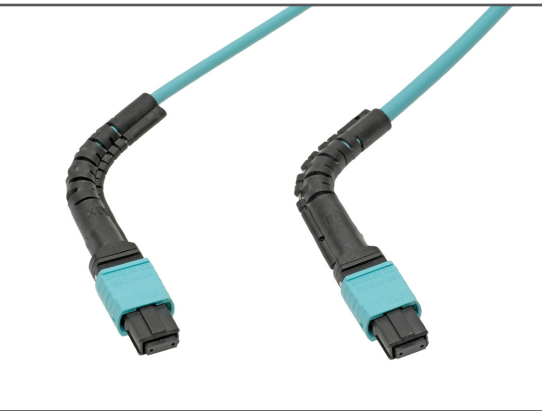


DATA CENTER OPTICAL ASSEMBLIES TO SUPPORT QSFP, CFP AND CXP INDUSTRY STANDARD PINOUT CONFIGURATIONS

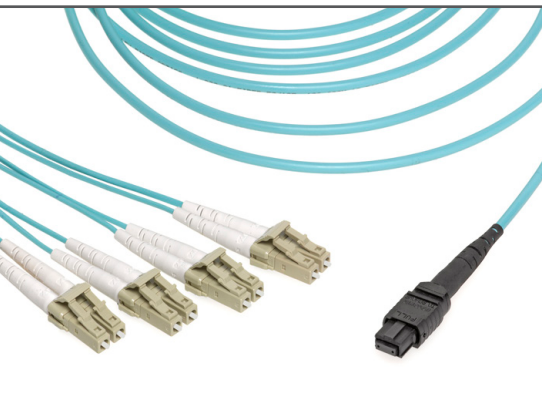


Data Center Optical Assemblies to Support QSFP, CFP and CXP Industry Standard Pinout Configurations >



QSFP, QSFP+ and zQSFP+ optical cable assemblies use low-profile round cables for improved cable management in high-density applications

Molex Quad Small Form Pluggable (QSFP+) passive optical cable assemblies meet the QSFP+ interface specification. Multiple cable designs provide improved fiber management options depending on the application and distance requirements. MTP QSFP+ cables are constructed with 12-fiber 3.0mm round cable for short-run interconnect cable assemblies. A robust 4.5mm round cable with 3.1mm sub-units provides exceptional cable flexibility while ensuring cable integrity and improved cable routing for installations that require chassis to be spread out more than 30.0m. In addition to the standard MTP QSFP+ jumper assemblies, break-out cables and loopback assemblies provide a complete QSFP+ optical solution.



Feature and Benefits

- MTP/MPO QSFP+ connector interface meets QSFP+ SFF-8436 interface specification
- Low-profile round cable provides improved cable management
- Standard, high bandwidth or singlemode cables available

CXP optical cable assemblies offer improved fiber management for connecting CXP transceivers and complete Molex's iPass+ High-Speed Channel (HSC) CXP Optical System

Molex's low-profile CXP optical 3.8mm/5.4mm round cable assemblies offer improved fiber management over traditional flat cables for connecting CXP transceivers. The CXP optical cable assemblies utilize 24-fibers using industry-standard MTP/MPO connectors, 12 transmit (TX) and 12 receive (RX), cable types include both OM3 and OM4 fiber. This design meets the InfiniBand bandwidth requirements for CXP modules spaced up to 300.0m.

Feature and Benefits

- MTP/MPO CXP connector interface meets CXP interface specifications
- Low-profile, round cable design for improved cable management over flat cable, with 360° cable-routing capability

Molex's CFP(C Form-Factor Pluggable) Cable Assemblies for high density 40 Gig and 100 Gigabit Ethernet Applications

Molex's QSFP and CXP cables also support the MSA interface for cabling for the CFP modules utilizing MTP 12- and 24-fiber cables. The CFP optical cable assemblies utilize 12- and 24-fibers using industry-standard MTP/MPO connectors and cable supporting high-bandwidth (OM3/OM4) fiber. This design meets the Ethernet bandwidth requirements for CFP modules.

