

25% Precomp Cutback Level Proposal

SCSI Parallel Working Group

May 1, 2001

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Seagate Technology

T10/01 - 136r1

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A.B.M. 4/19/01

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Data Collected

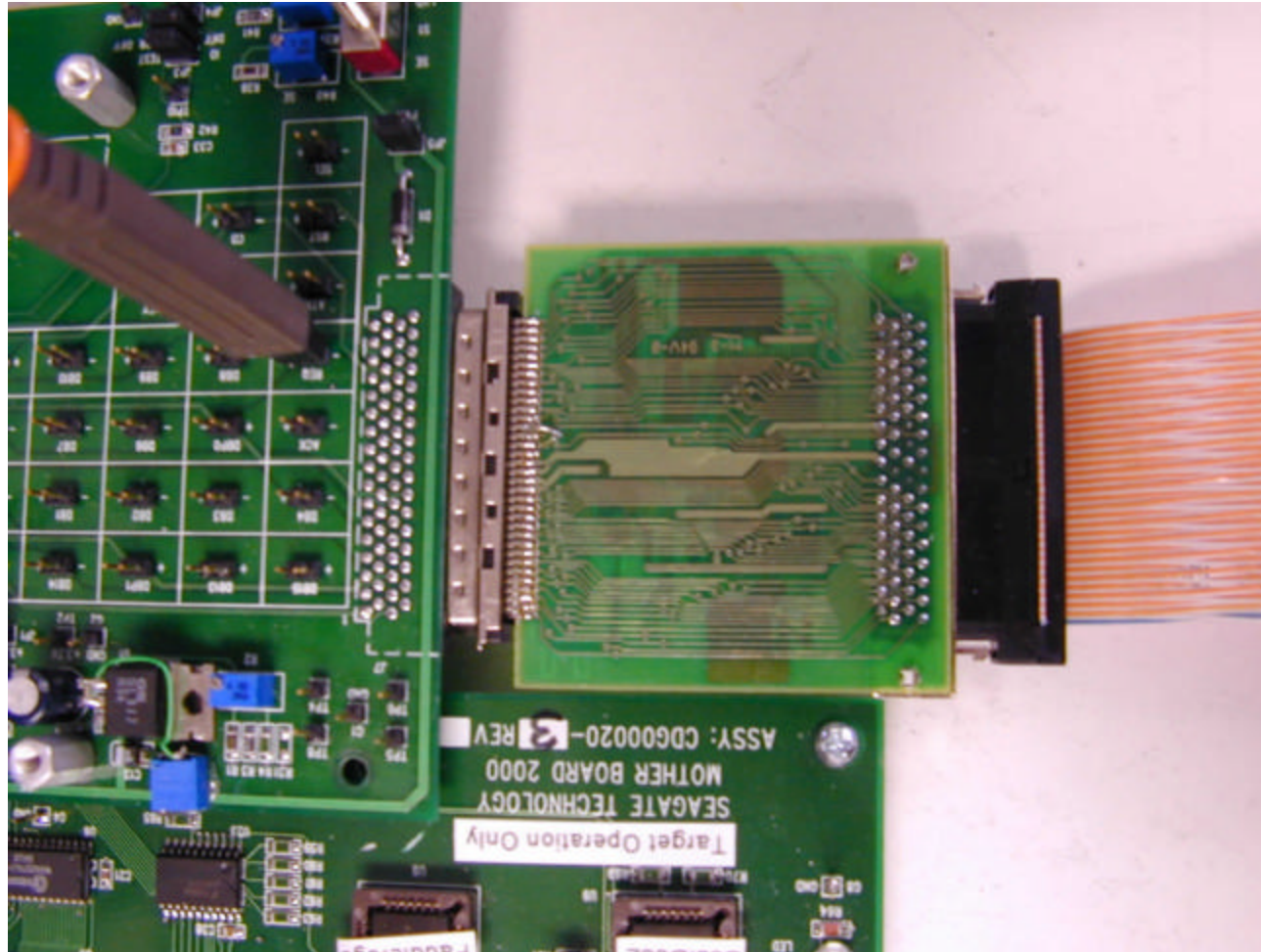
- Test Setup
- Proposed Changes
- Conclusions

