

## Highlights

- Rigorously tested for performance and reliability by Extreme
- Hot-swappable flexibility in the field for greater ease and lower total cost of ownership
- Standards-based—802.3z, 802.3ah, 802.3u, 802.3ae, 802.3ak, and 802.3ba—and compliant as required
- Compliant with Restrictions on Hazardous Substances (RoHS), meeting either RoHS 5 or RoHS 6 EU standards



## Extreme Data Center Ethernet Optics

### Highly Reliable, Extreme-Qualified Optics

Extreme Networks offers a unique set of high-performance, reliable, and cost-effective optical transceivers to help enterprises and service providers meet the challenges of diverse network topologies. To ensure maximum quality, Extreme selects and tests the most reliable, highest-performing optical transceivers on the market, and then warrants their availability, capacity, and performance in Extreme Networks products.

Extensive performance and reliability testing reflects an ongoing commitment to quality. Extreme Networks tests transceivers using the industry's most advanced tools and instruments to help ensure that they provide the right mix of functionality and performance when used in conjunction with Extreme products. The speed, capacity, reliability, and low cost of ownership that Extreme is known for is also provided in all optical components.

By using Extreme-qualified components, organizations can be assured that their warranty and service requirements will be met and that their Extreme products will continually provide the uptime, performance, and reliability required by today's leading enterprise service providers.

## Acquisition Options That Match Balance Sheet Objectives

Successful network deployments drive business forward, providing technical and financial agility. Extreme Networks offers the broadest financing models, from traditional leasing to Extreme Network Subscription. Network-as-a-Service allows operators to subscribe to network assets today then upgrade on demand, scale up or down, or return them with 60-day notification. Extreme Networks Subscription plans can be structured to meet IASC guidelines for OpEx or CapEx treatment to align with financial goals.

## Maximizing Investments

To help optimize technology investments, Extreme Networks and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a Extreme sales partner or visit [www.extremenetworks.com](http://www.extremenetworks.com).

## Ethernet Optics Family Features

Extreme data center Ethernet optics include several offerings designed to meet the performance and scalability requirements of service provider and enterprise environments. The new 100 Gigabit Ethernet (GbE) CFP optics deliver even greater performance capacity to support cloud services for these environments.

### 100 MbE Optics

- 100 Megabit Ethernet (MbE) transceivers support link lengths from 2 km to 40 km
- Both SMF and MMF fiber types
- RoHS 5 and 6 compliant
- Enterprise switching and routing

### 1 GbE Optics

- 1 GbE transceivers support link lengths from 300 m to 100 km
- Both SMF and MMF fiber types
- Coarse Wavelength Division Multiplexing (CWDM) support for distances of 80 km to 100 km
- RoHS 5 and 6 compliant
- For core routers and security applications

### 10 GbE Optics

- 10 GbE transceivers support link lengths of 26 m to 80 km
- Protocol-independent
- Less than one-third the power and size of MSA optic
- Hot-swappable
- Digital Optical Monitoring (DOM) support
- RoHS 5 and 6 compliant
- Application delivery and acceleration
- High-Performance Computing (HPC) interconnects
- Service provider traffic management

### POS Pluggable OC12, OC48, and OC192

#### XFP Optics

- Pluggable XFP optic
- Ranges from 500 m to 80 km

### 25 GbE SFP28 Optics

- Supports up to 100 m over M5F MMF (50/125  $\mu$ m OM4)
- Hot-pluggable SFP+ footprint
- Built-in digital diagnostic functions
- Duplex LC connector
- RoHS-compliant
- 1.2 W maximum power consumption

### 40 GbE QSFP+ Optics

- 40 GbE transceivers support link lengths up to 100 m
- Hot-pluggable
- Industry-standard QSFP+
- Digital Optical Monitoring (DOM) support
- High-density 40 GbE connectivity options for data center, enterprise, and service provider applications

### 100 GbE CFP2 Optics

- 100 GbE transceivers support link lengths up to 40 km
- Hot-pluggable
- Low voltage
- Industry-standard CFP
- Diagnostic features per CFP MSA for laser bias, temperature, supply voltage
- Carrier, service provider, and cloud services
- Enterprise campus core routing
- RoHS 6 compliant

## Product Support for Fast Ethernet

Fast Ethernet Optics	XMR/MLX®	CES/CER
100FX-SFP-OM	•	•
100FX-SFP-IR-OM	•	•
100FX-SFP-LR-OM	•	•

