PIP Comments
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Document should have another letter ballot, too many loose ends.

1. **(Substantive) PIP complaint about the first line on page 14 (most twist and flat cables ship with attached terminators and terminators are mounted on the backplanes, 4.9.2 Prohibited should be changed to not covered in this standard. Switchable terminators when they are not powered appear as the capacitive load, very close to the capacitance with the device is powered. The parts are designed for hot plugging where they can be attached to a bus in disconnect mode without loading the bus any more than the capacitance, typically 2 pF.**

2. **(Substantive) 4.9.3.1 & 4.9.3.2 list SPI-5 should be SPI-x, we were careful in the rest of the document to state SPI-x,**

3. **(Substantive) 4.9.3.1 & 4.9.3.2 should include the VHDCI 68 pin.**

4. **(Substantive) 4.10.3 sections don't adequate describe the measurement for pass/fail – is zero crossing? Or what a receiver considers the valid signal which could be more than 100 mV from the zero crossing? It is not clear that the Data Spewing board can generate to levels of signal with that accuracy. Voltages assumed are the voltages into a test load, not the voltages into a cable that can be higher.**

5. **(Editorial) Table 3 Comments, second box down, analyzer is spelled wrong.**

6. **(Editorial) Introduction – Space missing on Clause 4 description – in this**
   - Clause 4 describes the definitions, symbols, conventions and abbreviations used inthis standard;

7. **(Substantive) The full reference numbers should be called out in section 2 Example SPI-4 should be INCITS.362-200x and all the other SPI-x standards should be referenced that are not obsolete since SPI-x is referenced in the document. The source information needs to be added too.**

ISO/IEC 14776-113*, SCSI Parallel Interface-3 standard*
ISO/IEC 14776-112, *SCSI Parallel Interface-2 standard*

In development
ISO/IEC 14776-xxx, *SCSI Signal Modeling -2 standard (T10/1514D)*

SSM-tr is an approved technical report (T10/1414-DT) INCITS/TR29:2002

NOTE 1 - For more information on the current status of the document, contact the INCITS Secretariat at 202-737-8888 (phone), 202-638-4922 (fax) or via Email at incits@itic.org. To obtain copies of this document, contact Global Engineering at 15 Inverness Way, East Englewood, CO 80112-5704 at 303-792-2181 (phone), 800-854-7179 (phone), or 303-792-2192 (fax).

8. **(Substantive) Informative references are called out without the source information**

NOTE 2 - For more information on the current status of the document, contact the SFF committee at 408-867-6630 (phone), or 408-867-2115 (fax). To obtain copies of this document, contact the SFF committee at 14426 Black Walnut Court, Saratoga, CA 95070 at 408-867-6630 (phone) or 408-741-1600 (fax).

9. **(Substantive) Clause 3.1 calls out the SPI document that is obsolete, this should be replaced with the SPI-2 document.**

10. **(Editorial) There are several references for distance called out in cm, the international standards for mechanical measurement should be in mm. This avoids confusion and errors, like 0.5 cm should be 5 mm.**

11. **(Editorial) 3.2.9 and 3.2.10 has an extra carriage return**

12. **(Substantive) No definition - 3.2.24 Concatenated: Two or more cable assemblies, backplanes or combination of cable assemblies and backplanes attached together to form a SCSI bus.**

13. **(Editorial) 3.2.49 High - not used in the Passive Interconnect standard or SCSI remove from the definition list.**

14. **(Editorial) 3.2.57 Low – not used in the Passive Interconnect standard or SCSI remove from the definition list.**

15. **(Substantive) 3.2.85 S plane: not defined**

16. **(Substantive) 3.2.120 Worst Case device: not defined**

17. **(Editorial) 4.3.1 third paragraph is missing a space between the first and second sentence.**

18. **(Editorial) 4.3.1 this sentence needs work:** The same conventions commonly used for modeling and transmission lines are used to define interoperability points, if possible.

The same conventions commonly used for modeling and transmission lines, these conventions should be ~~are~~ used to define interoperability points, if possible.

19. **(Substantive) 4.3.1 wrong TLA** All measurements are specified through a mated connector. This means that the test fixturing specification is critical since part of the tested interconnect remains with the test environment and part is removable with the DUT. ~~IUT~~.

20. **(Substantive) 4.3.1 A standard should not reference a proposal.** See 00-149r0 for more detail. The proposal should be made an ANNEX or put directly in the section, it is basically one figure and description.

21. **(editorial) 4.3.3 this paragraph seems awkward and however in the last sentence doesn't add meaning and should be removed**

Bulk cable is the collection of conductors and associated insulation used between, but not including, the connectors or non-permanent transition regions in a passive SCSI interconnect. Bulk cable includes permanent transition regions (e.g., flat regions used in twist and flat type bulk cable) designed for purposes of enabling connector attachment. Bulk cable is flexible and is not used to describe printed circuit boards. Printed circuit boards without connectors are~~, however,~~ included under separate headings in the clauses associated with bulk cable.

22. **(Editorial) 4.3.4 states all the connectors**

An interconnect with ~~all the~~ connectors installed is termed an interconnect assembly. Each SCSI connector shall be identified by ~~all of~~ the functions listed in clause 4.9.1 that the connector is expected to support in service. Note that this may be more restrictive than allowed by the SCSI architecture model (SAM). SAM allows all SCSI ports to have either the initiator role or the target role or both roles. However, in practice most SCSI ports implement only one role.

