Serial Gigabit Ethernet Transmission over Twinax

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Outline:

- Objective

- Test Setup

- Results

- Conclusions
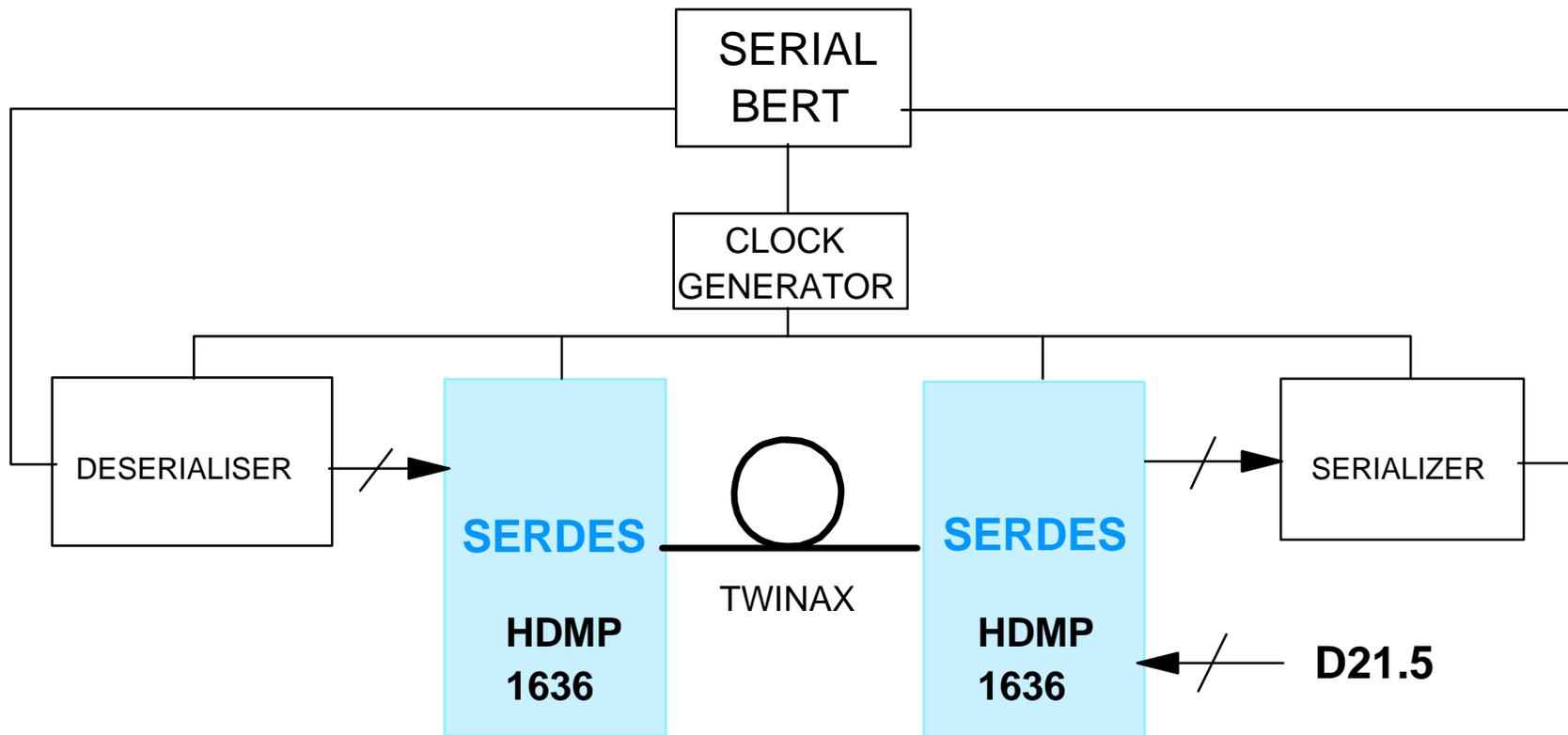
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Objective:

