07-327r0 SAS-2 Compare Measured Data With Simulation Results

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Outline

- Simulate With S-Parameter
  - Using StatEye
  - Using LeCroy’s Virtual Probing
- Measure With Physical Channel
  - Use BERT Driving Physical Cable
- Compare Simulated Data With Measured
Lab Setup

PRBS $2^{31}-1$ Launch Signal With 1V amplitude from Agilent 12G Pattern Generator

- Used 6m 24AWG and 0.5m 30AWG MiniSAS Cables
StatEye Setup

- 6Gbps
- 0dB De-Emphasis (1.0), Non-Optimized
- R/C Filters for Package Tx/Rx Model (r=45, c=800fF)
- #<0,5> DFE Taps, CDR Disabled
- Jitter: DJ = 0.01UI, RJ = 0.01/(2*7.94) UI (very low for comparison to PG only)
Virtual Probing Setup

- 6G Signal from Agilent PG
- Used S-Parameter Models for 6m and $\frac{1}{2}$ m MiniSAS Cables
$\frac{1}{2}$ m 30AWG MiniSAS

Physical Cable

0 DFE

Virtual Probe

0.516V

StatEye

Physical Cable With LeCroy DFE

5 TAP DFE

Virtual Probe

0.616V

StatEye
6 m 24AWG MiniSAS

Physical Cable

Physical Cable With LeCroy DFE

Virtual Probe

Virtual Probe

6 m 24AWG MiniSAS

0 DFE

5 TAP DFE

StatEye

StatEye
Summary

- Good Correlation Between Virtual Probe and Physical Measurements
- Need To Understand StatEye Results
- Overall – Simulation is the right approach for SAS2