® **ETU-LINK**
Optical Communication System

QSFP+

EQDP4X-34SCNxx

QSFP+ to 4 SFP+ Copper Cable Assembly

QSFP to 4x SFP+ Splitter Cable offers IT professionals a cost-effective interconnect solution for merging 40G QSFP and 10G SFP+ enabled host adapters, switches and servers.

For typical applications, users can install this splitter cable between an available QSFP port on their 40Gigabit/s rated switch and feed up to four upstream 10GbE-SFP+ enabled switches. Each QSFP-SFP+ splitter cable features a single QSFP connector (SFF-8436) rated for 40-Gb/s on one end and (4) SFP+ connectors (SFF-8431), each rated for 10-Gb/s, on the other.

QSFP to 4 SFP+ Splitter Cables designs and sources every subassembly in-house guaranteeing complete control over product performance, quality and consistency. Examples include our widely respected board-as-connector platform which is direct-welded to the wire and encased in a robust Zinc-Nickel back shell for superior crosstalk and EMI performance.

Applications

- ➢ InfiniBand SDR, DDR
- ➢ Ethernet 1G, 10G
- ➢ FibreChannel
- ➢ Rack-to-Rack, Shelf-to-Shelf Interconnect
- ➢ Networking
- ➢ Storage
- ➢ Hubs, switches, routers, servers

Overview

QSFP+ (Quad Small Form-factor Pluggable Plus) copper direct-attach cables are suitable for very short distances and offer a highly cost-effective way to establish a 40-Gigabit link between QSFP+ ports of QSFP+ switches within racks and across adjacent racks. These cables are used for 40GbE and Infniband standards, to maximize performance. QSFP+ are designed to meet emerging data center and high performance computing application needs for a high density cabling interconnect system capable of delivering an aggregate data bandwidth of

40Gb/s. This interconnect system is fully compliant with existing industry standard specifications such as the QSFP MSA and IBTA (InfiniBand Trade Association). The QSFP+ cables support the bandwidth transmission requirements as defined by IEEE 802.3ba (40 GB/s) and Infiniband QDR (4 x 10 GB/s per channel) specifications.

Specifications

➢ Connector A: (1) QSFP 40.0 Gbps Rated Connector (SFF-8436 Compliant)
➢ Connector B: (4) SFP+ 10.0 Gbps Rated Connectors (SFF-8431 Compliant)
➢ Economically Links up a QSFP port with an Upstream 10GbE-SFP+ Switch
➢ Protocol agnostic support of 40GbE, QDR InfiniBand, SAS & Fiber Channel
➢ Up to 10.3125 Gbps transfer rate per SFP+ channel (40 Gbps aggregate)
➢ Robust Zinc die-cast SFP+ & QSFP connectors with pull-to-release latching
➢ Bridge the gap between your 10G and 40G capable switches/host adapters
➢ Low cross-talk and pair-to-pair skew maintains signal integrity
➢ Fully compliant to the latest SFP+ & QSFP MSA (Multi-Source-Agreement)
➢ Supports all current 10-Gigabit Ethernet and 40-Gigabit Ethernet standards
➢ Designated form factor and electrical compliance for QDR InfiniBand
➢ The perfect direct attached storage splitter cable for Fiber Channel & SAS
➢ Enjoy a reduced power budget and lower port cost compared to optical
➢ Fully RoHS compliant for environmental protection

Absolute Maximum Ratings

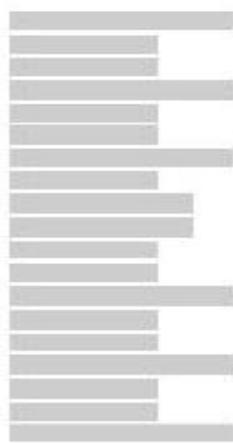| Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	Tst	-40	125	degC	
Relative Humidity (non-condensation)	RS	-	85	%	
Operating Case Temperature	Topc	-5	75	degC	1
Supply Voltage	VCC3	-0.3	3.6	V	
Voltage on LVTTL Input	Vi_{LVTTL}	-0.3	VCC3 +0.2	V	

NOTE

Stress or condition sexceedthe above range may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those listed in the operational sections of this specification is not applied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature	Topc	-5	75	degC
Relative Humidity (non-condensation)	RS	-	85	%
Supply Voltage	VCC3	3.135	3.465	V
Power Supply Current	ICC3	750	-	mA
Total Power Consumption	Pd	-	2.0	W