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Test Setup

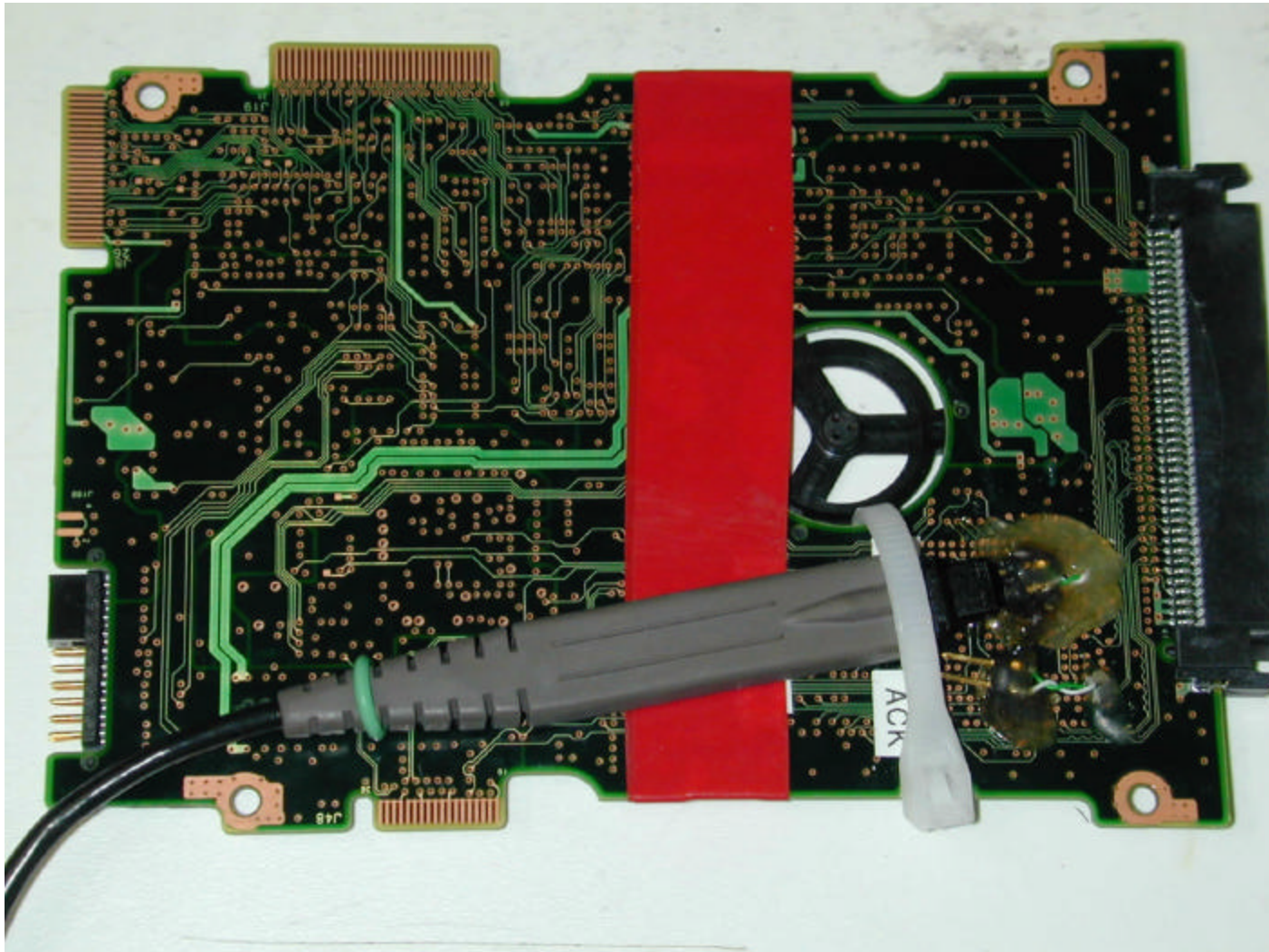


T10/01 - 136r1

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Test Setup

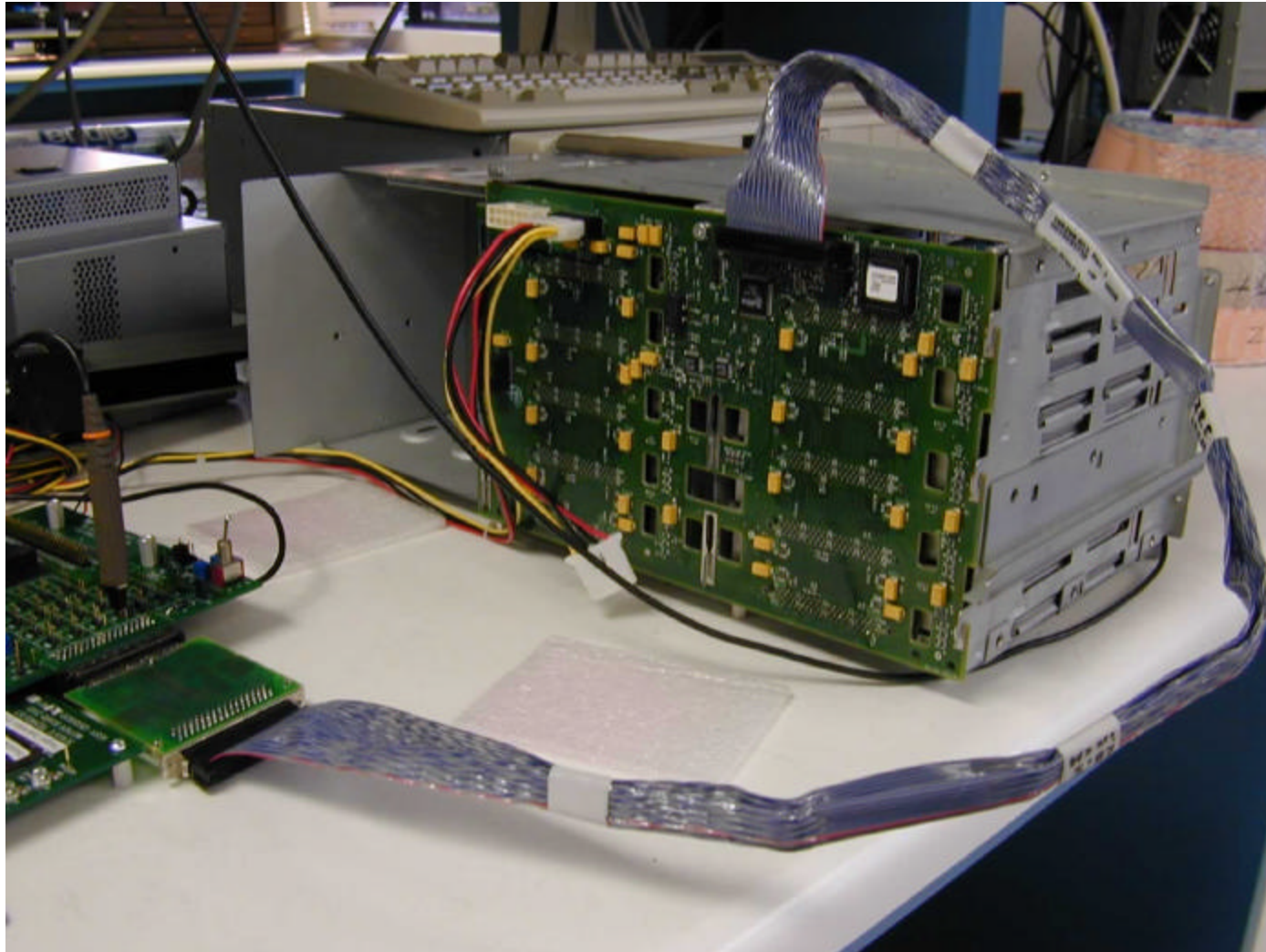


T10/01 - 136r1

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Test Setup



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Other Issues to Consider

- Power is an issue – Power (heat) relates to reliability
- With 50% cutback, the primary driver is at an extremely high level – even for minimum drive strength.
- The strong driver strength would be reduced by about 20%. Therefore the average voltage would be reduced by 10%. The power reduction is 20% ($V^2 - .9 \times .9 = .81$). In a typical driver this is a 300-350 mw reduction.

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How much ISI is compensated for?

- Table 37 - SCSI Fast-160 timing budget template states:
“ISI Compensation | 2,0 ns | Assumes 50% of ISI is compensated”
- 50% cutback compensates for 100+% of the ISI

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25% Cutback Proposal

- Change Paragraph **A.2.1 Driver requirements overview** in Annex A to read:

“If precompensation is enabled, the weak driver amplitude shall be a minimum of ~~50~~ 60% to a maximum of ~~66~~ 75% of the strong driver amplitude after the first bit of a series of adjacent ones or adjacent zeros.”

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Proposal (cont.)

- Change NOTE 49 to read:
- “If a weak driver is driving with the minimum amplitude specified in table A.2, then the 370 mV weak driver translates to a strong driver of ~~560~~ 493 mV for the ~~66~~ 75 % case ranging up to ~~740~~ 616 mV for the ~~50~~ 60 %case.”

T10/01 – 136r1

Conclusion

- 25% cutback gives superior performance to 50% cutback
- 50% cutback increases power (by 300-359 mw)
- One would be better off (if more power is acceptable) to use 25% cutback and increase average voltage.

T10/01 - 136r1