Cable Performance Specifications

Fiber Type*	Overfilled Launched Bandwidth (MHz-km)	1 Gigabit Ethernet Link Distance, Min (m)	10 Gigabit Ethernet Link Distance, Min. (m)	40 and 100Gigabit Ethernet Link Distance, Min. (m)
	850/1300nm	850/1300nm	850/1300nm	850/1300nm
OM2	500/500nm	600/600nm	86 (850nm)	No Requirement
OM3	1500/500nm	900/550nm	300 (850nm)	100 (850nm)
OM4	3500/500nm	1100/550nm	550 (850nm)	125 (850nm)
OS2(SM)	No Requirement	5000 (1300nm)	10000 (1300nm)	10KM/40KM(1310/1550nm)

*Distances are Industry standard averages and are subject to various transmission issues such as glass quality and device performance.

Ordering Information — QSFP, CXP and CFP Cables

Please note that additional lengths, styles and custom cables are available, please contact Molex Sales. Please contact your local Molex Sales Engineer for more details and drawing availability.

QSFP

Part Number	Length	Cable Type	Connector Polarity Method	Description
106283-1003	3.0m	OM3	QSFP Module to QSFP Module	12-Fiber Assembly with 3.0mm Cable
106283-1005	5.0m			
106283-1010	10.0m			
106283-1025	25.0m			
106283-1050*	50.0m			
106283-1100*	100.0m			
106283-7003	3.0m	OM4		12-Fiber Assembly with 3.0mm Cable
106283-7005	5.0m			
106283-7010	10.0m			
106283-7025	25.0m			
106283-7050*	50.0m			
106283-7100*	100.0m			
106260-0102	3.0m	OM3		12-Fiber Assembly with FlexiBend Boot and 3.0mm Cable
106260-0103	5.0m			
106260-0104	10.0m			
106260-0105	25.0m			
106260-0106*	50.0m			
106260-0107*	100.0m			
106283-4003	3.0m	OS2(SM)		12-Fiber Assembly with FlexiBend Boot and 4.5mm Cable
106283-4005	5.0m			
106283-4010	10.0m			
106283-4013	25.0m			
106283-4018*	50.0m			
106283-4028*	100.0m			
106283-5102**	3.0m	OM3	QSFP Module to 4x SFP Modules	QSFP to SFP Breakout Assembly with 3.0mm Cable
106283-5103**	5.0m			
106283-5104**	10.0m			
106283-5403**	3.0m	OM4		
106283-5404**	5.0m			
106283-5405**	10.0m			
106283-8087**	3.0m	OS2(SM)		
106283-8088**	5.0m			
106283-8089**	10.0m			
106005-1100**	N/A	OM3		

*Cables longer than 30.0m will be supplied with 4.5mm ruggedized jacketed fiber

**Breakout cables available with FlexiBend MTP connector - please contact Molex sales for details

CFP

Part Number	Length	Cable Type	Connector Polarity Method	Description
106283-9001	1.0m	OM3	Module to Module	12-Fiber Assembly with 3.0mm Cable
106283-9003	3.0m			
106283-9005	5.0.m			
106283-9010	10.0m			
106283-9020	20.0m			
106283-9025	25.0m			
106283-9050*	50.0m			
106283-9075*	75.0m			
106283-9100*	100.0m			
106283-9201	1.0m	OM4		12-Fiber Assembly with 3.0mm Cable
106283-9203	3.0m			
106283-9205	5.0.m			
106283-9210	10.0m			
106283-9220	20.0m			
106283-9225	25.0m			
106283-9250*	50.0m			
106283-9275*	75.0m			
106283-9300*	100.0m			
106260-0201	1.0m	OM3		12-Fiber Assembly with FlexiBend Boot and 3.0mm Cable
106260-0203	3.0m			
106260-0205	5.0.m			
106260-0210	10.0m			
106260-0220	20.0m			
106260-0225	25.0m			
106260-0250*	50.0m			
106260-0275*	75.0m			
106260-0300*	100.0m			
106260-0401	1.0m	OM4		12-Fiber Assembly with FlexiBend Boot and 3.0mm Cable
106260-0403	3.0m			
106260-0405	5.0.m			
106260-0410	10.0m			
106260-0420	20.0m			
106260-0425	25.0m			
106260-0450*	50.0m			
106260-0475*	75.0m			
106260-0500*	100.0m			
106284-9001	1.0m	OM3		24-Fiber Assembly with 3.0mm Cable
106284-9003	3.0m			
106284-9005	5.0.m			
106284-9010	10.0m			
106284-9020	20.0m			
106284-9025	25.0m			
106284-9050*	50.0m			
106284-9075*	75.0m			
106284-9100*	100.0m			
106284-9201	1.0m	OM4		24-Fiber Assembly with 3.0mm Cable
106284-9203	3.0m			
106284-9205	5.0.m			
106284-9210	10.0m			
106284-9220	20.0m			
106284-9225	25.0m			
106284-9250*	50.0m			
106284-9275*	75.0m			
106284-9300*	100.0m			
				24-Fiber Assembly with 4.5mm Cable

