QSFP-DD CONNECTORS & CABLE ASSEMBLIES

400G Pluggable I/O Solutions

TE Connectivity's (TE) QSFP-DD (quad small form-factor pluggable double density) doubles the density of QSFP interconnects with an eight-lane electrical interface capable of 28 Gbps NRZ or 56 Gbps PAM-4 to achieve 200 or 400 Gbps aggregate per port. The QSFP-DD portfolio's backwards compatibility allows existing QSFP modules to be plugged into QSFP-DD ports. Our QSFP-DD cages feature a proprietary heat sink design, making them the only solution to work in 15-18W applications at a low cost – providing superior thermal and signal integrity performance.

Applications

- Servers
- Switches
- Routers
- Data centers
- High performance computing

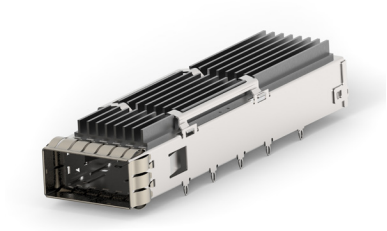
te.com/400G

Amphenol Exhibit 1017
Amphenol v. Credo

Surface Mount (SMT) Connectors & Cages

- Faceplate density equal to current 1xN QSFP28
- 1x1, 1x2, 1x3, 1x4, 1x5 and 1x6 cages available
- Cages are belly-to-belly compatible
- Connector is traditional SMT with 4 rows
- Multiple heatsink and lightpipe options available
  - Customizable with standard PCIe, SAN and NET heatsink heights, or to customer defined requirements
  - 1, 2 and 4 lightpipe configurations

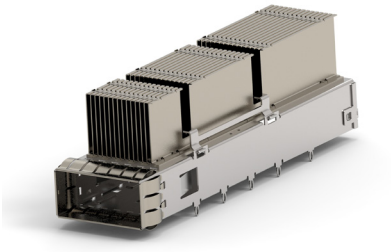
SMT connector



1x1 cage with extuded aluminum heatsinks

TE has conducted extensive research on module-to-heatsink thermal performance, and applied this to optimize QSFP-DD.

- Extensive structural analysis on mechanical design and performance
- Wear and durability testing to ensure repeated results over time
- Proprietary finish on riding heatsink mating interface for optimal heat transfer



1x1 cage with thermally enhanced zipper fin heatsinks

General Part Number Offering

SMT Connectors

Part number
2318579-1
2318579-2 (belly-to-belly)

Cages

Ports	Rear Pins	Heat Sink	Part Number: ZIP Fin	Part Number: Extruded	Lightpipe Add-On (Available upon request)	
1x1	1	PCI	2342934-1	2342933-1	2325129-1	Dual Light Pipe, Left
		SAN	2342934-2	2342933-2	2325129-2	Dual Light Pipe, Right
		NET	2342934-3	2342933-3	2324420-1	Quad Light Pipe, Side
1x2	1	PCI	2342936-1	2342935-1		
		SAN	2342936-2	2342935-2		
		NET	2342936-3	2342935-3		
1x3	0	PCI	2342888-1	2342886-1		
		SAN	2342888-2	2342886-2		
		NET	2342888-3	2342886-3		
1x4	0	PCI	2343989-1	2343988-1		
		SAN	2343989-2	2343988-2		
		NET	2343989-3	2343988-3		
1x5	0	PCI	2343987-1	2343986-1		
		SAN	2343987-2	2343986-2		
		NET	2343987-3	2343986-3		
1x6	0	PCI	2342892-1	2342891-1		
		SAN	2342892-2	2342891-2		
		NET	2342892-3	2342891-3		

Heatsink*

Type	Heatsink Height	Total Height**
PCI	4.2mm	13.7mm
SAN	6.5mm	16mm
NET	13.5mm	23mm

* Heatsinks available in extruded aluminum and thermally enhanced ZIP fin
**Module inserted

TE's thermal engineering team will work directly with you to design and optimize custom QSFP-DD port configurations

Cable Assemblies

- QSFP-DD cable assemblies are similar to QSFP28 4 channel (8 pair), but use double the channels to 8 (16 pair) by using a 2nd row of contact/pad locations on the front of the PCB
- 16 pair 28AWG cable maximum fit (2.5m), plans for as small as 32AWG
  - QSFP-DD to QSFP-DD
  - QSFP-DD to 2x and 4x QSFP28/56
  - QSFP-DD to 8x SFP28/56
- Maximum cable reaches to meet IEEE 802.3cd SDD21 requirement of -17.28dB at 13.28 GHz

QSFP-DD cable assembly

General Part Number Offering

				Cable Assembly Length (meters)					
Configuration	**Data Rate**	**AWG**	**Base Part Number**	**0.5**	**1.0**	**1.5**	**2.0**	**2.5**	**3.0**
400G to 400G	56 Gbps PAM-4	32	2323765	-1	-2	-3			
400G to 400G	56 Gbps PAM-4	30	2323766	-1	-2	-3	-4		
400G to 400G	56 Gbps PAM-4	28	2323767		-1	-2	-3	-4	
400G to 2x200G	56 Gbps PAM-4	32	2821986	-1	-2	-3			
400G to 2x200G	56 Gbps PAM-4	30	2821987	-1	-2	-3			
400G to 2x200G	56 Gbps PAM-4	28	2821988		-1	-2	-3	-4	
400G to 4x100G	56 Gbps PAM-4	32	2821992	-1	-2	-3			
400G to 4x100G	56 Gbps PAM-4	30	2821993	-1	-2	-3			
400G to 4x100G	56 Gbps PAM-4	28	2821994		-1	-2	-3	-4	
400G to 8x50G	56 Gbps PAM-4	32	2327687	-1	-2	-3			
400G to 8x50G	56 Gbps PAM-4	30	2327688	-1	-2	-3			
400G to 8x50G	56 Gbps PAM-4	28	2327689		-1	-2	-3	-4	

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