Size (um)	Modal Bandwidth (MHz*Km)	Tx power (dBm)	Rx power (dBm)	Operating Distance (m)
10GBASE-DWDM (Cont'd)	LC	1534.25 1533.47 1532.68 1531.90 1531.12 1530.33	SMF	G.652	-	0.0 to 4.0	-14.0 to -1.0	40km*

10 Gigabit Ethernet Copper Cable Specifications

PHY Type	Connector Type	Wavelength (nm)	Cable Type	Core Size (um)	Modal Bandwidth (MHz*Km)	Operating Distance (m)
10GBASE-CR	SFP+ (Both ends)	-	Twinax Copper	-	-	0.5m 1m 2m 3m 5m 7m
10GBASE-CR	QSFP+ to 4 x SFP+	-	Twinax Copper	-	-	0.5m 1m 2m 3m

40 Gigabit Ethernet QSFP+ Optic Specifications

PHY Type	Connector Type	Wavelength (nm)	Cable Type	Core Size (um)	Modal Bandwidth (MHz*Km)	Tx power (dBm)	Rx power (dBm)	Operating Distance (m)
40GBASE-SR4	MPO	850	OM3 OM4	50.0 50.0	2000 4700	-7.6 to 2.4 per lane	-9.5 to 2.4 per lane	100m 150m

40 Gigabit Ethernet QSFP+ Copper Cable Specifications

PHY Type	Connector Type	Wavelength (nm)	Cable Type	Core Size (um)	Modal Bandwidth (MHz*Km)	Operating Distance (m)
40GBASE-CR4	QSFP+ to QSFP+	-	Twinax Copper	-	-	0.5m 1m 2m 3m 5m 7m

Gigabit Ethernet SFP Specifications

PHY Type	Connector Type	Wavelength (nm)	Cable Type	Core Size (um)	Modal Bandwidth (MHz*Km)	Operating Distance (m)
1000BASE-SX	LC	850	MMF	62.5 62.5 50.0 50.0	160 200 400 500	220m 275m 500m 550m
1000BASE-LX	LC	850	MMF**	62.5 50.0 50.0	500 400 500	550m 550m 550m
	LC	1310	SMF	G.652	-	10km
1000BASE-T	RJ-45	-	Cat5 (UTP)	-	-	100m

Ordering Information

Order Number	Product Description
SFP-10G-SRL	10GBASE-SRL SFP+ Optics Module
SFP-10G-SR	10GBASE-SR SFP+ Optics Module
SFP-10G-LRM	10GBASE-LRM SFP+ Optics Module
SFP-10G-LR	10GBASE-LR SFP+ Optics Module
SFP-10G-ER	10GBASE-ER SFP+ Optics Module
SFP-10G-DW-63.86	10GBASE-DWDM 1563.86nm (ITU Channel 17) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-63.05	10GBASE-DWDM 1563.05nm (ITU Channel 18) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-62.23	10GBASE-DWDM 1562.23nm (ITU Channel 19) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-61.42	10GBASE-DWDM 1561.42nm (ITU Channel 20) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-60.61	10GBASE-DWDM 1560.61nm (ITU Channel 21) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-59.79	10GBASE-DWDM 1559.79nm (ITU Channel 22) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-58.98	10GBASE-DWDM 1558.98nm (ITU Channel 23) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-58.17	10GBASE-DWDM 1558.17nm (ITU Channel 24) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-57.36	10GBASE-DWDM 1557.36nm (ITU Channel 25) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-56.55	10GBASE-DWDM 1556.55nm (ITU Channel 26) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-55.75	10GBASE-DWDM 1555.75nm (ITU Channel 27) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-54.94	10GBASE-DWDM 1554.94nm (ITU Channel 28) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-54.13	10GBASE-DWDM 1554.13nm (ITU Channel 29) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-53.33	10GBASE-DWDM 1553.33nm (ITU Channel 30) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-52.52	10GBASE-DWDM 1552.52nm (ITU Channel 31) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-51.72	10GBASE-DWDM 1551.72nm (ITU Channel 32) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-50.92	10GBASE-DWDM 1550.92nm (ITU Channel 33) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-50.12	10GBASE-DWDM 1550.12nm (ITU Channel 34) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-49.32	10GBASE-DWDM 1549.32nm (ITU Channel 35) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-48.51	10GBASE-DWDM 1548.51nm (ITU Channel 36) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-47.72	10GBASE-DWDM 1547.72nm (ITU Channel 37) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-46.92	10GBASE-DWDM 1546.92nm (ITU Channel 38) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-46.12	10GBASE-DWDM 1546.12nm (ITU Channel 39) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-45.32	10GBASE-DWDM 1545.32nm (ITU Channel 40) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-44.53	10GBASE-DWDM 1544.53nm (ITU Channel 41) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-43.73	10GBASE-DWDM 1543.73nm (ITU Channel 42) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-42.94	10GBASE-DWDM 1542.94nm (ITU Channel 43) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-42.14	10GBASE-DWDM 1542.14nm (ITU Channel 44) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-41.35	10GBASE-DWDM 1541.35nm (ITU Channel 45) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-40.56	10GBASE-DWDM 1540.56nm (ITU Channel 46) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-39.77	10GBASE-DWDM 1539.77nm (ITU Channel 47) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-38.98	10GBASE-DWDM 1538.98nm (ITU Channel 48) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-38.19	10GBASE-DWDM 1538.19nm (ITU Channel 49) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-37.40	10GBASE-DWDM 1537.40nm (ITU Channel 50) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-36.61	10GBASE-DWDM 1536.61nm (ITU Channel 51) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-35.82	10GBASE-DWDM 1535.82nm (ITU Channel 52) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-35.04	10GBASE-DWDM 1535.04nm (ITU Channel 53) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-34.25	10GBASE-DWDM 1534.25nm (ITU Channel 54) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-33.47	10GBASE-DWDM 1533.47nm (ITU Channel 55) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-32.68	10GBASE-DWDM 1532.68nm (ITU Channel 56) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-31.90	10GBASE-DWDM 1531.90nm (ITU Channel 57) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-31.12	10GBASE-DWDM 1531.12nm (ITU Channel 58) SFP+ Optics Module (100-GHz ITU grid)
SFP-10G-DW-30.33	10GBASE-DWDM 1530.33nm (ITU Channel 59) SFP+ Optics Module (100-GHz ITU grid)

