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zQuad Small Form-Factor Pluggable Plus (zQSFP+) Interconnect System ❯

Supporting 100 Gbps Ethernet and InfiniBand Enhanced Data Rate (EDR) applications, Molex's zQSFP+ Interconnect System transmits up to 28/56 Gbps per-serial-lane data rates and offers thermal protection and Temp-Flex Cable Assemblies to ensure excellent signal integrity (SI) and prevent electromagnetic interference
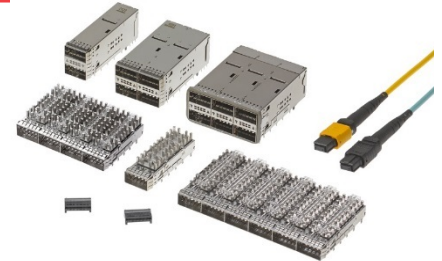
zQSFP+ Interconnect System

FEATURES AND ADVANTAGES

28 Gbps Temp-Flex Cable Assemblies (Series 100297)

Temp-Flex cable technology
Boosts electrical performance. Provides excellent operational margin, short lead times and minimal end-user cost via manufacturing efficiencies

Meets IEEE 802.3bj, InfiniBand EDR and SAS 3.0 specifications
Functions across a wide variety of next-generation technologies and applications

32, 30 and 26 AWG cables
Fulfills all industry application needs at lengths up to 5m. Enhances cost structure and lead-time

Operating temperature of -20 to +85˚C
Enables use in higher temperatures and low cooling-cost environments

Fully integrated design
Incorporates all components (backshells, cable, populated PCBs) from Molex. Ensures high-quality components are compiled into a comprehensive solution with a superior cost structure

SMT Connectors (Series 170432) and Stacked Integrated Connectors and Cages (Series 171565 and 171722)

Identical mating interface as the QSFP+ connector for backward compatibility
Protects end user's current QSFP+ infrastructure investment

Air vents
Enhance cooling

Preferential coupling design uses a narrow-edge coupled, blanked- and formed-contact geometry, and insert molding
Provides superior signal integrity (SI) performance, including extremely low insertion loss (IL) of <0.8dB at frequencies up through 14 GHz

Stacked integrated connectors include an elastomeric EMI gasket (Series 171565) or a metal EMI gasket (Series 171722)
Provides superior EMI containment and suppression

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FEATURES AND ADVANTAGES

SMT Connectors (Series 170432) and Stacked Integrated Connectors and Cages (Series 171565 and 171722)

Proven 28/56 Gbps data rate
Meets or exceeds past requirements for 200 Gigabit Ethernet and InfiniBand 100 Gigabit (EDR) applications. Supports current 10 Gbps Ethernet, 14 Gbps (FDR) InfiniBand and 16 Gbps Fibre Channel applications

Stacked integrated connectors and cages available in three sizes (2-by-1, 2-by-2 and 2-by-3)
Supports pluggable applications

Surface Mount Technology (SMT) design (Series 170432 version only)
Provides the option for placement on both sides of the PCB

0.80mm pitch host connector designed for placement beneath EMI cage
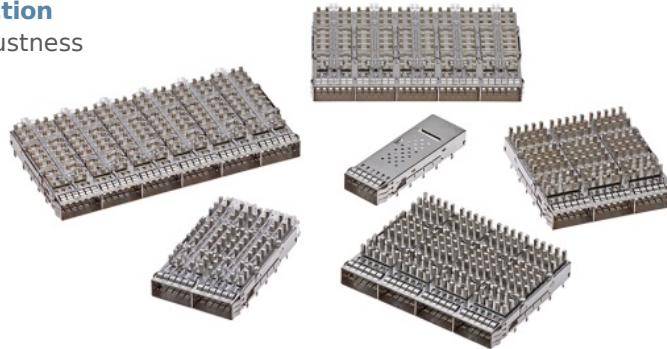Supports pluggable applications

Sheet Metal (Stainless Steel) EMI Cages (Series 100014, 100015, 100016, 100017, 100019 and 100086)

Stainless steel cage construction
Offers increased robustness versus copper alloy material

