



# **850nm Serial PMD Update**

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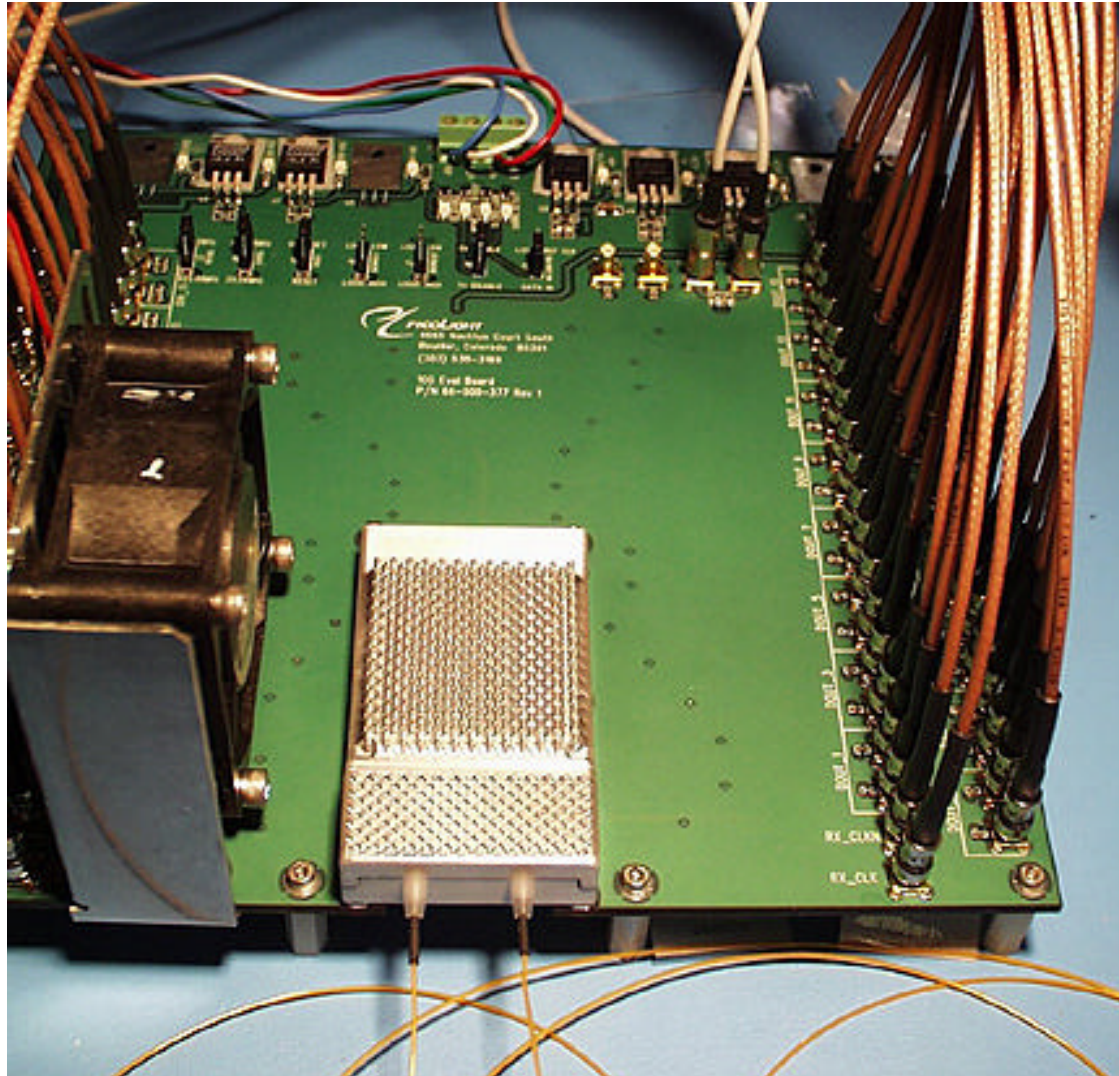
# 850nm Serial PMD Status

