Metrology for Backplanes/Cables
SCSI PIP/SSM Working Groups
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Issues for U 640

- Agreement on the major issues:
  - Reflections
  - Crosstalk
  - Can’t be compensated for by circuitry – must verify environment
  - Cables need to be specified by electrical parameters

- Need a way to determine if an environment will be suitable for U640
  - Historical issue for PIP/SSM
  - Help for OEMs/Users
What must we Do?

- Need to determine parameters of backplanes which affect signal quality
- Determine acceptable signal quality
- Goal is to guarantee backplane will work
- Specify limits of parameters
- Specify method and equipment used for verifying parameters
- Qualify process using Round Robin & BERT
- Develop design guidelines/white paper?
Procedure/Equipment to be Used

- Test Equipment and methods available
  - Wavecrest – used by Fiber Channel
  - TDR/TDT – Annex E
  - VNA
  - Statistical Timing and Amplitude margin – Labview/Minitab
  - Physical parameters vs. Frequency
    (Transfer function, crosstalk, mutual coupling, R,L,G,C, \(\epsilon_0\), \(Z_0\), etc.)
  - Others?

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Action Items

- Acquire volunteers to each take a type of equipment and develop procedure (crosstalk, reflections, others?)
- Use all procedures on common backplanes (at least one acceptable and one marginal backplane) - same or different volunteers
- Verify that particular parameter value separates acceptable from unacceptable
- Rank procedures in order of preference
Action Items (continued)

- Write up overall procedure
- Write up design guidelines/white paper (publish on STA Tech or STA website in appropriate location)
- Verify with Round Robin (maximize number of participants)
- Test all available backplanes and report to manufacturer, keep track of statistics
- Make recommendations for improvement
Summary

- Many systems which are in the field have enough margin for 640 and new designs are straightforward, but some old designs will not work.
- This plan requires a lot of work.
- With participation from all companies, the division of work should make it acceptable.
- With input from everyone, it will be very valuable to all.
- This will be an asset to the SCSI community.