CFP — continued

Part Number	Length	Cable Type	Connector Polarity Method	Description
106260-0601	1.0m	OM3	Module to Module	24-Fiber Assembly with FlexiBend Boot and 3.0mm Cable
106260-0603	3.0m			
106260-0605	5.0m			
106260-0610	10.0m			
106260-0620	20.0m			
106260-0625	25.0m			
106260-0650*	50.0m			24-Fiber Assembly with FlexiBend Boot and 4.5mm Cable
106260-0675*	75.0m			
106260-0700*	100.0m	OM4		24-Fiber Assembly with FlexiBend Boot and 3.0mm Cable
106260-0801	1.0m			
106260-0803	3.0m			
106260-0805	5.0m			
106260-0810	10.0m			
106260-0820	20.0m			
106260-0825	25.0m			24-Fiber Assembly with FlexiBend Boot and 4.5mm Cable
106260-0850*	50.0m			
106260-0875*	75.0m			
106260-0900*	100.0m			

*Cables longer than 30.0m will be supplied with 4.5mm ruggedized jacketed fiber.

CXP

Part Number	Length	Cable Type	Connector Polarity Method	Description
106284-1003	3.0m	OM3	CXP Module to CXP Module	24-Fiber Assembly with 3.8mm Cable
106284-1005	5.0m			
106284-1010	10.0m			
106284-1025	25.0m			
106284-1050*	50.0m			
106284-1100*	100.0m	OM4		24-Fiber Assembly with 5.4mm Cable
106284-7003	3.0m			
106284-7005	5.0m			
106284-7010	10.0m			
106284-7025	25.0m			
106284-7050*	50.0m	OM3		24-Fiber Assembly with 5.4mm Cable
106284-7100*	100.0m			
106260-0109	3.0m			
106260-0110	5.0m			
106260-0111	10.0m			
106260-0112	25.0m	OM3		24-Fiber Assembly with FlexiBend Booth and 3.8mm Cable
106260-0113*	50.0m			
106260-0114*	100.0m			
106284-5102**	3.0m			
106284-5103**	5.0m			
106284-5104**	10.0m	OM4	CXP to SFP Breakout Assembly with 3.8mm Cable	
106284-5402**	3.0m			
106284-5403**	5.0m			
106284-5404**	10.0m			
106284-3003**	3.0m			
106284-3005**	5.0m	OM2	CXP to QSFP Breakout Assembly with 3.8mm Cable	
106284-3503**	3.0m			
106284-3505**	5.0m			
106284-7503**	3.0m			
106284-7505**	5.0m			
106005-1602	N/A	OM3		Loopback - 50/125µm Fiber

*Cables longer than 30.0m will be supplied with 4.5mm ruggedized jacketed fiber.

