

## GLQX0ACXX

### 40Gb/s QSFP+ Active Optical Cable

#### Features:

- Support 40GBASE-SR4/QDR application
- Compliant to QSFP+ Electrical MSA SFF-8436
- Multi rate of up to 10.3125Gbps
- +3.3V single power supply
- Low power consumption
- Operating case temp Commercial: 0°C to +70 °C
- UL certification cables (optional)
- RoHS 6/6 compliant



#### Applications

- 40GBASE-SR4 at 10.3125Gbps per lane
- InfiniBand QDR
- Other optical links

#### General Description

The Gearlink's QSFP+ active optic cables are a high performance, low power consumption, long reach interconnect solution supporting InfiniBand DR/DDR/SDR, 12.5G/10G/8G/4G/2G fiber channel , PCIe and SAS. It is compliant with the QSFP+ MSA and IEEE P802.3ba. GearLink's QSFP+ AOC is an assembly of 4 full-duplex lanes, where each lane is capable of transmitting data at rates up to 10.3Gb/s, providing an aggregated rate of 41.2Gb/s. GearLink's QSFP+ AOC is one kind of parallel transceiver which provides increased port density and total system cost savings.

#### Absolute Maximum Ratings

| Parameter           | Symbol | Min. | Typical | Max. | Unit | Notes |
|---------------------|--------|------|---------|------|------|-------|
| Supply Voltage      | Vcc3   | -0.5 | -       | +3.6 | V    |       |
| Storage Temperature | Ts     | -10  | -       | +85  | °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 <sub>C</sub>  | 0    | -       | +70  | °C   |       |
| Power Supply Voltage       | V <sub>CC</sub> | 3.14 | 3.3     | 3.47 | V    |       |
| Power Dissipation          | P <sub>d</sub>  | -    | -       | 1.5  | W    | 1     |
| Bit Rate                   | BR              | 1.25 | 10.3125 | -    | Gbps |       |

Note:

