REV:A0

LPXWA32Q-MxxC

800G OSFP to 2x400G QSFP112 Active Optical Cable

Product Features

- Hot-pluggable OSFP and QSFP112 form factor
- Two four-channel full-duplex active optical cable
- Signal rate: 106.25 Gb/s per channel
- Signal optimization by DSP processing
- +3.3V single power supply
- Power dissipation < 16W per terminal @ 800G end
- Power dissipation <8 W per terminal @ 400G end
- Operating case temperature: 0℃ ~ +70℃
- RoHS compliant

Applications

- 8x100G CAUI-4
- 800G SR8 OSFP 2x400G SR4, 2 of 400G per port breakout connections

Ordering Information

Part No.[Note1]	Bit Rate (Gbps)	Packag form of two opposite sides	Max. Cable lengths	Fiber Type	Temp[Note2]
LPXWA32Q-M_1XX_2C	800G to 2*400G	OSFP to 2 x QSFP112	30 m	OM3 MMF	0℃~+70℃
LPXWA42Q-M_1XX_2C			50 m	OM4 MMF	

note1 : The "M_1XX_2" means : ①"XX"= 01~99 ② MXX = XX*1meter; SXX = XX*10meter ; LXX = XX*0.1meter
note2: Case temperature

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Supply Voltage	Vcc_3	-0.5	-	+3.6	V	
Storage Temperature	T_s	-10	-	+75	℃	
Operating Humidity	RH	+5	-	+85	%	No condensation

II. Recommended Operating Conditions

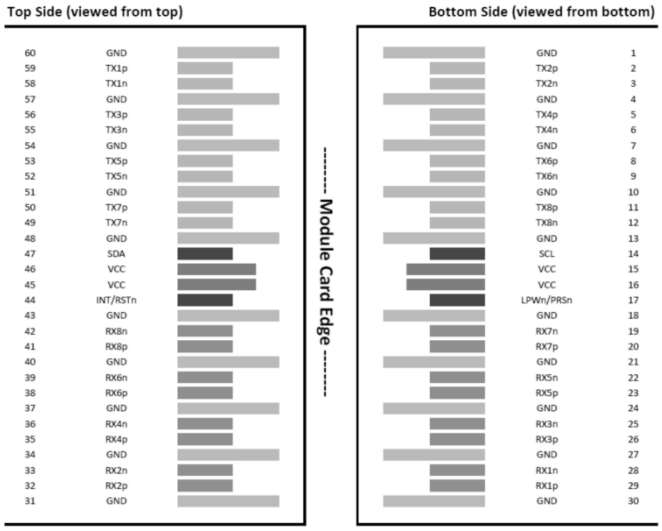
Parameter	Symbol	Min.	Typical	Max.	Unit	Ref.
Operating Case Temperature	T_C	0	-	+70	℃	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Baud Rate (per channel)	BR		53.125		GBd	PAM4
Power dissipation	Pd_{800G}	-	-	16	W	800G end
Power dissipation	Pd_{400G}	-	-	8	W	each 400G end

III. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Signaling rate (each lane)	R_S	53.125 ± 100 ppm			GBd	
Differential data input voltage per lane	$V_{in,pp,diff}$	750	-		mV	
Differential termination mismatch	-	-	-	10	%	
Single-ended voltage tolerance range	-	-0.4	-	3.3	V	
DC common mode voltage	-	-350	-	2850	mV	
Receiver						
Signaling rate (each lane)	R_S	53.125 ± 100 ppm			GBd	
Differential output Voltage (Long mode)	-	-	-	845	mV	
Differential output Voltage (Short mode)	-	-	-	600	mV	
Near-end Eye height, differential	-	70	-	-	mV	
Far-end Eye height, differential	-	30	-	-	mV	
Far end pre-cursor ratio	-	-4.5	-	2.5	dBm	
Differential termination mismatch	-	-	-	10	%	
Transition time (min, 20% to 80%)	-	9.5	-	-	ps	
DC common mode voltage	-	-350	-	2850	mV	

