

QSFP56

EQ5DP20X-330CNxx

200G QSFP56 Direct Attach Cable - PAM4

- Compatible with IEEE 802.3bj and IEEE 802.3cd
- In accordance with the paging function in the protocol SFF-8636, paging can be selected 00H or 02H in 127 bytes
- Supports aggregate data rates of 200Gbps(PAM4)
- Optimized construction to minimize insertion loss and cross talk
- Backward compatible with existing QSFP+ connectors and cages
- Pull-to-release slide latch design
- 26AWG through 30AWG cable
- Straight and break out assembly configurations available
- Customized cable braid termination limits EMI radiation
- Customizable EEPROM mapping for cable signature
- RoHS compliant



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

- 200G Ethernet(IEEE 802.3cd)
- InfiniBand EDR

Technical Documents

- 108-32081 QSFP28 Copper Module Direct Attach Cable Assembly

Description

The QSFP56 passive copper cable assembly feature eight differential copper pairs, providing four data transmission channels at speeds up to 56Gbps(PAM4) per channel, and meets 200G Ethernet and InfiniBand Enhanced Data Rate(EDR) requirements. Available in a broad range of wire gages- from 26AWG through 30AWG- this 200G copper cable assembly features low insertion loss and low cross talk.

The QSFP56 uses PAM4 signals for transmission, which doubles the rate. However, there are more stringent requirements for cable insertion loss. For detailed requirements, please see High Speed Characteristics.

Designed for applications in the data center, networking and telecommunications markets that require a high speed, reliable cable assembly, this next generation product shares the same mating interface with QSFP+ form factor, making it backward compatible with existing QSFP ports.

High Speed Characteristics

| Parameter | Symbol | Min | Typical | Max | Unit | Note |
|---|----------------|--------|---------|-------|------|----------------------|
| Differential Impedance | TDR | 90 | 100 | 110 | Ω | |
| Insertion loss | SDD21 | -16.06 | | | dB | At 13.28 GHz |
| Differential Return Loss | SDD11 | | | See 1 | dB | At 0.05 to 4.1 GHz |
| | SDD22 | | | See 2 | dB | At 4.1 to 19 GHz |
| Common-mode to common-mode output return loss | SCC11 SCC22 | | | -2 | dB | At 0.2 to 19 GHz |
| Differential to common-mode return loss | SCD11 SCD22 | | | See 3 | dB | At 0.01 to 12.89 GHz |

| | | | | | | |
|---|----------|--|--|-------|----|----------------------|
| | | | | See 4 | | At 12.89 to 19 GHz |
| Differential to common Mode Conversion Loss | SCD21-IL | | | -10 | dB | At 0.01 to 12.89 GHz |
| | | | | See 5 | | At 12.89 to 15.7 GHz |
| | | | | -6.3 | | At 15.7 to 19 GHz |

Notes:

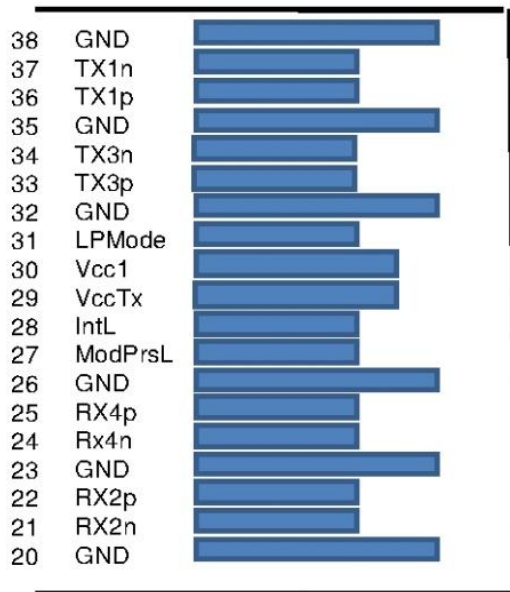
1. Reflection Coefficient given by equation $SDD11(dB) < -16.5 + 2 \times \text{SQRT}(f)$, with f in GHz
2. Reflection Coefficient given by equation $SDD11(dB) < -10.66 + 14 \times \log_{10}(f/5.5)$, with f in GHz
3. Reflection Coefficient given by equation $SCD11(dB) < -22 + (20/25.78)*f$, with f in GHz
4. Reflection Coefficient given by equation $SCD11(dB) < -15 + (6/25.78)*f$, with f in GHz
5. Reflection Coefficient given by equation $SCD21(dB) < -27 + (29/22)*f$, with f in GHz

