40G QSFP+ to 1×10G SFP+ Direct Attach Cable
TSQSS-PC10G-xxM

General Description

QSFP+ 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. Cable Twinax to 40G QSFP+ to 1x10G SFP+ Ethernet 40GBASE. Various choices of wire gauge are available from 30 to 24 AWG with various choices of cable length (up to 7m).

Features

- Up to 10.3125Gbps data rate per channel
- Up to 7m transmission
- Hot-pluggable QSFP+ 38 PIN footprint
- Compatible to SFF-8436
- Single 3.3V power supply
- Temperature Range: 0 °C to 70 °C
- RoHS compliant

Applications

- Low EMI radiation 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

QSFP+ Pin Definition

Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	NC
3	Tx2p	NC
4	GND	Ground
5	Tx4n	NC

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6	Tx4p	NC
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	NC
15	Rx3n	NC
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	NC
22	Rx2p	NC
23	GND	Ground
24	Rx4n	NC
25	Rx4p	NC
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	NC
34	Tx3n	NC
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

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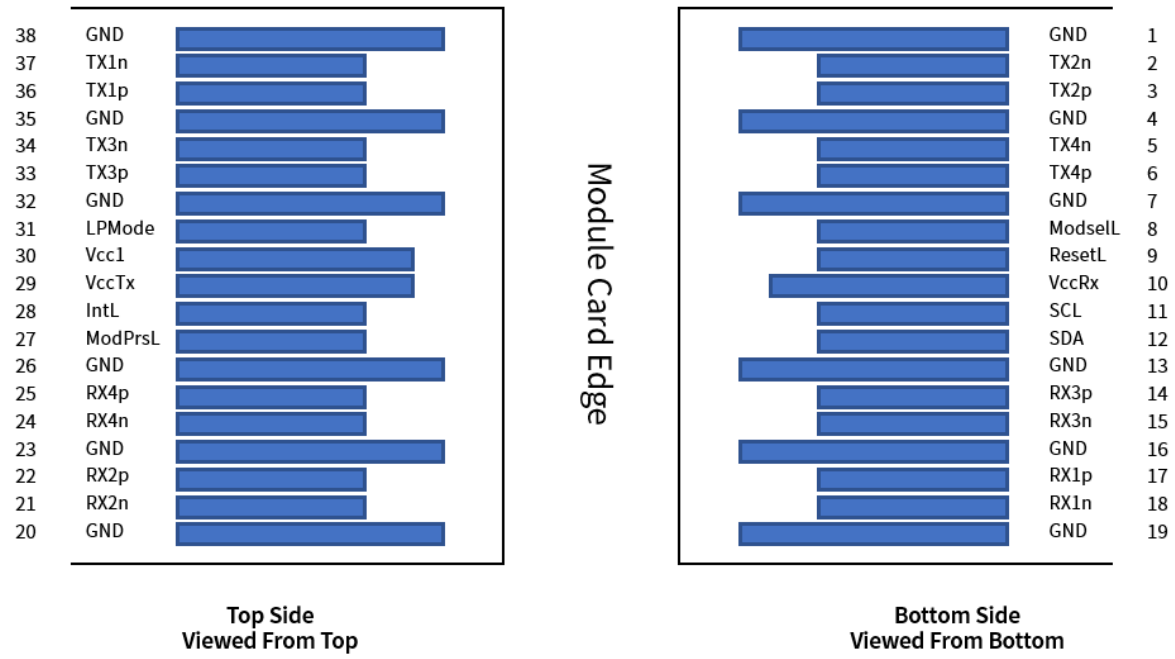
Pin Descriptions