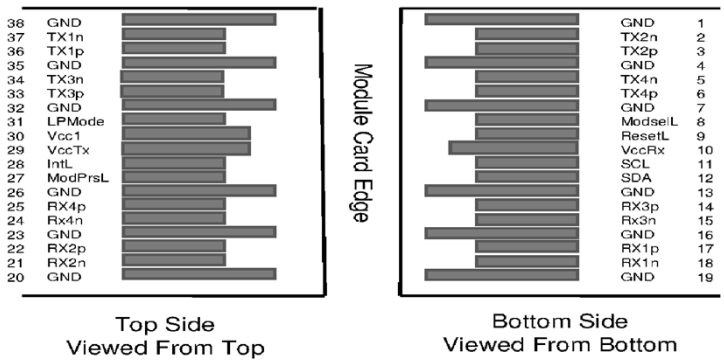
IV. Pin arrangement

Pin Descriptions for OSFP end :



Pin NO.	Logic	Symbol	Definition	Pin NO.	Logic	Symbol	Definition
1	GND		Ground	31	GND		Ground
2	Tx2p	CML-I	Receiver Data Non-Inverted	32	RX2p	CML-O	Receiver Data Non-Inverted
3	Tx2n	CML-I	Receiver Data Inverted	33	RX2n	CML-O	Receiver Data Inverted
4	GND		Ground	34	GND		Ground
5	Tx4p	CML-I	Receiver Data Non-Inverted	35	RX4p	CML-O	Receiver Data Non-Inverted
6	Tx4n	CML-I	Receiver Data Inverted	36	RX4n	CML-O	Receiver Data Inverted
7	GND		Ground	37	GND		Ground
8	Tx6p	CML-I	Receiver Data Non-Inverted	38	RX6p	CML-O	Receiver Data Non-Inverted
9	Tx6n	CML-I	Receiver Data Inverted	39	RX6n	CML-O	Receiver Data Inverted
10	GND		Ground	40	GND		Ground
11	TX8p	CML-I	Receiver Data Non-Inverted	41	RX8p	CML-O	Receiver Data Non-Inverted
12	TX8n	CML-I	Receiver Data Inverted	42	RX8n	CML-O	Receiver Data Inverted
13	GND		Ground	43	GND		Ground
14	SCL	LVCMOS-I/O	2-wire Serial interface clock	44	INT/RSTn	Multi-Level	Module Interrupt / Reset
15	VCC		+3.3V Power	45	VCC		+3.3V Power
16	VCC		+3.3V Power	46	VCC		+3.3V Power
17	LPWn/PRSn	Multi-Level	Low-Power Mode Present	47	SDA	LVCMOS-I/O	2-wire Serial interface data
18	GND		Ground	48	GND		Ground
19	RX7n	CML-O	Receiver Data Inverted	49	TX7n	CML-I	Transmitter Data Inverted
20	RX7p	CML-O	Receiver Data Non-Inverted	50	TX7p	CML-I	Transmitter Data Non-Inverted
21	GND		Ground	51	GND		Ground
22	RX5n	CML-O	Receiver Data Inverted	52	TX5n	CML-I	Transmitter Data Inverted
23	RX5p	CML-O	Receiver Data Non-Inverted	53	TX5p	CML-I	Transmitter Data Non-Inverted
24	GND		Ground	54	GND		Ground
25	RX3n	CML-O	Receiver Data Inverted	55	TX3n	CML-I	Transmitter Data Inverted
26	RX3p	CML-O	Receiver Data Non-Inverted	56	TX3p	CML-I	Transmitter Data Non-Inverted
27	GND		Ground	57	GND		Ground
28	RX1n	CML-O	Receiver Data Inverted	58	TX1n	CML-I	Transmitter Data Inverted
29	RX1p	CML-O	Receiver Data Non-Inverted	59	TX1p	CML-I	Transmitter Data Non-Inverted
30	GND		Ground	60	GND		Ground

Pin Descriptions for QSFP112 end:



