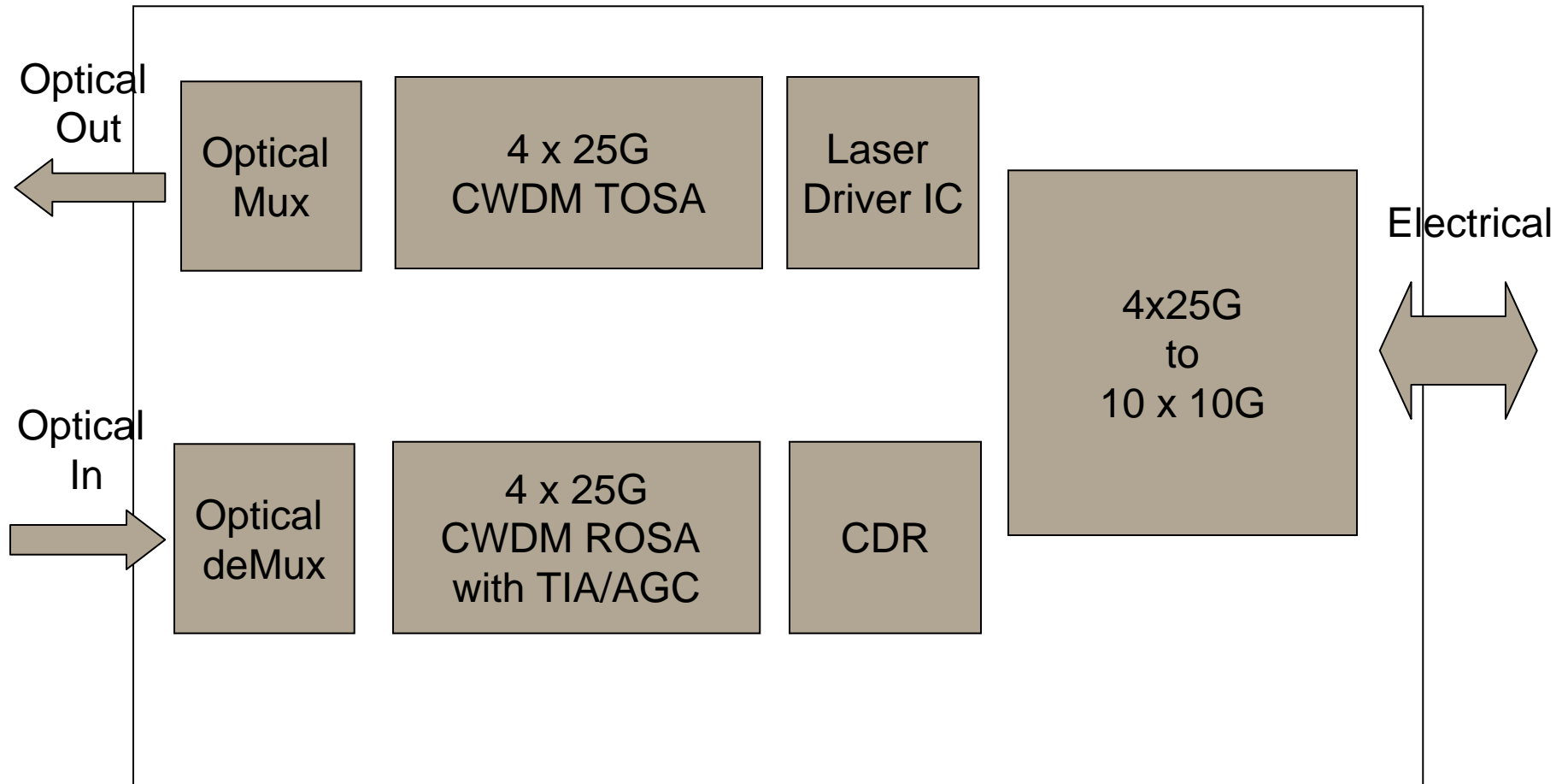




4 x 25 G Transmitter for 10km SMF

Wenbin Jiang, Diechi Sun

4x25G Optical Module Block Diagram

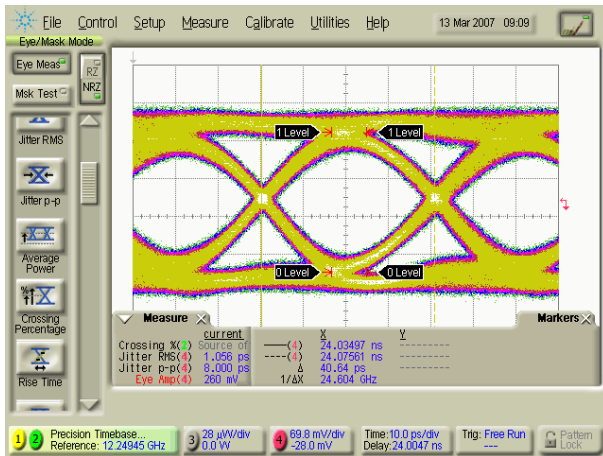


Transmitter Power Requirement

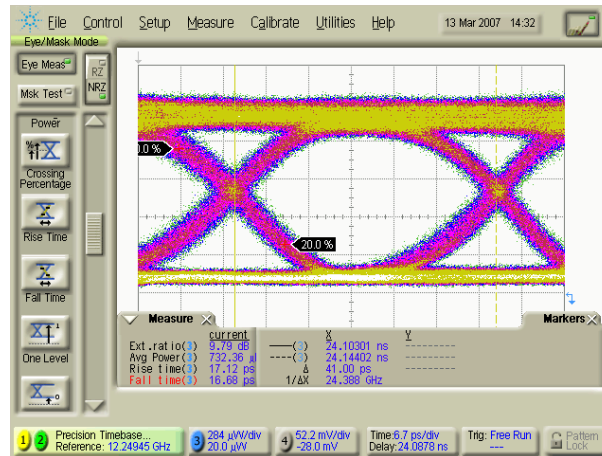
- Wavelength: IEEE or ITU CWDM grids
 - IEEE: 1275.7 nm, 1300.2 nm, 1324.7 nm, 1349.2 nm (channel bandwidth 13.4 nm)
 - ITU: 1291 nm, 1311 nm, 1331 nm, 1351 nm (channel bandwidth 13 nm)
- Receiver sensitivity: -10 dBm
- Loss over 10 km SMF: 5 dB
- Optical mux loss: 1.5 dB
- Optical demux loss: 2 dB
- Other penalty (dispersion, margin, etc): 2.5 dB
- Laser power: 1 dBm

