



200Gb/s QSFP56 Active Optical Cable

APCO20-PPCxxx



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Product Features

- ✓ Supports IBTA InfiniBand HDR
- ✓ Up to 200Gb/s data rate
- ✓ 4x50Gb/s PAM4 modulation
- ✓ SFF-8665 compliant QSFP56 port
- ✓ SFF-8636 compliant I2C management
- ✓ Single 3.3V power supply
- ✓ 4.5W power dissipation each end, with retiming
- ✓ Operating case temp Commercial: 0°C to +70 °C
- ✓ Hot pluggable
- ✓ RoHS compliant

Applications

- ✓ 200Gb/s InfiniBand HDR systems
- ✓ Other optical links

Product Selection

Part Number	Lengths
APCO20-PPC010	1m
APCO20-PPC020	2m
APCO20-PPC030	3m
APCO20-PPC050	5m
APCO20-PPC070	7m
APCO20-PPC100	10m
APCO20-PPC150	15m
APCO20-PPC200	20m
APCO20-PPC250	25m
APCO20-PPC300	30m
APCO20-PPC400	40m

APCO20-PPC500	50m
APCO20-PPCA00	100m

*For availability of additional cable lengths, please contact ATOP.

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	Vcc3	-0.5		+3.6	V	
Storage Temperature	Ts	-5		+75	°C	
Operating Humidity	RH	+5		+ 85	%	1

Notes: 1. Non-condensing.

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Power Supply Voltage	Vcc	3.14	3.30	3.47	V	
Operating Case Temperature	Tc	0	-	+70	°C	
Power Dissipation	Pd			4.5	W	1

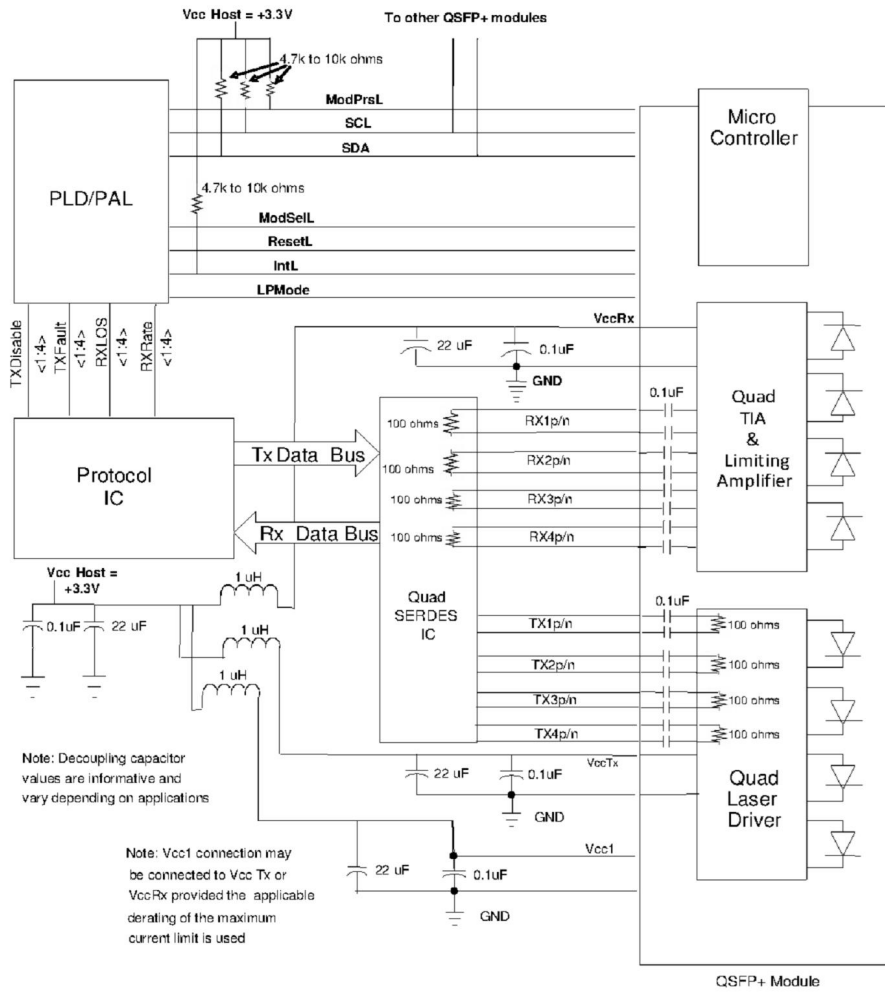
Notes: 1. Per terminal.

Electrical Characteristics

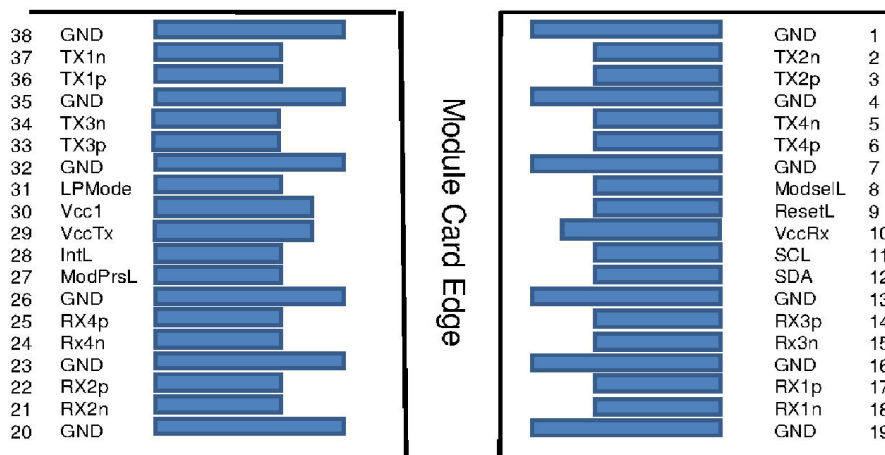
Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Signaling tare(each lane)	SR		26.5625±100ppm		GBd	
Differential data input voltage per lane	Vin,pp,diff	900			mV	
Differential termination mismatch				10	%	
Single-ended voltage tolerance range		-0.4		3.3	V	
DC common mode voltag		-350		2850	mV	
Receiver						
Signaling tare(each lane)	SR		26.5625±100ppm		GBd	
Differential output voltage				900	mV	
Differential termination mismatch				10	%	
Transition time(min,20% to 80%)		9.5			ps	
DC common mode voltag		-350		2850	mV	
Error Bit Rate	BER			2.4E-4		1