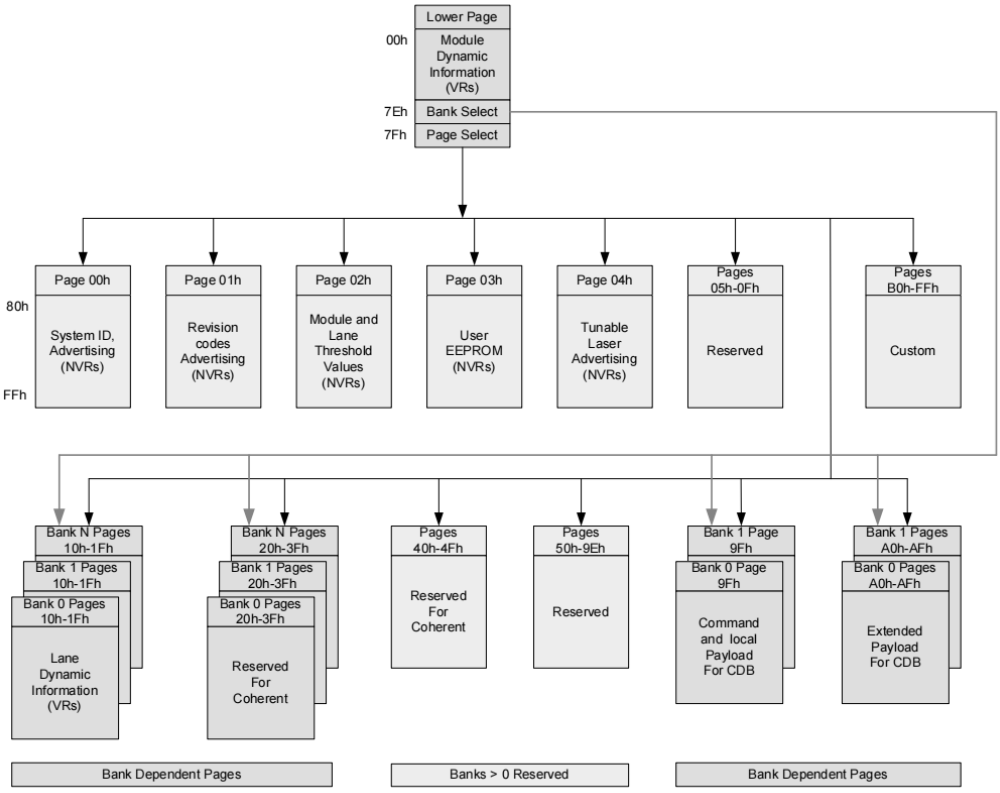
Top Side
Viewed From Top

Bottom Side
Viewed From Bottom

Pin NO.	Symbol	Definition	PinNO.	Symbol	Definition
1	GND	Ground	20	GND	Ground
2	Tx2n	Transmitter Inverted Data Input	21	Rx2n	Receiver Inverted Data Output
3	Tx2p	Transmitter Non-Inverted Data Input	22	Rx2p	Receiver Non-Inverted Data Output
4	GND	Ground	23	GND	Ground
5	Tx4n	Transmitter Inverted Data Input	24	Rx4n	Receiver Inverted Data Output
6	Tx4p	Transmitter Non-Inverted Data Input	25	Rx4p	Receiver Non-Inverted Data Output
7	GND	Ground	26	GND	Ground
8	ModSelL	Module Select	27	ModPrsL	Module Present
9	ResetL	Module Reset	28	IntL	Interrupt
10	Vcc Rx	+3.3V Power Supply Receiver	29	Vcc Tx	+3.3V Power supply transmitter
11	SCL	2-wire serial interface clock	30	Vcc1	+3.3V Power supply
12	SDA	2-wire serial interface data	31	LPMode	Low Power Mode
13	GND	Ground	32	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output	33	Tx3p	Transmitter Non-Inverted Data Input
15	Rx3n	Receiver Inverted Data Output	34	Tx3n	Transmitter Inverted Data Input
16	GND	Ground	35	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output	36	Tx1p	Transmitter Non-Inverted Data Input
18	Rx1n	Receiver Inverted Data Output	37	Tx1n	Transmitter Inverted Data Input
19	GND	Ground	38	GND	Ground