1. Per terminal

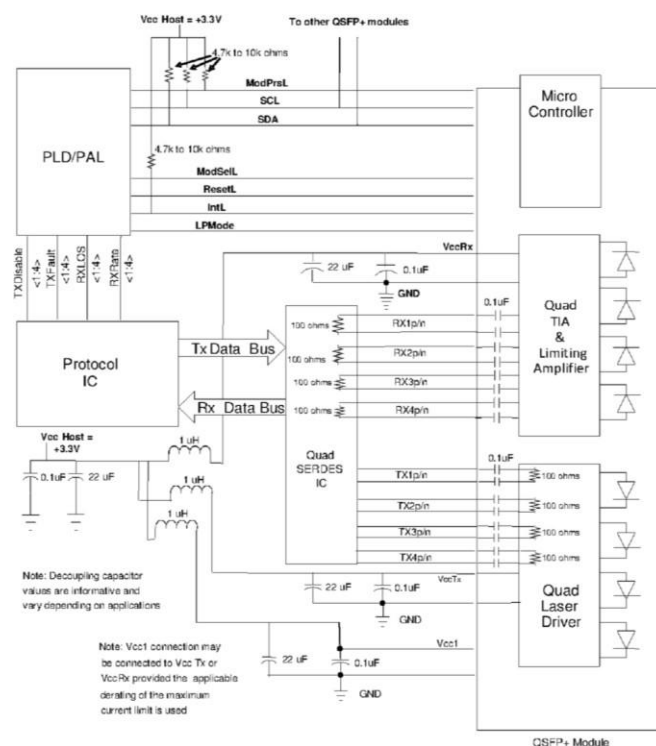
## Electrical Characteristics

| Parameter                                     |                  | Symbol              | Min. | Typ. | Max.    | Units | Notes |
|-----------------------------------------------|------------------|---------------------|------|------|---------|-------|-------|
| ModSelL                                       | Module Select    | VOL                 | 0    | -    | 0.8     | V     |       |
|                                               | Module Unselect  | VOH                 | 2.5  | -    | VCC     | V     |       |
| LPMode                                        | Low Power Mode   | VIL                 | 0    | -    | 0.8     | V     |       |
|                                               | Normal Operation | VIH                 | 2.5  | -    | VCC+0.3 | V     |       |
| ResetL                                        | Reset            | VIL                 | 0    | -    | 0.8     | V     |       |
|                                               | Normal Operation | VIH                 | 2.5  | -    | VCC+0.3 | V     |       |
| ModPrsL                                       | Normal Operation | VOL                 | 0    | -    | 0.4     | V     |       |
| IntL                                          | Interrupt        | VOL                 | 0    | -    | 0.4     | V     |       |
|                                               | Normal Operation | VoH                 | 2.4  | -    | VCC     | V     |       |
| <b>Electrical transmitter Characteristics</b> |                  |                     |      |      |         |       |       |
| Differential Data Input Swing                 |                  | V <sub>out</sub>    | 200  | -    | 1600    | mV    |       |
| Output Differential Impedance                 |                  | Z <sub>D</sub>      | 80   | 100  | 120     | Ω     |       |
| <b>Electrical Receiver Characteristics</b>    |                  |                     |      |      |         |       |       |
| Differential Data Output Swing                |                  | V <sub>in,P-P</sub> | 350  | -    | 800     | mVPP  |       |
| Bit Error Rate                                |                  | BER                 |      |      | E-12    |       | 1     |
| Input Differential Impedance                  |                  | Z <sub>IN</sub>     | 80   | 100  | 120     | Ω     |       |

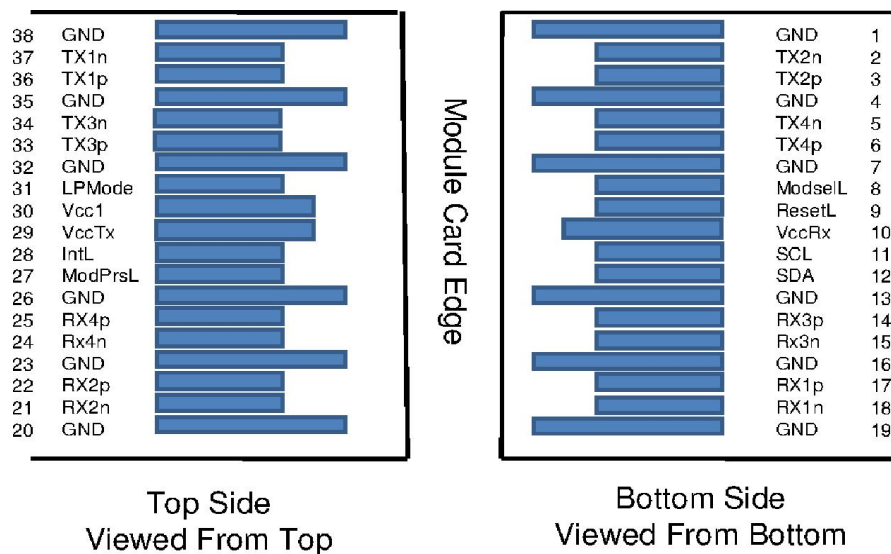
Note:

