

400G Active Optical Cable (Breakout Cable 2x200G)

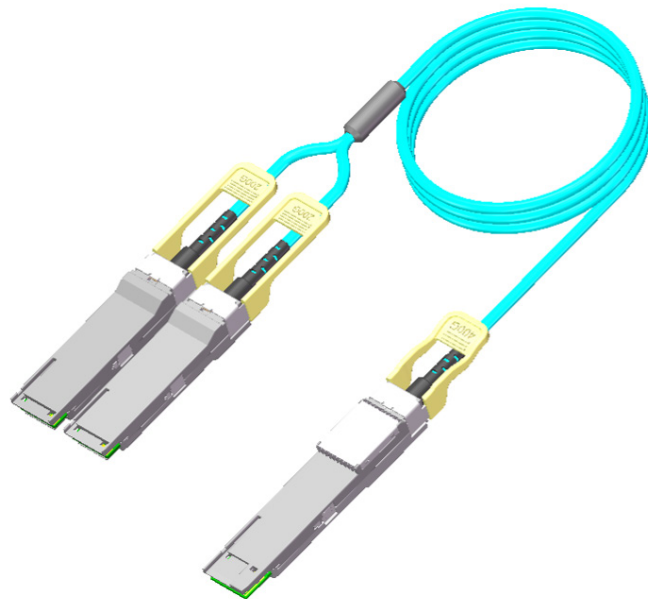
Jabil Photonic 400G Active Optical Cable (Breakout Cable 2x200G) provides optimized solutions for interconnections inside datacenter up to 70m on OM4 fiber. Products are both in QSPF-DD and QSFP56 form factor to satisfy host system requirements. Transmission is based on 850nm VCSEL with electrical driver, while Receiver side is based on PIN photodetector and TIA. Module is equipped with CDR solution to provide channel equalization.

FEATURES

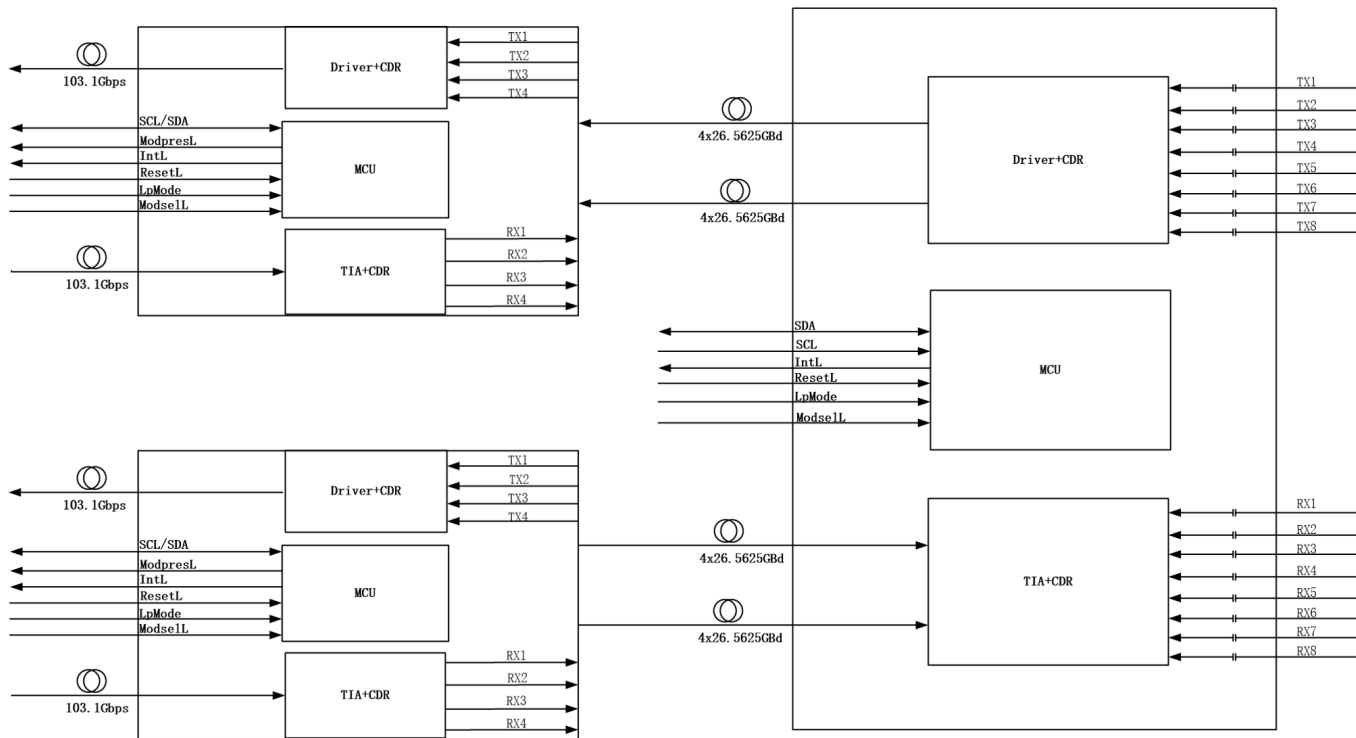
- Hot-plug QSFP56-DD and QSFP56 form factor
- 8X53.125Gb/s PAM4 modulation
- Low power dissipation <9W (400G End)
- Low power dissipation <5W (200G End)
- Maximum link length of 70m on OM3 MMF
- and 100m on OM4 & OM5 MMF
- Commercial case temperature: 0 to 70°C
- Single 3.3V power supply
- CMIS V5.0 compliant