- Measure SERDES performance in "full duplex" condition
- Compare performance of cable equalization in copper links
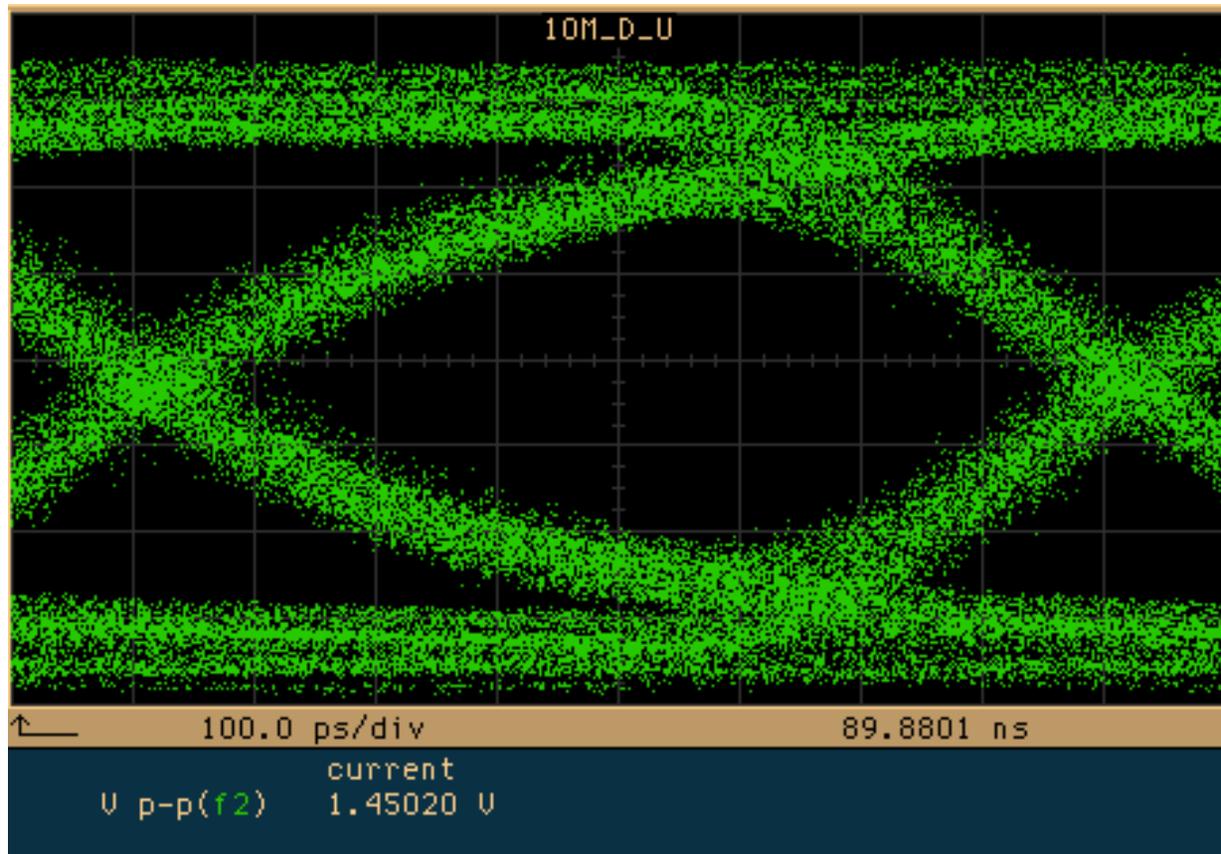- Compare cable equalization with circuit equalization