## Product Support for 1 Gigabit Ethernet

1 GbE Fiber Optics			Extreme VDX® Switches	Extreme SLX® Series					
	XMR/MLX	CES/CER	VDX 6740/6940/8770	SLX 9030	SLX 9140	SLX 9240	SLX 9540	SLX 9640	SLX 9850
1G-SFP-SX-OM	•	•	• <sup>3</sup>	•	•		•	•	•
1G-SFP-SX-OM-T									
1G-SFP-LX-OM	•	•	• <sup>3</sup>	•	•		•	•	•
1G-SFP-LX-OM-T									
1G-SFP-LHA-OM	•	•					•	•	•
1G-SFP-LHA-OM-T									
1G-SFP-LHB	•	•							
1G-SFP-BXD	•	•					•	•	•
1G-SFP-BXU	•	•					•	•	•
1G-SFP-CWDM80-XXXX	•	•					•	•	
1G-SFP-TX	•	• <sup>2</sup>		•	•		•	•	•
1G-SFP-000190	• <sup>1</sup>		• <sup>3</sup>	•	•				•

<sup>1</sup> Qualified on Extreme MLX 24x1 GbE-X, Extreme MLX 10 GbEx4 SFP+, Extreme MLX 10 GbEx20 SFP+ modules.

<sup>2</sup> Qualified for 10/100/1000 Mbps speed.

<sup>3</sup> For more information, see the Extreme VDX Transceiver Support Matrix.

## Product Support for 10 Gigabit Ethernet

10 GbE Fiber Optics			Extreme VDX® Switches	Extreme SLX® Series					
	XMR/MLX	CES/CER	VDX 6710/6720/ 6730/ 6740/6940/8770	SLX 9030	SLX 9140	SLX 9240	SLX 9540	SLX 9640	SLX 9850
10G-XFP-SR, LR	• <sup>1</sup>	•							
10G-XFP-ER	• <sup>1</sup>	•						•	
10G-XFP-ZR	• <sup>1</sup>	•							
10G-SFP-USR	•	•	• <sup>4</sup>	•	•		•	•	•
10G-SFP-USR-SA			• <sup>4</sup>	•				•	
10G-SFP-USR-E							•	•	•
10G-SFP-SR	• <sup>1</sup>	•	• <sup>4</sup>	•	•		•	•	•
10G-SFP-SR-SA			• <sup>4</sup>	•			•	•	•
10G-SFP-SR-S			• <sup>4</sup>	•			•	•	•
10G-SFP-LR	• <sup>1</sup>	•	• <sup>4</sup>	•	•		•	•	•
10G-SFP-LR-SA			• <sup>4</sup>	•	•		•	•	•
10G-SFP-LR-S			• <sup>4</sup>	•				•	
10G-SFP-BXD-S			• <sup>4</sup>				•	•	•
10G-SFP-BXU-S			• <sup>4</sup>				•	•	•
10G-SFP-ER	• <sup>1</sup>	•	• <sup>4</sup>	•			•	•	•
10G-SFP-ZR	•	•	• <sup>4</sup>	•			•	•	•
10G-SFP-ZRD-T	• <sup>2</sup>		• <sup>4</sup>	•			•	•	•
10G-SFP-LRM		•							
10GBASE-T SFP+ (10338)				•					
10G-SFP-TWX-XXXX	•	•	• <sup>4</sup>	•	•		•	•	•
10G-SFP-TWX-P-XXXX				•	•		•	•	•
10GE-SFP-AOC-XXXX	•	•	• <sup>4</sup>	•	•		•	•	•

<sup>1</sup> The Extreme MLX and NetIron XMR modules (BR-MLX-10Gx8-X, BR-MLX-10Gx8-M, BR-MLX-10Gx4-X, BR-MLX-10Gx4-X-ML, NI-MLX-10Gx4, NI-MLX-10Gx2, NI XMR-10Gx4, NI-XMR-10Gx2) support WAN mode.

<sup>2</sup> Available only with the Extreme MLXe 8×10 GbE and 24×10 GbE modules.

<sup>4</sup> For more information, see the Extreme VDX Transceiver Support Matrix.

