

XFP Bi-Directional 10G 80km Tx1490/Rx1550nm & Tx1550/Rx1490nm

SLXFB-XXXX-80



Description

Sourcelight SLXFB-XXXX-80 is XFP BIDI 80KM transceivers are designed for 10G Ethernet 10G BASE-LR/LW per 802.3ae and 10G SOI OC-192/SDH STM-64, and it can support data-rate from 9.953Gb/s to 11.1Gb/s. Digital diagnostics are available via I2C interface as specified in the XFP MSA.

The transceiver designs are optimized for high performance and cost effective to supply customers the best solutions for data-com and telecom applications.

Features

- ◆ XFP MSA package with single LC connector
- ◆ Typical bidi 1490/1550nm and 1550nm/1490nm for commission
- ◆ APD receiver for high sensitivity
- ◆ Hot pluggable
- ◆ Support 9.95Gb/s to 11.1Gb/s bit rates
- ◆ Digital Diagnostic Monitor Interface
- ◆ Very low EMI and excellent ESD protection
- ◆ +3.3V single power supply
- ◆ Below <1.5w power consumption
- ◆ operating temperature range 0°C to 70°C
- ◆ No reference clock requirement

Applications

- ◆ 10GBASE-BX 10.3125Gb/s Ethernet
- ◆ 10GBASE-BX 9.953Gb/s Ethernet
- ◆ SONET OC-192 &SDH STM I-64.1

Ordering information

| Part Number | Product Description |
|---------------|--|
| SLXFB-4955-80 | XFP BIDI 10Gbps, 1490nm Transmitter and 1550nm Receiver, 80km, 0°C ~ +70°C |
| SLXFB-5549-80 | XFP BIDI 10Gbps, 1550nm Transmitter and 1490nm Receiver, 80km, 0°C ~ +70°C |

Datasheet

Absolute Maximum Ratings

| Parameter | Symbol | Min | Typ | Max | Unit | Ref. |
|-----------------------------------|---------------|-----|---------|-----|------|------|
| Storage Ambient Temperature Range | | -40 | | +85 | °C | |
| Powered case Temperature Range | | 0 | | +70 | °C | |
| Operating Relative Humidity | RH | | | 85 | % | |
| Data Rate | Ethernet | | 10.3125 | | Gb/s | |
| | Fiber Channel | | 9.953 | | Gb/s | |

Electrical Characteristics

| Parameter | Symbol | Min | Typical | Max | Unit | Note |
|----------------------------------|--------|------|---------|---------|------|------|
| Operating Case Temperature Range | T_c | 0 | | +70 | °C | |
| Power Supply Voltage @ 3.3V | Vcc3 | 3.13 | 3.3 | 3.47 | V | |
| Supply Current | Icc | | | 450 | mA | |
| Transmitter | | | | | | |
| Parameter | Symbol | Min. | Typ | Max. | Unit | Note |
| Diff. input voltage swing | | 120 | | 820 | mVpp | 1 |
| Tx Disable input | H | VIH | 2.0 | Vcc+0.3 | V | |
| | L | VIL | 0 | 0.8 | | |
| Tx Fault output | H | VOH | 2.0 | Vcc+0.3 | V | 2 |
| | L | VOL | 0 | 0.8 | | |
| Input Diff. Impedance | Zin | | 100 | | Ω | |
| Receiver | | | | | | |
| Parameter | Symbol | Min. | Typ | Max. | Unit | Note |
| Diff. output voltage swing | | 340 | 650 | 800 | mVpp | 3 |
| Rx LOS Output | H | VOH | 2.0 | Vcc+0.3 | V | 2 |
| | L | VOL | 0 | 0.8 | | |

Notes:

- Note 1) TD+/- are internally AC coupled with 100Ω differential termination inside the module.
- Note 2) Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ resistors on the host board. Pull up voltage between 2.0V and Vcc+0.3V.
- Note 3) RD+/- outputs are internally AC coupled, and should be terminated with 100Ω (differential) at the user SERDES.