3D-style press-fit pin design
Increased board retention versus typical press pins

Offers up to 4 light pipes per port
Enables increased system functionality

Nickel-plated heat sink
Provides increased thermal transfer from module to heat sink

Optical MPO/MTP Cable Assemblies (Series 106283)

MTP/MPO QSFP+ connector interface
Meets QSFP+ SFF-8665 interface specification

Low-profile round cable
Improved cable management and flexibility for routing

Standard OM3 or OM4 fiber available
Optimized bandwidth for each application

MPO/MTP breakout to duplex LC available
Allows QSFP to SFP connectivity

RoHS compliant design
Meets EU environmental requirements for electronic equipment and accessories

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FEATURES AND ADVANTAGES

Thermally Enhanced Connectors and Cages (Series 171722) and Accessories (Series 170328)

Drop-in replacement to standard cages
Enables quick and easy implementation without extensive redesign

Three thermal options available for the 2-by-1, 2-by-2 and 2-by-3 cages
Provides design flexibility to meet specific thermal management needs: Through-flow cage Internal riding heat sink (IRHS) Top-riding heat sink

Optical MPO/MTP Cable Assemblies (Series 106283)

Compact housing
Compatible with module spacing

Enclosed fibers
No snagging or breakage of fiber/cable during installation and handling

Loop optical transmit ports to receive ports
Allows loopback testing of modules, cables during burn in and field troubleshooting

MARKETS AND APPLICATIONS

Telecommunication / Networking Equipment
Hubs
Servers
Storage
Routers
Switches
Central Office
Cellular Infrastructure
Multi-Platform Service Systems

SPECIFICATIONS

28 Gbps Temp-Flex Cable Assemblies

REFERENCE INFORMATION

Packaging: EMI bag

ELECTRICAL

Frequency Range: 10 MHz to 25 GHz
Number of Points: 3999
IF Bandwidth: 1 kHz
Supply Voltage: 3.3V DC +/- 5%
Supply Current (max.): 0.03A at 3.135V
Power Consumption (max.): 0.125W

MECHANICAL

Durability:
 PL1 – Performance Level 1 –
 0.38µm Au – 50 cycles, 5-year life (no FMG)
 PL2 – Performance Level 2 –
 0.76µmAU– 250cycles, 10-year life(14-dayFMG)

PHYSICAL

Backshells – Zinc Diecast
Pull – Nylon
De-Latch – Stainless Steel

Cable – 8pr, 100 Ohms differential, CL2
RoHS Compliant: Yes
Operating Temperature: -20 to +85 C
Non-Operating Temperature: -40 to +85 C

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SPECIFICATIONS

SMT Connectors

REFERENCE INFORMATION

Packaging: Tape and Reel
UL File No.: E29179
CSA File No.: LR19980
Mates with: Copper Cable Assemblies
 (Series 74757, 111040)
Designed in: Millimeters

ELECTRICAL

Voltage: 30V
Current (max.): 0.5A; Power Contacts 1.0A
Contact Resistance (max.): 30 milliohms
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance (min.): 1000 Megohms

MECHANICAL

Contact Retention to Housing: 4.45N
Mating Force: 1.25N per circuit
Unmating Force: 0.25N per circuit
Durability: 250 cycles for 30µ" Gold (Au) plating

PHYSICAL

Housing: High-Temperature Thermoplastic
 Glass Filled, UL 94V-0, Black
Contact: Copper (Cu) Alloy
Plating:
 Contact Area— 15µ" (0.38µm) or30µ" (0.76µm)
Gold (Au)
 Solder Tail Area — Tin (Sn)
 Underplating — Nickel (Ni)
RoHS Compliant: Yes
Operating Temperature: -40 to +80 C

Stacked Integrated Connectors and Cages

REFERENCE INFORMATION

Packaging: Tray
UL File No.: E29179
Mates with: Copper Cable Assemblies
(Series74757, 111040)
Designed in: Millimeters

ELECTRICAL

Voltage: 30V
Current (max.): 0.5A; power contacts 1.0A
Contact Resistance (max.): 30 milliohms
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance (min.): 1000 Megohms

