

- InfiniBand cable

# FDR QSFP+ 56Gb/s Passive Copper Cables

- Compatible with industry standard QSFP cages +Switches
- EEPROM signature can be customized.

## APPLICATION

- InfiniBand 4X SDR, DDR, QDR, FDR
- Ethernet 10G,40G
- FiberChannel 10G,40G, SAN, 4x16G
- RapidIO, Myrinet 40G
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Networking, Storage
- Hubs, switches, routers, servers

Fiberon's FDR QSFP+ passive copper cables provide robust connections for leading edge 56 Gb/s systems. They are designed to be fully compatible in form factor and optical/electrical connections according to the QSFP Multi-Source Agreement.

QSFP+ (Quad SFP+) connectors provide four channels of data in one pluggable interface. Each channel is capable of transferring data at 14.2Gbps and supports a total of aggregate 56Gbps as specified for QSFP+. These interconnects have three times the density of SFP+ interconnects (MSA) and have been designed to meet the harshest external operating conditions including temperature, humidity and EMI interference.

Wire Gauge	Cable Length
30AWG	≤ 1Meter
28AWG	1Meters ≤ 2Meters
26AWG	2Meters ≤ 3Meters
24AWG	3Meters ≤ 4Meters

Copper FDR QSFP+ assemblies are offered in different wire gauges (AWG) depending on length.

FDR QSFP+ cable assemblies are hot swappable and the programmed EEPROM signature enables the host to differentiate between a copper cable assembly and a fiber optic module.

Low power consumption assists in making the passive copper cable assembly an economic solution for within rack, or rack-to-rack applications.

# FDR QSFP+ 56GB/S COPPER CABLE



## PRODUCT CHARACTERISTICS

Test Type	Test Item	Target	Reference	
Electrical Characteristics	Differential impedance	100+/-10ohm (Rise time of 100ps (20%- 80%))	InfiniBand Specification Volume 2	
	Insertion Loss	Frequency (GHz) 1.03125 GHz	SDD21(max) 15dB	
	Differential Node Return Loss	Frequency (GHz) 0.05 ≤ f < 5.6 5.6 ≤ f < 15	SODD11 & SDD22(max) -12+1.71*sqrt(f) -67+131log10(f/7)	InfiniBand Specification Volume 2 Release 1.3 clause 6.65
	Insertion loss deviation	ILD ≤ 0.75, ≤ 0.4286f-0.75, ≤ 2.25,  ILD ≥ 0.75, ≥ 0.75-0.4286f, ≥ 2.25	0.05 ≤ f < 3.50 3.50 ≤ f < 7.0 7 ≤ f < 10.5  0.05 ≤ f < 3.50 3.50 ≤ f < 7.0 7 ≤ f < 10.5	f is frequency, in GHz  InfiniBand Specification Volume 2 Release 1.3 clause 6.8. 7.1
	Intra-Pair Skew	≤ 100 ps (TDT Method) Rise time of 35 ps (20% ~ 80%)	(For reference)	
	Inter-Pair Skew	≤ 500 ps (TDT Method) Rise time of 35 ps (20% ~ 80%)	InfiniBand Specification Volume 2	
	Common mode Return Loss	≤ -2 dB @50MHz~14.1GHz	InfiniBand Specification Volume 2	
	Common mode to Differential Reflection (SDC11/SDC22)	≤ -16+2*f/3 @0.05~15GHz	InfiniBand Specification Volume 2	
Environmental Characteristics	Operating Temperature	-40~85°C	Cable operating temp. range	
	Thermal Shock	No evidence of physical damage	EIA-364-32 Test, condition I (10cycles)	
	Cyclic Temp. & Humidity	No evidence of physical damage	EIA-364-31 Method III, Test Cond A	
	Salt spray	48 hours salt spraying after shell corrosive area less than 5%	EIA-364-26	
	Temperature Life	Performance meets the specification requirement	EIA-364-17, Method A, Test Cond 3 at 105°±2°C	
Mechanical Characteristics	Mechanical Vibration	Performance meets the specification requirement	EIA-364-28E.11 TCVII, Test Cond D 15minutes in X,Y,Z axis.	
	Cable Flex	Performance meets the specification requirement	EIA-444-1B	
	Mechanical Shock	Performance meets the specification requirement	EIA-364-27B, TG-G. 3 times in 6 directions, 100g, 6ms	
	Cable Plug Insertion	40N Max.	Per QSFP MSA Rev 1.0	
	Cable plug Extraction	30N Max.	Per QSFP MSA Rev 1.0.	
	Latch retention force	50N Min. No evidence of physical damage	EIA-364-13	
	Durability	50 Time. No evidence of physical damage	EIA-364-09; perform plug&unplug cycles	

## ORDER CODES

CODE	TYPE	CABLE LENGTH	AWG	CABLE JACKET MATERIAL	
F4M-	FDR QSFP-C	FDR QSFP+/Copper	1 1m	30 30AWG	1 PVC
			2 2m	28 28AWG	2 Non-Halogen
			3 3m	26 26AWG	3 Other
			S Specify	24 24AWG	

Note:

- 1) Various cables available for all types
- 2) latch/tab available "On top" or "Bottom" position

**F4M - FDR QSFP-C - S - S - S**

Specifications may change without notice. Display Product Photos Shown are samples for viewing, not actual products. Colours and styles may vary.

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