## Product Support for 25 Gigabit Ethernet

25 GbE Fiber Optics			Extreme VDX® Switches	Extreme SLX® Series			
	XMR/MLX	CES/CER	VDX 6710/6720/ 6730/ 6740/6940/8770	SLX 9140	SLX 9240	SLX 9540	SLX 9850
25G-SFP28-SR				•			
25G-SFP28-TWX-P-XXX				•			

## Product Support for 40 Gigabit Ethernet

	Extreme VDX® Switches	Extreme MLX Routers	Extreme SLX® Series					
40 GbE Fiber Optics	VDX 6710/6720/ 6730/ 6740/6940/8770	MLXe	SLX 9030	SLX 9140	SLX 9240	SLX 9540	SLX 9640	SLX 9850
40G-QSFP-SR4-1	• <sup>1</sup>	•	•	•	•	•	•	•
40G-QSFP-SR4-INT	• <sup>1</sup>	•	•	•	•	•	•	•
40G-QSFP-ESR4	• <sup>1</sup>	•				•	•	•
40G-QSFP-LR4-1	• <sup>1</sup>	•	•	•	•	•	•	•
40G-QSFP-LR4-INT	• <sup>1</sup>		•				•	
40G-QSFP-eSR4 INT						•		•
40G-QSFP-LM4	• <sup>1</sup>	•	•			•	•	•
40G-QSFP-ER4-1	• <sup>1</sup>	•	•			•	•	•
40G-QSFP-SR-BIDI	• <sup>1</sup>	•	•	•	•	•	•	•
40G-QSFP-4SFP-C-XXXX	• <sup>1</sup>		•	•	•	•	•	•
40G-QSFP-QSFP-C-XXXX	• <sup>1</sup>	•	•	•	•	•	•	•
40G-QSFP-C-XXXXX	• <sup>1</sup>			•	•	•	•	•
40G-QSFP-QSFP-P-XXXX			•				•	
40G-QSFP-QSFP-AOC-XXXX	• <sup>1</sup>	•	•	•	•	•	•	•
40G-QSFP-4SFP-AOC-XXXX	• <sup>1</sup>					•	•	•

<sup>1</sup> For more information, see the Extreme VDX Transceiver Support Matrix.

## Product Support for 100 Gigabit Ethernet

	Extreme MLX Routers	Extreme VDX® Series		Extreme SLX® Series					
100 GbE Fiber Optics	MLXe	VDX 6940	VDX 8770	SLX 9030	SLX 9140	SLX 9240	SLX 9540	SLX 9640	SLX 9850
100G-CFP2-LR4-10KM	•		• <sup>1</sup>						
100G-CFP2-SR10	•		• <sup>1</sup>						
100G-CFP2-ER4-40KM	•		• <sup>1</sup>						
100G-QSFP28-LR4-10KM	•	• <sup>1</sup>	• <sup>1,2</sup>				•	•	•
100G-QSFP28-LR4L-2KM	•	• <sup>1</sup>	• <sup>1,2</sup>	•			•	•	•
100G-QSFP28-LR4LP-10KM	•	• <sup>1</sup>	• <sup>1</sup>	•	•	•	•	•	•
100G-QSFP28-SR4	•	• <sup>1</sup>	• <sup>1,2</sup>	•	•	•	•	•	•
100G-QSFP-ESR4				•				•	
100G-QSFP28-CWDM4-2KM	•	• <sup>1</sup>	• <sup>1</sup>	•	•	•	•	•	•
100G-QSFP-QSFP-P-XXX				•	•	•	•	•	•
100G-QSFP-4SFP-P-XXX							•	•	•
100G-QSFP-QSFP-AOC-XXX				•	•	•	•	•	•

<sup>1</sup> For more information, see the Extreme VDX Transceiver Support Matrix.