MECHANICAL

Mating Force: 0.75N per circuit
Unmating Force: 0.25N per circuit
Durability: 100 cycles for 30µ" Gold (Au) plating

PHYSICAL

Housing: High-Temperature Thermoplastic
 Glass Filled, UL 94V-0, Black
Contact: Copper (Cu) Alloy
Plating:
 Contact Area —30µ" (0.76µm) Gold (Au)
 Signal Tail Area — Tin / Lead (Sn/Pb)
 Underplating — Nickel (Ni)
RoHS Compliant: Yes – By Exemption
Operating Temperature: -40 to +80 C

EMI Sheet-Metal Cages

REFERENCE INFORMATION

Packaging: Tray and Box
Mates with: QSFP+ Cable Assemblies
 (Series 74757, 111040)
 QSFP+ Loopback Adapter (Series 74763)
 zQSFP+ Cables (Series 111114)
Use with: Connector (Series 170432)
Designed in: Millimeters

MECHANICAL

Durability:
1 insertion to PCB
1-by-1 Mating Force (max.):
 544N in immersion gold
1-by-1 Unmating Force (max.):
 88N in immersion gold
1-by-6 Mating Force (max.):
 1427N in immersion gold
1-by-6 Unmating Force (max.):
 226N in immersion gold

PHYSICAL

Plating: Nickel (Ni)
Sheet Metal: Stainless Steel
Light Pipe: Polycarbonate
Heat Sink: Aluminum (Al)
Heat Sink Finish: Nickel (Ni)
Operating Temperature: -55 to +105 C

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ORDERING INFORMATION

28 Gbps TempFlex Cable Assemblies

Series No.	Data Rate	Wire Gauge	Lengths
100297	28 Gbps	26 AWG	3.0m, 3.5m, 4.0m, 5.0m
		30 AWG	0.5m, 1.0m, 1.5m, 2.0m
		32 AWG	0.5m, 1.0m, 1.5m, 2.0m, 2.5m, 3.0m

SMT Connectors

Order No.	Circuits	Contact Material
170432-0001	38	0.381μm Gold
170432-0002		0.762μm Gold
170432-0003		Gold Flash

Stacked Integrated Connectors and Cages

Series No.	Port Size	Circuits	EMI Gasket	Light Pipe	Thermally Enhanced?
171565	2-by-1	38 circuits per port (76 total)	Elastomeric	Arrow Up and Down	No
	2-by-2	38 circuits per port (152 total)			
	2-by-3	38 circuits per port (230 total)			
171722	2-by-1	38 circuits per port (76 total)	Spring-Finger		
	2-by-2	38 circuits per port (152 total)			
	2-by-3	38 circuits per port (230 total)			
	2-by-1	38 circuits per port (76 total)			Yes
	2-by-2	38 circuits per port (152 total)			
	2-by-3	38 circuits per port (230 total)			

EMI Cages

Series No.	Port Size	Cage Construction	Gasket Style	PCB Interface/ Retention	Light Pipes	Heat Sink
100014	1-by-1	Sheet Metal (Stainless Steel)	Spring Finger	3D Press-Fit Pin	Optional	Optional
100015	1-by-2					
100016	1-by-3					
100017	1-by-4					
100019	1-by-5					
100086	1-by-6					

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ORDERING INFORMATION

Optical MPO/MTP Cable Assemblies and Loopback Adapters

Series No.	Component	Length (m)	Bandwidth (See Bandwidth Reference Chart Below)
106283	Cable Assembly	1.00 or 5.00m	Standard or High
106005	Loopback Adapter	N/A	N/A

BANDWIDTH REFERENCE CHART

Fiber Type	Overfilled Launch Bandwidth, Min (MHz-km)		1 Gigabit Ethernet Link Distance, Min (m)		10 Gigabit Ethernet Link Distance, Min (m)	
	850nm	1300nm	850nm	1300nm	850nm	1300nm
Standard Bandwidth	500	500	600	600	86	-
High Bandwidth	1500	500	900	550	300	-

www.molex.com/link/zqsfp+.html