Pin Assignments and Descriptions

38 GND		GND 1
37 TX1n		TX2n 2
36 TX1p		TX2p 3
35 GND		GND 4
34 TX3n		TX4n 5
33 TX3p		TX4p 6
32 GND	Card Edge	GND 7
31 LPMode		ModSelL 8
30 Vcc1		ResetL 9
29 VccTx		VccRx 10
28 IntL		SCL 11
27 ModPrsL		SDA 12
26 GND		GND 13
25 RX4p		RX3p 14
24 RX4n		RX3n 15
23 GND		GND 16
22 RX2p		RX1p 17
21 RX2n		RX1n 18
20 GND		GND 19

Top Side
Viewed from Top

Bottom Side
Viewed from Bottom

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1

5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		Vcc Rx	+ 3.3V Power Supply Receiver	2
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CMLO	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CMLO	Rx1p	Receiver Non-Inverted Data Output	
18	CMLO	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CMLO	Rx2n	Receiver Inverted Data Output	
22	CMLO	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CMLO	Rx4n	Receiver Inverted Data Output	1
25	CMLO	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTLO	ModPrsL	Module Present	
28	LVTTLO	IntL	Interrupt	
29		Vcc Tx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTLI	LPMode	Low Power Mode	
32		GND	Ground	1
33	CMLI	Tx3p	Transmitter Non-Inverted Data Input	
34	CMLI	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CMLI	Tx1p	Transmitter Non-Inverted Data Input	
37	CMLI	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

1. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential otherwise noted. Connect these directly to the host board signal common ground plane.

2. Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.
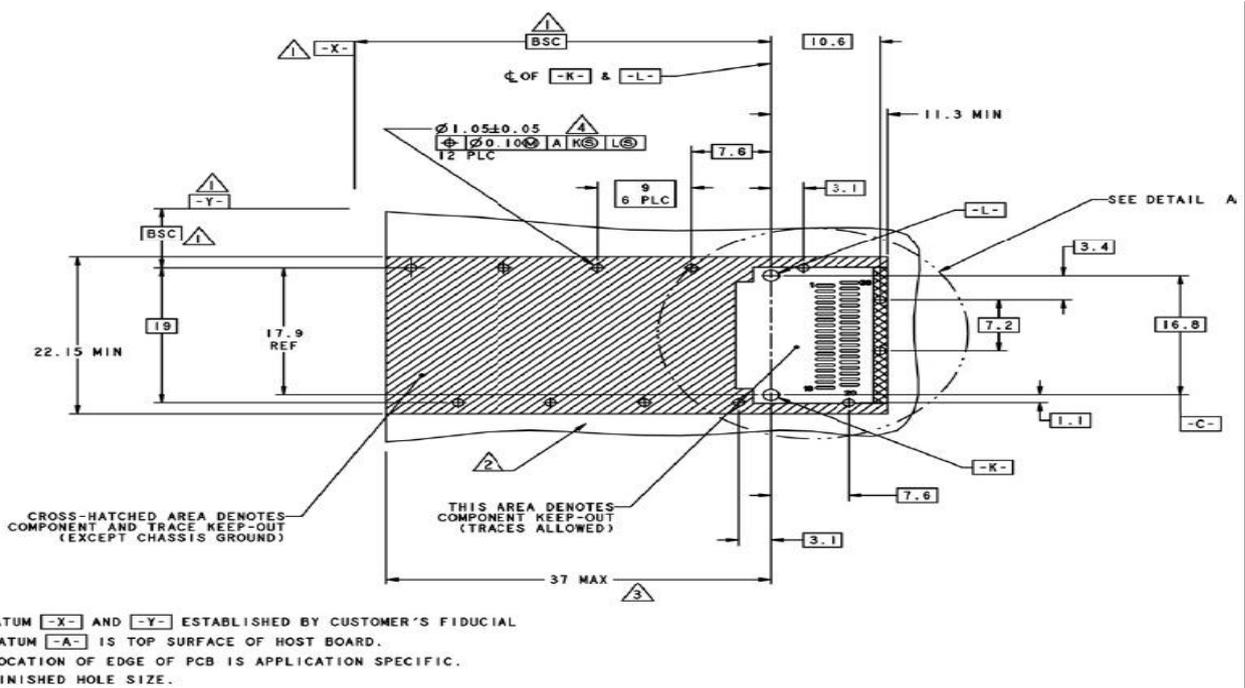
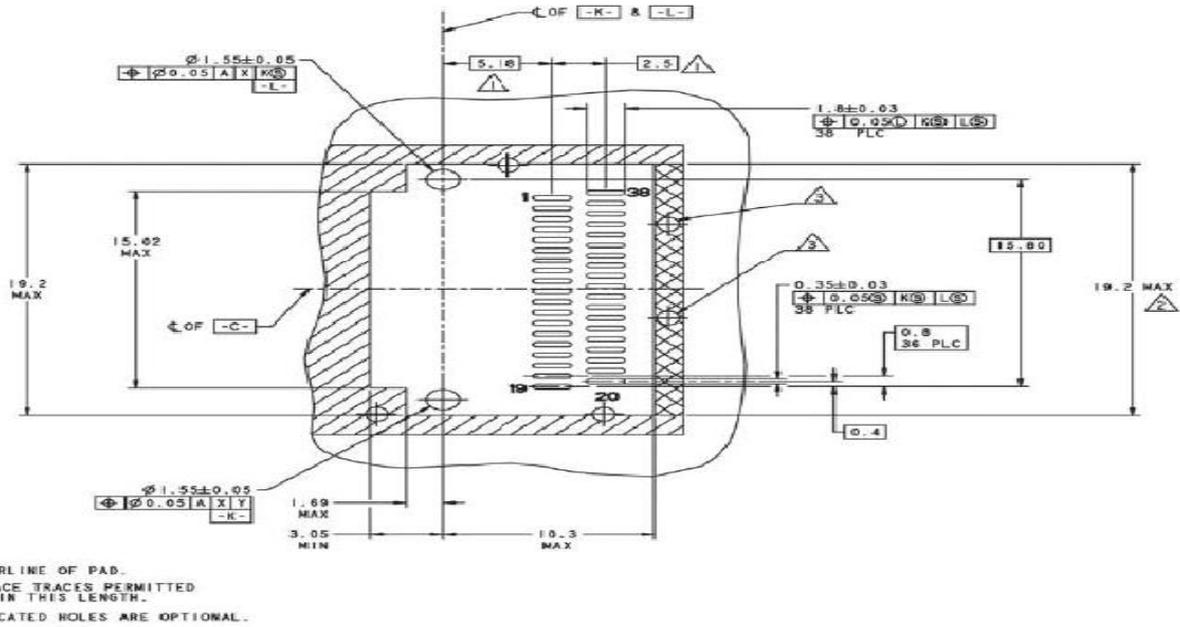## Recommended power supply filtering Example of QSFP Host board schematics.
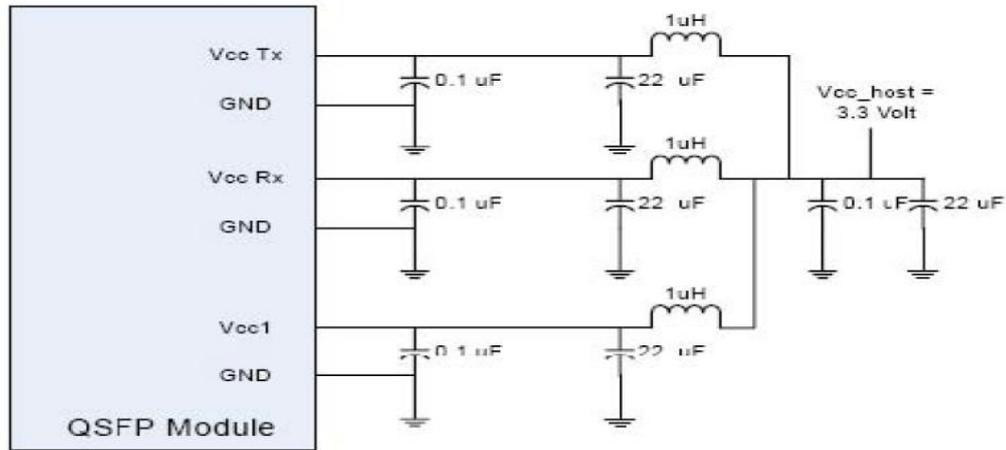
A typical host board mechanical layout for attaching the QSFP transceiver is presented below. The recommended host electrical connector should be a 38-pin IPASS right angle connector assembly and the cage assembly should be QSFP single cage.
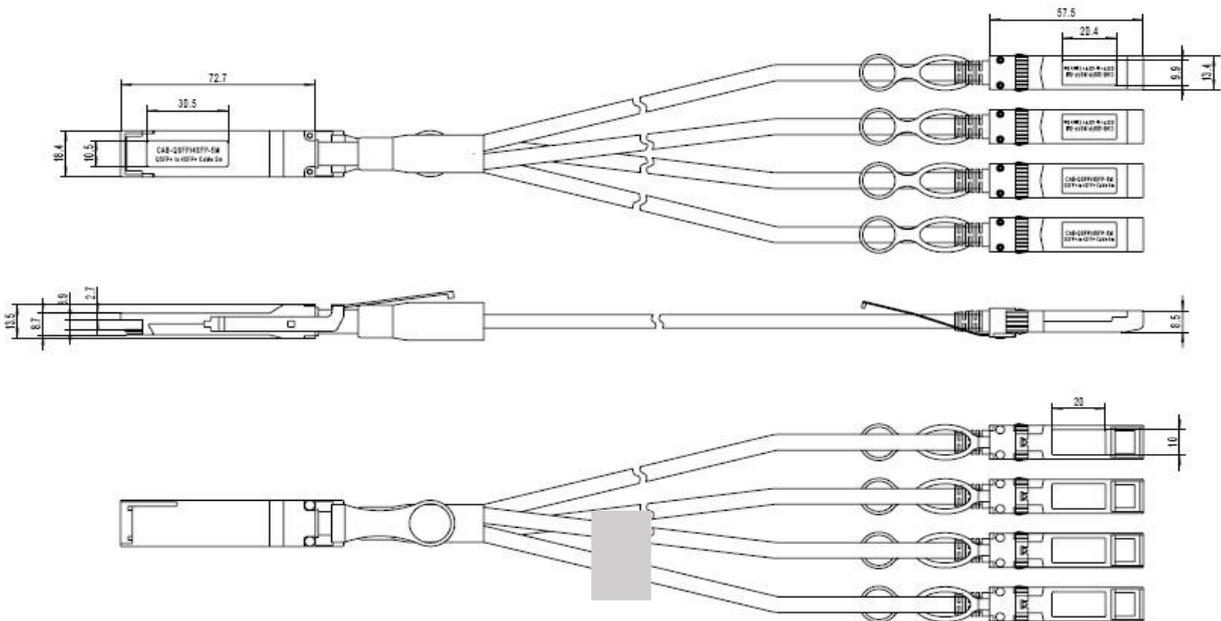
Recommended PCB layout

