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Supporting next-generation 100 Gbps Ethernet and 100 Gbps InfiniBand* Enhanced Data Rate (EDR) applications, Molex's zQSFP+ Interconnect Solution transmits up to 25 Gbps per-serial-lane data rates with excellent signal integrity (SI), electro magnetic interference (EMI) protection and thermal cooling

Molex's zQuad Small Form-factor Pluggable Plus (zQSFP+) interconnect solution is designed for high-density interconnect applications and conforms to SFF-8665 QSFP28. Components of the system include SMT connectors (series 170432); stacked integrated 2-by-1, 2-by-2 and 2-by-3 connectors and cages (series 171565, 171722); EMI cages (Series 111118, 111186, 100014, 100017, 100086); Optical MPO/MTP* Cable Assemblies (Series 106283); Optical MPO/MTP Loopback Adapters (Series 106005). Products scheduled for upcoming release include: copper passive cable assemblies (Series 111114); active optical cables (Series 106412).

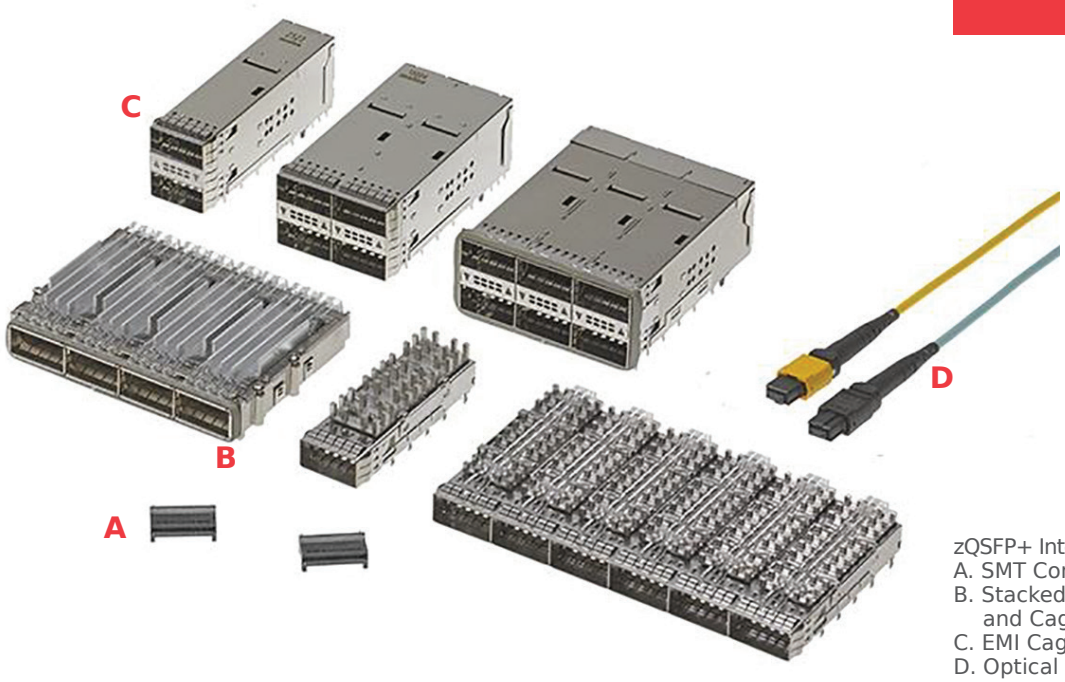
Molex's zQSFP+ SMT connector supports new 100 Gbps Ethernet and 100 Gbps InfiniBand* (IB) Enhanced Data Rate (EDR) applications. EDR applications consist of four lanes of high-speed differential signals with individual data rates at 25 Gbps. The preferential coupling design uses a narrow-edge coupled, blanked- and formed-contact geometry and insert molding to optimize electrical performance. The zQSFP+ connector shares the same mating interface as the QSFP+ form factor, making it backward compatible with current cable assemblies.

zQSFP+ EMI cages are designed with an advanced heat-sink system to provide a high level of heat dissipation for next-generation system-power levels. Die-cast design features screw-down option to the PCB for maximum board retention. The spring-finger design provides optimal EMI grounding and allows for more space to route high-speed traces. Single-height, spring-finger cages feature a 3D press-pin design for superior board retention.

