200G QSFP-DD Passive Direct Attach Copper Twinax Cable



Application

- 200G Ethernet

Standards

- IEEE 802.3bj IEEE Standard for Ethernet Amendment
- QSFP-DD MSA Rev. 5.0 QSFP-DD hardware Specification
- CMIS Rev 4.0: Common Management Interface Specification
- SFF-8417: Multi Conductor Cable Flex Cycle Test Procedure

Features

- Max. Power Consumption 0.1W
- Tested in Targeted Switches for Superior Performance, Quality, and Reliability
- Minimum Bend Radius 34.5mm for Flexible Routing
- Simplifies the Patching and Offers a Cost-effective Way for Short Links
- Hot Pluggable QSFP-DD MSA Compliant
- Low Insertion Loss and Ultra-low Crosstalk for Improved Performance

Product Description

The 200G QSFP-DD DAC primarily enables high-bandwidth 200G links and supports 200G Ethernet rate. It provides a QSFP-DD to QSFP-DD copper direct-attach solution. 200G QSFP-DD DAC cables are suitable for very short links and offer a cost-effective way to establish a 200-Gigabit link between 200G QSFP-DD ports of switches/routers within racks and across adjacent racks. FS currently offers passive copper cables in lengths of 0.5, 1, 1.5, 2, 2.5 and 3 meters.

Product Specifications

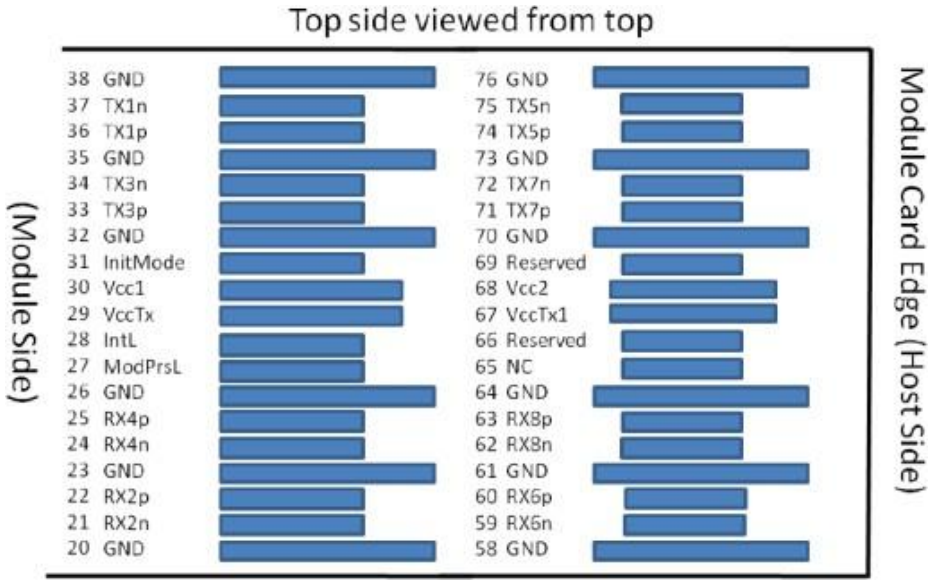
Ⅰ. Recommended Operating Environment

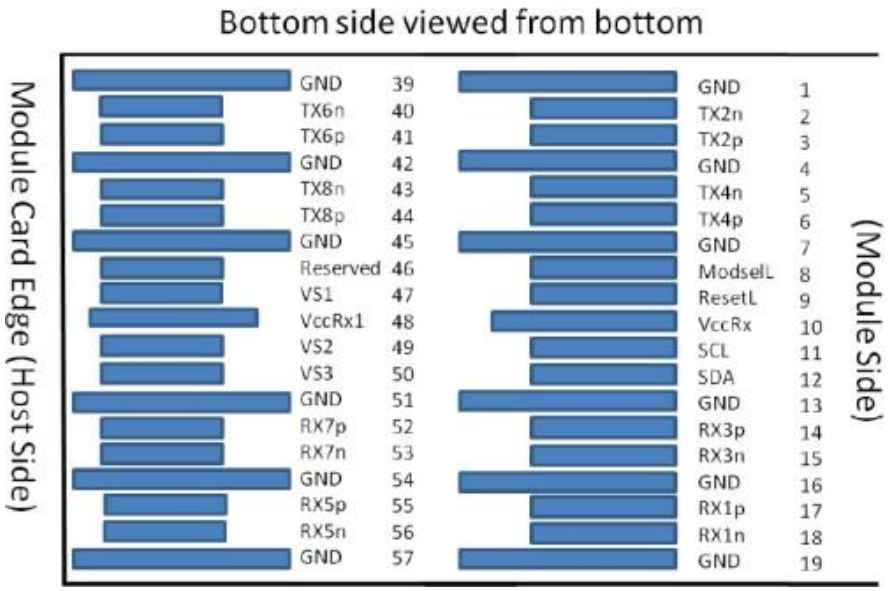
Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature		-40		+85	℃
Operating Case Temperature	T_C	0		+70	℃
Power Supply Voltage	V_{CC3}	3.135	3.3	3.465	V
Data Rate Per Lane			200		Gbps