23. **(Possibly Substantive) 4.4 clause needs to be rewritten, its logic is reversed. It should state what we are doing for bulk cable testing, then the logic behind it if necessary. It is not clear that the logic behind it is needed in a standards.**

4.4 Relationship between requirements on bulk cable and requirements on interconnect assemblies

Interconnect assemblies are intrinsically a higher level component than bulk cable. Performance requirements on interconnect assemblies are dictated by the signal requirements specified in SPI-x. Separate performance requirements on bulk cable are theoretically not necessary for an interconnect assembly to meet its requirements. However, the signal loss, the propagation time skew, the impedance, and the cross talk are directly affected by mechansms intrinsic to the bulk cable. Separate performance specifications for bulk cable that are independent from the interconnect assembly are defined in this document for purposes of enabling multisourcing of bulk cable. For applications where multisourcing is not required, these specifications may not apply. Another reason for having separate bulk cable specifications is to allow statements of compliance.

Predictable, consistent performance for bulk cable supplied by different vendors is a goal. Meeting this goal requires specification of test samples to be used by all suppliers that have common properties such as length and sample preparation schemes.

Recommended

4.4 Relationship between requirements on bulk cable and requirements on interconnect assemblies

Predictable, consistent performance for bulk cable supplied by different vendors is a goal. Meeting this goal requires specification of test samples to be used by all suppliers that have common properties such as length and sample preparation schemes. The signal loss, the propagation time skew, the impedance, and the cross talk are directly affected by mechansms intrinsic to the bulk cable.

Bulk cable testing does not guarantee that interconnect assemblies will meet the SPI-x requirements. The signal level and crosstalk requirements of the interconnect assembly may require tighter or allow loser specifications. The test methodology specified in this standard gives a consistent predictable method of testing that allows multi-sourcing of bulk cable.

24. (Editorial) PIP purposes should be changed to in this standard.

Following is a sample list where interoperability might be expected in a SCSI segment. A “Y” following the position designation means that this is considered an interoperability point in this standard. ~~for PIP purposes~~. Similarly, a “N” following the position designation means that the point is NOT considered an interoperability point in this standard. ~~for PIP purposes~~.

25. (Editorial) 4.9.2 what does primary practical interest mean?

The following configurations of primary practical interest shall be used for specifying the level 1 tests in this document:

The common configurations shall be used for specifying the level 1 tests in this standard:

26. (General - editorial) There should be a consistent reference to this standard; the document refers to itself as PIP, this document.

27. (Editorial) 4.10.2 there is an extra 1 one

Since level 1 one measurements are intended to determine compliance to requirements, and performance level all level 1 measurements are tests as defined above. No level 2 measurements are tests.

28. (Editorial) 4.10.4 – fourth paragraph, first sentence away should be removed.

29. (Substantive) 4.17 makes assumptions that may not be true if future generations of SPI are developed with self clocking data. The zero error rate should stop with SPI-5, if SPI-6 is developed it may have phase lock loops with Gaussian noise.

30. (Editorial) Table 6 the second box on the left side has an extra period

31. **(Editorial) 7.6.1 the last sentence of the second paragraph doesn't seem to belong in that paragraph, it should either be part of the first paragraph or a separate paragraph.**

32. **(Editorial) 7.6.2.4 the second paragraph, Analyzer is misspelled**

33. **(Editorial) 7.7.1 the last sentence of the second paragraph doesn't seem to belong in that paragraph, it should either be part of the first paragraph or a separate paragraph.**

34. **(substantive) 9.2.4 second paragraph, the terminator is enabled and termpwr must be present on the cable for the enabled terminator to be operational.**

35. **(Substantive) 9.3.2 there is no figure at the top of page 60 but there is this label: Figure 25 - Interconnect assembly set up 1 (SET_ASY_1)**

36. **(General comment) Review copies should not have change bars, change bars should only be in preliminary copies before letter ballot review.**

37. **(Editorial) 10.3.2.3.2 fourth paragraph Shall has an extra l**

38. **(Editorial) 10.3.2.4 last paragraph – minor spelling and comma**

The requirements in Table 11 are the formal requirements. However, since a large number of measurements are ~~is~~ required, it is expected that implementers will actually execute only a small subset based on the known worst case positions in the interconnect assembly and previous experience with the conditions that are most likely to produce a failure.

39. **(Substantive) 10.3.2.5 There are different numbers of mask for the different speeds and driver techniques, only the Non precomp fast-160 and fast-320 have 5.**

40. **(editorial) 10.4.2.4 procedures is misspelled in the first paragraph**

41. **(General editorial) "Note that" is used several times in the document, that should be removed and in several cases note should be removed too.**

42. **(Substantive) 10.5.2.4 has no information, it is the acceptance values for the test sequence. It there is no acceptance values then it should be stated, not left blank.**

43. **(Editorial) the first section of Annex D is about what happened in what meeting, that should be removed from the beginning of the**

annex. Annex D needs a lot of editing, it is basically in a rough version with Greg's name listed in several places.

44.