Future low-power, integrated active optical cable (AOC) solutions will provide less expensive, reliable transport for aggregated data rates up to 100 Gbps. The singlemode fiber technology will provide long reaches of up to 4km, enabling deployment in data centers and campus environments.

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

171722	Stacked Integrated 2-by-1, 2-by-2 and 2-by-3 Connectors and Cages, Spring-Finger EMI Gasket
100014	EMI Cages, 1-by-1, Sheet Metal
100017	EMI Cages, 1-by-4, Ganged, Sheet Metal
100086	EMI Cages, 1-by-6, Ganged, Sheet Metal
170432	SMT Connectors
171565	Stacked Integrated 2-by-1, 2-by-2 and 2-by-3 Connectors and Cages, Elastomeric EMI Gasket
111118	EMI Cages, 1-by-4 Ganged, Die-Cast
111186	EMI Cages, 1-by-6 Ganged, Die-Cast
106283	Optical MPO/MTP† Cable Assemblies
106005	Optical MPO/MTP Loopback Adapters



zQSFP+ Interconnect System:
A. SMT Connectors
B. Stacked Integrated Connectors and Cages
C. EMI Cages
D. Optical MPO/MTP* Cable Assemblies

*InfiniBand is a registered trademark of the InfiniBand Trade Association
† MTP is a registered trademark of US Conec Ltd.

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

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

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) or 30µ" (0.76µm) Gold (Au)
Solder Tail Area — Tin (Sn)
Underplating — Nickel (Ni)
RoHS Compliant: Yes
Operating Temperature: -40 to +80°C

Optical MPO/MTP* Cable Assemblies

Reference Information
Packaging: Individual pack in a bag
Mates With: QSFP+ Modules

Optical
Fiber Specifications:
Multi Mode: 50/125µm
Insertion Loss at Test:
Multi Mode: 0.15dB; Typ.; ≤0.5dB max.
Bandwidth: See Bandwidth Reference Chart

Mechanical
Minimum Bend Radius: 31.75mm (1.25") long-term

Physical
Fire Rating: OFNP (Plenum)
Operating Temp: 0 to +70°C
Storage Temp: -40 to +70°C
Jacket Dimensions:
1 to 30 Meters: 3.1mm Interconnect Cables
31 to 300 Meters: 4.5mm Distribution Cables

Stacked Integrated Connectors and Cages

Reference Information
Packaging: Tray
UL File No.: E29179
Mates With:
Copper Cable Assemblies (Series 74757, 111040)
Designed In: Millimeters

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

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 Cages

Reference Information
Packaging: Tray and Box
Mates With:
QSFP+ Cable Assemblies (Series 74757, 111040)
QSFP+ Loopback Adapter (Series 74763)
zQSFP+ Cables (Series 11114)
Use With:
Connector (Series 170432)
Designed In: Millimeters

Mechanical
Durability:
Die-Cast Cages: Attachment to PCB via screw-mount, enabling extensive attachments
Sheet-Metal Cages: 1 insertion to PCB
Sheet-Metal Cages:
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 — Die-Cast Cages
Cage and Clip Material: Stainless Steel
Spring-Finger Material: Copper Alloy
Plating: Nickel (Ni)
RoHS Compliant: Yes – By Exemption
Operating Temperature: -40 to +80°C

Physical — Sheet-Metal Cages
Die-Cast Cage: Aluminum
Die-Cast Heat-Sink Frame: Aluminum
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

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	-

*MTP is a registered trademark of US Conec Ltd.