**Breakout cables available with FlexiBend MTP connector, please contact Molex Sales for details.

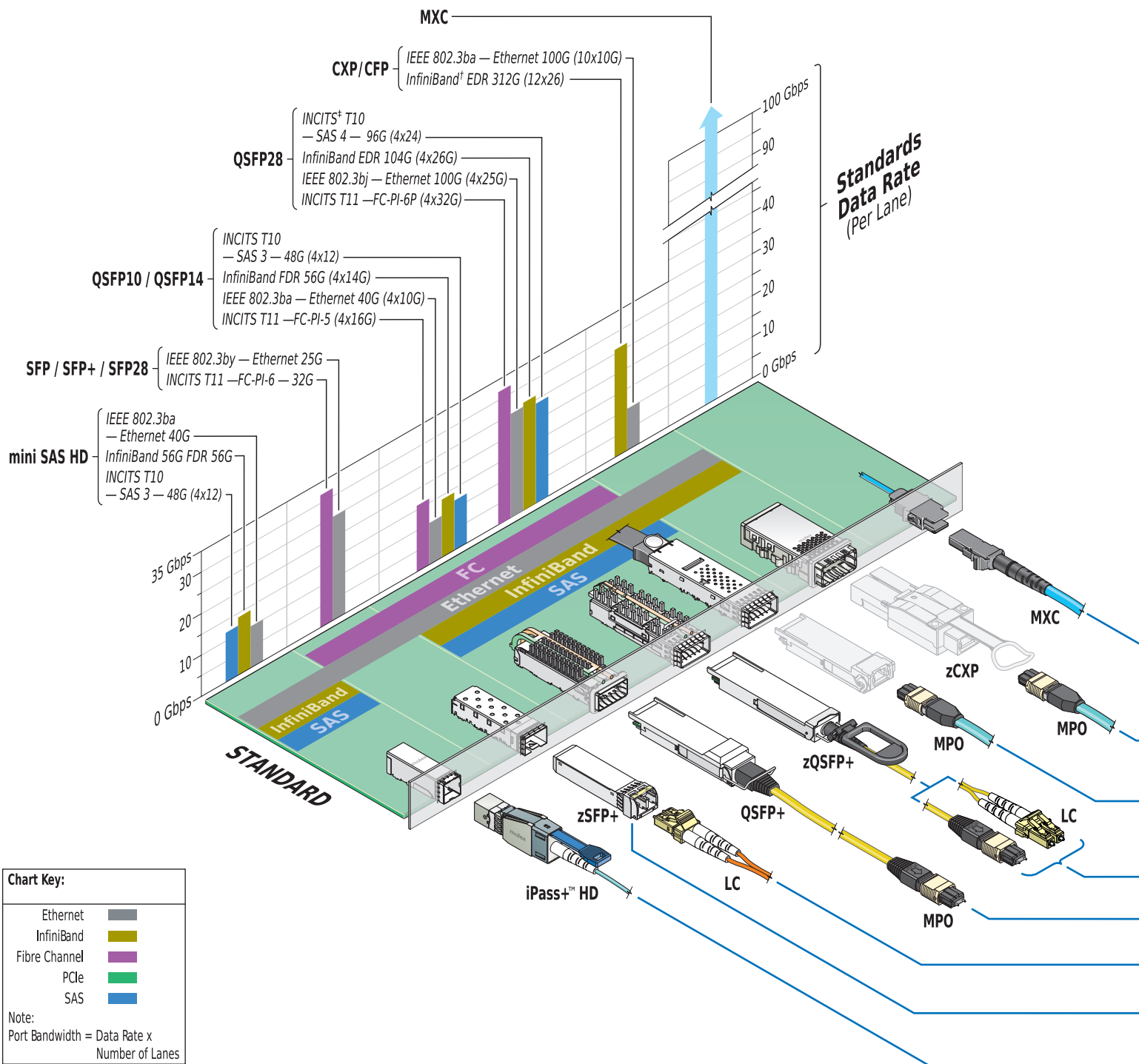
MPO/MTP Trunk Cables for Data Centers

Refer to individual drawings or product specifications for additional details.

