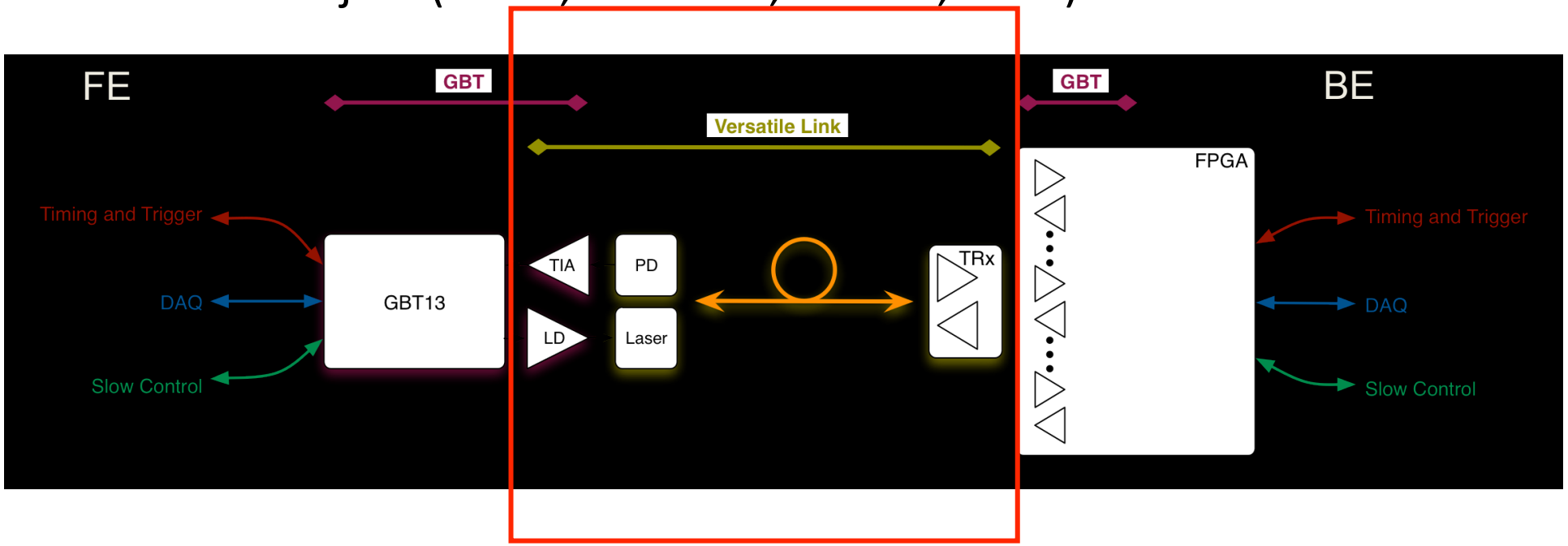
Versatile Link Project Description

- Optical Physical layer linking front- to back-end
- Bidirectional, ~5Gbps
- Versatile
  - Multimode (850nm) and Singlemode (1310nm) versions
  - Point to Point and Point to Multipoint architectures
- Joint Project (CERN, Fermilab, Oxford, SMU)