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Features and Benefits

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

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

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 a very high frequency, 14 GHz
Proven 25 Gbps data rate with potential up to 40 Gbps per lane	Meets or exceeds current requirements for 100 Gigabit Ethernet and InfiniBand* 100 Gigabit (EDR)applications. Supports current 10 Gbps Ethernet, 14 Gbps (FDR) InfiniBand and 16 Gbps Fibre Channel applications. Scalable for next-generation applications
Stacked integrated connectors include an elastomeric EMI gasket (Series 171565) or a metal EMI gasket (Series 171722)	Provides superior EMI containment and suppression
Identical mating interface as the QSFP+ connector for backward compatibility	Protects end user's current QSFP+ infrastructure investment
Surface Mount Technology (SMT) design (series 170432 version only)	Allows for ease of routing and 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
Stacked integrated connectors and cages are available in three sizes (2-by-1, 2-by-2 and 2-by-3)	Offers design options for high-density applications
Drop-in replacement product from TE Connectivity	Second-source option available

Die-Cast EMI Cages (Series 111118 and 111186)

Advanced heat-sink system	Provides a high level of heat dissipation at next-generation system-power levels
Die-cast frame design with reduced holes and openings	Provides optimal EMI suppression and shielding effectiveness
Same mechanical mating size as QSFP+ EMI cages	Provides backward compatibility with QSFP+ and QSFP modules and cable assemblies for legacy system connections
Through-hole-mount style to PCB with screws	Provides reliable retention to the PCB for both single-side and belly-to-belly applications

*InfiniBand is a registered trademark of the InfiniBand Trade Association

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Features and Benefits

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

Sheet-Metal (Stainless Steel) EMI Cages (Series 100014, 100017 and 100086)

Stainless steel cage construction	Offers increased robustness versus copper alloy material. Lowers material cost
3D-style press-fit pin design	Increased board retention versus standard press pins
Nickel-plated heat sink	Provides increased thermal transfer from module to heat sink
Offers up to four light pipes per port	Enables increased system functionality

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

Optical MPO/MTP Loopback Adapters (Series 106005)

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

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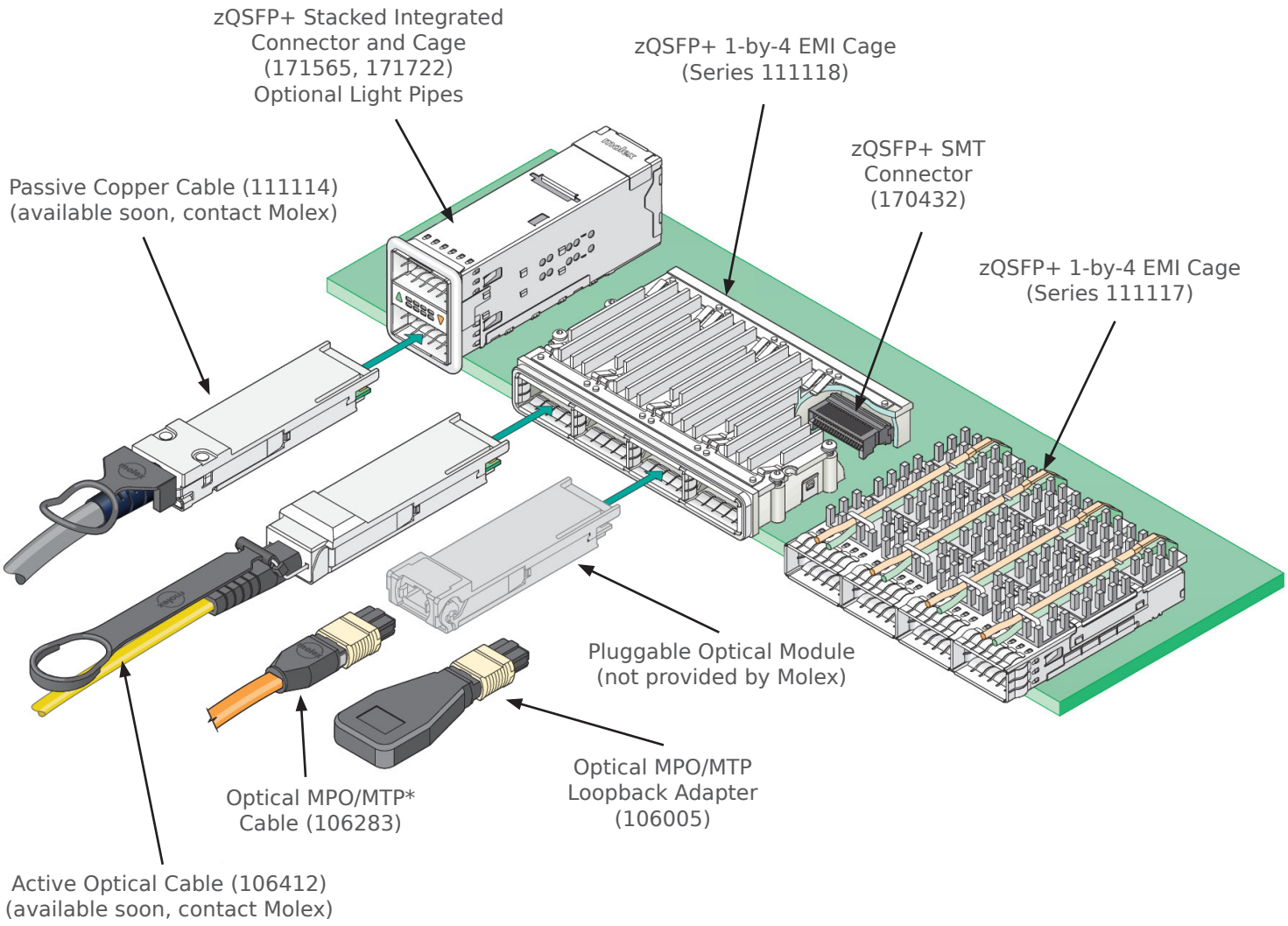
zQuad Small Form-factor Pluggable Plus (zQSFP+) Interconnect System



