

Rev	Date	Modified by	Description
A0	2023		

## Product Specifications

### 56G QSFP-2xDSFP Direct Attach Cable (DAC)

**PN: EQDP5X-32DCNxx**

#### Features

- Compliant with SFF- 8436, SFF-8431, SFF-8432 and SFF-8472
- Up to 14.3125Gbps data rate per channel
- Up to 7 m transmission
- 3.3V Power supply
- Lowest total system EMI solution
- 24AWG through 30AWG cable
- Temperature Range: 0~ 70 °C
- RoHs Compliant
- Cost-effective copper solution
- Lowest total system power solution

#### Applications

- Switches, servers and routers
- Data Center networks
- Storage area networks
- High performance computing
- Telecommunication and wireless infrastructure
- Medical diagnostics and networking
- Test and measurement equipment

#### Industry Standards

- 56G InfiniBand FDR

## Description

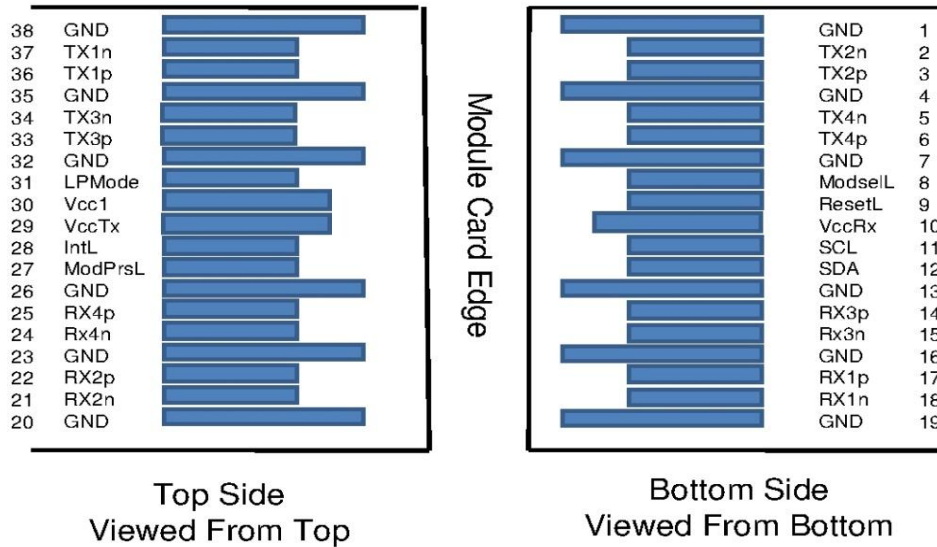
The QSFP\_2xDSFP Direct Attach Cables are compliant with the SFF-8436 specifications. SFP+ Direct Attach Cables are compliant with the SFF-8431, SFF-8432 and SFF-8472 specifications. Various choices of wire gauge are available from 30 to 24 AWG with various choices of cable length (up to 7m).

## Pin Descriptions

### QSFP Pin Function Definition

Pin	Logic	Symbol	Description
1		GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input
4		GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input
7		GND	Ground
8	LVTTL-I	ModSelL	Module Select
9	LVTTL-I	ResetL	Module Reset
10		Vcc Rx	+3.3V Power Supply Receiver
11	LVC MOS- I/O	SCL	2-wire serial interface clock
12	LVC MOS- I/O	SDA	2-wire serial interface data
13		GND	Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output
16		GND	Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Ground
20		GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23		GND	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26		GND	Ground
27	LVTTL-O	ModPrsL	Module Present
28	LVTTL-O	IntL	Interrupt
29		Vcc Tx	+3.3V Power supply transmitter
30		Vcc1	+3.3V Power supply
31	LVTTL-I	LPMODE	Low Power Mode
32		GND	Ground

33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Input
35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Input
38		GND	Ground

