Quick Reference Guide: SFP+ Connectors

TE Connectivity's family of SFP+ interconnects is designed to transfer data at speeds of up to 16 Gb/s. The portfolio features 20-position SMT connectors as well as cages in multiple configurations, and with elastomeric gasket or enhanced EMI springs to address EMI containment at higher data rates. The SFP+ interconnect family also includes thermal- and EMI-enhanced stacked configurations to further improve performance.

Complementary SFP+ direct-attach copper cable assemblies are also offered by TE as high-speed, cost-effective alternatives to fiber optic cables. The assemblies enable hardware OEMs and data center operators to achieve high port density and configurability at low costs and with reduced power requirements.

FEATURES AND BENEFITS

Interconnect

- Supports applications up to 16 Gb/s
- Offers cages in single-port, ganged and stacked configurations. Belly-to-belly mounting cages also offered
- Uses enhanced 20-position connector that is backward-compatible with SFP connectors
- Features elastomeric gaskets and springs for EMI containment
- Offers heat sink and light pipe options

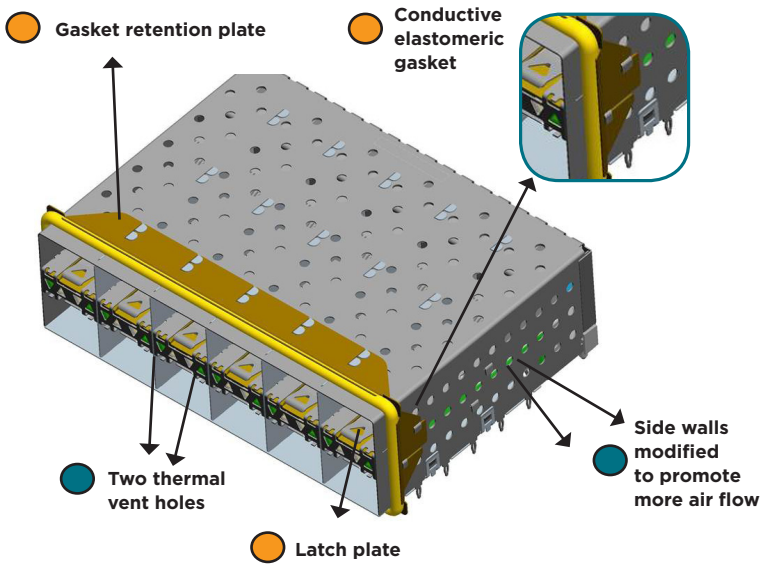
Direct-Attach Copper Cable Assemblies

- Comply to SFF-8431 specifications
- Support up to 10 Gb/s serial data rates
- Serve as a low-cost alternative to fiber optic cables
- Consume low power
- Offer enhanced EMI suppression
- Feature pull-to-release retractable pin latch

Product Applications
- Storage, servers, routers, switches and hubs
- Network Interface Cards (NICs)
- Other telecommunication equipment

Applications by Protocol
- 10 Gigabit Ethernet (IEEE802.3ae)
- Fibre Channel : 2G, 4G, 8G and 16G
- Fibre Channel over Ethernet (FCoE)

SFP+ Thermal and EMI Enhancements



Thermal Enhancements

SFP+ stacked cages have been modified to enhance thermal performance. These changes include revised side walls of the cage for airflow through the middle of the cage to promote cooling of lower ports.

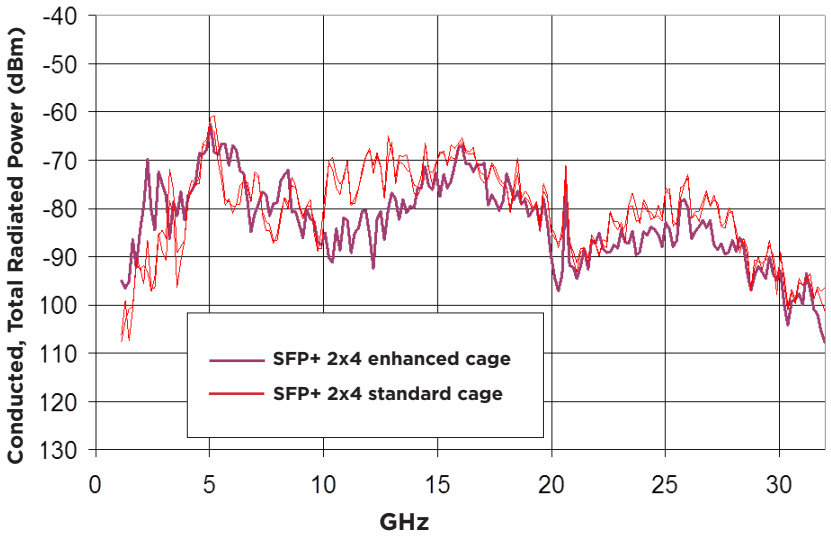
Additionally, two thermal vent holes have been added to each port to further enhance thermal performance.