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- **Multiple PMD Vendor Support**  
Picolight, New Focus, W.L. Gore, Cielo, + Others
- **Live Demonstrations at Technical Exhibits**  
Picolight, New Focus
- **10Gig 850nm VCSELs Operate Over Temperature**
- **10Gig 850nm VCSELs Are Reliable**
- **Numerous 10Gig IC Vendor Support**
- **850nm Serial PMD Proceeding at 10GFC and OIF**
- **850nm Serial PMD in Other Activities, e.g. XGP**

# Live Demonstrations at Technical Exhibits

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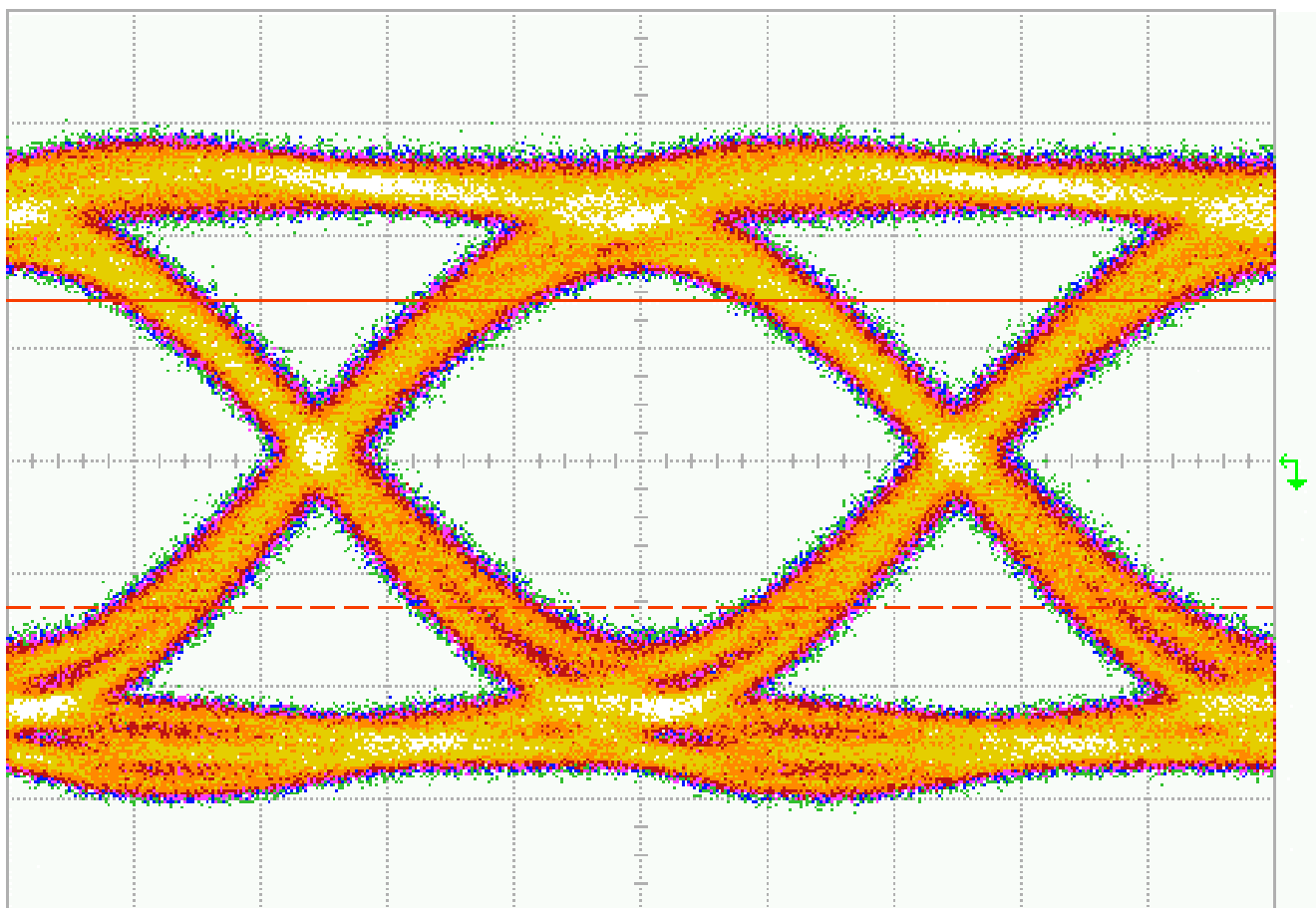


