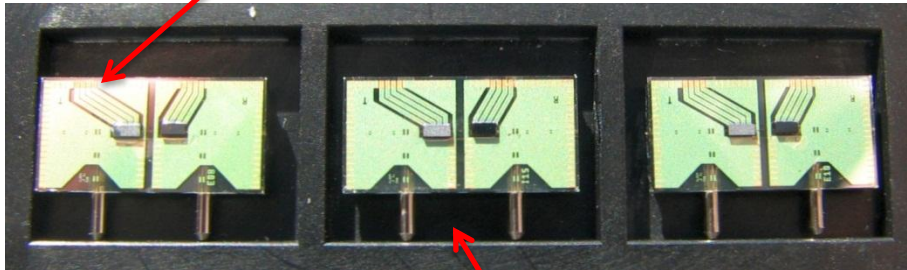


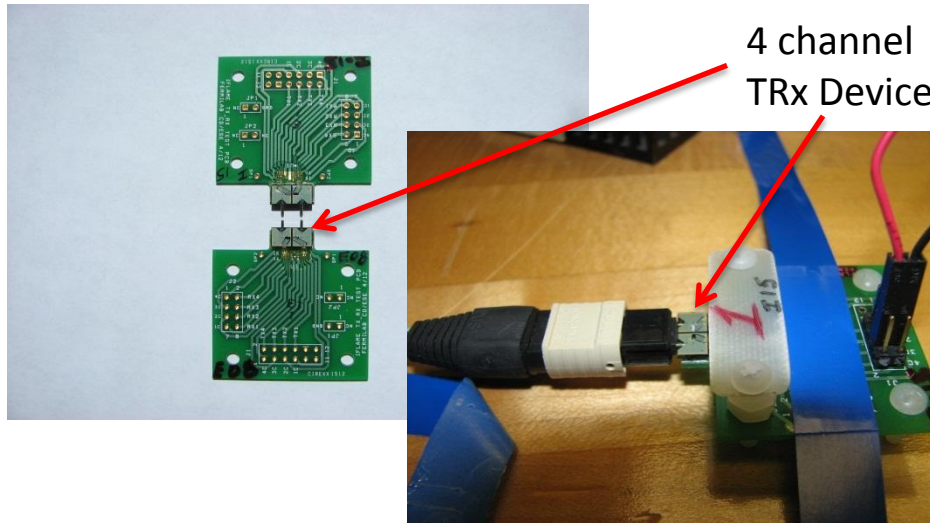
High Data Rate Links for Collider Experiments

Rad Hard Array Transmitter Devices - COTS

VCSEL Electrical Interface (Tx)