25Gbps Transmitter Eye Diagrams

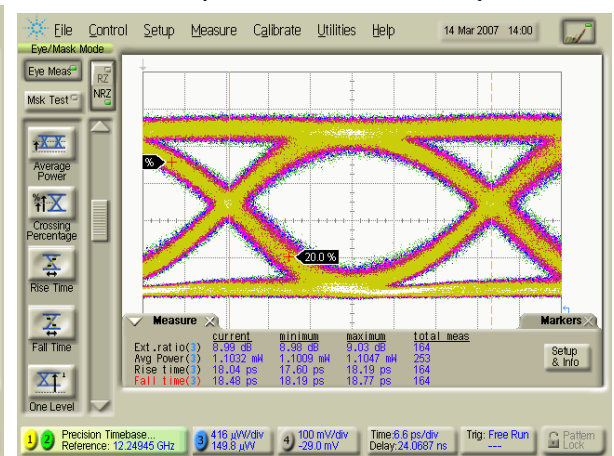
Electrical Input



Supplier 1 Optical
($\lambda = 1323$ nm)

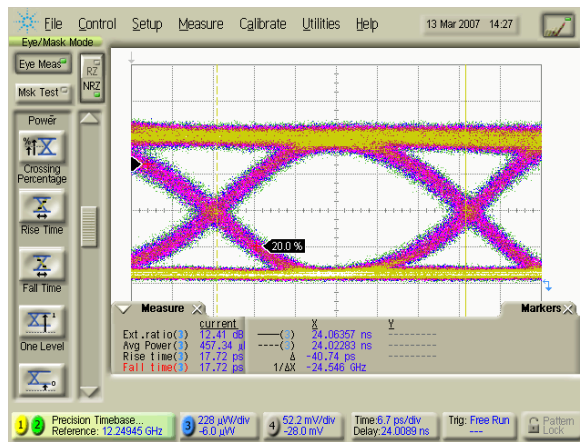


Supplier 2 Optical
($\lambda = 1311$ nm)

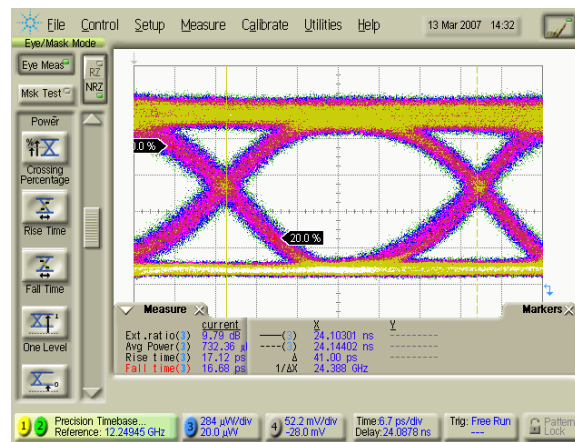


25 Gbps Optical Eye Diagrams vs. Temperatures

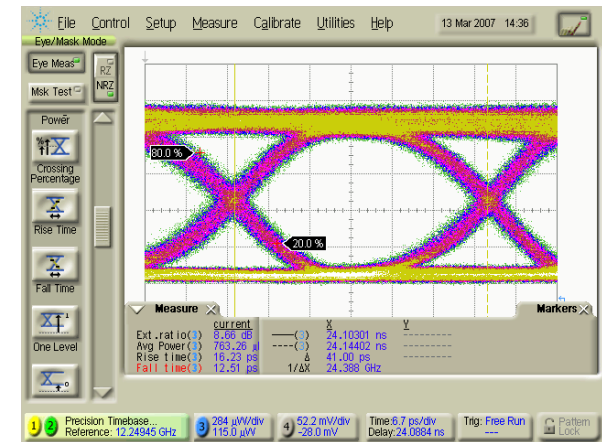
85°C



30°C



0°C



Conclusions

- 4 x 25G PMD for 10km distance objective is technically feasible
- 25G transmitter technology is economically feasible because it is based on the 10G EML chip technology with improved packaging for higher speed operation