- Internal testing underway



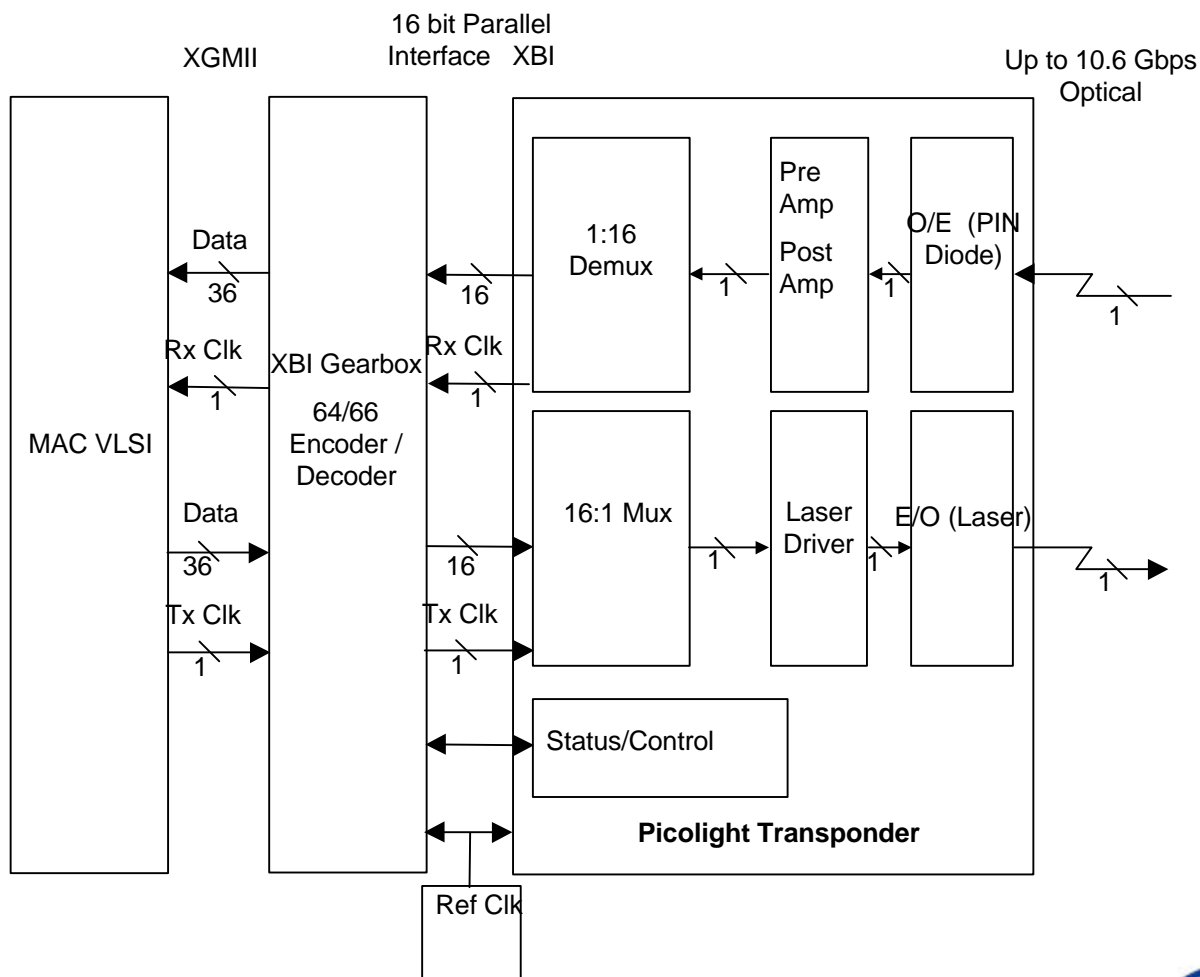
# Eye Diagram From 10Gig Serial Demo

*Through 75m