Ordering Information (Cont'd)

Order Number	Product Description
CAB-SFP-SFP-0.5M	10GBASE-CR SFP+ Cable 0.5 Meter
CAB-SFP-SFP-1M	10GBASE-CR SFP+ Cable 1 Meter
CAB-SFP-SFP-2M	10GBASE-CR SFP+ Cable 2 Meter
CAB-SFP-SFP-3M	10GBASE-CR SFP+ Cable 3 Meter
CAB-SFP-SFP-5M	10GBASE-CR SFP+ Cable 5 Meter
CAB-SFP-SFP-7M	10GBASE-CR SFP+ Cable 7 Meter
QSFP-SR4	40GBASE-SR4 QSFP+ Optic, up to 100m over OM3 MMF or 150m over OM4 MMF
CAB-Q-Q-0.5M	40GBASE-CR4 QSFP+ to QSFP+ Twinax Copper Cable 0.5 Meter
CAB-Q-Q-1M	40GBASE-CR4 QSFP+ to QSFP+ Twinax Copper Cable 1 Meter
CAB-Q-Q-2M	40GBASE-CR4 QSFP+ to QSFP+ Twinax Copper Cable 2 Meter
CAB-Q-Q-3M	40GBASE-CR4 QSFP+ to QSFP+ Twinax Copper Cable 3 Meter
CAB-Q-Q-5M	40GBASE-CR4 QSFP+ to QSFP+ Twinax Copper Cable 5 Meter
CAB-Q-Q-7M	40GBASE-CR4 QSFP+ to QSFP+ Twinax Copper Cable 7 Meter
CAB-Q-S-0.5M	4 x 10GbE QSFP+ to 4 x SFP+ Twinax Copper Cable 0.5 Meter
CAB-Q-S-1M	4 x 10GbE QSFP+ to 4 x SFP+ Twinax Copper Cable 1 Meter
CAB-Q-S-2M	4 x 10GbE QSFP+ to 4 x SFP+ Twinax Copper Cable 2 Meter
CAB-Q-S-3M	4 x 10GbE QSFP+ to 4 x SFP+ Twinax Copper Cable 3 Meter
SFP-1G-SX	1000BASE-SX SFP Optics Module
SFP-1G-LX	1000BASE-LX SFP Optics Module
SFP-1G-T	1000BASE-T SFP Copper Module

Warranty

The Arista small form factor pluggables and cables include a 1 year limited hardware warranty, which covers parts repair or replacement with a 10-business day turn-around after unit received.

Service and Support

Additional support services including advanced hardware replacement are available.

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