Project Structure and Partners

Versatile Link Project Steering Board

Spokesperson: F. Vasey

W1 - System

W1.1 – P2P
SMU, J. Ye

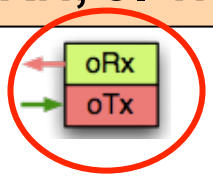
W1.2 – P2M

W1.3 – Mixed

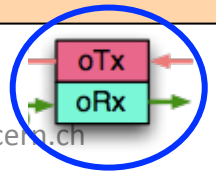
Link to GBT
CERN, P. Moreira

W2 - Components

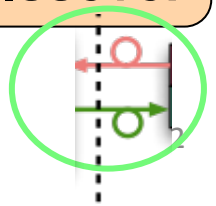
W2.1 – Front-End
CERN, J. Troska



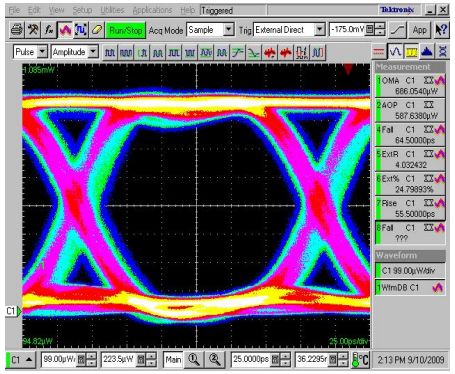
W2.2 – Back-End
FNAL, A. Prosser



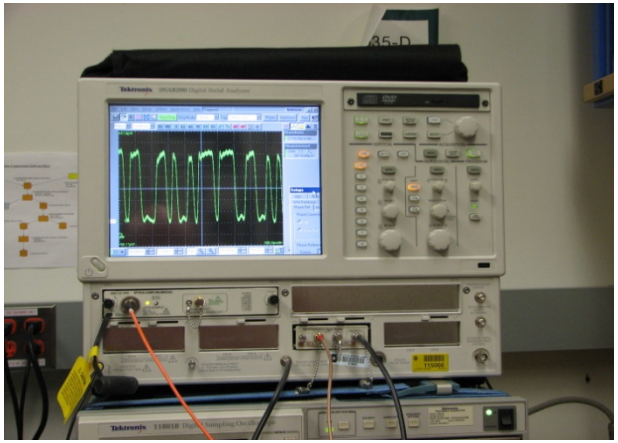
W2.3 – Passive
Oxford, C. Issever



Backend Transceiver



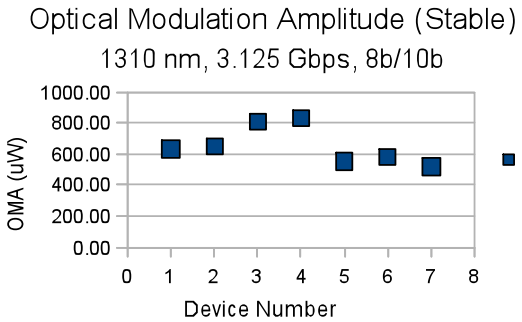
Optical Eye Pattern Analysis

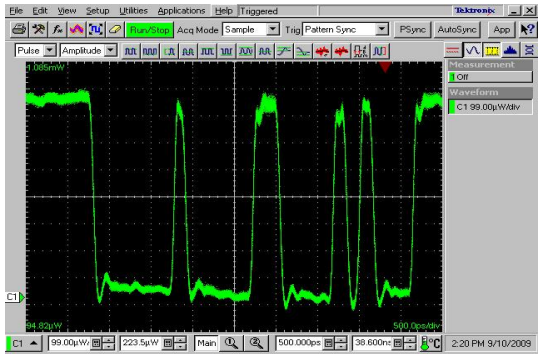


Digital Signal Analyzer

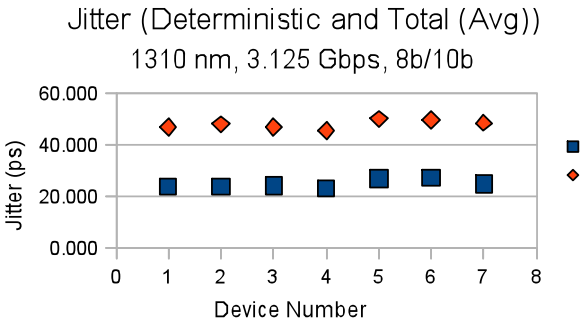


Jitter Decomposition and Analysis



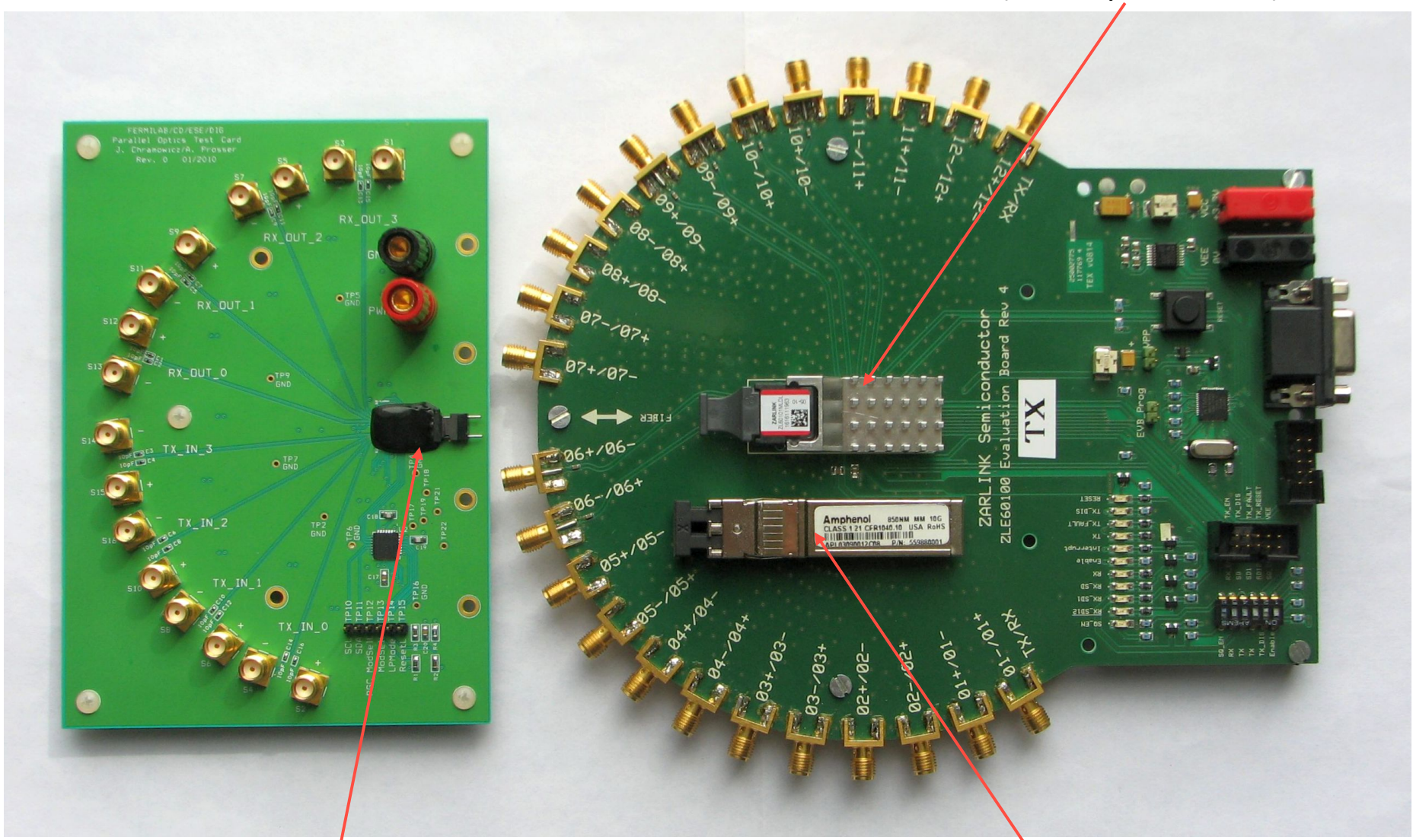


PRBS Pattern Synchronization



Back End Optical Technologies

SNAP12 Tx (2.7 Gbps/channel)



4x4 Optical Engine Transceiver (6.25 Gbps/channel)

SFP+ Single Channel TRx (10 Gbps)

Versatile Link Future Phases

- Project Plan calls for Phase 2 to end in March, 2011. Phase 3 would be production readiness phase.
- A "Phase 2B" has been discussed. This would bridge the period between the end of Phase 2and the beginning of a production readiness phase synchronized wit h LHC upgrades.
- Possible Phase 2B Activities:
  - 100 Gbps telecom products are driving the development of array optics.
  - FNAL already has begun investigating the use of existing array technologies for Versatile Link (SNAP 12, optical engines)
  - FNAL proposes to continue working with vendors of array technology to evaluate evolving products.
  - Activities would include design and development of test platforms, working with vendors to specify packaging options, test engineering, and component specification for these products.
  - FNAL has already worked with 2 vendors of such technology (NDAs are in place) and more are being contacted. We will be responsible for the support of reference test platforms for array transmitters and receivers for the Versatile Link project.

  Possible to submit this as a Generic R&D proposal .