of 500MHz-km, 50 $\mu$ m Core MMF*



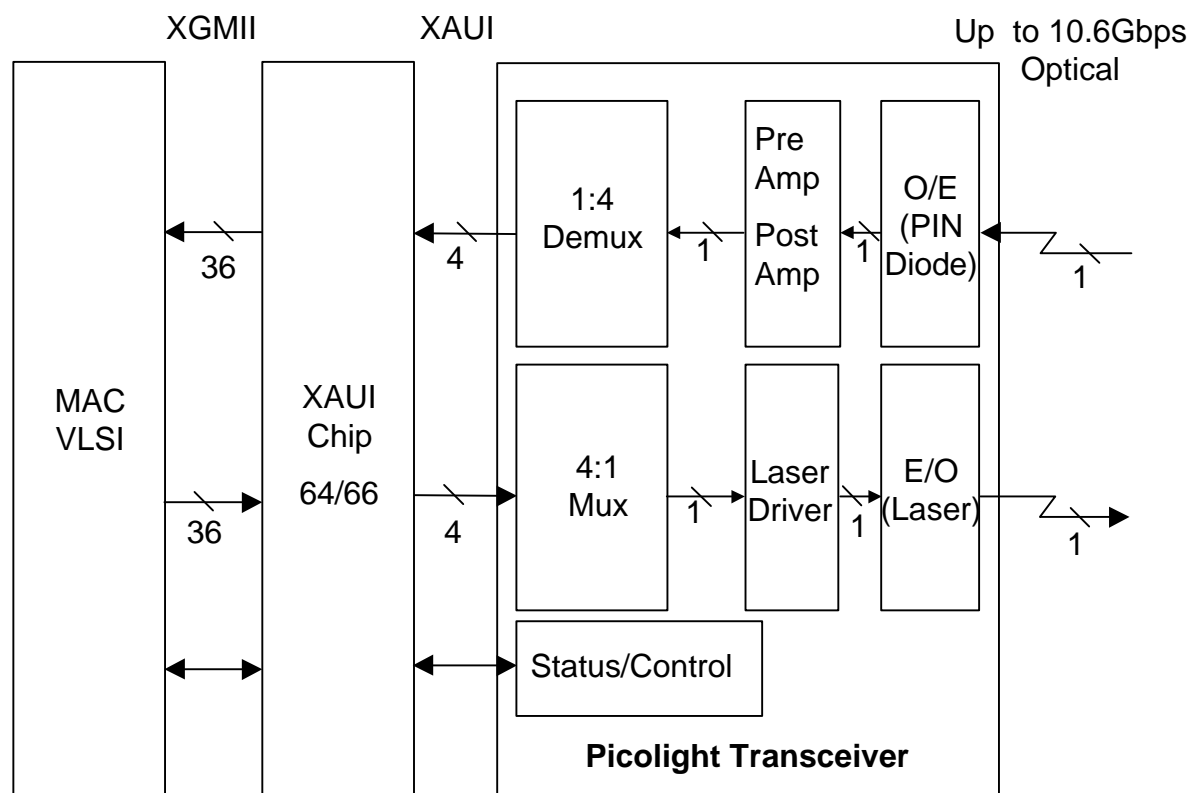
# Initial 10GbE Use With 16x622Mbps Input

