VITESSE

07-134r0 SAS-2 Receiver Compliance Proposal

Serial Attached SCSI

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3/13/07

YOUR PARTNER FOR SUCCESS

Receiver Compliance Architecture

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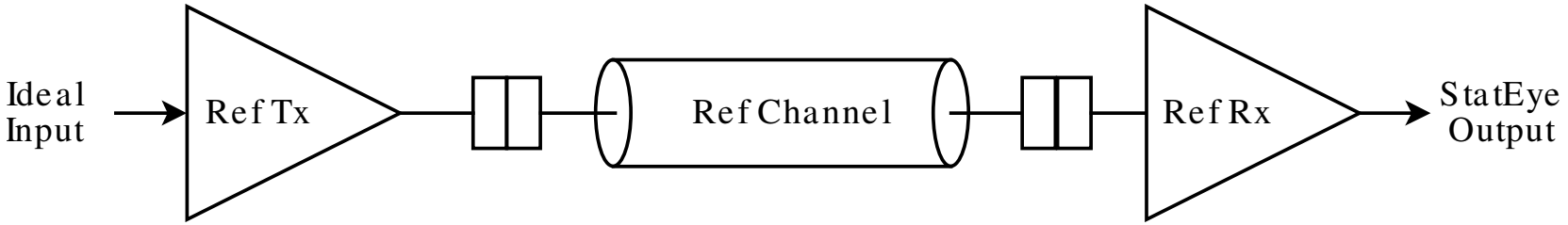
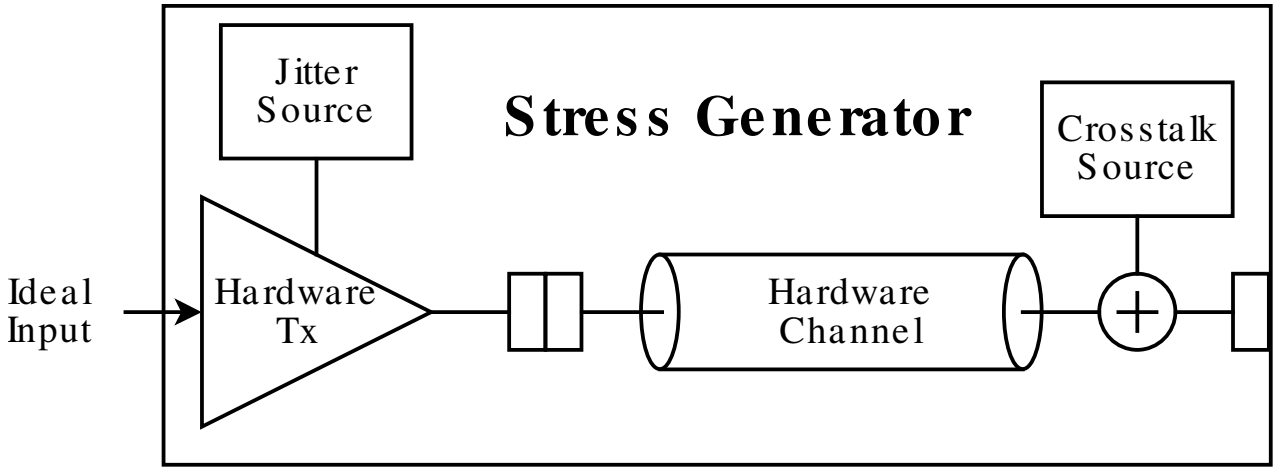
Pieces to the Solution

- Reference System (Baseline to test against)



- Stress Generator (Physical implementation of Reference System w/o Receiver)



- Calibration Suite (Method for testing the validity of the Stress Generator)

Calibration Step 1 (Reference Calibration)