Ⅱ. Electrical Characteristics

Item		Parameter	Notes
Physical	Length	0.5m, 1m, 1.5m, 2m, 2.5m, 3m	/
	Cable Colour	Black	/
	Backshell Material	Nickel Plated Zinc	/
	Cable Jacket Material	Polyvinyl Chloride (PVC)	/
	Minimum Bend Radius	10x OD	/
Electrical	Resistance	2 ohms Max.	/
	Insulation Resistance	10M ohms Min.	/
SI Performance	SDD21&SDD12	-22.48 dB Min.	@12.89GHz
	SDD11&SDD22	-16.5+2*sqrt(f) dB Max.	@0.05GHz~4.1GHz
		-10.66+14*log(f/5.5) dB Max.	@4.1GHz~10GHz
	SCD21-SDD21	-10 dB Max.	@0.01GHz~12.89GHz
		-27+(29/22)*f dB Max.	@12.89GHz~15.7GHz
		-6.3 dB Max.	@15.7GHz~19GHz
Mechanical Performance	Mating Forces	QSFP-DD<90N	A rate of 10mm per minute
	Un-mating Forces	QSFP-DD<50N	A rate of 10mm per minute
	Latch Strength	Minimum of an 125N Force	Pull to separate module from cage，Test with connector, cage & module (latch engaged)
	Bulk cable retention in module	Minimum of an 90N Force	Pull to separate bulk cable from module,Test with cable assembly only
	Wire Flex	No microsecond discontinuities are allowed.	Flex cable 180° for 10 cycles at X/Y axis, 20 times/minutes, with an 1kg suspended weight. Type C EIA 364-41, test condition I.
	Durability	No evidence of physical damage	Perform 50 unplug/plug cycles
	Cable Minimum Bend Radius	No physical damage， Verify continuity and SI	The cable is bent on time over the correct mandrel with 5 perpendicular, the Minimum bendRadius is 10x OD.

Ⅲ. PIN Definitions for QSFPDD





Pin	Logic	Symbol	Name/Description	Notes
1		GND	Ground	
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	+3.3V Power Supply Receiver	2
11	LVCMOS-I/O	SCL	2-wire serial interface clock	
12	LVCMOS-I/O	SDA	2-wire serial interface data	
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1

21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3V Power Supply Transmitter	2
30		Vccl	+3.3V Power Supply	2
31	LVTTL-I	InitMode	Initialization mode; In legacy QSFP applications, the InitMode pad is called LPMODE	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Input	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Input	
38		GND	Ground	1
39		GND	Ground	1
40	CML-I	Tx6n	Transmitter Inverted Data Input	
41	CML-I	Tx6p	Transmitter Non-Inverted Data Input	
42		GND	Ground	1

43	CML-I	Tx8n	Transmitter Inverted Data Input	
44	CML-I	Tx8p	Transmitter Non-Inverted Data Input	
45		GND	Ground	1
46		Reserved	For future use	3
47		VSI	Module Vendor Specific 1	3
48		VccRx1	3.3V Power Supply	2
49		VS2	Module Vendor Specific 2	3
50		VS3	Module Vendor Specific 3	3
51		GND	Ground	1
52	CML-O	Rx7p	Receiver Non-Inverted Data Output	
53	CML-O	Rx7n	Receiver Inverted Data Output	
54		GND	Ground	1
55	CML-O	Rx5p	Receiver Non-Inverted Data Output	
56	CML-O	Rx5n	Receiver Inverted Data Output	
57		GND	Ground	1
58		GND	Ground	1
59	CML-O	Rx6n	Receiver Inverted Data Output	
60	CML-O	Rx6p	Receiver Non-Inverted Data Output	
61		GND	Ground	1
62	CML-O	Rx8n	Receiver Inverted Data Output	
63	CML-O	Rx8p	Receiver Non-Inverted Data Output	
64		GND	Ground	1

65		NC	No Connect	3
66		Reserved	For future use	3
67		VccTx1	3.3V Power Supply	2
68		Vcc2	3.3V Power Supply	2
69		Reserved	For future use	3
70		GND	Ground	1
71	CML-I	Tx7p	Transmitter Non-Inverted Data Input	
72	CML-I	Tx7n	Transmitter Inverted Data Input	
73		GND	Ground	1
74	CML-I	Tx5p	Transmitter Non-Inverted Data Input	
75	CML-I	Tx5n	Transmitter Inverted Data Input	
76		GND	Ground	1

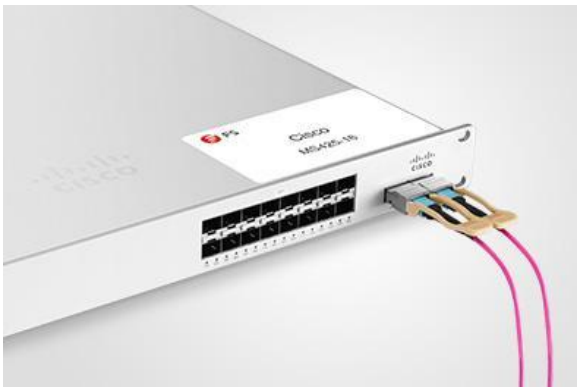
Test Center

I. Compatibility Testing

Each fiber optical transceiver has been tested in host device on site in FS Assured Program to ensure full compatibility with over 200 vendors.



