

## QDD-2Q56-DAC-PxM

400G QSFP-DD to 4x200G QSFP56 DAC Passive Copper Breakout Cable, 0.5~2.5 meters

### Features

- Connector A: 1x QSFP-DD 400Gbps Rated Connector (QSFP-DD MSA Compliant)
- Connector B: 2x QSFP56 200Gbps Rated Connector (QSFP56 MSA Compliant)
- Economically Links up a QSFP-DD port with an upstream 200GbE-QSFP56 Switch
- Supports aggregate data rates of 400Gbps (PAM4)
- Optimized construction to minimize insertion loss and cross talk
- Bridge the gap between your 200G and 400G capable switches/host adapters
- Reduced power budget and lower port cost compared to transceiver and AOC
- Operating temperature range: 0 to 70°C
- RoHS Compliant and Lead-Free

### Applications

- 400G/200G Ethernet transmission
- 200G/400G Ethernet Switches, Routers, and HBAs
- Data center interconnect
- Networked storage systems
- High density connections between networking equipment
- High Performance Computing (HPC)
- Test and measurement equipment

### Description

Optcore's QDD-2Q56-DAC-PxM series is 400G QSFP-DD to 2x200G QSFP56 breakout direct attach copper cable assembly, also known as QSFP-DD DAC breakout cable. It is suitable for very short distances and offers a highly cost-effective way to interconnect the devices using 400G QSFP-DD ports and 200G QSFP56 ports. The QSFP-DD to 2x QSFP56 DAC breakout cable is perfect for 400Gb/s high-speed interconnecting networking applications such as high-performance computing (HPC), enterprise networking including top-of-rack switching, and network storage markets. It fully complies with QSFP-DD Multi-Source Agreement (MSA) standards and QSFP56 MSA.

### Ordering information

Part Number	Data Rate	Cable Length	Wire Gauge		
QDD-2Q56-DAC-P50CM	400G to 2x200G	0.5 m	/	/	AWG30
QDD-2Q56-DAC-P1M	400G to 2x200G	1 m	/	/	AWG30
QDD-2Q56-DAC-P2M	400G to 2x200G	2 m	/	/	AWG28
QDD-2Q56-DAC-P2.5M	400G to 2x200G	2.5 m	/	/	AWG28

### Notes:

1. Customized 400G QSFP-DD to 2 x 200G QSFP56 breakout copper cables are available in various lengths.
2. The Wire Gauge is available in AWG24, AWG26, AWG28, and AWG30 for customized need.

### Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Maximum Supply Voltage	V <sub>cc</sub>	-0.5	4.0	V	
Storage Temperature	T <sub>s</sub>	-40	85	°C	
Operating Humidity	RH	5	95	%	