<sup>2</sup> With adapter

## Key Standards and Features

	IEEE Standards	Domestic Safety Standards	International Safety Standards	Wavelength (nm)	Fiber Type	Maximum Cable Distance	Digital Optical Monitoring
<b>Fast Ethernet</b>							
100FX-SFP-OM	802.3	FDA 21CFR 1040.10 Class 1, CSA 60950-1-03/ UL 60950-1	EN 60825-1, EN 60950-1	1,310	MMF	2km	Yes
100FX-SFP-IR-OM	802.3			1,310	SMF	15km	Yes
100FX-SFP-LR-OM	802.3			1,310	SMF	40km	Yes
<b>1GbE Fiber</b>							
1G-SFP-SX-OM/ 1G-SFP-SX-OM-T	802.3z	FDA 21CFR 1040.10 Class 1, CSA 60950-1-03/UL 60950-1	EN 60825-1, EN 60950-1	850	MMF	220m to 550m	Yes
1G-SFP-LX-OM/ 1G-SFP-LX-OM-T	802.3z			1,310	MMF/SMF	550m to 10km	Yes
1G-SFP-LHA-OM/ 1G-SFP-LHA-OM-T	802.3z			1,550	SMF	70km	Yes
1G-SFP-LHB	802.3z			1,550	SMF	150 km w/0.18 dB/km cable, 91 km w/standard 0.3 dB/km cable	No
1G-SFP-BXD	802.3ah			TX: 1,490 RX: 1,310	SMF	10km	No
1G-SFP-BXU	802.3ah			TX: 1,310 RX: 1,490	SMF	10km	No
1G-SFP-CWDM80-XXXX	802.3z			1,470 to 1,610	SMF	80km	No
<b>1000BASE-T Copper</b>							
1G-SFP-TX	802.3z	CSA 60950-1-03/UL	EN 60950-1	N/A	Cat5	100m	N/A
1G-SFP-000190	802.3z	CSA 60950-1-03/UL	EN 60950-1	N/A	Cat5	100m	N/A
<b>10 GbE Fiber</b>							
10G-XFP-SR	802.3ae	FDA 21CFR 1040.10 Class 1, CSA a-1-03/ UL 60950-1	EN 60825-1, EN 60950-1	850	MMF	26m to 300m	Yes
10G-XFP-LR	802.3ae			1,310	SMF	10km	Yes
10G-XFP-ER	802.3ae			1,550	SMF	40km	Yes
10G-XFP-ZR	802.3ae			1,550	SMF	80km	Yes
10G-SFP-USR	N/A			850	MMF	100km	Yes
10G-SFP-USR-E	802.3ae			850	MMF	100m, 125m	Yes
10G-SFP-SR	802.3ae			850	MMF	26m to 300m	Yes
10G-SFP-LR	802.3ae			1,310	SMF	10 km	Yes
10G-SFP-ER	802.3ae			1,550	SMF	40 km	Yes
10G-SFP-ZR	802.3ae			1,550	SMF	80 km	Yes
10G-SFP-ZRD-T	802.3-2005 Clause 52 standard			102 C-band tunable wavelengths from 1,528 to 1,568 (50 GHz apart)	SMF	80 km	Yes
10G-SFP-LRM	802.3ae			1,310	MMF	220m	Yes
10G-SFP-BXD-S	802.3ae			1,270	SMF	10 km	Yes
10G-SFP-BXU-S	802.3ae			1,330	SMF	10 km	Yes
<b>10GBASE Cable</b>							
10G-SFP-TWX-XXXX	802.3ae	Direct-attached SFP+ Twinax active copper cables				1m, 3m, 5m	No
10G-SFP-AOC-XXXX	N/A	Direct-attached SFP+ active optical cables				7m, 10m	Yes
10G-SFP-TWX-P-XXXX	802.3ae	Direct-attached SFP+ Twinax passive copper cables				1m, 3m, 5m	No
<b>25 GbE Fiber</b>							
25G-SFP28-SR	802.3bm	North America: UL/CSA 60950, CDRH Class 1 European Union: EN 60950, EN 60825 Class 1		850	MMF OM3 MMF OM	70 m, 100 m	Yes
25G-SFP28-TWX-P-XXXX	N/A	Direct-attached SFP28 to SFP28 copper cables				1m, 3m	N/A