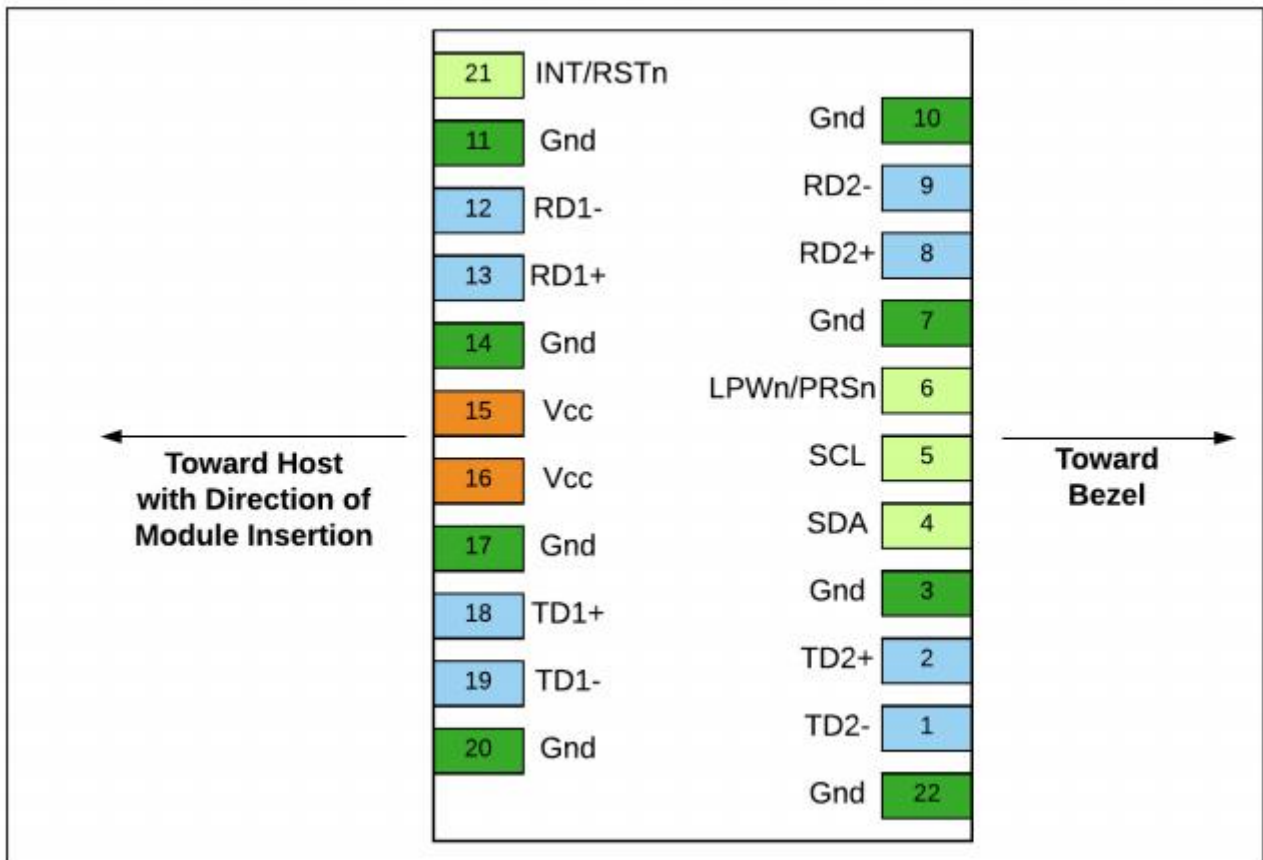


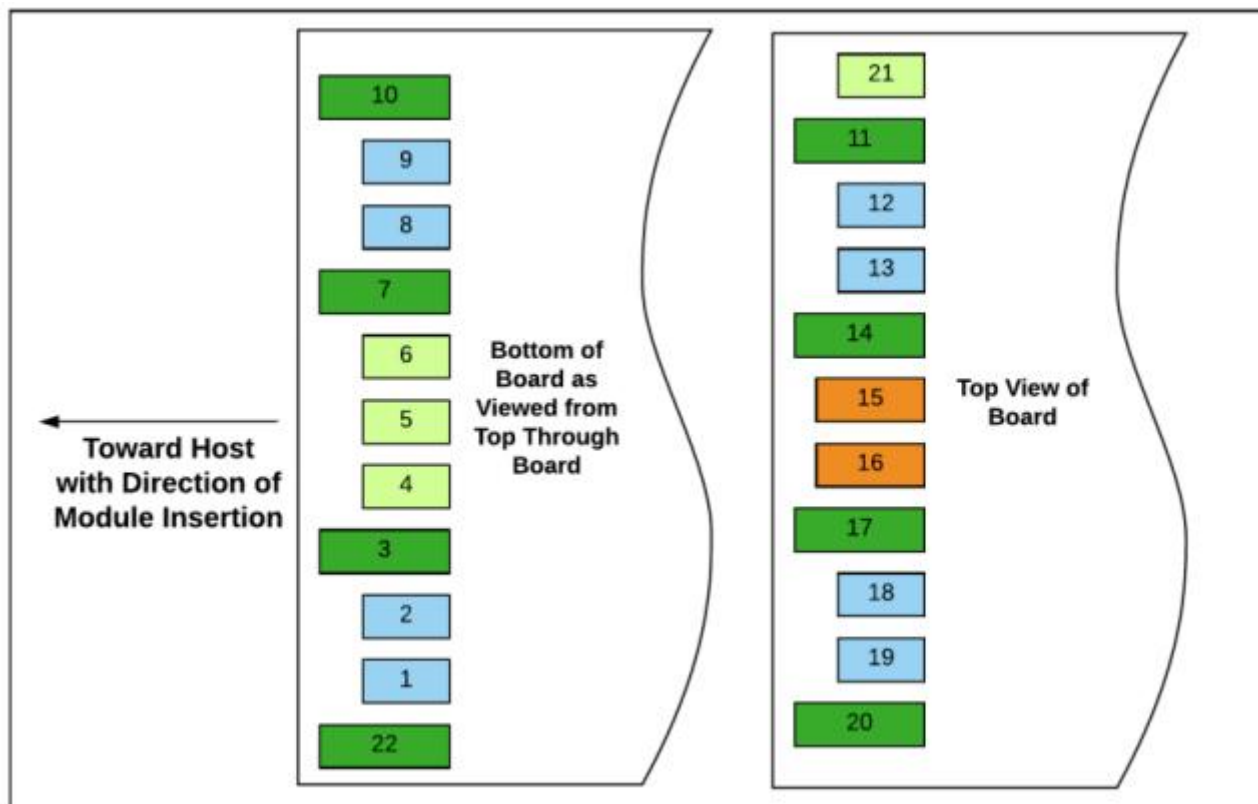
DSFP Pin Function Definition

Pin	Logic	Symbol	Name/Description	Notes
1	CML-I	TD2-	Transmitter Inverted Data Input Lane 2	
2	CML-I	TD2+	Transmitter Non-Inverted Data Input Lane 2	
3		GND	Module Ground	5
4	LVTTL-I/O	SDA	2-wire Serial Interface Data Line	3
5	LVTTL-I/O	SCL	2-wire Serial Interface Clock	3
6	Multilevel-I/O	LPWn/PRSn	Low Power Mode/ Module Present (Mod_Abs)	
7		GND	Module Ground	5
8	CML-O	RD2+	Receiver Non-Inverted Data Output Lane 2	
9	CML-O	RD2-	Receiver Inverted Data Output Lane 2	
10		GND	Module Ground	5
11		GND	Module Ground	5
12	CML-O	RD1-	Receiver Inverted Data Output Lane 1	4
13	CML-O	RD1+	Receiver Non-Inverted Data Output Lane 1	4
14		GND	Module Ground	5
15		Vcc	Module 3.3 V Supply	
16		Vcc	Module 3.3 V Supply	
17		GND	Module Ground	5
18	CML-I	TD1+	Transmitter Non-Inverted Data Input Lane 1	4

19	CML-I	TD1-	Transmitter Inverted Data Input Lane 1	4
20		GND	Module Ground	5
21	Multilevel-I/O	INT/ RSTn	Dual Function Module Interrupt and Reset Pin	
22		GND	Module Ground	5

1. Labeling as inputs (I) and outputs (O) are from the perspective of the module.
2. The case makes electrical contact to the cage before any of the board edge contacts are made.
3. See 4.4 the 2-wire specifications.
4. Backward compatible with SFF-8431 SFI interface.
5. The module ground contacts GND recommended to be isolated from the module case by offering flexibility in the host EMI control strategy.