Pin Descriptions

QSFP56 Pin Function Definition

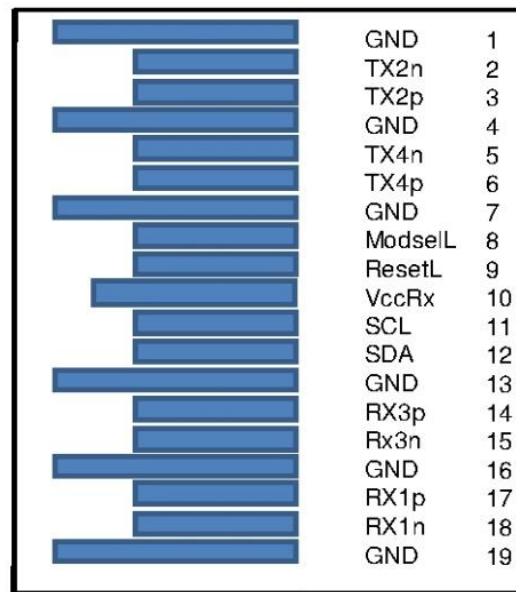
| Pin | Logic | Symbol | Description |
|-----|-------------|---------|-------------------------------------|
| 1 | | GND | Ground |
| 2 | CML-I | Tx2n | Transmitter Inverted Data Input |
| 3 | CML-I | Tx2p | Transmitter Non-Inverted Data Input |
| 4 | | GND | Ground |
| 5 | CML-I | Tx4n | Transmitter 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 |
| | LVC MOS-I/O | | |
| 12 | | 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 |



Top Side
Viewed From Top

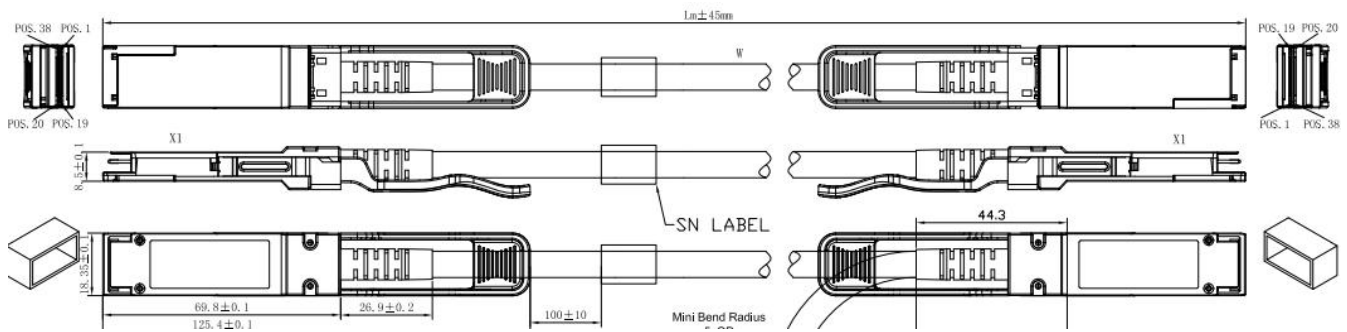
Module Card Edge



Bottom Side
Viewed From Bottom

Mechanical Specifications

The connector is compatible with the SFF-8436 specification.



| Length (m) | Cable AWG |
|------------|-----------|
| 1 | 30 |
| 2 | 26/30 |
| 3 | 26 |

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 |

Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can be 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



Alcatel 6850E-U24X



Mikrotik CR5226-24G-25+RM



Cisco Catalyst 2960G



Volktek MEN-4110

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**



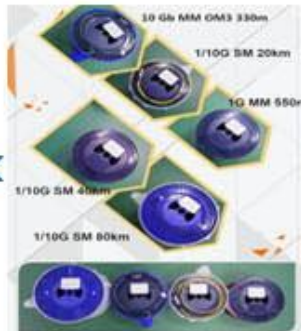
**Professional
Welding**



Assembling



Aging Testing



Distance Testing



Cleaning end face



Product Initial Test



Switch Testing



Product Final Test

Packaging

Individual package.



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.

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