

QSFP56

EQ5A20X-33CDxx

200G QSFP56-QSFP56 Active optical cable

- Supports IBTA InfiniBand HDR
- Up to 200Gb/s data rate
- 4x 50Gb/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

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typical | Max. | Unit | Notes |
|---------------------|------------------|------|---------|------|------|-------|
| Supply Voltage | V _{CC3} | -0.5 | - | +3.6 | V | |
| Storage Temperature | T _s | -5 | - | +75 | °C | |
| Operating Humidity | RH | +5 | - | +85 | % | 1 |

Note: 1 No condensation

Recommended Operating Conditions

| Parameter | Symbol | Min. | Typical | Max. | Unit | Notes |
|----------------------------|-----------------|------|---------|------|------|-------|
| Operating Case Temperature | T _C | 0 | - | +70 | °C | |
| Power Supply Voltage | V _{CC} | 3.14 | 3.3 | 3.47 | V | |
| Power Dissipation | P _d | - | - | 4.5 | W | 1 |

Note: 1 Per terminal

Electrical Characteristics

| Parameter | Symbol | Unit | Min | Typ | Max | Notes |
|--|-------------------------|------|-------------------|-----|--------|-------|
| Transmitter | | | | | | |
| Signaling rate (each lane) | SR | GBd | 26.5625 ± 100 ppm | | | |
| Differential data input voltage per lane | V _{in,pp,diff} | mV | 900 | - | - | |
| Differential termination mismatch | - | % | - | - | 10 | |
| Single-ended voltage tolerance range | - | V | -0.4 | - | 3.3 | |
| DC common mode voltage | - | mV | -350 | - | 2850 | |
| Receiver | | | | | | |
| Signaling rate (each lane) | SR | GBd | 26.5625 ± 100 ppm | | | |
| Differential output voltage | - | mV | - | - | 900 | |
| Differential termination mismatch | - | % | - | - | 10 | |
| Transition time (min, 20% to 80%) | - | ps | 9.5 | - | - | |
| DC common mode voltage | - | mV | -350 | - | 2850 | |
| Error Bit Rate | BER | - | - | - | 2.4E-4 | Note1 |

