

400G OSFP-RHS Direct Attach Cable

WS-OR4-DACP_{x-xx}

Applications:

- Data Center & Networking Equipment
- Servers / Storage Devices
- High Performance Computing (HPC)
- Switches / Routers

Standard:

- IEEE 802.3bs 400G electrical interface
- OSFP MSA Rev 5.0 Mechanical and Pinout
- CMIS Rev. 4.0 Management Interface
- RoHS Compliant

Features:

- Up to 26.5625 GBd PAM4 data rate per channel
- 3.3 V power supply for EEPROM and management interface
- I2C for EEPROM communication, pull to Release latch design
- Excellent EMI/EMC performance 360 degree cable shield termination
- 30~26 AWG high performance twinax cable
- Low loss, stronger mechanical features, more flexible
- Hot-pluggable
- -40 °C to 85 °C case temperature operating range
- I2C management interface

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	T _s	-40		85	°C	
Relative Humidity	RH	5		85	%	Non condensation
Power Supply Voltage	VCC	3.135		3.465	V	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	T _{case}	-40		85	°C	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Data Rate	BR		26.5625		Gbd	Each channel

MODULE PINOUT (compliant OSFP MSA Rev 5.0)**Top Side (viewed from top)**

60	GND	
59	TX1p	
58	TX1n	
57	GND	
56	TX3p	
55	TX3n	
54	GND	
53	TX5p	
52	TX5n	
51	GND	
50	TX7p	
49	TX7n	
48	GND	
47	SDA	
46	VCC	
45	VCC	
44	INT/RSTn	
43	GND	
42	RX8n	
41	RX8p	
40	GND	
39	RX6n	
38	RX6p	
37	GND	
36	RX4n	
35	RX4p	
34	GND	
33	RX2n	
32	RX2p	
31	GND	

-----Module Card Edge-----

Bottom Side (viewed from bottom)

	GND	1
	TX2p	2
	TX2n	3
	GND	4
	TX4p	5
	TX4n	6
	GND	7
	TX6p	8
	TX6n	9
	GND	10
	TX8p	11
	TX8n	12
	GND	13
	SCL	14
	VCC	15
	VCC	16
	LPWn/PRSn	17
	GND	18
	RX7n	19
	RX7p	20
	GND	21
	RX5n	22
	RX5p	23
	GND	24
	RX3n	25
	RX3p	26
	GND	27
	RX1n	28
	RX1p	29
	GND	30

MODULE SIGNAL PIN DESCRIPTIONS (compliant OSFP MSA Rev 5.0)

Name	Direction	Description
TX[8:1]p	input	Transmit differential pairs from host to module.
TX[8:1]n	input	
RX[8:1]p	output	Receiver differential pairs from module to host.
RX[8:1]n	output	
SCL	Bi-direction	2-wire serial clock signal. Requires pull-up resistor to 3.3V on host.
SDA	Bi-direction	2-wire serial data signal. Requires pull-up resistor to 3.3V on host.
LPWn/PRSn	Bi-direction	Multi-level signal for low power control from host to module and module presence indication from module to host. This signal requires the circuit as described in Section 10.5.3

INT/RSTn	Bi-direction	Multi-level signal for interrupt request from module to host and reset control from host to module. This signal requires the circuit as described in Section 10.5.2
VCC	power	3.3V power for module.
GND	ground	Module Ground. Logic and power return path.

