

## 800G IB NDR OSFP to 4xOSFP RHS Hairtail+ Direct Attach Copper Cable

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### OSFP Cable Series

- OSFP Module compliant to OSFP MSA
- Transmission data rate up to PAM4 106.25Gbps per channel
- Enable 800Gb/s to 4x200Gb/s Transmission
- Link length up to 3m
- Built-in EEPROM functions
- Operating case temperature 0°C to +70°C
- RoHS2.0 compliant



The OSP8-4OSP2-DAC is a high-performance 800Gbps passive Direct Attach Copper (DAC) breakout cable designed for InfiniBand NDR and high-speed data center interconnects. This cable enables a direct breakout from a single 800G OSFP port to four 200G OSFP ports, allowing flexible connectivity between high-density switches and compute nodes in modern AI and HPC clusters.

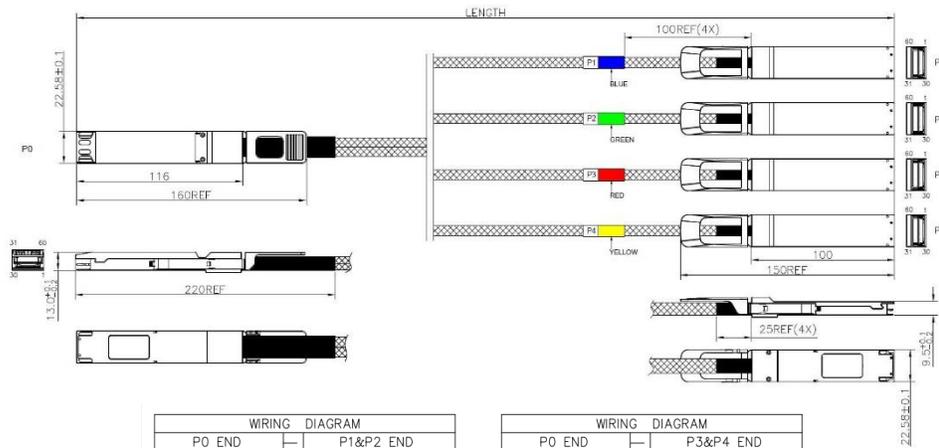
The cable supports PAM4 signaling up to 106.25Gbps per lane, delivering an aggregate bandwidth of 800Gbps over copper connections up to 3 meters. With its passive copper design, the OSP8-4OSP2-DAC offers ultra-low latency, minimal power consumption, and high reliability, making it ideal for short-reach interconnections inside racks or between adjacent racks in high-performance computing environments.

Compliant with the OSFP MSA specification, the cable includes built-in EEPROM functionality to provide cable identification and monitoring capabilities via the host system. The OSP8-4OSP2-DAC is designed to deliver a cost-effective and energy-efficient solution for high-bandwidth GPU clusters, InfiniBand fabrics, and large-scale AI training infrastructure.

## Key Features

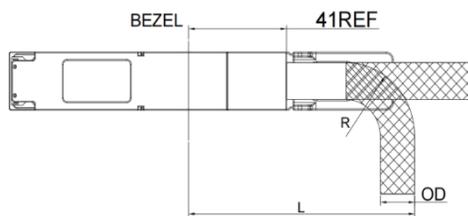
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## Outline Diagram

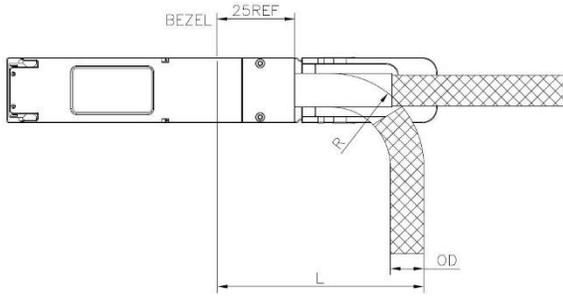


WIRING DIAGRAM	
PO END	P1&P2 END
58 TX1n →	28 RX1n
59 TX1p →	29 RX1p
28 RX1n ←	58 TX1n
29 RX1p ←	59 TX1p
2 TX2p →	32 RX2p
3 TX2n →	33 RX2n
32 RX2p ←	2 TX2p
33 RX2n ←	3 TX2n
55 TX3n →	28 RX1n
56 TX3p →	29 RX1p
25 RX3n ←	58 TX1n
26 RX3p ←	59 TX1p
5 TX4p →	32 RX2p
6 TX4n →	33 RX2n
35 RX4p ←	2 TX2p
36 RX4n ←	3 TX2n
GND GROUP	
1/4/7/10/13/18/21/24/27/30/31/34/37/40/43/48/51/54/57/60	1/4/7/10/13/18/21/24/27/30/31/34/37/40/43/48/51/54/57/60
SHELL-SHIELDING-SHELL	