APPLICATIONS

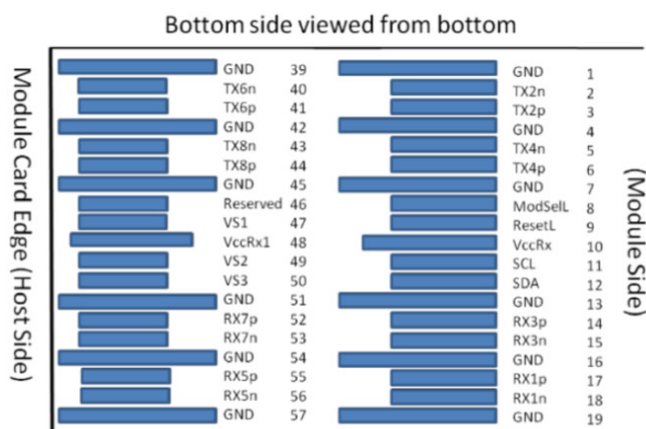
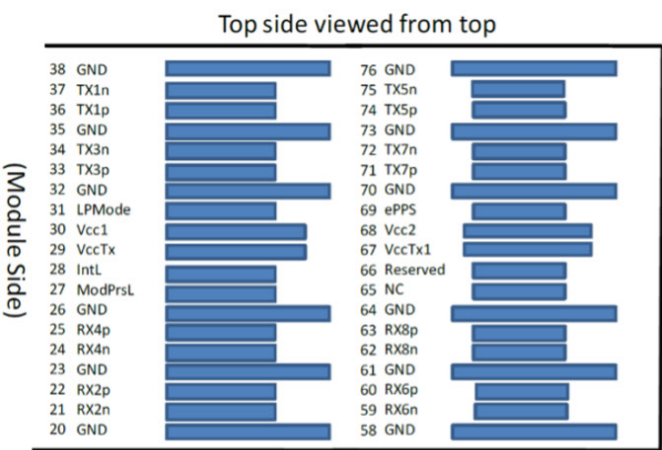
- Data Center Interconnect