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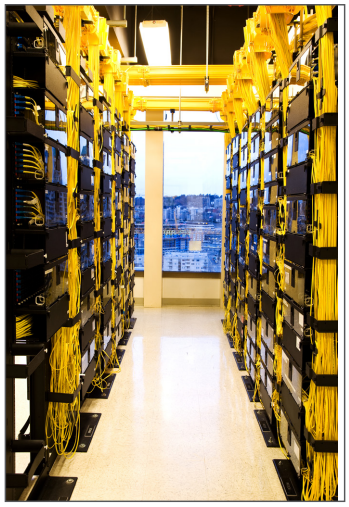
zQuad Small Form-factor Pluggable Plus (zQSFP+) Interconnect System

Applications

Telecommunication Equipment
- – Hubs
- – Servers
- – Routers
- – Switches
- – Central office
- – Cellular infrastructure and multi-platform service systems

Data Networking Equipment
- – Servers
- – Storage



Server Farm/Data Center

Ordering Information

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

Order No.	Port Size	Circuits	EMI Gasket	Light Pipe
171565-1002	2-by-1	38 circuits per port (76 circuits total)	Elastomeric	Arrow Up and Down
171565-0002	2-by-2	38 circuits per port (152 circuits total)		
171565-3002	2-by-3	38 circuits per port (230 circuits total)		
171722-1002	2-by-1	38 circuits per port (76 circuits total)	Spring-Finger	
171722-2002	2-by-2	38 circuits per port (152 circuits total)		
171722-3002	2-by-3	38 circuits per port (230 circuits total)		

EMI Cages

Series No.	Port Size	Cage Construction	Gasket Style	Pins	Light Pipes	Heat Sinks
111118	1-by-4	Die Cast	Elastomeric	Screw	Optional	Optional
111186	1-by-6					
100014	1-by-1	Sheet Metal (Stainless Steel)	Spring Finger	3D Press-Fit Pin		
100017	1-by-4					
100086	1-by-6					

Optical MPO/MTP* Cable Assemblies and Loopback Adapters

Series No.	Component	Length (m)	GBandwidth
106283	Cable Assembly	1.00 or 5.00m	Standard or High
106005	Loopback Adapter	N/A	N/A

*MTP is a registered trademark of US Conec Ltd.

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

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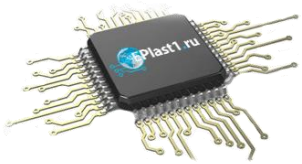
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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