## General Product Characteristics

QSFP_2XDSFP DAC Specifications	
Number of Lanes	Tx4 & Rx4(QSFP) Tx2 & Rx2(DSFP)
Channel Data Rate	14.3125Gbps
Operating Temperature	0 to + 70°C
Storage Temperature	-40 to + 85°C
Supply Voltage	3.3 V nominal
Electrical Interface	38pins edge connector(QSFP) 22pins edge connector(DSFP)
Management Interface	Serial, I <sup>2</sup> C

## High Speed Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-17.04			dB	At 5.15625 GHz

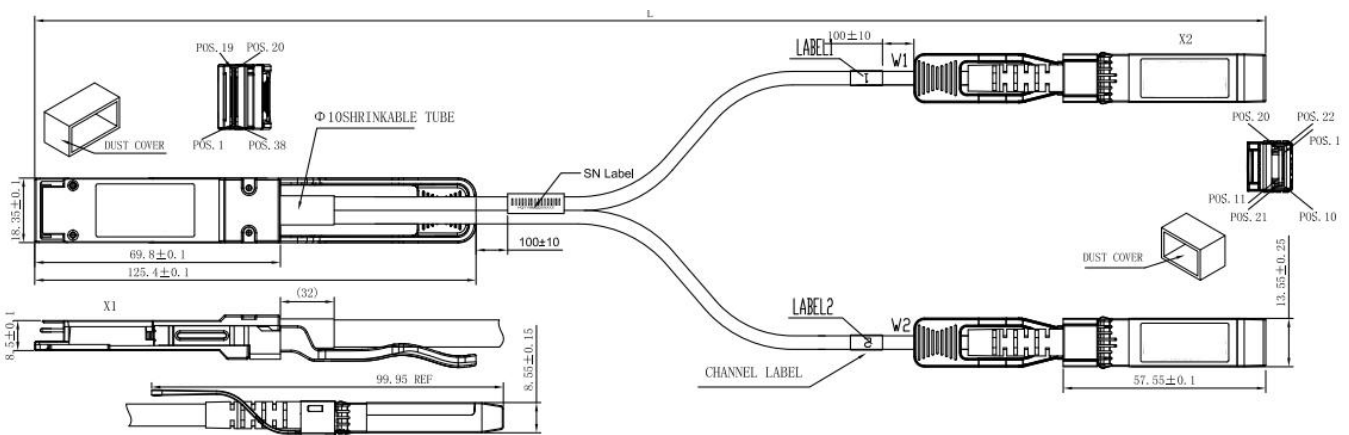
Differential Return Loss	SDD11		See 1	dB	At 0.05 to 4.1 GHz
	SDD22		See 2	dB	At 4.1 to 11.1 GHz
Differential to common-mode return loss	SCD11 SCD22		-10	dB	At 0.2 to 11.1 GHz
Common-mode to common-mode output return loss	SCC11 SCC22	-3		dB	At 0.01 to 11.1 GHz

Notes:

1. Reflection Coefficient given by equation  $SDD11(dB) < -12 + 2 \times \text{SQRT}(f)$ , with f in GHz
2. Reflection Coefficient given by equation  $SDD11(dB) < -6.3 + 13 \times \log_{10}(f/5.5)$ , with f in GHz

## Mechanical Specifications

The connector is compatible with the SFF8436 and SFF-8431 specification.



Length (m)	Cable AWG
1	30
2	30/26
3	30/26
4	26
5	26/24
6	24
7	24

## Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1(>2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity(RFI)	IEC61000-4-3	Typically Show no Measurable Effect from a 10V/m Field Swept from 80 to 1000MHz
RoHS Compliance	RoHS Directive 2011/65/EU and it's Amendment Directives ( EU ) 2015/863	RoHS ( EU ) 2015/863 compliant
REACH Compliance	REACH Regulation (EC) No 1907/2006	REACH (EC) No 1907/2006 compliant

Company: ETU-Link Technology Co., LTD

Address: Right side of 3rd floor, No. 102 building, Longguan expressway, Dalang street, Longhua District, Shenzhen city, Guangdong Province, China 518109

Tel: +86-755 2328 4603

Addresses and phone number also have been listed at [www.etulinktechnology.com](http://www.etulinktechnology.com).

Please e-mail us at [sales@etulinktechnology.com](mailto:sales@etulinktechnology.com) or call us for assistance.