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GEN Cable Distance Test

- Serdes in pseudo Full Duplex Operation
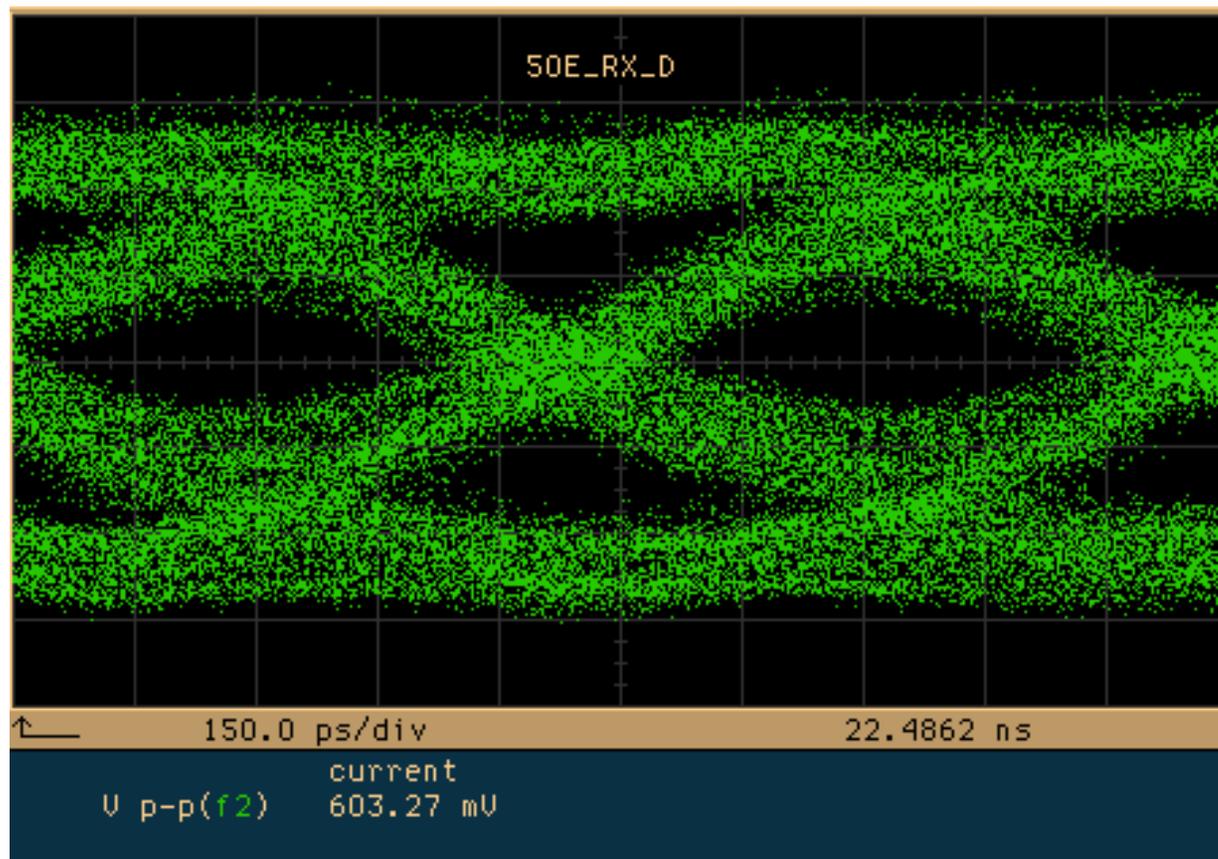- Twinax cable(s) with DB9 connectors

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10 Meter Unequalized Twinax Eye

- DB9 Connector, AWG 28 Molex Cable
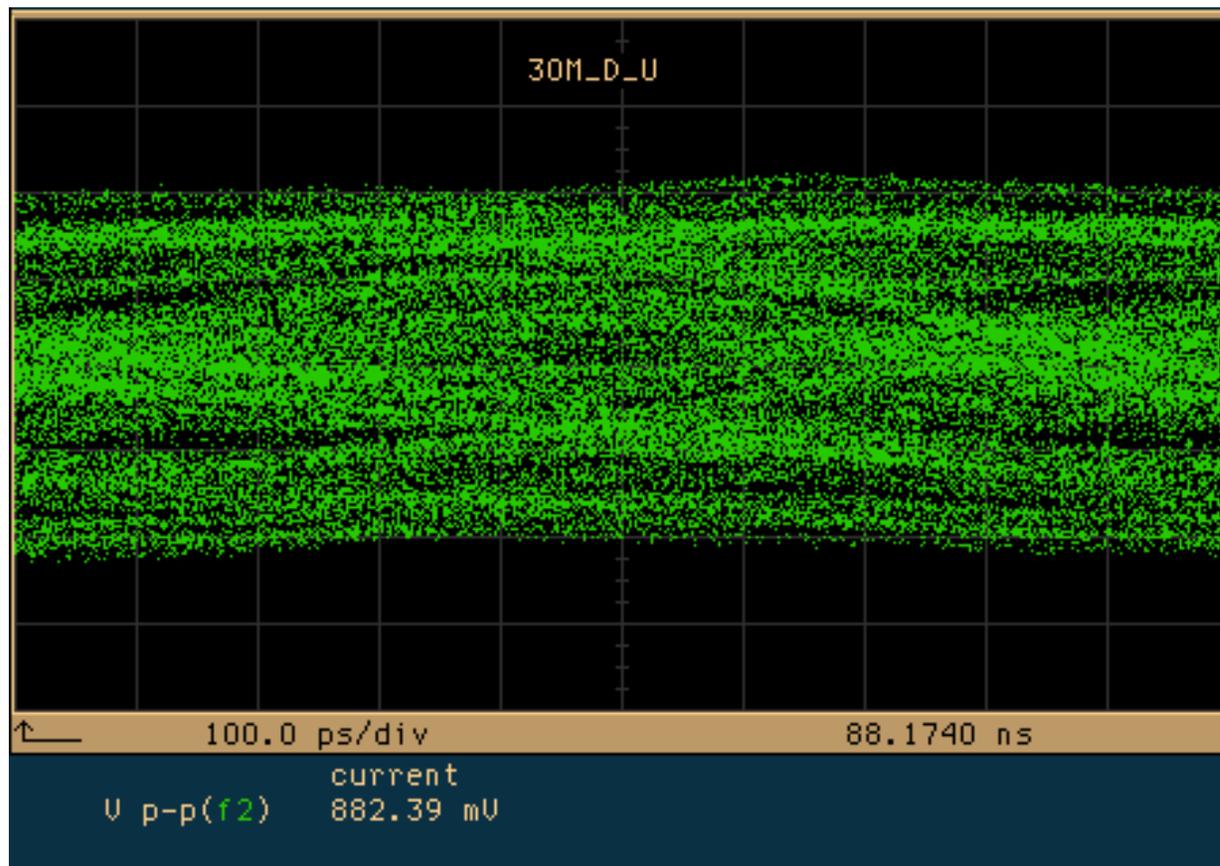- Eye measured at output of cable