V. Digital Diagnostic Functions

800G OSFP end and 400G QSFP112 end are compatible with CMIS 4.0 and upper;

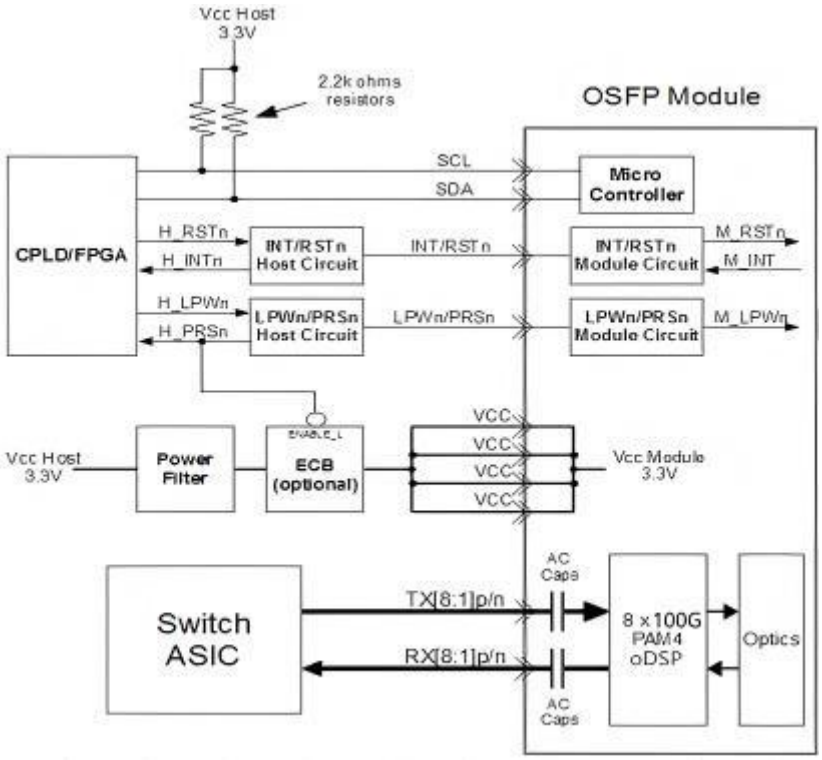


VI. Digital Diagnostic Specification

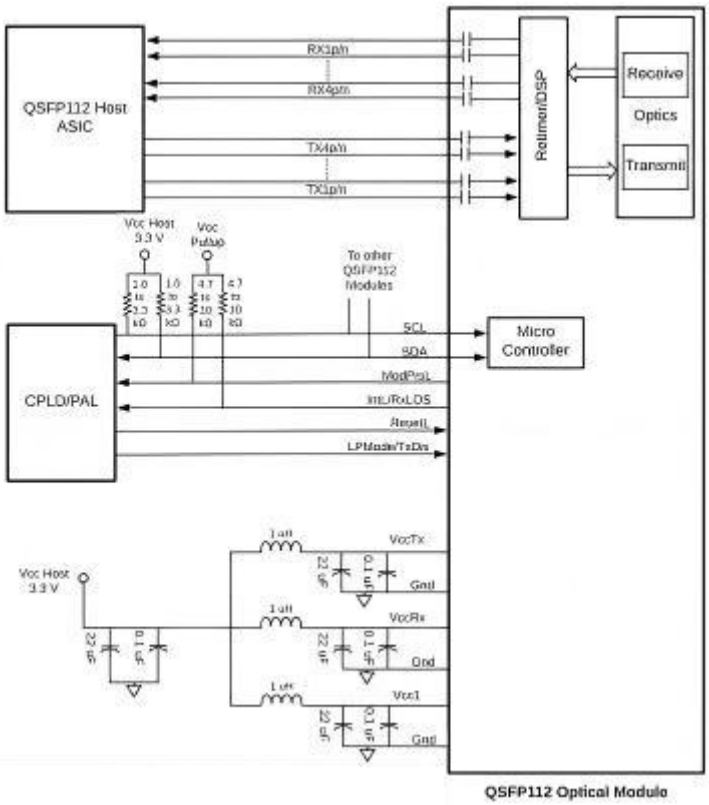
Parameter	Symbol	Unit	Min	Max	Notes
Temperature monitor absolute error	DMI_Temp	℃	-5	5	Over operating temperature range
Supply voltage monitor absolute error	DMI _VCC	V	-0.1	0.1	Over full operating range
Channel Bias current monitor	DMI_Ibias_Ch	mA	-10%	10%	
Channel TX power monitor absolute error	DMI_TX_Ch	dB	-3	3	
Channel RX power monitor absolute error	DMI_RX_Ch	dB	-3	3	