Note: 1. PRBS31Q@26.5625Gbd PAM4.

Recommended Interface Circuit



Pin arrangement



Top Side
Viewed From Top

Bottom Side
Viewed From Bottom

Pin-out of Connector Block on Host Board

Pin Descriptions

Pin	Symbol	Name	Ref.
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	1
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	1
9	ResetL	Module Reset	
10	VccRx	+ 3.3V Power Supply Receiver	
11	SCL	2-Wire Serial Interface Clock	
12	SDA	2-Wire Serial Interface Data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3 V Power Supply transmitter	
30	Vcc1	+3.3 V Power Supply	
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

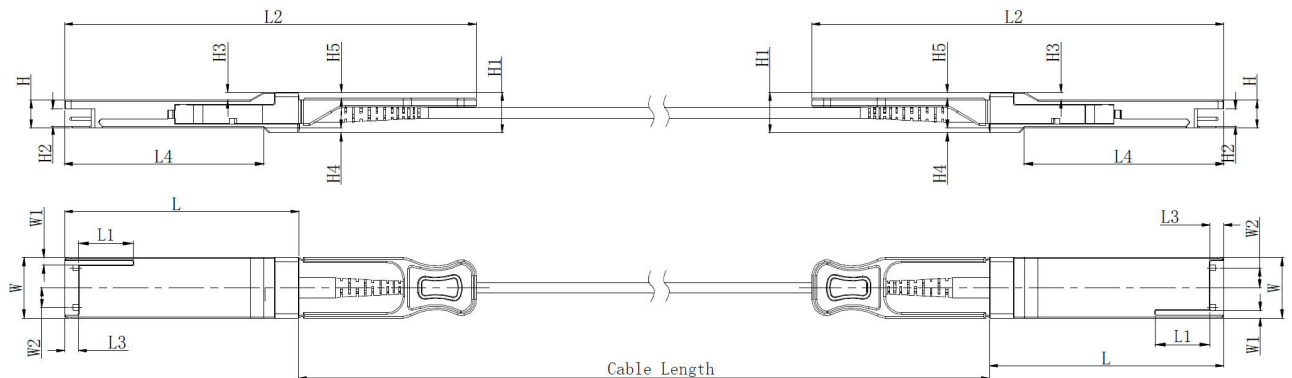
Notes: 1. Circuit ground is internally isolated from chassis ground.

Monitoring Specification

2-Wire Serial Address 1010000x	
Lower Page 00h	
0	Identifier
1- 2	Status
3- 21	Interrupt Flags
22- 33	Free Side Device Monitors
34- 81	Channel Monitors
82- 85	Reserved
86- 98	Control
99	Reserved
100-104	Hardware Interrupt Pin Masks
105-106	Vendor Specific
107	Reserved
108-110	Free Side Device Properties
111-112	Assigned for use by PCI Express
113	Free Side Device Properties
114-118	Reserved
119-122	Password Change Entry Area (Optional)
123-126	Password Entry Area (Optional)
127	Page Select Byte

Upper Page 00h	Optional Page 01h	Optional Page 02h	Optional Page 03h
128 Identifier	128 CC_APPS	128-255 User EEPROM Data	128-175 Free Side Device Thresholds
129-191 Base ID Fields	129 AST Table Length (TL)		
	130-131 Application Code Entry 0		
	132-133 Application Code Entry 1		
	134-253 other entries		
192-223 Extended ID		176-223 Channel Thresholds	
224-255 Vendor Specific ID		224 Tx EQ & Rx Emphasis Magnitude ID	
		225 RX output amplitude indicators	
		226-241 Channel Controls	
		242-251 Channel Monitor Masks	
	254-255 Application Code Entry TL	252-255 Reserved	

Mechanical



	L	L1	L2	L3	L4	W	W1	W2	H	H1	H2	H3	H4	H5
Max	72.2	-	128	4.35	61.4	18.45	-	6.2	8.6	12.4	5.35	2.5	1.6	2.0
Type	72.0	-	-	4.20	61.2	18.35	-	-	8.5	12.2	5.2	2.3	1.5	1.8
Min	68.8	16.5	124	4.05	61.0	18.25	2.2	5.8	8.4	12.0	5.05	2.1	1.3	1.6

Cable Length

Parameter	Value	Units
Diameter	3±0.2	mm
Minimum bend radius	30	mm
Length tolerance	1 m ≤length ≤ 4.5 m: +15 / -0	cm
	5 m ≤length ≤ 14.5 m: +30 / -0	cm
	Length ≥15.0 m: +2% / -0	m
Cable color	Aqua	

Revision History

Revision	Initiated	Reviewed	Approved	DCN	Release Date
V1.0	Chenjia	Qiu Shaofeng	Ding ,zheng	New Released.	Mar. 09, 2021



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