

T10/01-257r0

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

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What must we Do?

- Need to determine parameters of backplanes which effect 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?

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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
(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

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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

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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 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

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