Product Brief

*Light*CONEX - VPX blind mate Active Optical Connector

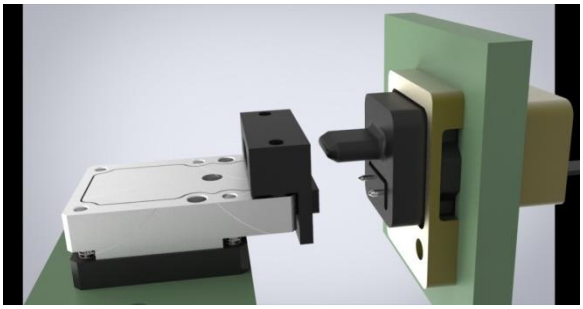

Figure 01: LightCONEX blind mate active connector

Reflex Photonics and Amphenol Aerospace introduce the first VPX Active Optical Connector for embedded computers. The *Light*CONEX™ integrates the electro-optical transceiver into the plug-in module connector and requires no optical cable between the transceiver and the plug-in module connector. It simplifies assembly and frees up space used for fiber trays and cable management.

The backplane side connector is a drop-in replacement for standard VITA 66.4 connector.

The low profile *Light*CONEX (less than 6.5 mm high) is mounted to the board edge via an LGA connector to facilitate manufacturing standard SBCs with or without optics. It is offered as a 4-channel transceiver, a 12-channel transmitter or a 12-channel receiver.

*Light*CONEX operates at 12.5 Gbps per lane from –40 °C to 100 °C at bit error rates of 10^{-15} (surpassing Ethernet requirement of 10^{-12}).

The *Light*CONEX includes equalizers and pre-emphasis to compensate long traces - these features can be turned off for short traces (less than 7.5 cm) to reduce power consumption.

Qualification

MIL-STD-883:

✓ Vibration tests. Method 2007.3
✓ Mech., shock tests, Method 2002.4
✓ Thermal shock tests, Method 1011.9
✓ Thermal cycling tests, Method 1010.8

MIL-STD-202:

✓ Damp heat tests, Method 103B

MIL-STD-810:

Cold storage tests, Method 502.5

Transceiver features

✓ Rugged: MIL STD 883 shock and vibration
✓ Sealed: moisture resistant
✓ Small (DxWxH): 14 mm x 23 mm x 6 mm
✓ 12.5 Gbps/ch from -40 ºC to 100 ºC
✓ Storage temperature: -57 ºC to 125 ºC
✓ BER: 10^{-15}
✓ Sensitivity up to -12 dBm
✓ Multimode 850 nm VCSEL
✓ Reach: Over 100 m reach on OM3 fiber
✓ Lower power consumption: 100 mw/ch
✓ CML high-speed electrical interface
✓ Serial control interface
✓ Data protocol agnostic
✓ LGA mount
✓ Configurations:
4 TRx, 12 Tx, 12 Rx, 12 TRx (Q1/2018)
✓ Uses rugged *Light*ABLE technology

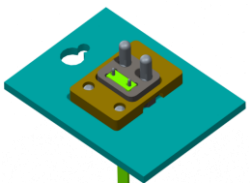

Figure 02 : Backplane connector

Plug-in module active connector features

- ✓ VITA 66.4 drop-in replacement
- ✓ Spring-loaded MT – VITA 66.4 mating force
- ✓ Coarse and fine MT alignment pins

Applications

- ✓ VPX 3U/6U single board computers
- ✓ Phased array radars
- ✓ Single processing computer

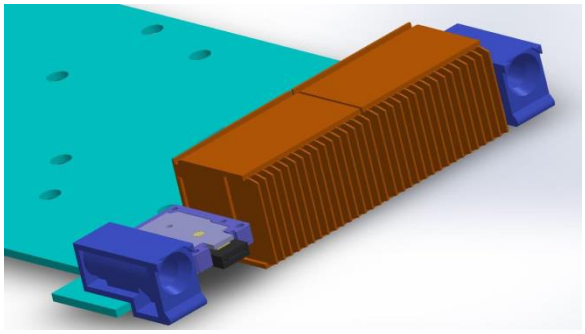

Figure 03: VITA 66.4 drop-in

Transceiver dimensions (mm)