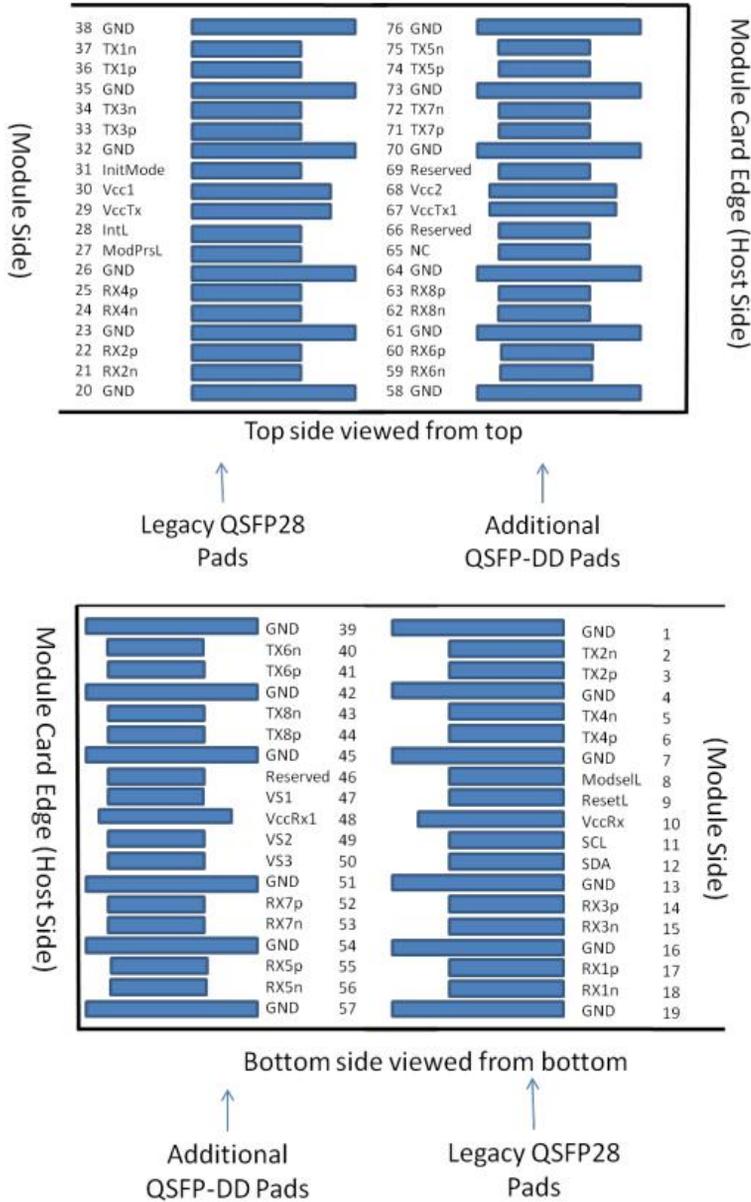
### Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V <sub>cc</sub>	3.13	3.3	3.47	V	
Power Dissipation	PD			0.5	W	
Case Operating Temperature	T <sub>c</sub>	0		70	°C	
Data Rate		200		400	Gbps	
Bit Error Rate	BER			10 <sup>-12</sup>		

### Cable Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Cable Diameter	DIA		6.0		mm	AWG 24
			5.4		mm	AWG 26
			4.7		mm	AWG 28
			4.2		mm	AWG 30
Bend Radius		5x Cable Diameter			mm	
Cable Jacket Type		PVC				
Cable Impedance	Z	90	100	110	Ω	

QSFP-DD Pin Function Definition

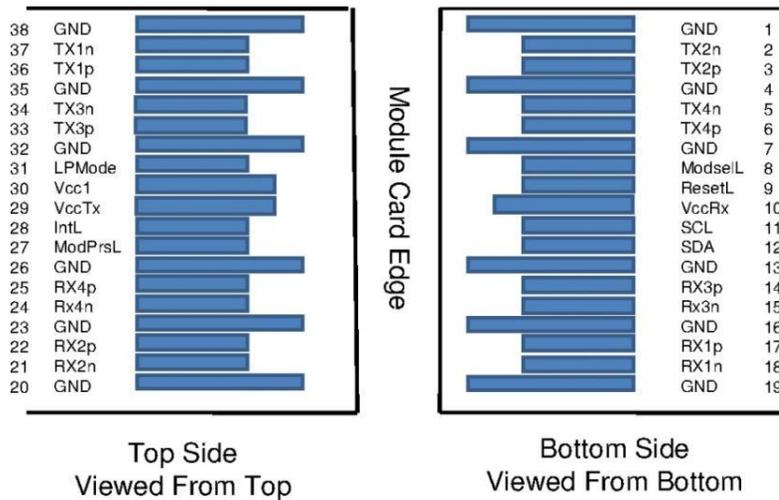


Pin	Logic	Symbol	Description
1		GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input
4		GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input
7		GND	Ground
8	LVTTL-I	ModSelL	Module Select
9	LVTTL-I	ResetL	Module Reset
10		Vcc Rx	+3.3V Power Supply Receiver
11	LVC MOS-I/O	SCL	2-wire serial interface clock