1. PRBS2<sup>31</sup>-1@10.3125Gbps

## Recommended Interface Circuit



## Pin arrangement

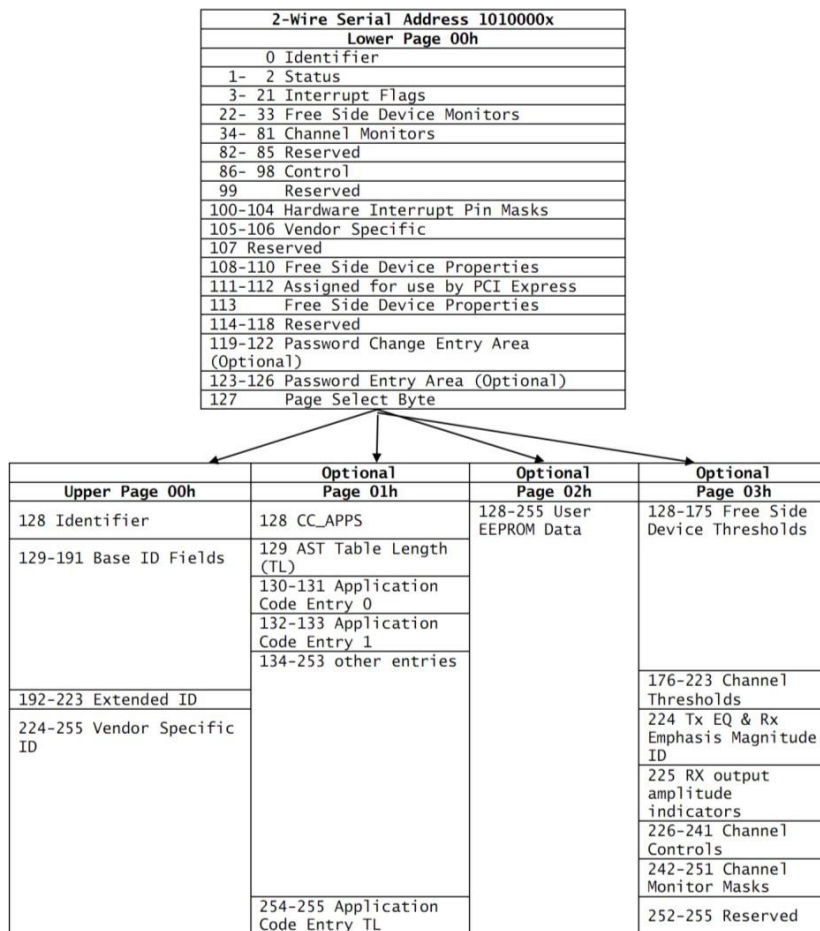


## Pin Function Definitions

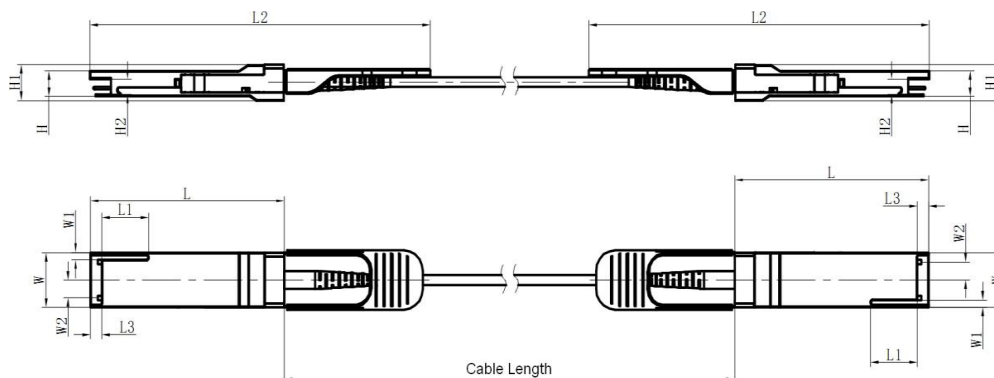
| Pin | Symbol  | Name/Description                    | Notes |
|-----|---------|-------------------------------------|-------|
| 1   | GND     | Ground                              | 1     |
| 2   | Tx2n    | Transmitter Inverted Data Input     |       |
| 3   | Tx2p    | Transmitter Non-Inverted Data 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



## Mechanical Dimension



Unit: mm

|         | L    | L1   | L2  | L3   | W     | W1  | W2  | H   | H1   | H2   |
|---------|------|------|-----|------|-------|-----|-----|-----|------|------|
| MAX     | 72.2 | —    | 122 | 4.35 | 18.45 | —   | 6.2 | 8.6 | 12.0 | 5.35 |
| Typical | 72.0 | —    | —   | 4.20 | 18.35 | —   | —   | 8.5 | 11.8 | 5.2  |
| MIN     | 68.8 | 16.5 | 118 | 4.05 | 18.25 | 2.2 | 5.8 | 8.4 | 11.6 | 5.05 |

## Cable Length

| Cable Length (Unit: m) | Tolerant (Unit: cm) |
|------------------------|---------------------|
| <1.0                   | +5/-0               |
| 1.0~4.5                | +15/-0              |
| 5.0~14.5               | +30/-0              |
| ≥15.0                  | +2%/-0              |

### 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.

## Ordering Information

|           |                                                              |
|-----------|--------------------------------------------------------------|
| GLQX0ACXX | QSFP+ Active Optical Cable with operate temperature 0°C~70°C |
|-----------|--------------------------------------------------------------|