WIRING DIAGRAM	
PO END	P3&P4 END
52 TX5n →	28 RX1n
53 TX5p →	29 RX1p
22 RX5n ←	58 TX1n
23 RX5p ←	59 TX1p
8 TX6p →	32 RX2p
9 TX6n →	33 RX2n
38 RX6p ←	2 TX2p
39 RX6n ←	3 TX2n
49 TX7n →	28 RX1n
50 TX7p →	29 RX1p
19 RX7n ←	58 TX1n
20 RX7p ←	59 TX1p
11 TX8p →	32 RX2p
12 TX8n →	33 RX2n
41 RX8p ←	2 TX2p
42 RX8n ←	3 TX2n
GND GROUP	
1/4/7/10/13/18/21/24/27/30/31/34/37/40/43/48/51/54/57/60	1/4/7/10/13/18/21/24/27/30/31/34/37/40/43/48/51/54/57/60
SHELL-SHIELDING-SHELL	



OSFP TYPE2			
GAUGE	OD	BEND RADIUS "R"	MIN. BEND RADIUS "L"
28AWG	10.2MM	21MM	81MM
26/25AWG	12.1MM	25MM	86MM



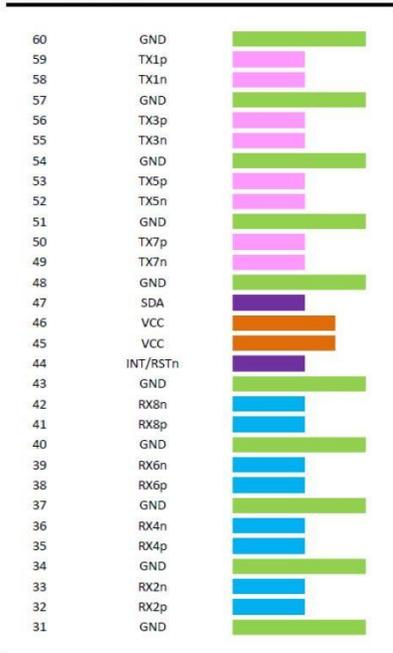
OSFP RHS			
GAUGE	OD	BEND RADIUS "R"	MIN. BEND RADIUS "L"
28AWG	5.1MM	10MM	55MM
26/25AWG	6.3MM	13MM	60MM

## Module Memory Map

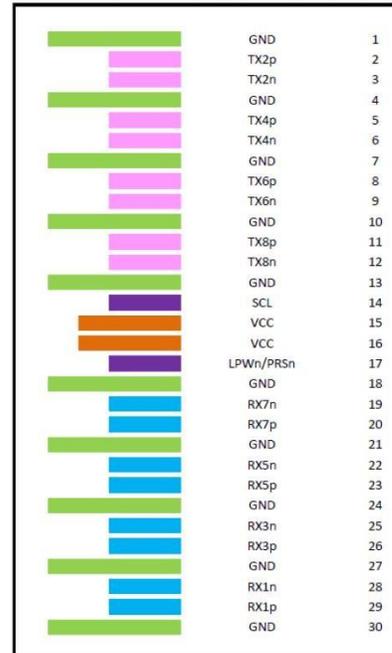
Compatible with CMIS rev 5.0 or further CMIS revisions and customer spec.

## Pin Assignment

Top Side (viewed from top)



Bottom Side (viewed from bottom)



Pin	Symbol	Description	Logic	Direction	Plug Sequence	Notes
1	GND	Ground			1	
2	Tx2n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
3	Tx2p	Transmitter Data Inverted	CML-I	Input from Host	3	
4	GND	Ground			1	
5	Tx4n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
6	Tx4p	Transmitter Data Inverted	CML-I	Input from Host	3	
7	GND	Ground			1	
8	Tx6n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
9	Tx6p	Transmitter Data Inverted	CML-I	Input from Host	3	
10	GND	Ground			1	
11	Tx8n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
12	Tx8p	Transmitter Data Inverted	CML-I	Input from Host	3	