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50 Meter Equalized Twinax Eye

- 3 Cables used (Gore 20x15x15m) with DB9 connectors
- Eye measured at output of last cable

30 Meter Unequalized Twinax Eye

- 3 Lengths of 10m AWG 28 cable, DB9 connectors
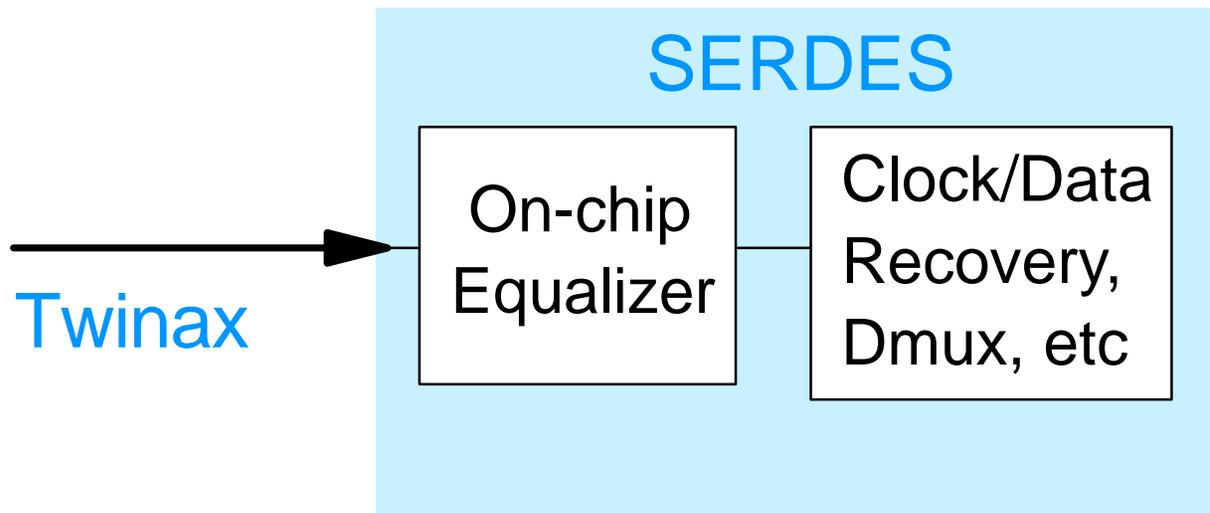- Eye measured at output of last cable

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SERDES Receiver Input Stage

- Equalization done on-chip at Rx input
- Eye opening increased before clock/data recovery stage

SERDES

On-chip Equalizer

Clock/Data Recovery, Dmux, etc

Twinax

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Results

- Equalized Cable = 50m @ < 10E-12 BER

- Unequalized Cable = 30m @ < 10e-12 BER
  (>17 hours error free)

- Internal equalization within SERDES may offer simple, cost effective operation at 27m spec

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