

Accredited Standards Committee\*  
**X3, Information Processing Systems**

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**Reply to:** Mr. John Lohmeyer



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Dear Gene,

Thank you for your comments on SCSI-3 Parallel Interface (SPI) Rev 12a that accompanied your X3T9 letter ballot. The editors, Larry Lamers and I, have included most of your comments in the Rev 12b document that is being circulated to the committee.

This letter documents the actions taken by the editors on each of your comments. The format of this response is to repeat your comment followed by the editor's response preceded by '\*\*\*'. Thus, '\*\*\* Done.' means the comment was accepted substantially as submitted. Otherwise, there is a brief statement of what alternative action was taken and/or why the comment was not accepted. Obviously, you may request that the task group overrule any decisions that the editors made.

We made no attempt to address the perhaps more-important comments that preceded your numbered comments.

cc: Del Shoemaker, X3T9 Chair  
Bob Fink, X3T9 Secretary/acting Vice Chair  
Larry Lamers, X3T9.2 Secretary/SPI Technical Editor

1) On page i make the last line of the Abstract "... both system integrators and ...".

\*\* Done.

2) Delete page ii Document Status and move the points before "Revision 7" to the Introduction or Scope. Before moving it, change "several changes" to "several changes or additions" and change item 1 to "Elimination of B cables." The committee has repeatedly confirmed that A cables are still addressed by SCSI-3. Remove the period from item 3 or add periods to the other items.

\*\* Page ii was deleted. The points about the differences between SCSI-2 and SPI were moved to the Introduction or deleted, as appropriate.

3) In the table of contents and in Annex F Figures E1 and E2 should be F1 and F2.

\*\* Done.

4) Add "(SPI)" after "SCSI-3 Parallel Interface" in the Foreword on page ix.

\*\* Done.

5) In the first line of the Introduction on page x replace "with up to 32 devices" with "with up to 8, 16, or 32 devices depending upon the data path widths implemented".

\*\* Done.

6) On page 2 delete everything in the first paragraph after "This roadmap is intended to show the general applicability of documents to one another" including the deletion of the three bulleted items.

\*\* Done.

7) On page 4 in the second paragraph delete "(ISO 8482-1982 TIA TR30.2)" as it has nothing to do with that paragraph.

\*\* Done. The reference was also deleted at the end of the first paragraph as ISO 8482:1982 is not equivalent to RS-485.

8) Add titles to IEEE 1156.2 and ASTM D-4566. Add a designation to the drafting standard.

\*\* Done -- Thanks to Bob Whiteman

9) On page 5 the differential definition implies there are two different differential definitions. Change "One of two signaling alternatives" to "A signaling alternative". Make the analogous change to 3.1.27.

\*\* Done.

10) The REQ/ACK handshakes are not necessarily synchronous. In 3.1.7 delete "that uses the synchronous REQ/ACK handshake" or delete the second synchronous.

\*\* Done in both 3.1.7 and in 3.1.28.

11) In 3.1.8 delete "and" or replace it with "which".

\*\* Done.

12) Change "rate that bytes of data" to "rate that words of data" or "rate at which words of data".

\*\* Done.

13) Expand the optional definition 3.1.14 to include "but if the item is implemented in shall conform with the definitions in this standard."

\*\* Done.

14) Modify 3.1.21 from "(0-31)" to "(0-7, 0-15, or 0-31 depending upon the data path widths implemented)". Make the analogous change to 3.1.22.

\*\* The ranges were deleted in both definitions; the pertinent point is that the SCSI address is a decimal number and the SCSI ID is bit significant.

15) Modify the SCSI definition in 3.2 to include SCSI (or SCSI- 1).

\*\* There is no appropriate reference to SCSI-1 as it was superseded by SCSI-2. For the purposes of the SPI document, including SCSI-1 in the definition is not necessary.

16) It does not seem appropriate to define "PPB" and "MFG" since they are used only one place in the standard. (Due to all the work including the place they are used I will refrain from commenting that the inclusion is inappropriate in the SCSI standard.)

\*\* Done.

17) The second paragraph on page 8 appears to be out of place. Perhaps it should be in section 10.

\*\* It was moved to be the second paragraph of clause 10.

18) Delete the second sentence in the third paragraph since it is anecdotal and not part of the standard.

\*\* Done.

19) In several places beginning with the second to last paragraph on page 8 replace "asynch" with "asynchronous".

\*\* Not accepted. "Asynch" is defined in the glossary and the proposed change would cause formatting problems with table 10 when exporting to ASCII.

20) In that same paragraph replace "has occurred" with "is in effect".

\*\* Done. "Negotiation" was also replaced with "agreement".

21) The last paragraph on page 8 is inaccurate. The annexes cover more than measurement techniques. A broader description is needed.

\*\* The paragraph is unnecessary and was deleted.

22) In 5.1 change the first sentence to "The P cable nonshielded SCSI-3 connector ...". Make the analogous change to 5.2.