EMI Enhancements

SFP+ stacked cages with EMI enhancements feature a gasket retention plate with multiple attachment points that improve the electrical connection to the cage. A new right-angle design of the gasket retention plate also improves the strength of the product.

A pocket spring has been added to the latch plate area to further reduce EMI emission. This component is internal to the cage assembly. The additional component still allows airflow through the front of the cage assembly.

SFP+ 2x4 EMI-Enhanced Cage vs. SFP+ 2x4 Standard Cage



Configuration	Part Number	Cage Design
Single Port	2007198-1	11-Pin Press-Fit (PF)
	2110304-1	Standard Solder Tail
	2007194-1	PCI Solder Tail
	2057086-2	Enhanced Footprint
1x2	2007263-1	PF, Thermal Vent Holes
1x4	2169260-1	Heat Sink Slot
1x6	2007251-1	PF, Thermal Vent Holes

Configuration	Part Number	Cage Design
2x1	2007538-X	Elastomeric Gasket
2x2	2007637-X	EMI Spring Version
2x4	2007399-X	Elastomeric Gasket
2x6	2007562-X	EMI Spring Version
2x6	2180640-X	Thermally-Enhanced
2x8	2149490-X	EMI Spring Version

To see more part numbers, visit www.te.com/products/sfpplus or refer to the Pluggable Input/Output Solutions catalog #1773408-1.

20 Pin SMT Connector

PN	Description
2110759-1	Rated to 16G
1888247-1	30 µin Au
1888247-2	15 µin Au

Dust Cap

PN	Description
1367147-X	Dust Cap
1888901-1	EMI Plug
1761394-1	Dust Cap (narrow for ultiport cages)

Cable Assembly Features and Benefits

- Truly broadband - operates from 1 to 10 Gb/s
- 100 Ohm differential impedance
- 3.3 V input source voltages
- Pull tab allows compact belly-to-belly application
- 360 degree cable braid crimp and enhanced EMI skirt
- Uses MADISON CABLE brand TurboTwin parallel pair cable

Direct Attach Copper Cable Assemblies

PN	Description	AWG	Cable Length (meters)															
			0.5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2127934	Standard Passive	24	-1	-2	-3	-4	-5	-6	-7	-8								
2127933	Other Passive	26	-1	-2	-3	-4	-5	-6	-7									
2127932		28	-1	-2	-3	-4	-5	-6										
2127931		30	-1	-2	-3	-4												
2032757	Active	24												-12	-13	-14	-15	-16
		28										-10	-11					
		30	-1	-2	-3	-4	-5	-6	-7	-8	-9							
2053453	SFP+ to QSFP+ Hybrid	26						-6										
		28					-5											
		30	-1	-2	-3	-4												

Frequently Asked Questions

What is belly-to-belly mounting?
- Belly-to-belly mounting allows a customer to install connectors and cages on both sides of a PCB. This design reduces board space and is an alternative solution to stacked connectors.

If I am currently using SFP cabling, can I use SFP+ host board configurations?
- Yes. SFP+ configurations support higher rates. You can design SFP+ products in the host board for future upgrades.

What data rate does SFP support?
- SFP supports up to 16Gb/s.

What are the PCB termination options?
- Cages are offered in press-fit and solder PCB termination styles.

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 other sources.

Are heat sinks available?
- Yes. Riding heat sink technology is available for thermal management.

Is application tooling required?
- Single port assemblies do not require application tooling, yet ganged assemblies do require application tooling.

FOR MORE INFORMATION

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*as defined www.te.com/leadfree

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