

800G OSFP to 4x200G QSFP112 Passive Direct Attach Copper Breakout Cable

OSFP-800G-4QPCxxx



Application

- 800G to 4x200G Breakout
- InfiniBand NDR

Standards

- OSFP MSA
- QSFP112 MSA
- CMIS v5.0
- IEEE 802.3ck

Features

- Maximum Link Length: up to 2m
- OSFP Module Fully Compliant to the Latest IEEE 802.3ck & OSFP MSA
- QSFP112 Module Fully Compliant to the Latest IEEE 802.3ck & QSFP112 MSA
- Enables 800Gb/s to 4x200G Transmission
- Low Power Consumption Near Zero
- Operating Temperature Range: 0 to 70°C

Description

The NVIDIA InfiniBand Cable is an 2x400Gb/s twin-port OSFP to four 200Gb/s twin-port QSFP112 Direct Attached Copper cable. Using the Octal Small Formfactor Plug (OSFP) and contains eight high-speed electrical copper pairs, each operating at data rates of up to 100Gb/s. This cable is compliant with OSFP MSA, QSFP112 MSA (Multi-Source Agreement) and IEEE 802.3ck standards.

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T _s	-40	85	°C
Operating Case Temperature	T _{case}	0	70	°C
Power Supply Voltage	V _{CC}	3.315	3.465	V
Relative Humidity	RH		85	%

II. Recommended Operating Conditions

Item	Test Condition	Specification
Current		0.5A per contact
Voltage		30v DC per contact
LLCR	EIA 364-23, 20mVdc, 100mA	less than 2 ohms
Continuity	Verify the continuous electrical path	No open, short, or high resistance

III. SI Requirements

Item	Specification	Notes
SDD21&SDD12	≤ 19.75 dB Min. @26.56 GHz; ≥ 11.0 dB max. @26.56GHz;	From 0.01 GHz to 26.56GHz
ERL	Minimum cable assembly ERL(*) : ≥ 8.25 dB	± 0.1
SCD12-SDD12 SCD21-SDD21	≥ 10 $0.05\text{GHz}\leq f<12.89\text{GHz}$ $\geq 14-0.3108f$ $12.89\text{GHz}\leq f\leq 40\text{GHz}$	(up to 40GHz)

IV. Mechanical Performance Requirements

Item	Test Condition	Specification
Mating Forces	A rate of 10mm per minute	OSFP<40N, QSFP<60N
Un-mating Forces	A rate of 10mm per minute	OSFP<30N, QSFP<30N
Latch strength	Pull to separate module from cage , Test with connector, cage & module (latch engaged)	Minimum of an 125N force
Bulk cable retention in module	Pull to separate bulk cable from module,Test with cable assembly only	Minimum of an 90N force
Wire Flex	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.	No microsecond discontinuities are allowed.
Durability	Perform 50 unplug/plugin cycles	No evidence of physical damage
Cable Minimum Bend Radius	Min. bending radius allowed : repeated 10X $\varnothing$. single 5X $\varnothing$	1. No physical damage 2. Verify continuity and SI

V. Product Requirements

Design and Construction

- Connector

OSFP connector meets OSFP MSA Specification, QSFP connector meets SFF8661 Specification.



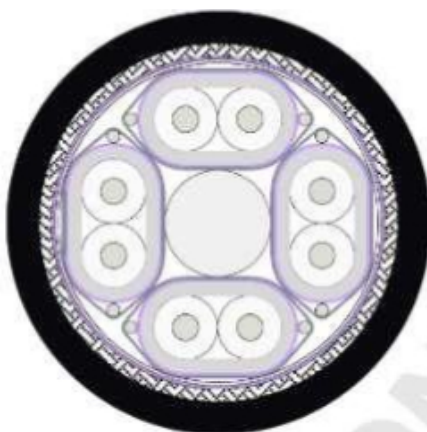
Picture 1



Picture 2

- Cable

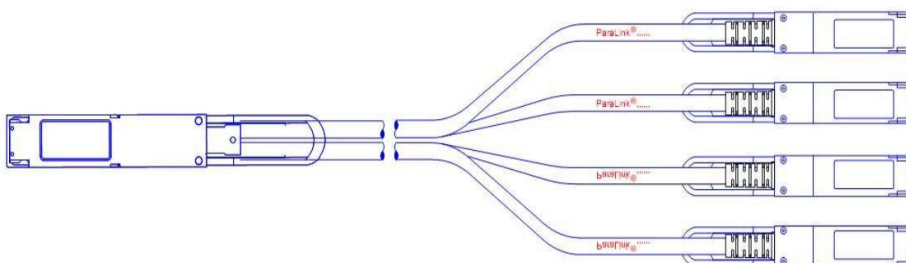
Cable type is a 100 ohm twinax cable which consists of 4 parallel pairs. Printing on the cable is defined in the respective cable specification. Each pair consists of two signal conductors and two drains wire wrapped in a shield.