PRODUCT ARCHITECTURE



PIN DIAGRAM



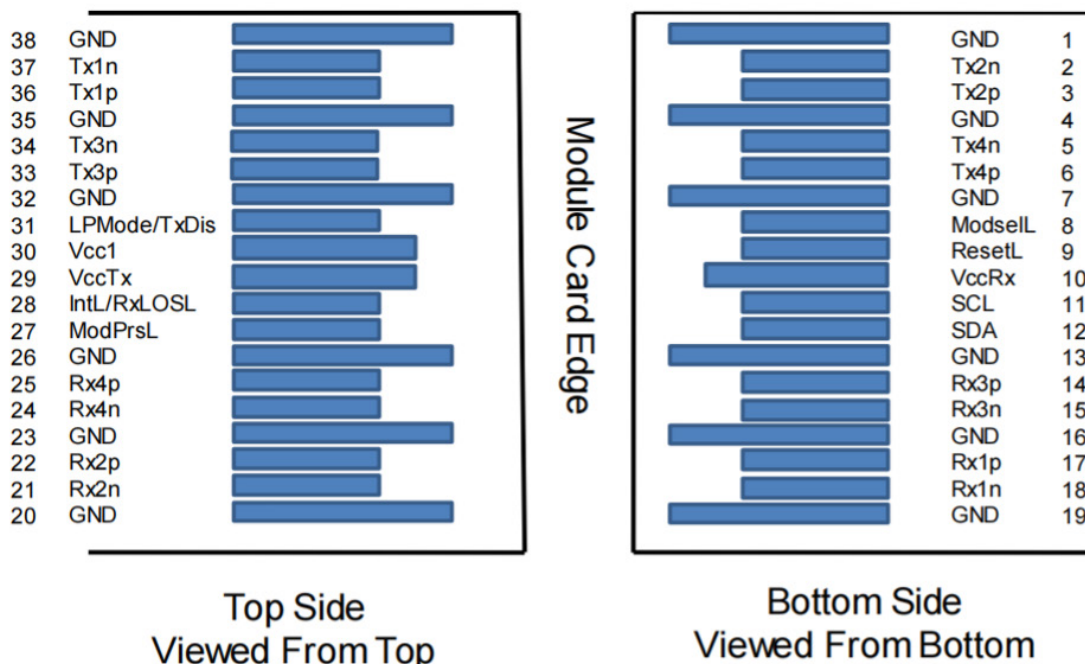
QSFP112 PIN DESCRIPTIONS

	SYMBOL	DESCRIPTION	NOTES
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3 V Power supply transmitter	
30	Vcc1	+3.3 V Power Supply	

	SYMBOL	DESCRIPTION	NOTES
31	LPMoDe	Low Power Mode	
32	GND	Ground	
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	
39	GND	Ground	
40	Tx6n	Transmitter Inverted Data Input	
41	Tx6p	Transmitter Non-Inverted Data Input	
42	GND	Ground	
43	Tx8n	Transmitter Inverted Data Input	
44	Tx8p	Transmitter Non-Inverted Data Input	
45	GND	Ground	
46	Reserved	For future use	
47	VS1	Module Vendor Specific 1	
48	VccRx1	3.3V Power Supply	
49	VS2	Module Vendor Specific 2	
50	VS3	Module Vendor Specific 3	
51	GND	Ground	
52	Rx7p	Receiver Non-Inverted Data Output	
53	Rx7n	Receiver Inverted Data Output	
54	GND	Ground	
55	Rx5p	Receiver Non-Inverted Data Output	
56	Rx5n	Receiver Inverted Data Output	
57	GND	Ground	
58	GND	Ground	
59	Rx6n	Receiver Inverted Data Output	
60	Rx6p	Receiver Non-Inverted Data Output	

	SYMBOL	DESCRIPTION	NOTES
61	GND	Ground	
62	Rx8n	Receiver Inverted Data Output	
63	Rx8p	Receiver Non-Inverted Data Output	
64	GND	Ground	
65	NC	No Connect	
66	Reserved	For future use	
67	VccTx1	3.3V Power Supply	
68	Vcc2	3.3V Power Supply	
69	Reserved	For future use	
70	GND	Ground	
71	Tx7p	Transmitter Non-Inverted Data Input	
72	Tx7n	Transmitter Inverted Data Input	
73	GND	Ground	
74	Tx5p	Transmitter Non-Inverted Data Input	
75	Tx5n	Transmitter Inverted Data Input	
76	GND	Ground	

QSFP56



QSFP56 PIN DESCRIPTIONS

PIN	SYMBOL	DESCRIPTION	NOTES
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3 V Power supply transmitter	

PIN	SYMBOL	DESCRIPTION	NOTES
30	Vcc1	+3.3 V Power Supply	
31	LPMode	Low Power Mode	
32	GND	Ground	
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	

ABSOLUTE MAXIMUM RATINGS

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Storage Temperature	T_s	-40		85	°C	
Storage Ambient Humidity	H_A	0		85	%	
Maximum Supply Voltage	V_{CC}	-0.5		3.6	V	

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Operating Case Temperature	T_{case}	0	25	70	°C	
Supply Voltage	VCC	3.135	3.3	3.465	V	
Relative Humidity	RH	5		85	%	
Data Rate (Electrical)	DRE		8*53.125		Gbps	