Note: 1 PRBS31Q@26.5625Gbd PAM4

Recommended Interface Circuit

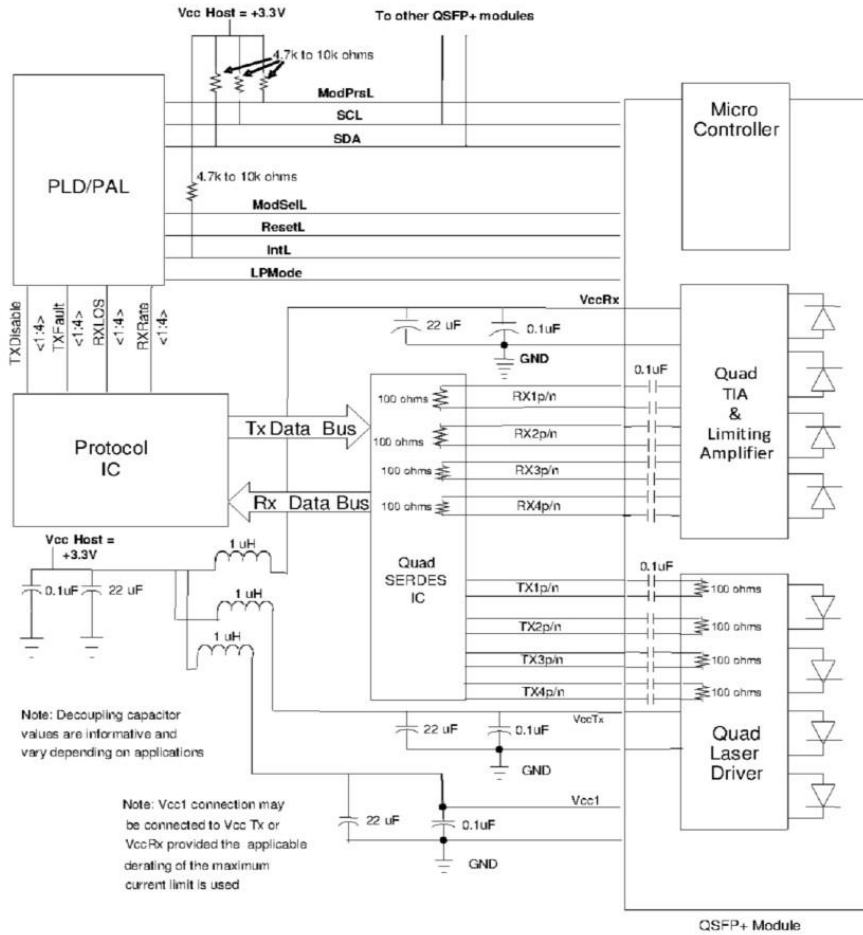


Figure 1, Recommended Interface Circuit

Pin arrangement

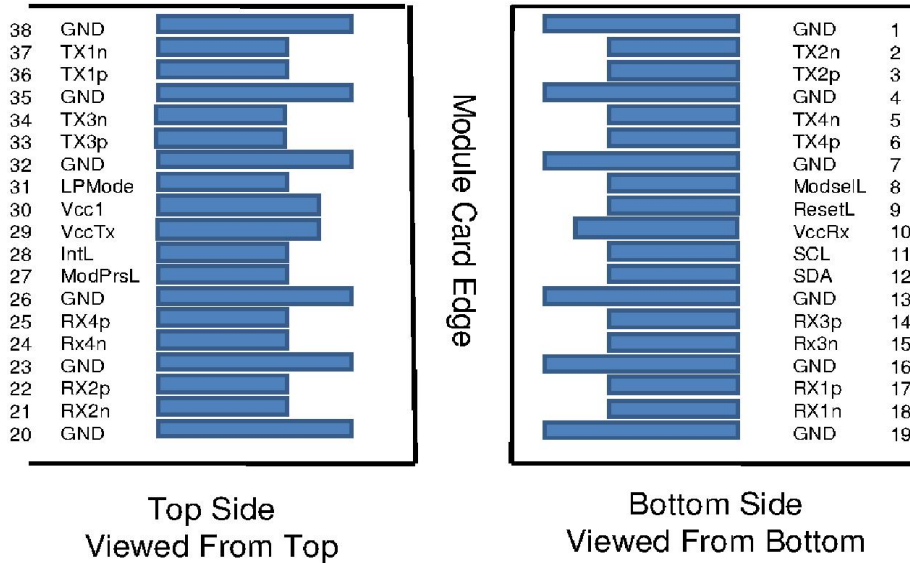


Figure 2, Pin View

Pin Function Definitions

| Pin | Symbol | Name/Description | Notes |
|-----|---------|-------------------------------------|-------|
| 1 | GND | Ground | 1 |
| 2 | Tx2n | Transmitter Inverted Data Input | |
| 3 | Tx2p | Transmitter Non-Inverted Data Input | |
| 4 | GND | Ground | 1 |
| 5 | Tx4n | Transmitter Inverted Data Input | |
| 6 | Tx4p | Transmitter Non-Inverted Data Input | |
| 7 | GND | Ground | 1 |
| 8 | ModSelL | Module Select | |
| 9 | ResetL | Module Reset | |
| 10 | Vcc Rx | +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 | Vcc Tx | +3.3V Power supply transmitter | |
| 30 | Vcc1 | +3.3V 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 |