## Key Standards and Features (cont.)

	IEEE Standards	Domestic Safety Standards	International Safety Standards	Wavelength (nm)	Fiber Type	Maximum Cable Distance	Digital Optical Monitoring
<b>40GbE Fiber</b>							
40G-QSFP-SR4-1	802.3ba	FDA 21CFR 1040.10 Class 1, CSA 60950-1-03/UL 60950-1	EN 60825-1, EN 60950-1	850	OM3 MMF OM4 MMF	100m, 150m	Yes
40G-QSFP-SR4-INT (compatible with 10GBASE-SR)	802.3ba			1,264.5 to 1,337.5	OM3 MMF OM4 MMF	100m, 150m	Yes
40G-QSFP-LR4-1	802.3ba			850 and 900	SMF	10km	Yes
40G-QSFP-SR-BIDI	802.3ba			1,264.5 to 1,337.5	MMF	100m, 150m	Yes
40G-QSFP-LM4	802.3ba			850	SMF, MMF	140m, 160m, 2km	Yes
40G-QSFP-eSR4	802.3ba			1,264.5 to 1,337.5	MMF	300m, 400m	Yes
40G-QSFP-ER4-1	802.3ba			1,355	SMF	40km	Yes
40G-QSFP-LR4-INT				850	SMF	10km	Yes
40G-QSFP-4SFP-AOC-XXXX							MMF
40G-QSFP-LR4-INT	802.3ba	North America: UL/CSA 60950, CDRH Class 1 European Union: EN 60950, EN 60825 Class 1		1,310	SMF	10km	Yes
40G-QSFP-4SFP-P-XXXX	N/A	Direct-attached QSFP+ to 4 SFP+ copper cables				1m, 3m, 5m	N/A
<b>40BASE Cable</b>							
40G-QSFP-4SFP-C-XXXX	N/A	Direct-attached QSFP+ to 4 SFP+ copper cables				1m, 3m, 5m	No
40G-QSFP-QSFP-C-XXXX	N/A	Direct-attached QSFP+ to QSFP+ copper cables				1m, 3m, 5m	No
40G-QSFP-4SFP-XXXX	N/A	Direct-attached QSFP+ to 4 SFP+ active optical cables				10m	No
<b>100GbE CFP Fiber</b>							
100G-CFP-SR10	802.3ba	FDA 21CFR 1040.10 Class 1, CSA 60950-1-03/UL 60950-1	EN 60825-1, EN 60950-1	850	OM3 MMF OM4 MMF	100m, 150m	Yes
100G-CFP-LR4-10KM	802.3ba			1,294.53 to 1,310.19	SMF	10km	Yes
100G-CFP-10x10-2KM-OM	10x10 MSA			1,523 to 1,595	SMF	2km	Yes
100G-CFP-10x10-10KM-OM	10x10 MSA			1,523 to 1,595	SMF	10km	Yes
100G-CFP-ER4-40KM	802.3ba			1,294.53 to 1,310.19	SMF	40km	Yes
<b>100GbE CFP2 Fiber</b>							
100G-CFP2-LR4-10KM	802.3ba	-	-	1,294.53 to 1,310.19	SMF	10km	Yes
100G-CFP2-SR10	802.3ba	UL/CSA 60950, CDRH Class 1	EN 60950, EN 60825 Class 1	840 to 860	OM3 MMF OM4 MMF	100m, 150m	Yes
<b>100GbE QSFP28 Fiber</b>							
100G-QSFP28-SR4	802.3bm	North America: UL/CSA 60950, CDRH Class 1 European Union: EN 60950, EN 60825 Class 1		850	MMF	100m	-
100G-QSFP28-LR4	802.3ba			1,295, 1,300, 1,305, 1,310	SMF	10km	-
100G-QSFP28-LR4-LP	802.3ba			-	SMF	10km	-
100G-QSFP28-LR4L	802.3ba			1,295, 1,300, 1,305, 1,310	SMF	2km	-
100G QSFP28-CWDM4	802.3bm			1,310	SMF	2km	-
<b>100GbE QSFP Fiber</b>							
100G-QSFP-ESR4	802.3bm	North America: UL/CSA 60950, CDRH Class 1 European Union: EN 60950, EN 60825 Class 1		850	MMF	300m	Yes
100G-QSFP-QSFP-AOC-1001	802.3bm			N/A	MMF	10m	Yes
100G-QSFP-QSFP-P-XXXX	N/A	Direct-attached QSFP+ to QSFP+ copper cables				1m, 3m, 5m	N/A
100G-QSFP-4SFP-P-XXXX	N/A	Direct-attached QSFP+ to 4 SFP+ copper cables				1m, 3m	N/A