12	LVC MOS-I/O	SDA	2-wire serial interface data
13		GND	Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output
16		GND	Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Ground
20		GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23		GND	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26		GND	Ground
27	LVTTL-O	ModPrsL	Module Present
28	LVTTL-O	IntL	Interrupt
29		Vcc Tx	+3.3V Power supply transmitter
30		Vcc1	+3.3V Power supply
31	LVTTL-I	LPMODE	Low Power Mode
32		GND	Ground
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Input
35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Input
38		GND	Ground
39		GND	Ground
40	CML-I	Tx6n	Transmitter Inverted Data Input
41	CML-I	Tx6p	Transmitter Non-Inverted Data Input
42		GND	Ground
43	CML-I	Tx8n	Transmitter Inverted Data Input
44	CML-I	Tx8p	Transmitter Non-Inverted Data Input
45		GND	Ground
46		Reserved	
47		VS1	
48		VccRx1	+3.3V Power supply
49		VS2	
50		VS3	
51		GND	Ground
52	CML-O	Rx7p	Receiver Non-Inverted Data Output
53	CML-O	Rx7n	Receiver Inverted Data Output
54		GND	Ground
55	CML-O	Rx5p	Receiver Non-Inverted Data Output
56	CML-O	Rx5n	Receiver Inverted Data Output
57		GND	Ground
58		GND	Ground
59	CML-O	Rx6n	Receiver Inverted Data Output
60	CML-O	Rx6p	Receiver Non-Inverted Data Output
61		GND	Ground
62	CML-O	Rx8n	Receiver Inverted Data Output

63	CML-O	Rx8p	Receiver Non-Inverted Data Output
64		GND	Ground
65		NC	
66		Reserved	
67		VccTx1	+3.3V Power supply
68		VCC2	+3.3V Power supply
69		Reserved	
70		GND	Ground
71	CML-I	Tx7p	Transmitter Non-Inverted Data Input
72	CML-I	Tx7n	Transmitter Inverted Data Input
73		GND	Ground
74	CML-I	Tx5p	Transmitter Non-Inverted Data Input
75	CML-I	Tx5n	Transmitter Inverted Data Input
76		GND	Ground

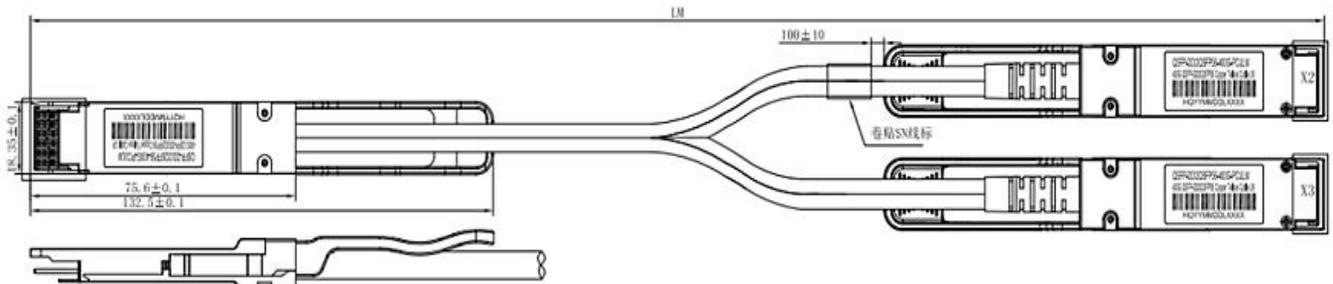
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35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input

**Mechanical Dimensions**



**⚠ Warnings**

**Process plug**

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles. It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

**Handling Precautions**

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

**Laser Safety**

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

For more product information, visit us on the web at [www.optcore.net](http://www.optcore.net)



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