ELECTRICAL CHARACTERISTICS

400GBASE AOC Operation (EOL, Tcase= 0 ~70°,VCC= 3.135~3.465 V)

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Power Dissipation	P_d			9	W	
TRANSMITTER						
Data Rate, each lane	DRE		53.125		Gbps	
Differential Voltage pk-pk	VIN	40		900	mV	
Input differential impedance	ZIN		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
RECEIVER						
Data Rate, each lane	DRE		53.125		Gbps	
Output differential impedance	Z_{OUT}		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
Differential output voltage	V_{OUT}			900	mV	

200GBASE AOC Operation (EOL, TOP = 0 ~70°,VCC = 3.135 to 3.465 V)

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Power Dissipation	P_d			5	W	
TRANSMITTER						
Data Rate, each lane	DRE		53.125		Gbps	
Differential Voltage pk-pk	VIN	40		900	mV	
Input differential impedance	ZIN		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
RECEIVER						
Data Rate, each lane	DRE		53.125		Gbps	
Output differential impedance	Z_{OUT}		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
Differential output voltage	V_{OUT}			900	mV	

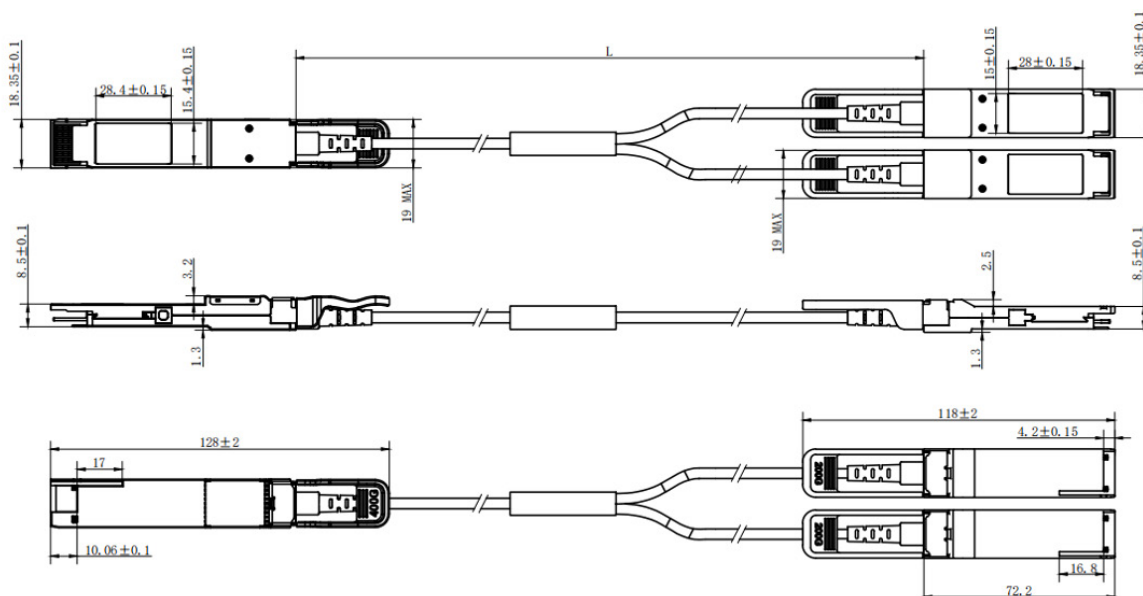
ORDERING INFORMATION

JABIL PART NUMBER	PACKAGE	REACH	OTHER INFO
QD8HXXACC0002QF	400G QSFP-DD to 2*200G QSFP 56 BREAKOUT	Xx= fiber length	C-temp AOC

Note: additional cable lengths can be provided on request.

For additional information, visit jabil.com

AOC MECHANICAL SPECIFICATIONS



REGULATORY COMPLIANCE

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

FEATURE	REFERENCE STANDARDS	PERFORMANCE
ESD-HBM	JESD22-A114-B	1KV high speed Pins, 2KV other Pins
ESD-Air Discharge	IEC 61000-4-2	+/-15KV
ESD-Contact Discharge	IEC 61000-4-2	+/-8KV
EMC-RE	FCC Part 15 Class B	
EMC-RS	IEC 61000 4-3	
ROHS 2.0	2011/65/EU	

For additional information, visit jabil.com

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