Optical Characteristics

| Parameter | Symbol | Min | Typical | Max | Unit | Ref. |
|-----------------------------|-----------------|------|---------|------|------|------|
| Transmitter | | | | | | |
| Operating Wavelength | T1490/R1550 | 1480 | 1490 | 1500 | nm | 1 |
| | T1550/R1490 | 1540 | 1550 | 1560 | | |
| Ave. output power (Enabled) | Po | +1 | | +6 | dBm | 2 |
| Extinction Ratio | ER | 5 | | | dB | 2 |
| RMS spectral width | $\Delta\lambda$ | | | 1 | nm | |
| Rise/Fall time (20%~80%) | Tr/Tf | | | 50 | ps | 3 |

Datasheet

| | | | | | | |
|------------------------------|---------------------------|------|------|------|-----|---|
| Optical modulation amplitude | OMA | -4.8 | | | dBm | |
| Dispersion penalty | | | | 3 | dB | |
| Output Optical Eye | IEEE 802.3-2005 Compliant | | | | | |
| Receiver | | | | | | |
| Operating Wavelength | T1550/R1490 | 1540 | 1550 | 1560 | nm | 1 |
| | T1490/R1550 | 1480 | 1490 | 1500 | | |
| Sensitivity | Psen | | | -24 | dBm | 4 |
| Min. overload | Pimax | -7 | | | dBm | |
| LOS Assert | Pa | -40 | | | dBm | |
| LOS De-assert | Pd | | | -22 | dBm | |
| LOS Hysteresis | Pd-Pa | 0.5 | | 4 | dB | |

Notes:

- Note 1) 1470nm~1610nm transmitter, minimum interval 60nm.
- Note 2) Measured at 10.3125b/s with PRBS 231 – 1 NRZ test pattern.
- Note 3) 20%~80%
- Note 4) Under the ER worst case, measured at 10.3125 Gb/s with PRBS 231 - 1 NRZ test pattern for BER < 1x10-12