Part Number	Length	Cable Type	Connector Polarity Method	Description
106225-0001	10.0m	OM3	A	12-Fiber Assembly
106225-0002	20.0m			
106225-0003	50.0m			
106225-0004	100.0m			
106225-0005	10.0m	OM4		
106225-0006	25.0m			
106225-0007	50.0m			
106225-0008	100.0m			
106225-0009	10.0m	OS2(SM)		
106225-0010	25.0m			
106225-0011	50.0m			
106225-0012	100.0m			
106225-0025	10.0m	OM3		
106225-0026	25.0m			
106225-0027	50.0m			
106225-0028	100.0m			
106225-0029	10.0m	OM4		
106225-0030	25.0m			
106225-0031	50.0m			
106225-0032	100.0m			
106225-0033	10.0m	OS2(SM)		
106225-0034	25.0m			
106225-0035	50.0m			
106225-0036	100.0m			
106225-0013*	10.0m	OM3	N/A	24-Fiber Assembly
106225-0014*	25.0m			
106225-0015*	50.0m			
106225-0016*	100.0m			
106225-0017*	10.0m	OM4		
106225-0018*	25.0m			
106225-0019*	50.0m			
106225-0020*	100.0m			
106225-0021*	10.0m	OS2(SM)		
106225-0022*	25.0m			
106225-0023*	50.0m			
106225-0024*	100.0m			
106225-0037*	10.0m	OM3		
106225-0038*	25.0m			
106225-0039*	50.0m			
160225-0040*	100.0m			
106225-0041*	10.0m	OM4		
106225-0042*	25.0m			
106225-0043*	50.0m			
106225-0044*	100.0m			
106225-0045*	10.0m	OS2(SM)		
106225-0046*	25.0m			
106225-0047*	50.0m			
106225-0048*	100.0m			

*For 24 fiber cables, refer to sales drawing for channel pin-out.

EXTERNAL HIGH-SPEED I/O CABLES > FIBER



OpWise Optical Integrated TAP Cable Assemblies



Fiber — Passive**									
Type	Standards	Data Rate Per Lane	Total Throughput	Connector I	Connector II	Cable	Application	Part No.	Length Range
MXC Assemblies	100G+	10-25 Gbps	0.120-1.6 TBs	MXC	MXC or MPO Breakout	OM3, OM4, OS2 [§]	Server / Switch	106210-xxxx	10 to 100m
CXP / CFP 24f MPO Trunks	10GBase-X to 100GBase-X	10-100 Gbps	10-100 Gbps	24f MPO	24f MPO	OM2, OM3, OM4	Leaf / Spine Storage	106284-xxxx	0.5 to 300m
	10-100G FCoE	10-100 Gbps	10-100 Gbps				HPC		
	312G IB EDR	26 Gbps	312 Gbps				HPC		
CXP / CFP FlexiBend™ Trunks	10GBase-X to 100GBase-X	10-100 Gbps	10-100 Gbps	12f or 24f FlexiBend™ MPO	12f or 24f FlexiBend™ MPO	OM3, OM4, OS2	Leaf / Spine, HPC, HDF-MDF	106260-xxxx	0.5 to 300m
	10-312G IB SDR-EDR	5-26 Gbps	10 - 312 Gbps				HPC		
	128G FC	32 Gbps	128 Gbps				Storage		
QSFP 8f to 4x SFP Breakouts	10GBase-X to 100GBase-X	10-100 Gbps	10-100 Gbps	MPO	(8) x LC	OM3, OM4, OS2	Server / ToR Switch	106283-xxxx	0.5 to 300m
	10/20G IB SDR/DDR	5-10 Gbps	10-20 Gbps				HPC		
	1G FC-32G FC	1-32 Gbps	4-128 Gbps				Storage		
QSFP 8f MPO Trunks	10GBase-X to 100GBase-X	10-100 Gbps	10-100 Gbps	MPO	MPO	OM3, OM4, OS2	Leaf / Spine, HPC, HDF-MDF	106283-xxxx	0.5 to 300m
	10/104G IB SDR-EDR	5-26 Gbps	10-104 Gbps				HPC		
	128G FC	32 Gbps	128 Gbps				Storage		
LC Duplex	1000Base-X to 10GBase-X	1-10 Gbps	1-10 Gbps	Mini LC	LC	OM3 or OM4	Blade Server / ToR Switch	106273-xxxx	0.5 to 300m
	10/20G IB SDR/DDR	5-10 Gbps	10-20 Gbps				HPC		
	1G FC-32G FC	1-32 Gbps	1-32 Gbps				Storage		
Simplex Pigtails & Duplex Jumpers	1000Base-X to 100GBase-X	1-100 Gbps	1-100 Gbps	LC, SC, FC	LC, SC, FC	1 or 2f OM3, OM4, OS2	Multi HPC	Multi	0.5 to 300m
	10/20G IB SDR/DDR	5 / 10 Gbps	10 / 20 Gbps				Storage		
	1G FC-32G FC	1-32 Gbps	1-32 Gbps				Storage		
	10-100G FCoE	10-100 Gbps	10-100 Gbps				Storage		