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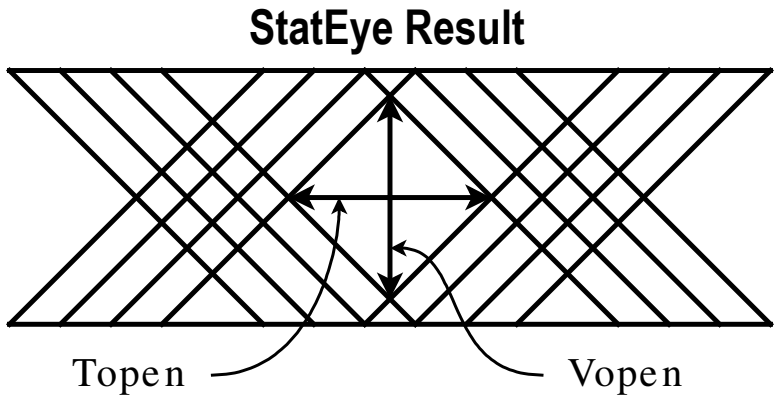
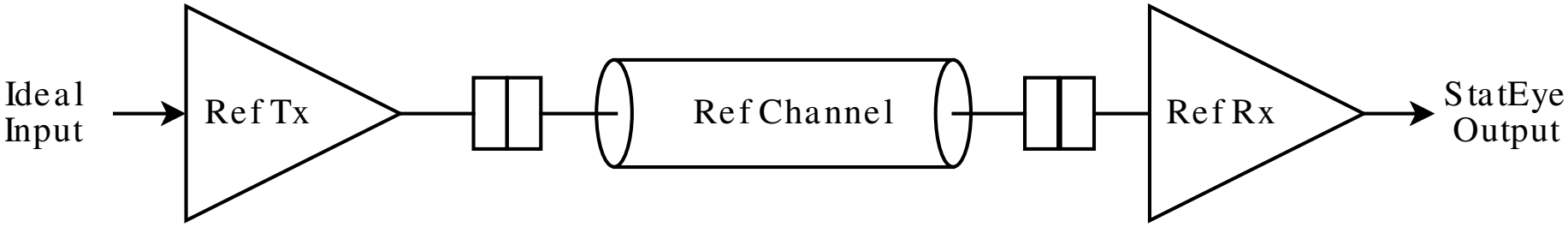
- Purpose
  - Develop a reference to compare measured waveform to
- Method
  - Inject an Ideal Input Waveform into the Reference System
  - Input Pattern: CJTPAT
  - Measured Value: Topen(ref), Vopen(ref)





Calibration Step 2 (Stress Calibration)

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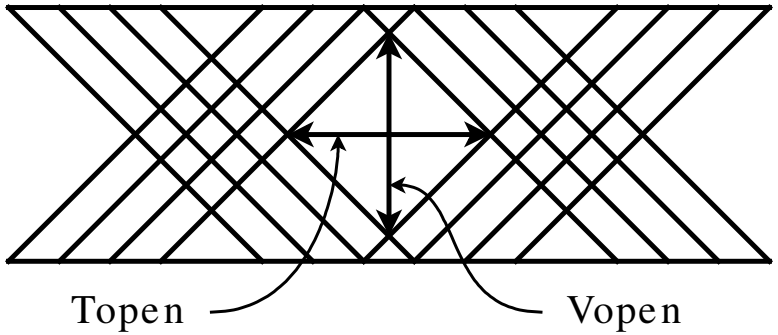
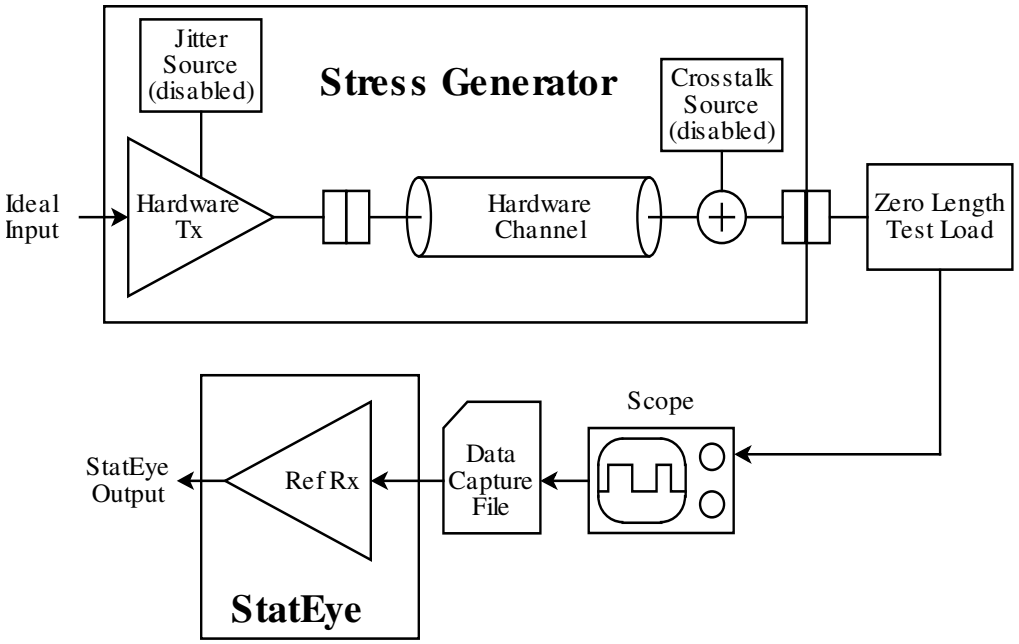
Purpose

- Measure Stress Generator Waveform





Method

- Disable Jitter and Crosstalk Source
- Inject an Ideal Input into the Stress Generator
- Capture Stress Generator Output through Zero Length Load
- Use StatEye to calculate resulting Output Eye through Reference Receiver
- Input Pattern: CJTPAT
- Measured Value: Topen(stressed), Vopen(stressed)
- Required Result: Topen(stressed) < Topen(ref), Vopen(stressed) < Vopen(ref)