Hostboard Connector Pinout

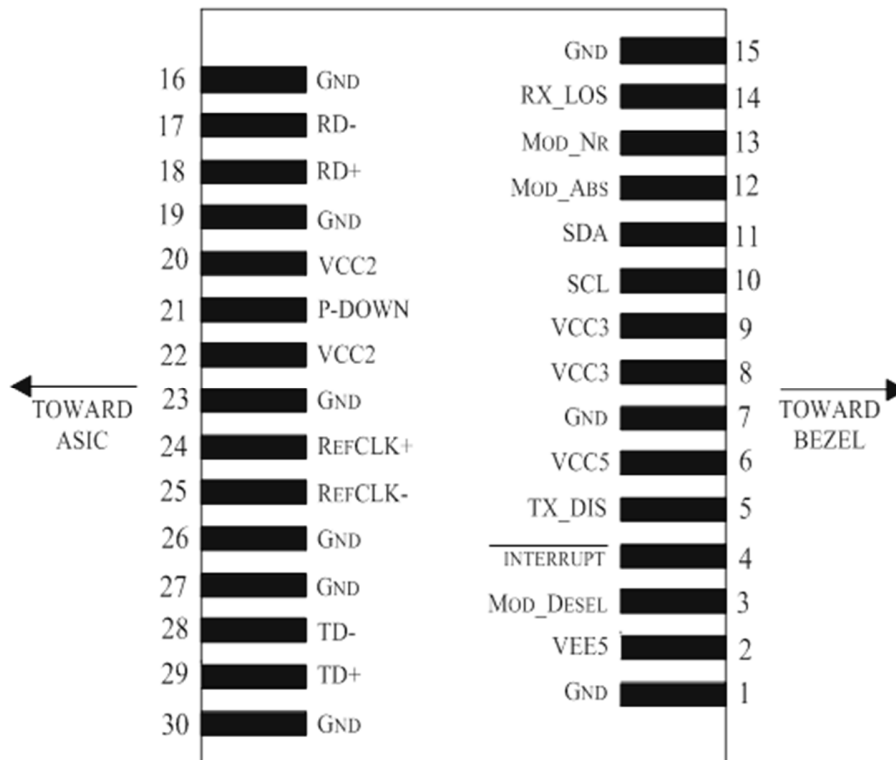


Figure 1: Electrical Pin-out Details

Pin Descriptions

| Pin | Logic | Symbol | Name/Description | Ref |
|-----|-------------|------------|--|-----|
| 1 | | GND | Module Ground | 1 |
| 2 | | VEE5 | Optional -5.2 Power Supply – Not required | |
| 3 | LVTTTL-I | Mod-Desel | Module De-select; When held low allows the module to, respond to 2-wire serial interface commands | |
| 4 | LVTTTL-O | Interrupt | Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface | 2 |
| 5 | LVTTTL-I | TX_DIS | Transmitter Disable; Transmitter laser source turned off | |
| 6 | | VCC5 | +5 Power Supply– Not required | |
| 7 | | GND | Module Ground | 1 |
| 8 | | VCC3 | +3.3V Power Supply | |
| 9 | | VCC3 | +3.3V Power Supply | |
| 10 | LVTTTL-I | SCL | Serial 2-wire interface clock | 2 |
| 11 | LVTTTL- I/O | SDA | Serial 2-wire interface data line | 2 |
| 12 | LVTTTL-O | Mod_Abs | Module Absent; Indicates module is not present. Grounded in the module. | 2 |
| 13 | LVTTTL-O | Mod_NR | Module Not Ready; | 2 |
| 14 | LVTTTL-O | RX_LOS | Receiver Loss of Signal indicator | 2 |
| 15 | | GND | Module Ground | 1 |
| 16 | | GND | Module Ground | 1 |
| 17 | CML-O | RD- | Receiver inverted data output | |
| 18 | CML-O | RD+ | Receiver non-inverted data output | |
| 19 | | GND | Module Ground | 1 |
| 20 | | VCC2 | +1.8V Power Supply | |
| 21 | LVTTTL-I | P_Down/RST | Power Down; When high, places the module in the low power stand-by mode and on the falling edge of P_Down initiates a module reset Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. | |
| 22 | | VCC2 | +1.8V Power Supply | |
| 23 | | GND | Module Ground | 1 |
| 24 | PECL-I | RefCLK+ | Reference Clock non-inverted input, AC coupled on the host board – Not required | 3 |
| 25 | PECL-I | RefCLK- | Reference Clock inverted input, AC coupled on the host board – Not required | 3 |
| 26 | | GND | Module Ground | 1 |
| 27 | | GND | Module Ground | 1 |
| 28 | CML-I | TD- | Transmitter inverted data input | |
| 29 | CML-I | TD+ | Transmitter non-inverted data input | |
| 30 | | GND | Module Ground | 1 |

Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.
3. A Reference Clock input is not required.

Management Interface

The XFP modules implement the 2-wire serial communication protocol as defined in the XFP MSA. The serial ID information of the XFP modules and Digital Diagnostic Monitor parameters can be accessed through the I2C interface at address A0h and A2h.

The memory is mapped in Table 1. Detailed ID information(A0h) And the DDM specification(A2h) . For more details of the memory map and byte definitions, please refer to the SFF-8472 (Rev 9.3, Aug. 2002), "Digital Diagnostic Monitoring Interface for Optical Transceivers".