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

Monitoring Specification

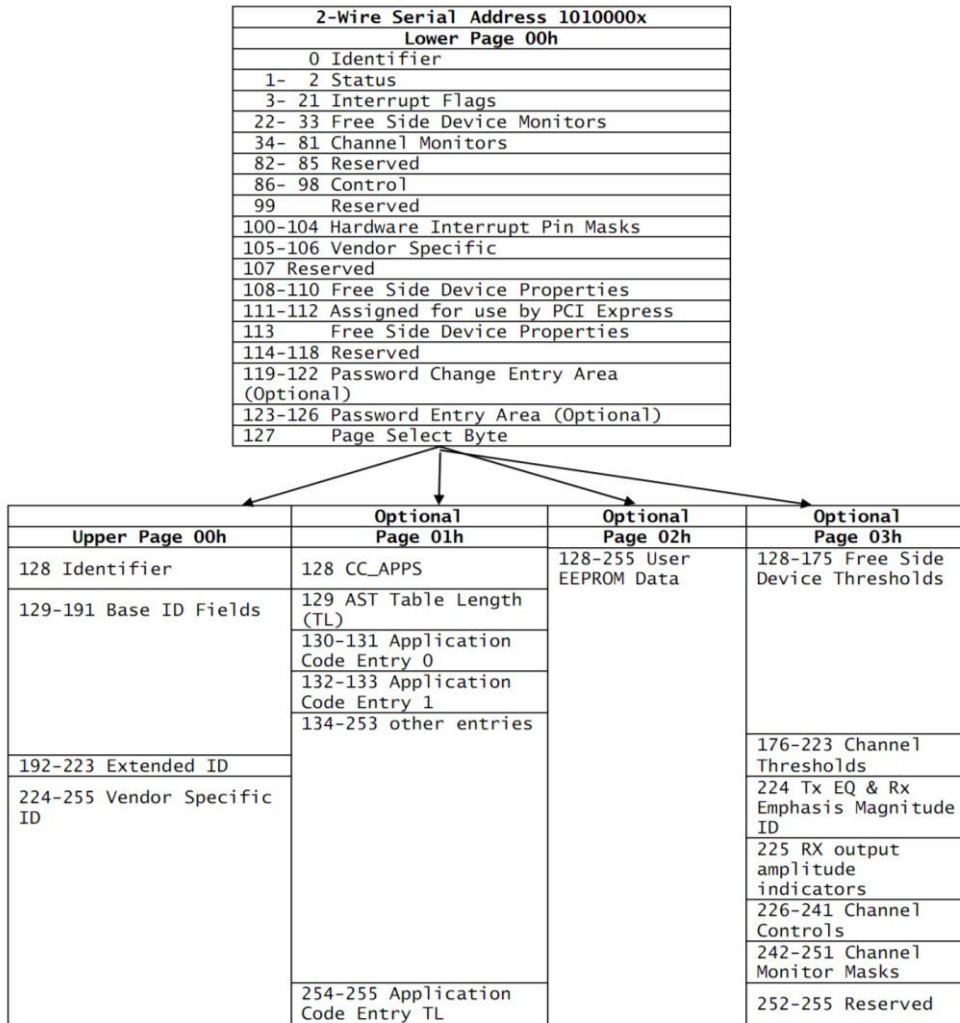


Figure 3, Memory Map

Mechanical Design Diagram

Unit mm

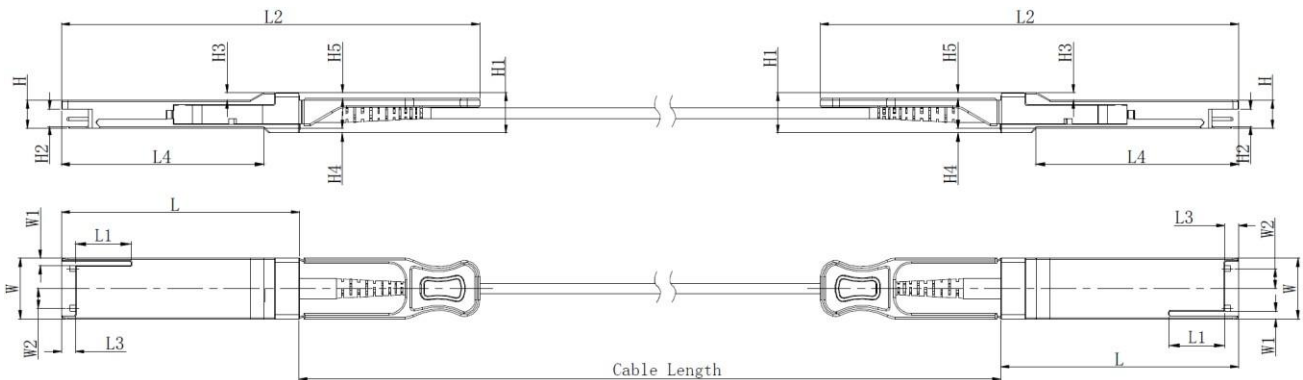


Figure 4, Mechanical Design Diagram

Unit: mm

| | 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

| Cable Length L (Unit: m) | Tolerant (Unit: cm) |
|---------------------------|---------------------|
| < 1.0 | +10/-0 |
| $1.0 \leq L \leq 4.5$ | +15/-0 |
| $4.5 < L \leq 14.5$ | +30/-0 |
| > 14.5 | +2%L/-0 |
| Cable Diameter | 3.0 +/-0.2 mm |
| Min. Bend Radius (Static) | 30mm |

Warnings

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD).

A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

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



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**



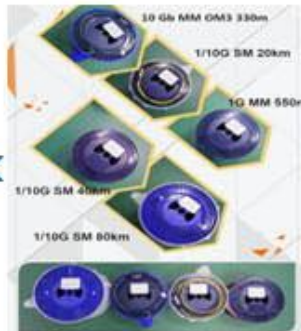
**Professional
Welding**



Assembling



Aging Testing



Distance Testing



Cleaning end face



Product Initial Test



Switch Testing



Product Final Test

Packaging

Individual package.



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