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 effect error rate

  - Determine acceptable error rate

  - Goal is to guarantee backplane will work

  - Specify limits of parameters

  - Specify method and equipment used for verifying parameters

  - Qualify process using Round Robin

  - Develop design guidelines/ white paper?

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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
    $$(R,L,G,C, \varepsilon_0, Z_0, \text{etc.})$$
  - Others?

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

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Action Items (continued)

- Write up overall procedure

- Write up design guidelines/ white paper

- Verify with Round Robin (maximize number of participants)

- Test all available backplanes and report to manufacturer, keep track of statistics

- Make recommendations for improvement

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Summary

- Many systems which are in the field have enough margin for 640 and new designs are straight forward but some old designs will not work.

- This plan requires a lot of work

- With participation from all companies the division o 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

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