VII. Recommended Interface Circuit

800G OSFP to Host side



400G QSFP112 to Host side :

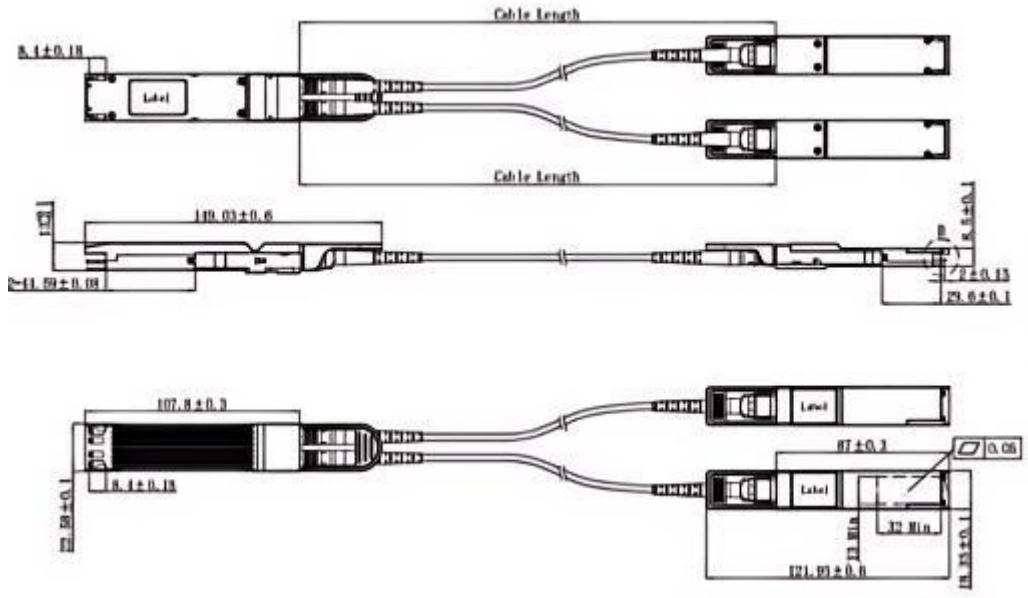


VIII. Branch out Connectivity Schematic

800G OSFP to QSFP112 Branch out Connectivity Schematic:

OSFP End	QSFP112 End A	QSFP112 End B
TX1	RX1	/
RX1	TX1	/
TX2	RX2	/
RX2	TX2	/
TX3	RX3	/
RX3	TX3	/
TX4	RX4	/
RX4	TX4	/
TX5	/	RX1
RX5	/	TX1
TX6	/	RX2
RX6	/	TX2
TX7	/	RX3
RX7	/	TX3
TX8	/	RX4
RX8	/	TX4

IX. Mechanical Specifications



Recommended Cable Length : （ **Branch length can be customized** ）

Total Length LX (Unit: m)	Breakout to QSFPDD LQ (Unit: m)	Breakout to QSFP56 LS(Unit: m)
1	0.3	0.7
2	0.6	1.4
3	1	2
5	2	3
7	4	3
10	7	3
50	47	3

Cable Length tolerance :

Parmeter	Value	Units
Length tolerance	1m≤length≤5m： +15 / -0	cm
	5m＜length≤15m： +30 / -0	cm
	Length＞15m： +2% / -0	m
Cable color	Aqua	