



Quick Reference Guide QSFP/QSFP+ Solutions

QSFP (or quad SFP) connectors provide four channels of data in one pluggable interface. Each channel is capable of transferring data at 10Gb/s and supports a total of 40Gb/s as specified for QSFP+. These interconnects have three times the density of SFP+ interconnects. The QSFP product family includes cages in single and ganged configurations with various heat sink and lightpipe options. The connector is a 38 position high-speed SMT connector, and EMI plugs are offered for empty ports.

TE Connectivity offers PARALIGHT active optical QSFP cable assemblies, which eliminate the need for a separate transceiver and optical interface. The QSFP and QSFP+ direct attach copper cable assemblies are a high speed and cost effective alternative to fiber optics in short reach 10Gb Ethernet and InfiniBand applications. These assemblies enable hardware OEMs and data center operators to achieve higher port density and configurability at a low cost while reducing the power requirement.

FEATURES AND BENEFITS

Interconnect

- 4-channels in one interface, providing 3 to 4x density of, SFP+ and XFP
- Meets QSFP+ requirements up to 10 Gb/s per channel, total 40G interface
- Uses 38 position EVERCLEAR connector
- Cages offered in single port and ganged configurations
- Cages accommodate belly-to-belly mounting
- Heat sinks and lightpipes available
- Direct attach copper and PARALIGHT optical cable assemblies offered
- Quick release latching system

Cable Assemblies

- MSA compliant
- Supports data rates up to 10Gbps per channel (40Gbps aggregate)
- Low power consumption
- Enhanced EMI suppression
- Pull-to-release slide latch design
- Passive and active assemblies

Product Applications

- Storage
- Servers
- Networking
- Switches
- Routers
- Hubs
- Network Interface Cards (NICs)
- Telecommunication equipment

Applications by Protocol

- 10 Gigabit and 40G Ethernet
- InfiniBand SDR (2.5Gbps), DDR (5Gbps) and QDR (10Gbps)
- Serial attached SCSI (SAS)

38 Pin SMT EVERCLEAR Connector

Part Number	Description
1761987-9	EVERCLEAR Connector

Lightpipes

Part Number	Description
1888634-1	Single lightpipe for single port cages
2007477-3	Dual lightpipe for ganged cages

Cages

Part Number	Ports	Cage Applications	Lightpipes Included	Heat Sink	Max. Height of Heat Sink Above Board
1888617-1	1x1	Through-bezel	None	None	N/A
1888674-1	1x1	Through-bezel	1888634-1*	None	N/A
1888631-1	1x1	Through-bezel	None	PCI	13.7 mm
1888631-2	1x1	Through-bezel	None	SAN	16.0 mm
1888631-3	1x1	Through-bezel	None	Networking	23.0 mm
1888972-1	1x1	Through-bezel	Yes	SAN	16.0 mm
1888972-2	1x1	Through-bezel	Yes	Networking	23.0 mm
1888781-1	1x1	Behind-bezel	None	None	N/A
1888968-1	1x1	Behind-bezel	None	PCI	13.7 mm
1888968-2	1x1	Behind-bezel	None	SAN	16.0 mm
1888968-3	1x1	Behind-bezel	None	Networking	23.0 mm
2057042-1	1x3	Behind-bezel	Yes	PCI	13.7 mm
2057042-2	1x3	Behind-bezel	Yes	SAN	16.0 mm
2057042-3	1x3	Behind-bezel	Yes	Networking	23.0 mm
2007456-1	1x3	Behind-bezel	None	PCI	13.7 mm
2007456-2	1x3	Behind-bezel	None	SAN	16.0 mm
2007456-3	1x3	Behind-bezel	None	Networking	23.0 mm
2007473-1	1x3	Behind-bezel	2007477-3*	None	N/A
2007474-1	1x3	Behind-bezel	None	None	N/A
2057183-1	1x4	Behind-bezel	Yes	PCI	13.7 mm
2057183-2	1x4	Behind-bezel	Yes	SAN	16.0 mm
2057183-3	1x4	Behind-bezel	Yes	Networking	23.0 mm
2007625-1	1x4	Behind-bezel	None	SAN	13.7 mm
2007625-2	1x4	Behind-bezel	None	Networking	16.0 mm
2007668-1	1x4	Behind-bezel	2007477-3*	None	23.0 mm
2007667-1	1x4	Behind-bezel	None	None	N/A

All cages : use EMI Plug 1888810-2; require a SMT connector to complete the assembly; are press-fit; are belly-to-belly compatible; used with a particular lightpipe part number must be ordered separately.