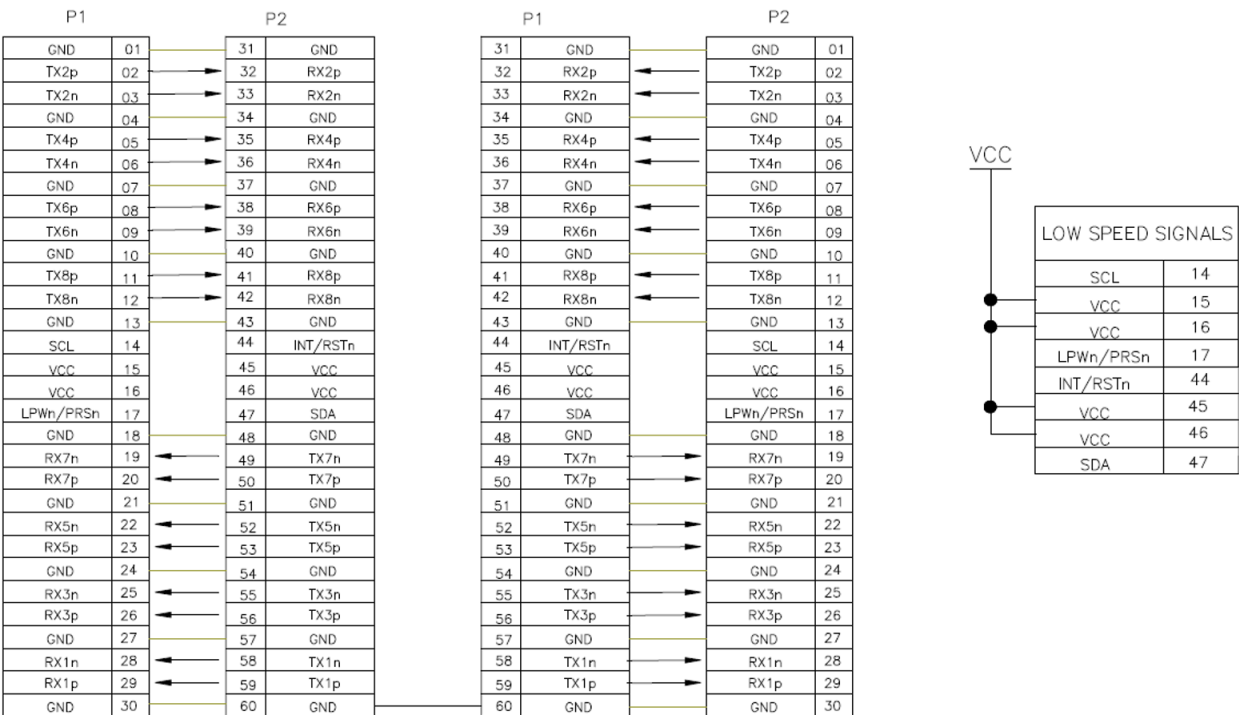
MODULE PIN LISTS (compliant OSFP MSA Rev 5.0)

PIN	Symbol	Description	Plug Sequence
1	GND	Ground	1
2	TX2p	Transmitter Data Non-Inverted	3
3	TX2n	Transmitter Data Inverted	3
4	GND	Ground	1
5	TX4p	Transmitter Data Non-Inverted	3
6	TX4n	Transmitter Data Inverted	3
7	GND	Ground	1
8	TX6p	Transmitter Data Non-Inverted	3
9	TX6n	Transmitter Data Inverted	3
10	GND	Ground	1
11	TX8p	Transmitter Data Non-Inverted	3
12	TX8n	Transmitter Data Inverted	3
13	GND	Ground	1
14	SCL	2-wire Serial interface clock	3
15	VCC	+3.3V Power supply	2
16	VCC	+3.3V Power supply	2
17	LPWn/PRSn	Low-Power Mode / Module Present	3
18	GND	Ground	1
19	RX7n	Receiver Data Inverted	3
20	RX7p	Receiver Data Non-Inverted	3
21	GND	Ground	1

22	RX5n	Receiver Data Inverted	3
23	RX5p	Receiver Data Non-Inverted	3
24	GND	Ground	1
25	RX3n	Receiver Data Inverted	3
26	RX3p	Receiver Data Non-Inverted	3
27	GND	Ground	1
28	RX1n	Receiver Data Inverted	3
29	RX1p	Receiver Data Non-Inverted	3
30	GND	Ground	1
31	GND	Ground	1
32	RX2n	Receiver Data Inverted	3
33	RX2p	Receiver Data Non-Inverted	3
34	GND	Ground	1
35	RX4n	Receiver Data Inverted	3
36	RX4p	Receiver Data Non-Inverted	3
37	GND	Ground	1
38	RX6n	Receiver Data Inverted	3
39	RX6p	Receiver Data Non-Inverted	3
40	GND	Ground	1
41	RX8n	Receiver Data Inverted	3
42	RX8p	Receiver Data Non-Inverted	3
43	GND	Ground	1
44	INT/RSTn	Module Interrupt / Module Reset	3
45	VCC	+3.3V Power supply	2
46	VCC	+3.3V Power supply	2
47	SDA	2-wire Serial interface data	3
48	GND	Ground	1
49	TX7p	Transmitter Data Non-Inverted	3