## Ordering Information

Part Number	Description
<b>100 MbE SFP Transceivers</b>	
1G-SFP-100FX-OM	100BASE-FX SFP optic MMF, LC connector, optical monitoring-capable.
1G-SFP-100FX-IR-OM	100BASEFX-IR SFP optic for SMF with LC connector, optical monitoring-capable. For distances up to 15 km.
1G-SFP-100FX-LR-OM	100BASEFX-LR SFP optic for SMF with LC connector, optical monitoring-capable. For distances up to 40 km.
<b>1 GbE SFP</b>	
1G-SFP-BXD	1000BASE-BXD SFP optic, SMF, 1,490 nm, LC connector. This optic can be connected only to an EIMG-BXU at the far end.
1G-SFP-BXU	1000BASE-BXU SFP optic, SMF, 1,310 nm, LC connector. This optic can be connected only to an EIMG-BXD at the far end.
1G-SFP-CWDM80-XXXX	CWDM SFP optic, 80 km, 1,470 to 1,610 (total of eight wavelengths supplied by eight optics, each 20 nm apart in wavelength), LC connector.
1G-SFP-LHA-OM	1000BASE-LHA SFP optic SMF, LC connector, optical monitoring-capable. For distances up to 70 km.
1G-SFP-LHA-OM-T	1000BASE-LHA SFP optic, MMF, LC connector, optical monitoring-capable (70 km), industrial temperature.
1G-SFP-LHB	1000BASE-LHB SFP optic, SMF, LC connector, 150 km maximum reach.
1G-SFP-LX-OM	1000BASE-LX SFP optic SMF, LC connector, optical monitoring-capable. For distances up to 10 km.
1G-SFP-LX-OM-T	1000BASE-LX SFP optic, SMF, LC connector, optical monitoring-capable, industrial temperature.
1G-SFP-SX-OM	1000BASE-SX SFP optic, MMF, LC connector, optical monitoring-capable.
1G-SFP-SX-OM-T	1000BASE-SX SFP optic, MMF, LC connector, optical monitoring-capable, industrial temperature
1G-SFP-TX, XBR-000190	1000BASE-T SFP copper, RJ-45 connector.
<b>10 GbE XFP</b>	
10G-XFP-SR	850 nm serial pluggable XFP optic (LC), target range 300 m over MMF.
10G-XFP-LR	1,310 nm serial pluggable XFP optic (LC) for up to 10 km over SMF.
10G-XFP-ER	1,550 nm serial pluggable XFP optic (LC) for up to 40 km over SMF.
10G-XFP-ZR	1,550 nm serial pluggable XFP optic (LC) for up to 80 km over SMF
<b>10 GbE SFP+</b>	
10G-SFP-USR	10 GbE Ultra-Short Reach (USR), SFP+ optic (LC), target range 100 m over MMF.
10G-SFP-USR-SA	10 GbE Ultra-Short Reach (USR), SFP+ optic (LC), target range 100 m over MMF, standard temperature, TAA-compliant.
10G-SFP-SR	10GBASE-SR, SFP+ optic (LC), for up to 300 m over MMF.
10G-SFP-SR-SA	10GBASE-SR, SFP+ optic (LC), for up to 300 m over MMF, standard temperature, TAA-compliant.
10G-SFP-SR-S	10GBASE-SR, SFP+ optic (LC), for up to 300 m over MMF, standard temperature.
10G-SFP-LR	10GBASE-LR, SFP+ optic (LC), for up to 10 km over SMF.
10G-SFP-LR-SA	10GBASE-LR, SFP+ optic (LC), for up to 10 km over SMF, standard temperature, TAA-compliant.
10G-SFP-LR-S	10GBASE-LR, SFP+ optic (LC), for up to 10 km over SMF, standard temperature.
10G-SFP-ER	10GBASE-ER, SFP+ optic (LC), for up to 40 km over SMF.
10G-SFP-ZR	10GBASE-ZR, SFP+ optic (LC), for up to 80 km over SMF.
10G-SFP-ZRD-T	10 GbE tunable DWDM SFP+ optic (LC), for up to 80 km over SMF.
10G-SFP-LRM	10GBASE-LRM, SFP+ optic (LC), 220 m over OM1/OM2/OM3 MMF.
10G-SFP-TWX-XXXX	10 GbE SFP+ direct-attached copper cable, 1 m, 3 m, or 5 m.
10G-SFP-TWX-P-XXXX	10 GbE SFP+ direct-attached passive copper cable, 1 m, 3 m, or 5 m.
10G-SFP-AOC-XXXX	10 GbE SFP+ direct-attached active optical cable, 7 m or 10 m.
<b>25 GbE QSFP+</b>	
25G-SFP28-SR	25 GbE SFP28 optic (LC) bidirectional up to 35 m on 50/125 µm MMF, 70m over M5E MMF, 100 m over M5F MMF.
25G-SFP28-TWX-P-XXX	25 GbE SFP28 direct-attached passive copper cable, 0.5 m, 1 m, 3 m, or 5 m.