A typical host board mechanical layout for attaching the QSFP transceiver is presented below. The recommended host electrical connector should be a 38-pin IPASS right angle connector assembly and the cage assembly should be QSFP single cage.

① CENTERLINE OF PAD.

② SURFACE TRACES PERMITTED WITHIN THIS LENGTH.

③ INDICATED HOLES ARE OPTIONAL.

Mechanical Dimensions

Regulatory Compliance

Feature	Reference	Performance
Electrostatic discharge（ESD）	IEC/EN 61000-4-2	Compatible with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN 55022 Class B (CISPR 22A)	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10, 1040.11 IEC/EN 60825-1, 2	Class 1 laser product
Component Recognition	IEC/EN 60950, UL	Compatible with standards
ROHS	2002/95/EC	Compatible with standards
EMC	EN61000-3	Compatible with standards

Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can compatible with many mainstream brand switches, such as Cisco, Juniper, Extreme, Brocade, IBM, H3C, HP, Huawei, D-Link, Mikrotik, ZTE, TP-Link..

Our test equipment: VOLKTEK MEN-4110, HP 2530-8G, CRS226-24G-25+RM, Catalyst 2960G Series, Catalyst 3850 XS 10G SFP+, Catalyst 3750-E Series, HUAWEI S5700Series, H3C S3100V2 Series, Juniper-EX4200, etc.

Cisco Catalyst 3850

HUAWEI S5700

H3C S3100V2

HP J9264AR

Juniper EX 4200

Alcatal 6850E-U24X

Mikrotik CR5226-24G-25+RM

Cisco Catalyst 2960G

Volktek MEN-4110

Product Production Process

Quality Assurance

Continuous introduction of new equipment, produced by strict standards, strict quality inspection, to guarantee the high quality standard of each product.
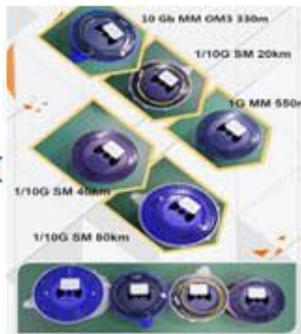

Standardized Production Line

Professional Welding

Assembling

Aging Testing

Distance Testing

Cleaning end face

Product Initial Test

Switch Testing

Product Final Test

Packaging

Individual package.

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Please e-mail us at sales@etulinktechnology.com or call us for assistance.