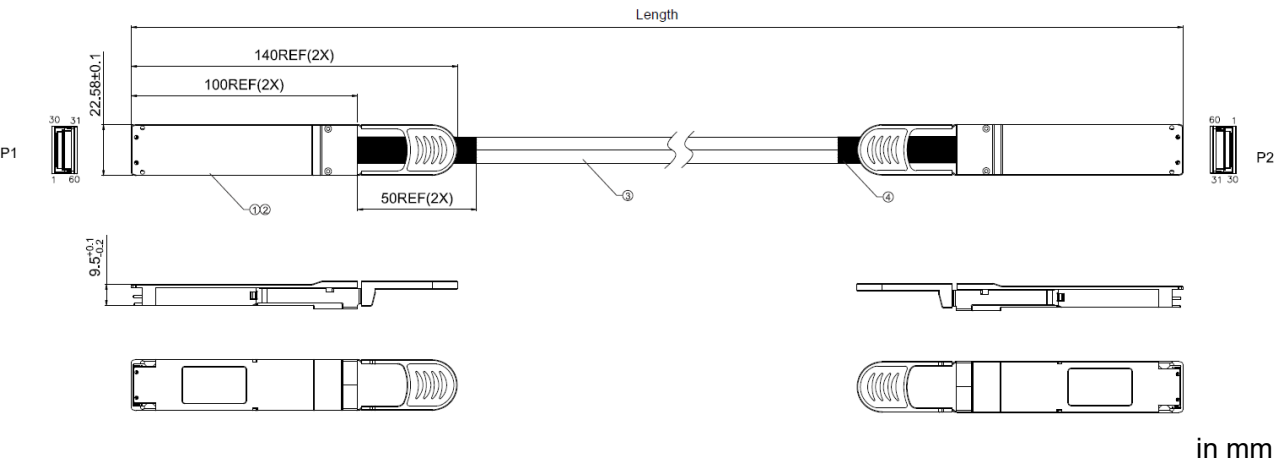
50	TX7n	Transmitter Data Inverted	3
51	GND	Ground	1
52	TX5p	Transmitter Data Non-Inverted	3
53	TX5n	Transmitter Data Inverted	3
54	GND	Ground	1
55	TX3p	Transmitter Data Non-Inverted	3
56	TX3n	Transmitter Data Inverted	3
57	GND	Ground	1
58	TX1p	Transmitter Data Non-Inverted	3
59	TX1n	Transmitter Data Inverted	3
60	GND	Ground	1

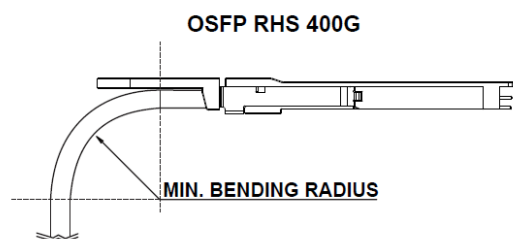
Wiring Diagram



OSFP GND GROUP:
01/04/07/10/13/18/21/24/27/30/31/34/37/40/43/48/51/54/57/60

Mechanical Design Diagram



Bending Radius:

Min. bending radius allowed	Repeated	Single
	10 x ϕ	5 x ϕ

Ordering Information

Part No	Specification				
	Package	Data rate per Lane	Temp.	Gauge	Length
WS-OR4-DACP0-0H	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	30 AWG	0.5 m $\pm$ 0.05 m
WS-OR4-DACP0-1	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	30 AWG	1.0 m $\pm$ 0.05 m
WS-OR4-DACP6-1H	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	26 AWG	1.5 m $\pm$ 0.05 m
WS-OR4-DACP6-2	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	26 AWG	2.0 m $\pm$ 0.05 m
WS-OR4-DACP6-2H	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	26 AWG	2.5 m $\pm$ 0.05 m
WS-OR4-DACP6-3	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	26 AWG	3.0 m $\pm$ 0.08 m
WS-OR4-DACP6-3H	OSFP-RHS to OSFP-RHS	26.5625 GBd PAM4	-40~85 °C	26 AWG	3.5 m $\pm$ 0.08 m

Modification History

Revision	Date	Description	Originator	Reviewed by	Approved by
V1.0	26-Oct-2022	New Issue	Henry Chung	Wayne Liao	Tom Tang



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