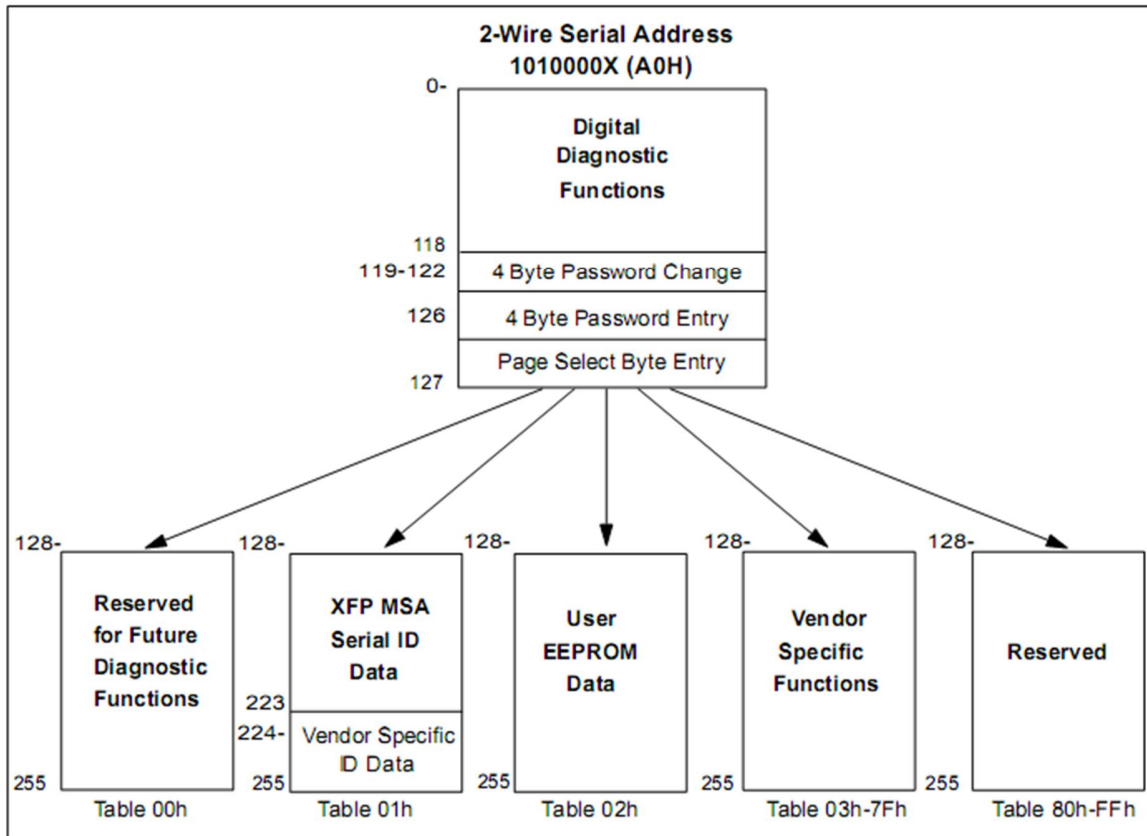


Figure 2: Digital Diagnostic Memory Map

Mechanical Specifications

XFP transceivers are compliant with the dimensions defined by the XFP Multi-Sourcing Agreement (MSA).

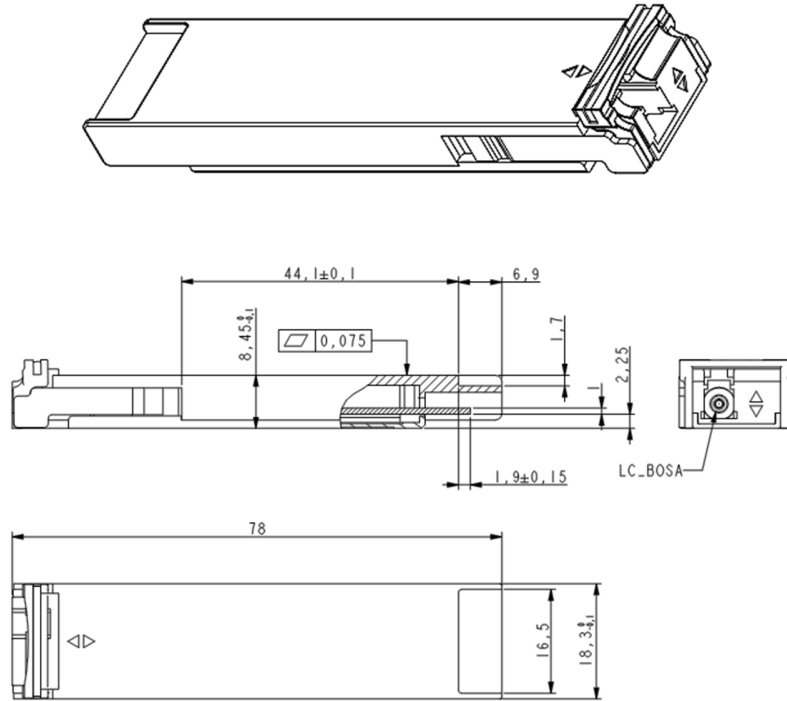


Figure3. Mechanical Specifications

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