Calibration Step 3 (Jitter Calibration)

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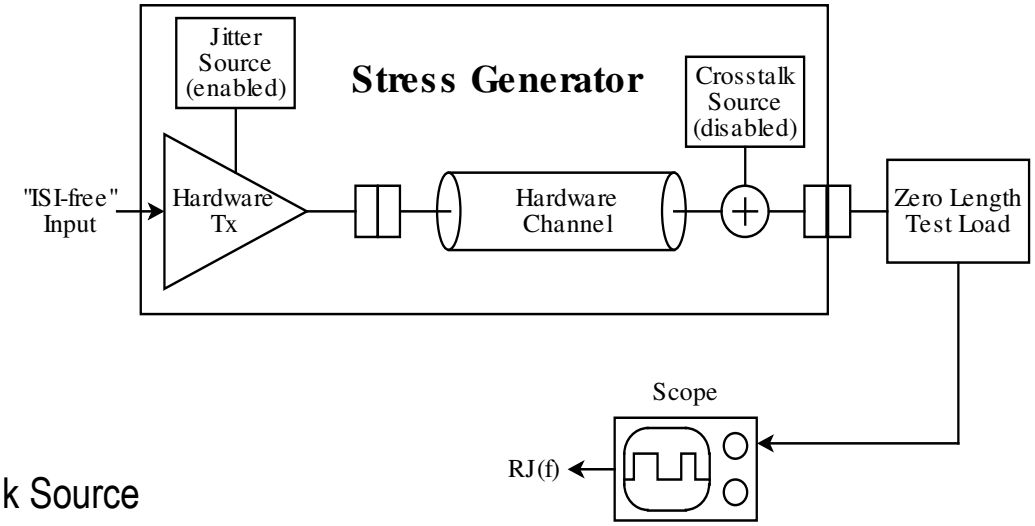
Purpose

- Measure Stress Generator Jitter Generation



Method

- Disable Crosstalk Source
- Inject an “ISI-free” pattern into input
- Measure Jitter Generation through Zero Length Load
- Input Pattern: 1100 (D24.3)
- Measured Value: RMS Jitter Gen, RJ(f)
- Required Result: RJ(f) > Jitter Tolerance Mask

Calibration Step 4 (Crosstalk Calibration)

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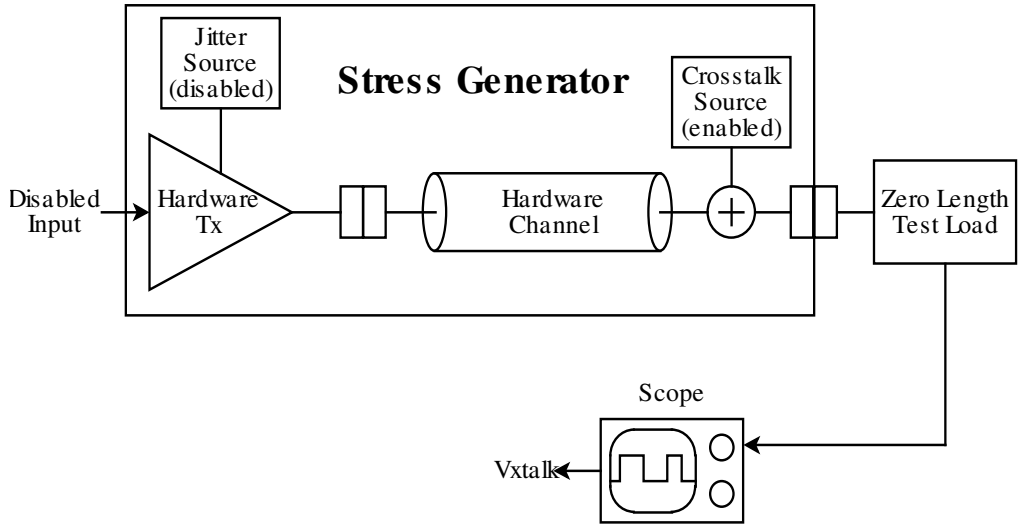
Purpose

- Measure Stress Generator Crosstalk Component



Method

- Disable Jitter Source and Input
- Measure Crosstalk Amplitude using through Zero Length Load
- Measured Value: Crosstalk Amplitude, Vxtalk (use VMA measurement)
- Required Result: Vxtalk > Max Crosstalk

Summary

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- Benefits
  - Physical Compliance Test
  - Flexible enough to allow multiple implementations
  - Calibration Suite avoids the “Golden Hardware” problem
- Additional Issues to Resolve
  - Jitter Tolerance Mask (need to resolve Tx specs first)
  - SSC – Is this a separate test?
  - How many reference channels do we need?
    - Proposal: 3 (10m miniSAS, HP24, 0.5m miniSAS)