*Purchase separately

Direct Attach Copper Cable Assemblies

Part Number	Description	AWG	Dash to Length (meters)					
			0.5	1	2	3	4	5
2074739	DDR (5Gbps) Passive	26-30	-1	-2	-3	-4	-5	-6
2015234	QDR (10Gbps) Passive	26-30	-9	-1	-2	-3	-4	-5
2053638	QDR (10Gbps) Unequalized Passive	26-30	-16	-1	-2	-3	-4	-5
2074119	DDR QSFP to Hybrid Cable	26-30	-1	-2	-3	-4	-5	-7

Note : Visit the product website for AWG details.

Cable Assembly Features and Benefits

- Pull tab unlatching allows compact belly-to-belly application
- 360 degree cable braid crimp suppresses EMI
- Uses MADISON CABLE brand TurboTwin copper cable
- Hybrid and breakout cables available : ie, QSFP to 4xIB, QSFP to SFP+

QSFP/QSFP+ PARALIGHT Active Optical Cable Assemblies

Part Number	Description	Cable Type	Cable to Dash (meters)									
			2	3	5	10	15	20	30	40	50	100
1985427	InfiniBand 4X Part Numbers	OFNP*	-9	-1	-2	-3	-10	-4	-5	-6	-7	-8
1985554	InfiniBand 4X to QSFP	OFNP*	-9	-1	-2	-3	-10	-4	-5	-6	-7	-8
1985864	QSFP to QSFP	OFNP*	-9	-1	-2	-3	-10	-4	-5	-6	-7	-8

*OFNP = Optical Fiber Nonconductive Plenum (Also known as CX4 and SFF-8470)

Note : Longer lengths available upon request.

25mm bend radius

Frequently asked Questions

What is the difference between QSFP and QSFP+?

- QSFP+ evolved as the standard to support 10Gb/s data rates per SFF-8436. TE's QSFP products support 10Gb/s channels, so there is no change in the product solution.

What data rate does QSFP support?

- QSFP supports up to 10Gb/s per channel (40G total).

Is TE's footprint compatible with other suppliers?

- It depends. The single port cages are designed to industry standards. The ganged versions are not compatible with all sources.

Are heat sinks available?

- Yes. Riding heat sink technology is available for thermal Management.

Is application tooling required?

- Single port cage assemblies require only flat-rock tooling, while ganged assemblies require specific application tooling.

Does the application follow the performance requirements of SFF-8436?

- TE's QSFP/QSFP+ copper passive and active cable assemblies meet the signal integrity requirements defined by industry standard SFF-8436. A fundamental requirement is the data rate as these cables are engineered for DDR and/or QDR data rates. We can also custom engineer cable assemblies to meet a customer's specific system requirements.

Are passive or active cable assemblies required?

- Passive cables have no signal amplification in the assembly and rely on host system Electronic Dispersion Compensation (EDC) for signal amplification/equalization. Active cable assemblies have signal amplification and equalization built into the assembly and are typically used in host systems that do not employ EDC.

If passive cables are needed, is equalization required?

- Equalization is the process of reducing distortion over a transmission path by using compensating devices (resistors, capacitors, etc). These equalizers are added to the cable plug PCB and act as filters to improve the cable assembly's frequency response. These filters reduce jitter and open the cable's eye pattern.

What cable lengths are required?

- Cable length and wire gauge are related to the performance characteristics of the cable assembly. Longer cable lengths require heavier wire gauge, while shorter cable lengths can utilize a smaller gauge cable. Smaller gauge cable assemblies provide many benefits to the data center operator, such as ease of routing, less weight and increased airflow. TE offers QSFP/QSFP+ cable assemblies in wire gauges #26 through #30 to support customers' specific cable routing requirements.

Are there other special customer requirements?

- Examples of special requirements include custom cable lengths, EEPROM programming, labeling and packaging. We can custom engineer cables to specific customer system architecture.

FOR MORE INFORMATION

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*as defined www.te.com/leadfree

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