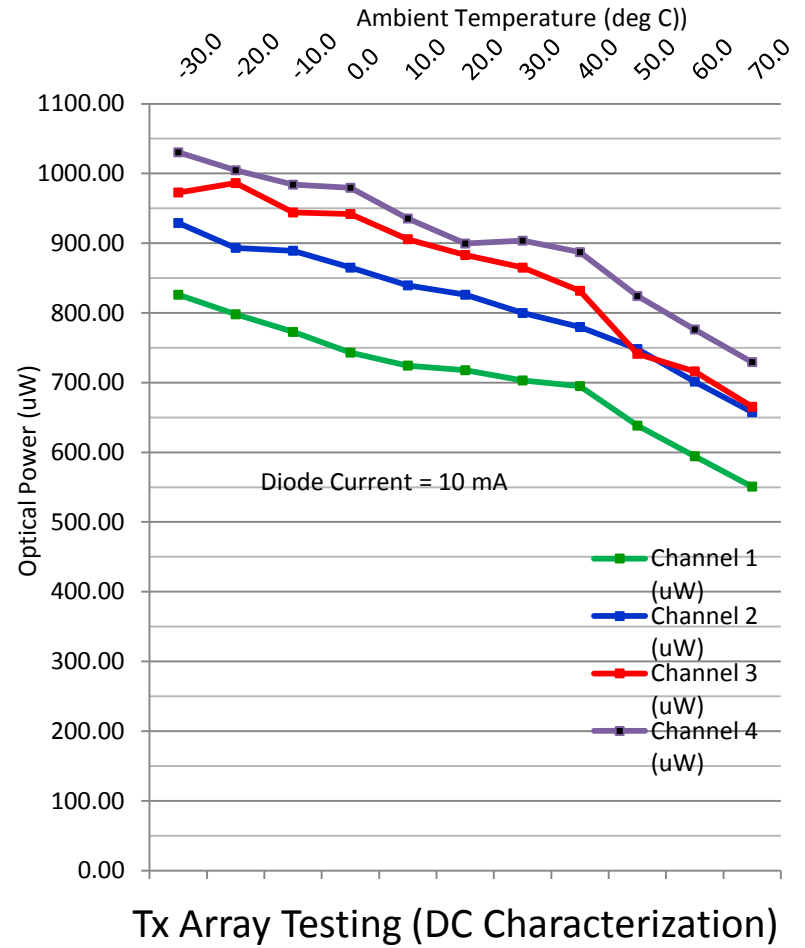


MT Optical Connection



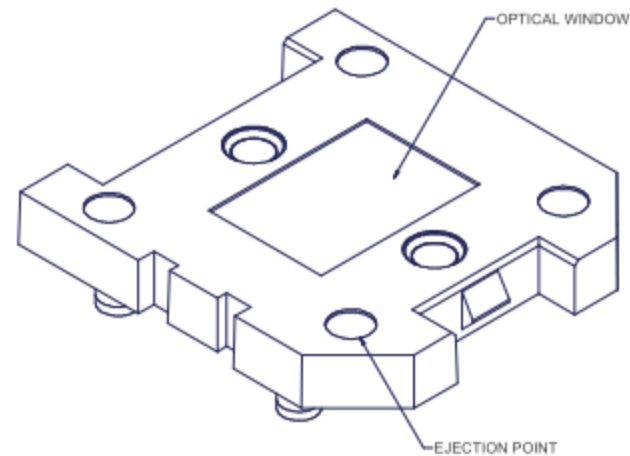
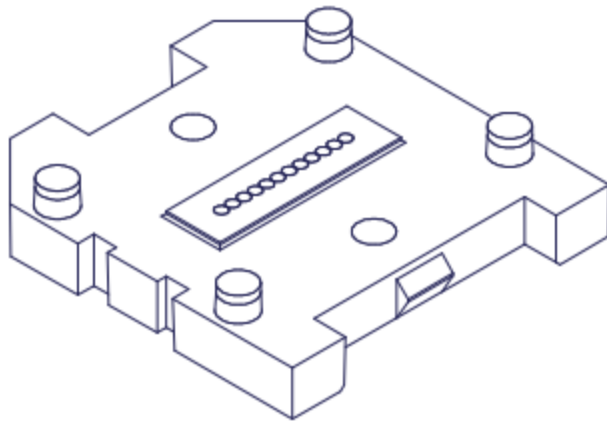
Fermilab Array Test Cards

4 channel TRx Devices



High Data Rate Links for Collider Experiments

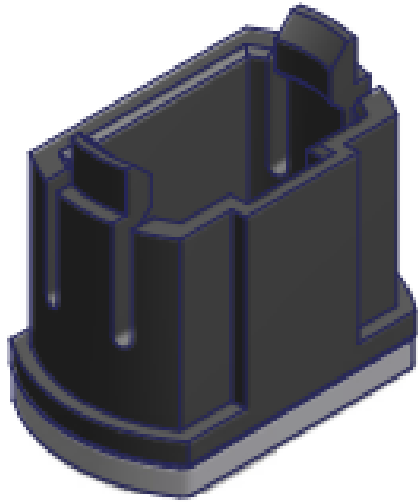
Rad Hard Array Transmitter Devices – Custom Optical Packaging (1)



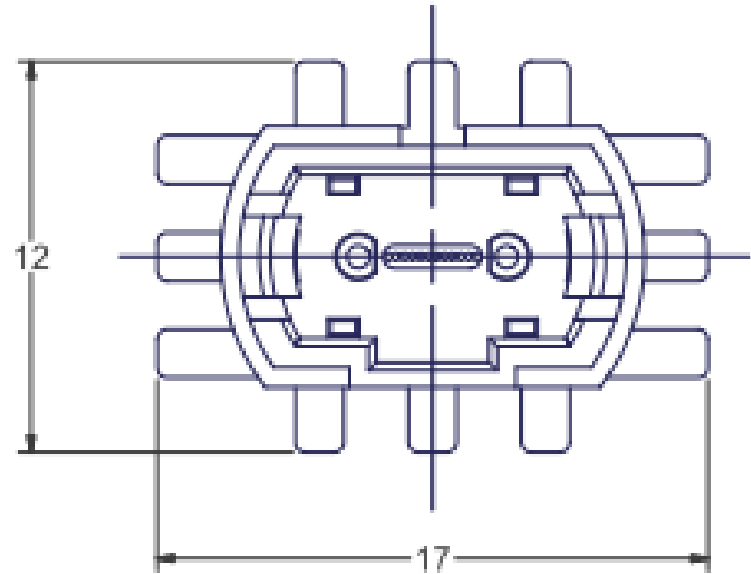
Idea 1: Based on Avago MiniPod (Mechanical Optical Interface + VCSEL Array)