Picture 3

- Cable Assembly

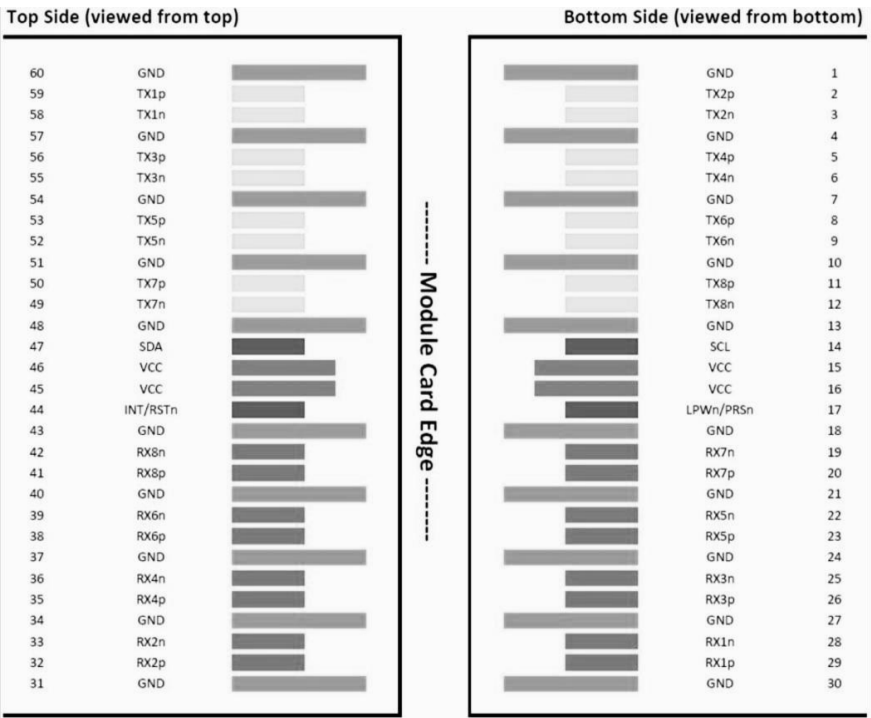
Cable Bulk shield is directly to be connected to the connector backshell to minimize EMI. Each cable assembly is labelled with a unique identification label. P1 side is OSFP, P2 side is 4xQSFP.