# 800G OSFP Breakout DAC Cable

Pin	Symbol	Description	Logic	Direction	Plug Sequence	Notes
13	GND	Ground			1	
14	SCL	2-wire Serial Interface Data	LVC MOS-I/O	Bi-directional	3	Open-Drain with pull-up resistor on Host
15	Vcc	+3.3V Power		Power from Host	2	
16	Vcc	+3.3V Power		Power from Host	2	
17	LPWn/ PRSn	Low-Power Mode/Module Present	Multi-Level	Bi-directional	3	See pin description for required circuit
18	GND	Ground			1	
19	Rx7n	Receiver Data Inverted	CML-O	Output to Host	3	
20	Rx7p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
21	GND	Ground			1	
22	RX5n	Receiver Data Inverted	CML-O	Output to Host	3	
23	RX5p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
24	GND	Ground			1	
25	RX3n	Receiver Data Inverted	CML-O	Output to Host	3	
26	RX3p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
27	GND	Ground			1	
28	RX1n	Receiver Data Inverted	CML-O	Output to Host	3	
29	RX1p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
30	GND	Ground			1	
31	GND	Ground			1	
32	RX2p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
33	RX2n	Receiver Data Inverted	CML-O	Output to Host	3	
34	GND	Ground			1	
35	RX4p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
36	RX4n	Receiver Data Inverted	CML-O	Output to Host	3	
37	GND	Ground			1	
38	RX6p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
39	RX6n	Receiver Data Inverted	CML-O	Output to Host	3	
40	GND	Ground			1	
41	RX8p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
42	RX8n	Receiver Data Inverted	CML-O	Output to Host	3	
43	GND	Ground			1	
44	INT/RS Tn	Module Interrupt/Module Reset	Multi-Level	Bi-directional	3	See pin description for required circuit
45	Vcc	+3.3V Power		Power from Host	2	
46	Vcc	+3.3V Power		Power from Host	2	
47	SCL	2-wire Serial Interface Data	LVC MOS-I/O	Bi-directional	3	Open-Drain with pull-up resistor on Host
48	GND	Ground			1	
49	Tx7n	Transmitter Data Inverted	CML-I	Input from Host	3	
50	Tx7p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
51	GND	Ground			1	
52	TX5n	Transmitter Data Inverted	CML-I	Input from Host	3	
53	TX5p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	

Pin	Symbol	Description	Logic	Direction	Plug Sequence	Notes
54	GND	Ground			1	
55	TX3n	Transmitter Data Inverted	CML-I	Input from Host	3	
56	TX3p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
57	GND	Ground			1	
58	TX1n	Transmitter Data Inverted	CML-I	Input from Host	3	
59	TX1p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
60	GND	Ground			1	

## Specifications

### Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Storage temperature	Ts	-40		85	°C
Operating Case temperature	Tc	0		70	°C
Humidity	Rh	5		85	%
Data Rate			800		Gbps

### Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Length	L	0.5		3.0	M
AWG		28		25	AWG
Jacket Material		HAIRTAIL+ Technology Net, Sliver Gray			

### Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	
Resistance	Rcon			3	ohm	
Insulation Resistance	Rins			10	Mohm	
Raw Cable Impedance	Zca	95		110	ohm	
Mated Connector Impedance	Zmated	85		110	ohm	
Maximum Insertion Loss at 26.56 GHz	SDD21	11		18	dB	
				19.75	2.0M	dB
				25.3	3.0M	dB
Differential to Common-Mode Return Loss	SCD11/22	$RLcd(f) \geq \begin{cases} 22 - 10(f/26.56) & 0.05 \leq f < 26.56 \\ 15 - 3(f/26.56) & 26.56 \leq f \leq 40 \end{cases}$			dB	
		For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz				
Differential to Common-Mode Conversion Loss	SCD21-S DD21	$Conversion\_loss(f) - IL(f) \geq \begin{cases} 10 & 0.05 \leq f < 12.89 \\ 14 - 0.3108f & 12.89 \leq f \leq 40 \end{cases}$			dB	
		For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz				
Common-Mode to Common-Mode Return Loss	SCC11/22	$RLcc(f) \geq 1.8$			dB	
		For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz				
Minimum COM	COM	3			dB	

## Ordering Information

Product Name	Product Description
OSP8-4OSP2-D05	800G IB NDR OSFP to 4xOSFP RHS DAC, 28AWG, 0.5m, Hairtail+, Sliver Gray
OSP8-4OSP2-001	800G IB NDR OSFP to 4xOSFP RHS DAC, 28AWG, 1.0m, Hairtail+, Sliver Gray
OSP8-4OSP2-D15	800G IB NDR OSFP to 4xOSFP RHS DAC, 26/25AWG, 1.5m, Hairtail+, Sliver Gray
OSP8-4OSP2-002	800G IB NDR OSFP to 4xOSFP RHS DAC, 26/25AWG, 2.0m, Hairtail+, Sliver Gray
OSP8-4OSP2-D25	800G IB NDR OSFP to 4xOSFP RHS DAC, 25AWG, 2.5m, Hairtail+, Sliver Gray
OSP8-4OSP2-003	800G IB NDR OSFP to 4xOSFP RHS DAC, 25AWG,3.0m, Hairtail+, Sliver Gray

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Ver. ACT\_OSFP-4OSP2-XXX\_Datasheet\_v1b\_Mar\_2025