## Ordering Information (cont.)

Part Number	Description
<b>40 GbE QSFP+</b>	
40G-QSFP-SR4-1	40GBASE-SR4 QSFP+ optic (MTP 1x8 or 1x12), 100 m over MMF OM3, 150 m over MMF OM4 (not compliant with 10GBASE-SR4 modules per IEEE 802.3ae standard).
40G-QSFP-ER4-1	40GBASE-ESR4 QSFP+ optic (MTP 1x8 or 1x12), 300 m over MMF (10GBASE-SR compatible, breakout-capable).
40G-QSFP-SR4-INT	40GBASE-SR4 QSFP+ optic (MTP 1x8 or 1x12), 100 m over MMF (10GBASE-SR compatible, breakout-capable)
40G-QSFP-LR4-1	40GBASE-LR4 QSFP+ optic (LC), for up to 10 km over SMF.
40G-QSFP-SR-BIDI	40GE SR QSFP+ optic (LC), bidirectional, 100 m over OM3 MMF.
40G-QSFP-LR4-INT	40GBASE-LR4 QSFP+ optic (LC), (MTP 1x8 or 1x12), 10 km over SMF (10GBASE-LR compatible, breakout-capable).
40G-QSFP-4SFP-C-XXXX	4x10 GbE direct-attached QSFP+ to four SFP+ copper breakout cable, 1 m, 3 m, or 5 m.
40G-QSFP-QSFP-C-XXXX	4x10 GbE direct-attached QSFP+ to QSFP+ copper breakout cable, 1 m, 3 m, or 5 m.
40G-QSFP-eSR4 INT	40GBASE-ESR4 QSFP+ optic (MTP 1x8 or 1x12), 300 m over MMF (10GBASE-SR compatible, breakout-capable).
40G-QSFP-4SFP-PC-XXXX	4x10 GbE direct-attached QSFP+ to four SFP+ copper breakout cable, 1 m, 3 m, or 5 m.
<b>100 GbE CFP</b>	
100G-CFP-SR10	100 GbE CFP optic (MPO24), SR10, for distances up to 100 m over MMF.
100G-CFP-LR4-10KM	100 GbE CFP optic (SC), LR4, for distances up to 10 km over SMF.
100G-CFP-10x10-2KM-OM	100 GbE CFP optic (LC), 10x10, for distances up to 2 km over SMF.
100G-CFP-10x10-10KM-OM	100 GbE CFP optic (LC), 10x10, for distances up to 10 km over SMF.
100G-CFP-ER4-40KM	100 GbE CFP optic (LC), ER4, for distances up to 40 km over SMF.
<b>100 GbE CFP2</b>	
100G-CFP2-SR10	100 GbE CFP2 optic, SR10, for distances up to 100 m over MMF, 1-pack.
100G-CFP2-LR4-10KM	100 GbE CFP2 optic (LC), LR4, for distances up to 10 km over SMF.
<b>100 GbE QSFP28</b>	
100G-QSFP28-CWDM4-2KM	100GBASE CWDM4 QSFP transceiver LC 2 km over SM.
100G-QSFP28-SR4	100 GbE QSFP28 SR4 transceiver 100 m over MMF.
100G-QSFP28-LR4L-2KM	100 GbE QSFP28 LR4 lite transceiver 2 km over SMF.
100G-QSFP28-LR4-10KM	100 GbE QSFP28 LR4 transceiver 10 km over SMF.
100G-QSFP28-LR4-LP-10KM	100 GbE QSFP28 LR4 low power 10 km over SMF.
100G-QSFP-QSFP-P-XXX	100 GbE QSFP28 QSFP+ to QSFP+ cable, 1 m, 3 m, or 5 m.
100G-QSFP-4SFP-P-XXX	100 GbE QSFP28 QSFP+ to four SFP+ breakout cable, 1 m, 3 m, or 5 m.
100G-QSFP-QSFP-AOC-XXX	100 GbE QSFP28 QSFP+ to QSFP+ active optical cable, 10 m.

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