Picture 4

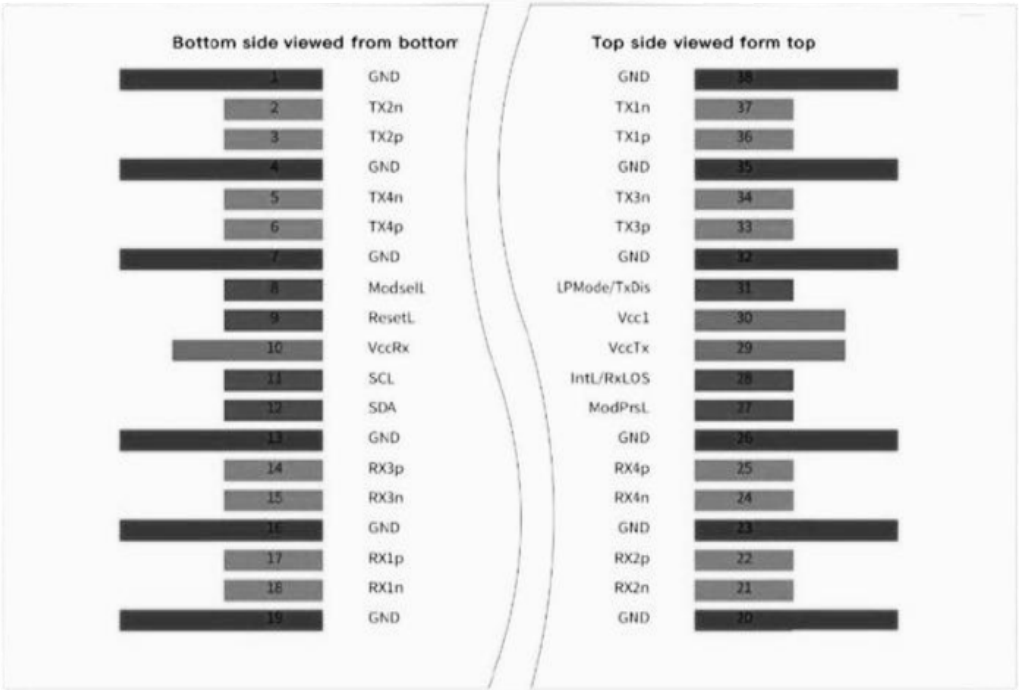
VI. Pin Definition

Picture5 is OSFP pin definitions as OSFP MSA defined



Picture 5

Picture6 is QSFP112 pin definitions as OSFP MSA defined



Picture 6

V. Wire Connection

Parameter	P1 (OSFP)		P2 (QSFP)	
	Pin	Signal	Pin	Signal
1	26	RX1n	37	TX1n
	27	RX1p	36	TX1p
2	59	TX1p	17	RX1p
	58	TX1n	18	RX1n
3	33	RX2n	2	TX2n
	32	RX2p	3	TX2p
4	2	TX2p	22	RX2p
	3	TX2n	21	RX2n
5	25	RX3n	37	TX3n
	26	RX3p	36	TX3p
6	56	TX3p	17	RX3p
	55	TX3n	18	RX3n
7	36	RX4n	2	TX4n
	35	RX4p	3	TX4p
8	5	TX4p	22	RX4p
	6	TX4n	21	RX4n

Parameter	P1 (OSFP)		P2 (QSFP)	
	Pin	Signal	Pin	Signal
9	22	RX5n	37	TX5n
	23	RX5p	36	TX5p
10	53	TX5p	17	RX5p
	52	TX5n	18	RX5n
11	39	RX6n	2	TX6n
	38	RX6p	3	TX6p
12	8	TX6p	22	RX6p
	9	TX6n	21	RX6n
13	19	RX7n	37	TX7n
	20	RX7p	36	TX7p
14	50	TX7p	17	RX7p
	49	TX7n	18	RX7n
15	42	RX8n	2	TX8n
	41	RX8p	3	TX8p
16	11	TX8p	22	RX8p
	12	TX8n	21	RX8n

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



Force@tm S60-44T

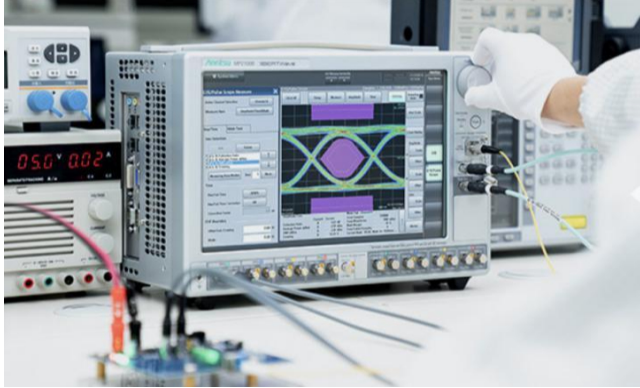


HUAWEI S6720-30L-HI-24S

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.

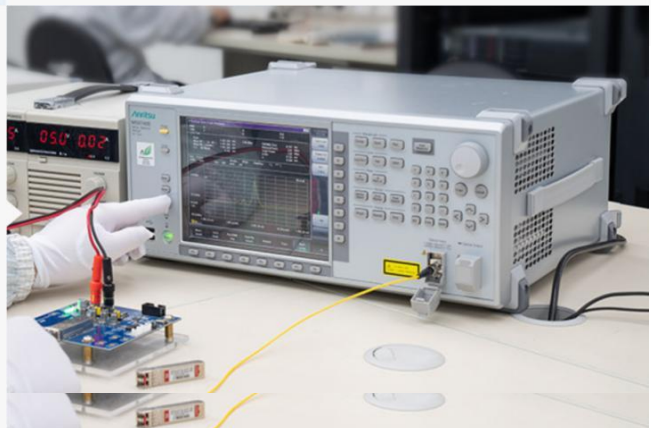
- Ethernet
- Fibre Channel
- SDH/SONET
- CPRI



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



Order Information

Part Number	Data Rate	Length	Wire Gauge	Connector Type	Temp. Range	Cable Jacket
OSFP-800G-4QPC005	800G	0.5m	30AWG	Passive Copper	0 to 70°C	PVC (OFNR)
OSFP-800G-4QPC01	800G	1m	28AWG	Passive Copper	0 to 70°C	PVC (OFNR)
OSFP-800G-4QPC015	800G	1.5m	28AWG	Passive Copper	0 to 70°C	PVC (OFNR)
OSFP-800G-4QPC02	800G	2m	28AWG	Passive Copper	0 to 70°C	PVC (OFNR)