Fiber — Active**									
AOC Pigtail	100GBase-PSM4	25 Gbps	100 Gbps	QSFP28	LC [§]	OS2	Storage	106423-xxxx	1 to 5m
	104G IB EDR	26 Gbps	104 Gbps				HPC		
	128G FC	32 Gbps	128 Gbps				Storage		
	100G FCoE	25 Gbps	100 Gbps				Storage		
	SAS-4	24 Gbps	96 Gbps				Storage		
AOC Pigtail	100GBase-PSM4	25 Gbps	100 Gbps	QSFP28	MPO	OS2	Spine/Leaf HPC	106422-xxxx	1 to 5m
	104G IB EDR	26 Gbps	104 Gbps				Storage		
	128G FC	32 Gbps	128 Gbps				Storage		
	100G FCoE	25 Gbps	100 Gbps				Storage		
	SAS-4	24 Gbps	96 Gbps				Storage		
AOC Pigtail	40G Ethernet	10 Gbps	40 Gbps	QSFP14	MPO	OS2	Spine/Leaf HPC	106416-xxxx	1 to 5m
	56G IB FDR	14 Gbps	56 Gbps				Storage		
	32G FC / 64G FC	8 / 16 Gbps	32 / 64 Gbps				Storage		
	40G FCoE	10 Gbps	40 Gbps				Storage		
	SAS-2.1 / SAS-3	6 / 12 Gbps	6 / 12 Gbps				Storage		
AOC Pigtail	40G Ethernet	10 Gbps	40 Gbps	QSFP10	MPO	OS2	Spine/Leaf HPC	106414-xxxx	1 to 5m
	40G IB QDR	10 Gbps	40 Gbps				Storage		
	32G FC	8 Gbps	32 Gbps				Storage		
	40G FCoE	10 Gbps	40 Gbps				Storage		
	SAS-2.1	6 Gbps	24 Gbps				Storage		
AOC	SAS-3	12 Gbps	48 Gbps	mini-SAS HD 3	mini-SAS HD 3	OM3	Storage	106415-xxxx	5 to 100m
	40GBase-SR4 & -XR4	10 Gbps	40 Gbps				Storage		
	56G IB FDR	14 Gbps	56 Gbps				HPC		

Transceivers					
Part No.	Form Factor	Protocol	Interface	Typical Data Rate (Gbps)	Typical Reach
TRPRG1VA1C000E2G	SFP	1000 Base-T	RJ-45	1.25	100m
TRPRG1ESXC000E2G	SFP	SX	LC	1.25	550m
TRBUG1CXB000E2G	SFP	GE BX10	LC	1.25	10km
TPP4XGDSOC000E2G	SFP+	10GBase-SR	LC	9.953	300m
TPP2XGFLOC000E2A	SFP+	10GBase-LRL	LC	10.3125	1.4km
TPP5XGFLRC000E2A	SFP+	10GBase-LR	LC	9.953	10km

§ In development

** Additional product detail available from www.molex.com/link/datacenter.html

Abbreviations
Fibre Channel (FC), Fibre Channel over Ethernet (FCoE), InfiniBand (IB), Serial Attached SCSI (SAS)

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Get more insights at: www.molex.com/fiber/index.html



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