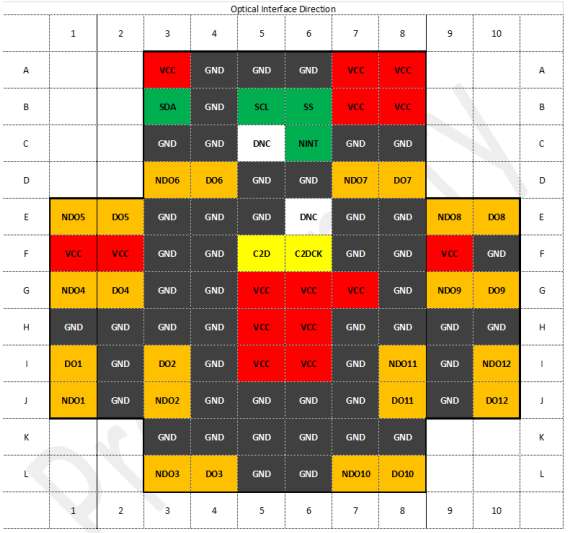

Figure 04: Transceiver signals

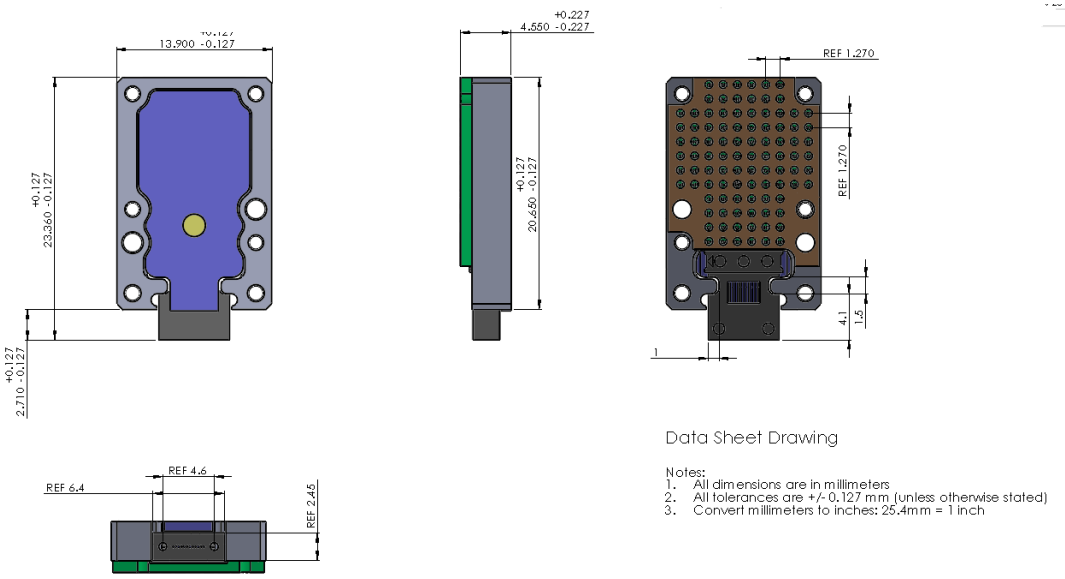

Figure 05: LightCONEX drawings

Table 10 – Part Number Description

Part Number	Description
LCT12P418L33001	*Light*CONEX™ SR12, **Transmitter**, 10.3125-Gbps/ch., cLGA, BER E-12, RoHS, Industrial Temp -40 to +85 °C
LCR12418L303001	*Light*CONEX™ SR12, **Receiver**, 10.3125-Gbps/ch., cLGA, BER E-12, RoHS, Industrial Temp -40 to +85 °C / -12 dBm sensitivity
LCT12P418L13001	*Light*CONEX™ SR12, **Transmitter**, 10.3125-Gbps/ch., cLGA, BER E-12, RoHS, Commercial Temp 0 to +70 °C
LCR12418L103001	*Light*CONEX™ SR12, **Receiver**, 10.3125-Gbps/ch., cLGA, BER E-12, RoHS, Commercial Temp 0 to +70 / -12 dBm sensitivity