*Use With Present Modules for Up To 10.6Gb/s Optical*



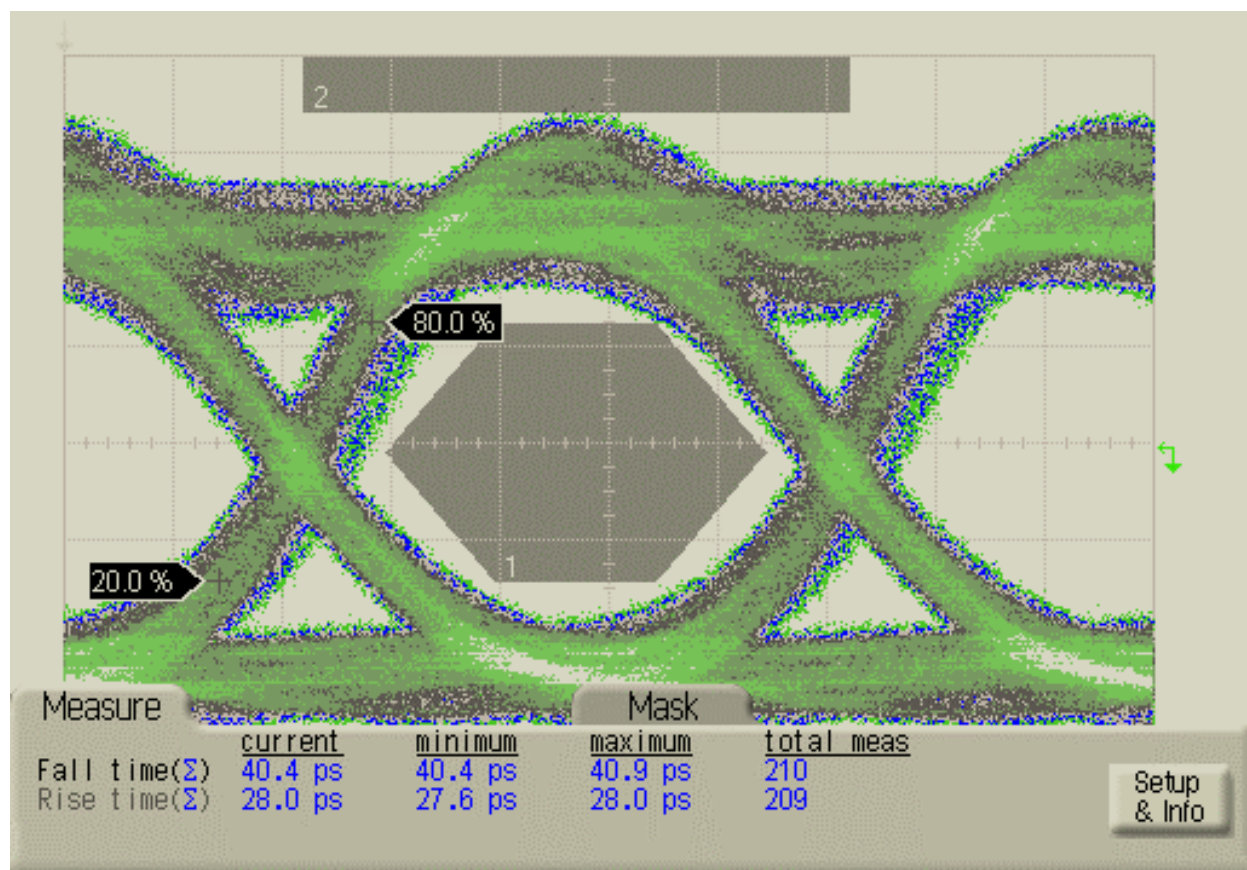
# XAUI Implementation for 4x3.125Gig Input

- *Fewer Electrical I/O's*
- *Smaller, Lower-Power SERDES*
- *Plug / Pin Compatibility With Other PMDs Via the XGP MSA Effort*



# 10Gig 850nm VCSELs Operate Over Temp

*70°C Operation at Normal Operating Current*



# **10Gig 850nm VCSELs Are Reliable**

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- **20 VCSELs Like Those Used in the Demonstrations**
- **70°C Operation**
- **Higher-Than-Normal Operating Current**
- **>4,000 Hours Logged So Far**
- **Zero Wearout Failures**
- **Beginning Higher-Stress Testing**



# Summary

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- **850nm Serial PMD is Robust and Reliable**
- **Serial PMD's Maximize Use of Silicon, Minimize Optics**
  - **850nm, MMF Uses Simplest Optics → Low Cost**
- **Si CMOS:  $0.18\mu\text{m}$  →  $0.13\mu\text{m}$  →  $0.1\mu\text{m}$  →  $0.07\mu\text{m}$  → .....**
  - **Low Power, Small Size, Low Cost**
- **XGP → Common Form Factor**
- **Combined 850nm Serial and 1310nm WWDM PMD's**  
**Form the Optimal Solution for the MMF Space**