Top Side
Viewed From Top

Bottom Side
Viewed From Bottom

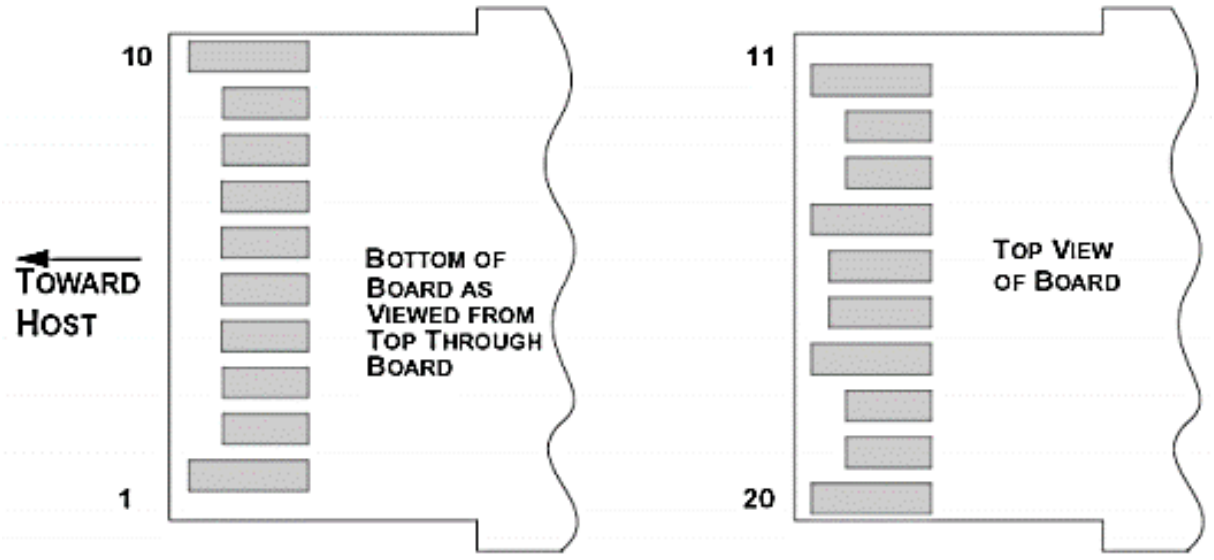
SFP+ Pin Definition

Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Not used
3	Tx_DIS [3]	Not used
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0 [5]	Not used
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	Not used
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply

17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2..should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15Vand 3.6V.
3.Tx_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VccT inside the module.
4.Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull this contact up to Vcc_Host with a resistor in the range 4.7 kΩ to10 kΩ.Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
5.RS0 and RS1 are module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.



General Product Characteristics

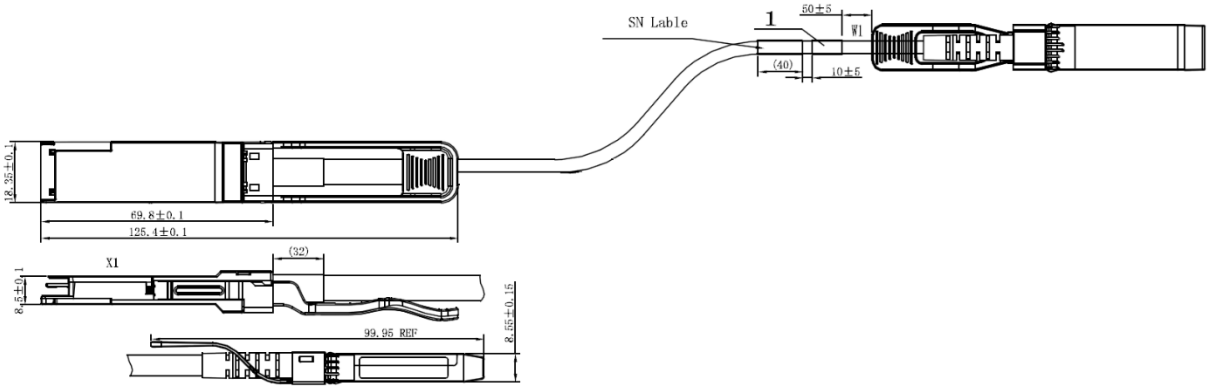
QSFP+ TO 1xSFP+ DAC Specifications	
Number of Lanes	Tx & Rx
Channel Data Rate	10.3125 Gbps
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Supply Voltage	3.3 V nominal
Electrical Interface	38 pins edge connector (QSFP+)
	20 pins edge connector (SFP+)
Management Interface	Serial, I2C

High Speed Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes
Differential Impedance	Zd	90	100	110	Ω	-
Differential Input Return Loss	SDDXX	<-12+2* SQRT (f) with f in GHz			dB	0.01~4.1GHz
		<-6.3+13*$\log_{10} f/5.5$ with f in GHz			dB	4.1~11.1GHz
Common Mode Output Return Loss	SCCXX	< -7+1.6*f with f in GHz			dB	0.01~2.5GHz
		-	-	-3	dB	2.5~11.1GHz
Difference Waveform Distortion	dWDPc	-	-	6.75	dB	-
VMA Loss	L	-	-	4.4	dB	-
VMA Loss to Crosstalk Ratio	VCR	32.5	-	-	dB	-

Mechanical Dimensions

The connector is compatible with the SFF-8436 to SFF-8432 specification.



Length (m)	Cable AWG
1	30
3	30
5	26
7	26

Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the	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	

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RF Immunity(RFI)	IEC61000-4-3	Typically show no measurable
RoHS Compliance	RoHS Directive 2011/65/EU and it's	RoHS 6/6 compliant