Cisco Catalyst C9500-24Y4C



Cisco MS425-16



Brocade VDX 6940-144S



Dell EMC Networking Z9100-ON



Force⑩tm S60-44T

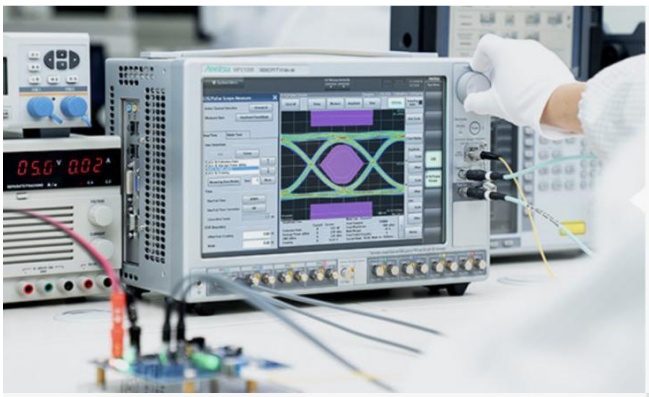


HUAWEI S6720-30L-HI-24S

Above is part of our test bed network equipment. For more information, please click the Test Bed PDF. It will be updated in real time as we expand our portfolio.

II. Performance Testing

Each fiber optical transceiver has been fully tested in FS Assured Program equipped with world's most advanced analytical equipment to ensure that our transceivers work perfectly on your device.



1. TX/RX Signal Quality Testing

Equipped with the all-in-one tester integrated 4ch BERT & sampling oscilloscope, and variable optical attenuator to ensure the input and output signal quality.

- Eye Pattern Measurements: Jitter, Mask Margin, etc
- Average Output Power
- OMA
- Extinction Ratio
- Receiver Sensitivity
- BER Curve

2. Reliability and Stability Testing

Subject the transceivers to dramatic changes in temperature on the thermal shock chamber to ensure reliability and stability of the transceivers.

- Commercial: 0 °C to 70 °C
- Extended: -5 °C to 85 °C
- Industrial: -40 °C to 85 °C





3. Transfer Rate and Protocol Testing

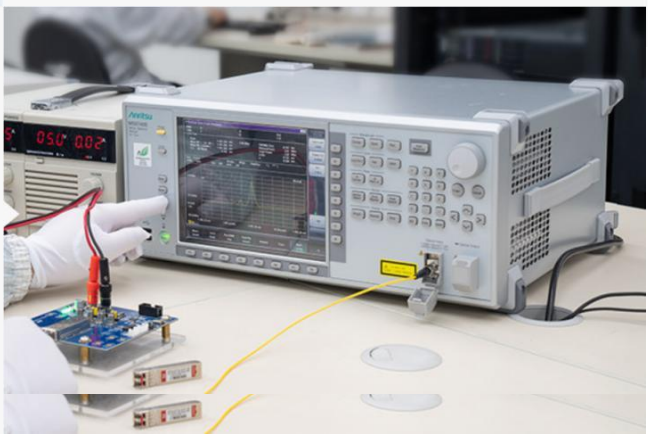
Test the actual transfer data rate and the transmission ability under different protocols with Network Master Pro.

- Ethernet
- Fibre Channel
- SDH/SONET
- CPRI

4. Optical Spectrum Evaluation

Evaluate various important parameters with the Optical Spectrum Analyzer to meet the industry standards.

- Center Wavelength, Level
- OSNR
- SMSR
- Spectrum Width



Ordering Information

Part Number	Data Rate	Length	Wire Gauge	Connector Type	Temp. Range	Cable Jacket
QDD-200G-PC005	200G	0.5m	30AWG	Passive Copper	0-70℃	PVC
QDD-200G-PC01	200G	1m	30AWG	Passive Copper	0-70℃	PVC
QDD-200G-PC015	200G	1.5m	30AWG	Passive Copper	0-70℃	PVC
QDD-200G-PC02	200G	2m	28AWG	Passive Copper	0-70℃	PVC
QDD-200G-PC025	200G	2.5m	28AWG	Passive Copper	0-70℃	PVC
QDD-200G-PC03	200G	3m	28AWG	Passive Copper	0-70℃	PVC