High Data Rate Links for Collider Experiments

Rad Hard Array Transmitter Devices – Custom Optical Packaging (2)



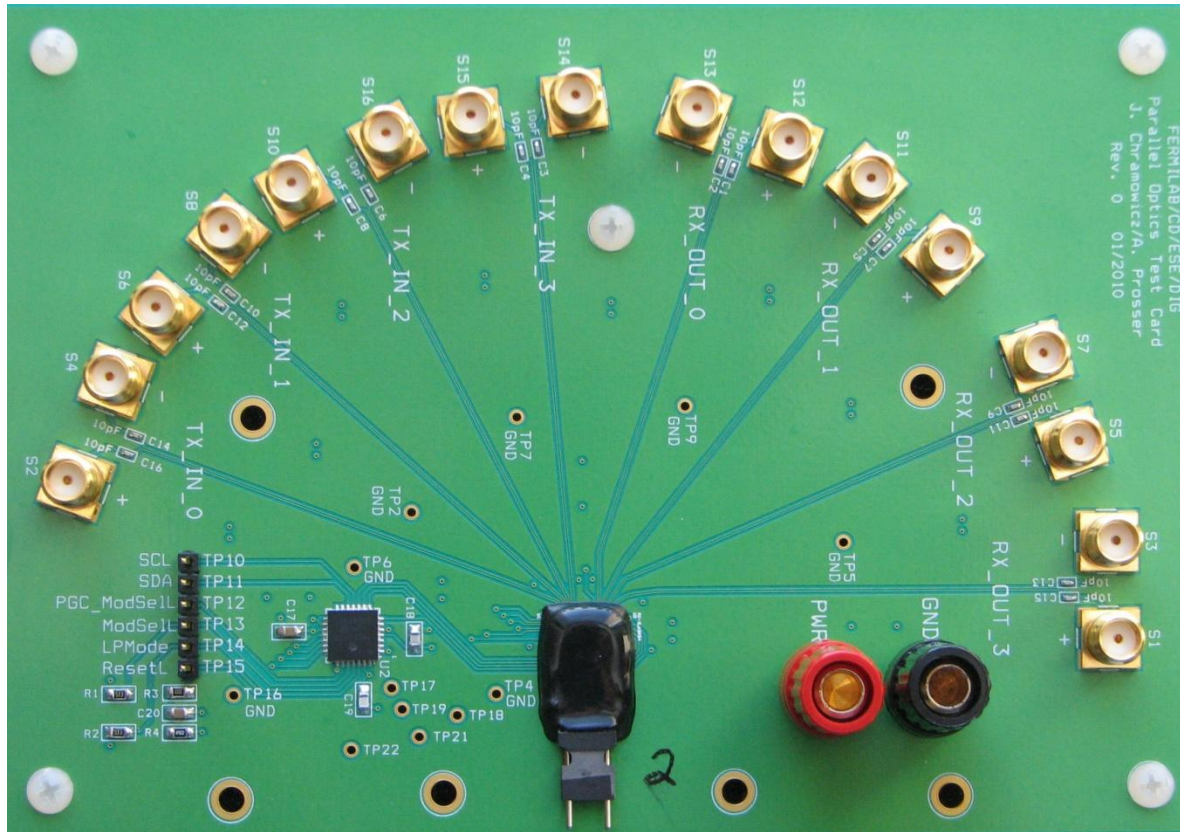
ASSY W/O EMI SHIELD



Idea 2: Vertical Assembly with Lens in Holder and MPO Mating Connector

High Data Rate Links for Collider Experiments

Recent Development – Reflex Photonics



Old design (above) replaced with 12 channel Tx device with μ C integrated with driver.

SiGe process (T. Weidberg @ Oxford is looking closely at these devices).

High Data Rate Links for Collider Experiments

Near Term Plans

1. Design test board for Option 1 (MOI + VCSEL arrays)
 1. Parts have been procured (US Conec MOIs, Lens Holders, ULM and Finisar VCSELs)
1. Test Reflex LightABLE devices (using Oxford's eval board)
2. Irradiation testing of Reflex devices (FNAL Evaluation board (on order))