\*\* Not accepted. The connector is defined for both P and Q cable applications, not just P cable applications.

23) The d.c. resistance on page 10 is in conflict with the passing criteria of section 5-5. Increase it to at least 15 milliohms and I presume it should be at least 25 milliohms.

\*\* Not accepted, yet. While the 10 milliohm specification is probably lower than needed, the number is not in conflict with the test procedure in clause 5. The test procedure refers to the signal contacts (multi-wipe with contact geometry...), while the 10 milliohm number applies to the cable shield. The item will be added to the July agenda.

24) All of the Host Bus Adapters I have seen violate the Note on page 10. Why have the HBA companies not objected?

\*\* Perhaps they recognized good advice even if they do not follow it.

25) Change the title of Figure 4 to "P cable Non-shielded device connector" or "P and Q ...". Make the analogous change to Figures 5, 6, and 7 along with Tables 1, 2, 3, and 4. The equivalent change needs to be made to the first sentence in sections 5.3, 5.3.1 (and the second sentence), and 5.3.2 (and the second sentence).

\*\* Not accepted. This document only deals with the connectors for the P and Q cables, so the additional labeling is not necessary.

26) Change the fourth paragraph on page 19 to "A primary SCSI bus carries a 8 or 16-bit data bus ...". Change the last sentence of that paragraph to "The P cable/connector ... buses." Beyond distinguishing the P cable from the A cable this change also eliminates "using either single ended or differential transceivers" which give the mistaken impression that the P cable can be single ended while the Q cable is differential.

\*\* The paragraph was reworded to clarify the 16-bit data width applies to SCSI-3 only. A note was added describing the SCSI-2 bus widths.

27) The note callout "N" in section 6 is incorrect and the grammar is wrong. I guess it is not referring to Annex A and I presume it should instead reference SCSI-2.

\*\* The note was deleted.

28) The paragraph between the two notes in section 6 is misleading. Since this section addresses cables the statement that they should be terminated at both ends is wrong. The termination description should be moved or made clear that the termination is at the ends of the total bus including all cables.

\*\* Done. The paragraph was moved to both clauses that deal with termination requirements (7.1.1 and 7.2.1).

29) The second note is misleading. The device with the terminators should not be removed even if the device is not in use since the terminators are presumably still in use.

\*\* The word "it" was changed to "the bus".

30) The editors note [ljl] should be deleted and perhaps brought to fruition.

\*\* Done. [deleted, fruition would take more work.]

31) In the first sentence of 6.1 delete the reference to 8.1. If the reference is desirable move it to section 6(.0).

\*\* Not accepted. The reference is important at this point as non-signals (e.g., the TERMPWR line) may be internally connected within a connector.

32) Change the last item in Table 5 to "... signals in the same cable".

\*\* Done.

33) Note that the first line of 6.3 is in direct conflict with the note on page 10.

\*\* Not accepted. The note on page 10 recommends that the cable loop within the "device enclosure", not the SCSI device. Therefore it is not in conflict with 6.3.

34) I presume in the second paragraph of 6.4 the requirement is stated twice. Delete "and stub clustering avoided". Also delete it in section 6.5.

\*\* Not accepted. It is not clear that the recommendations are redundant. A series of stubs placed exactly 0,3 meters apart could also cause problems.

35) In the last paragraph replace "on interconnection" with "on interconnecting buses of different widths" and "extended length operation" with "terminator, impedance, crosstalk, and bus length considerations".

\*\* Done.

36) It is a complete puzzle as to what the note at the bottom of page 21 is referring to. If I had to rival Mycroft I would presume it is a mistaken characterization of the A cable as SCSI-2 and the P cable as SCSI-3. The best solution is to delete the note.

\*\* Done.

37) Does the requirement of 7.1.1 (b) allow the signal voltage to be at least 2.5 v as in (c) or does it just allow it to be 2.5 v max? Active negation would allow at least 2.5 v.

\*\* The requirement in 7.1.1 (b) says that the terminator must source current if the signal is at or below 2,5 volts. It says nothing about not supplying current at or above 2,5 volts. No changes made.

38) It has been alleged that the requirements of 7.1.2 are stated in the manner clearest to semiconductor engineers. Skilled engineers seem to stumble over the description. It should either be turned inside out or a sample load line diagram should be given so the real requirement is revealed to other than the working group participants.

\*\* Does this imply semiconductor engineers are not skilled? Or are they super-skilled? 7.1.2 seems clear to the editors...

39) In the second paragraph of 7.1.3 move "(e.g. with some ESD protection circuits)" to immediately after "occur". Also delete "does" from "does should not".

\*\* Done.

40) Delete the note on page 26 since its only purpose seems to be to say that the standard should not be violated. Without the note it seems mandatory to not violate the standard.

\*\* Done.

41) Table 7 is not clear as to what the requirement is for the SCSI-3 A cable implementations. The note below may have started to give the requirement but unfortunately the author died before finishing the sentence.

\*\* Done.

42) In section 8 change the first sentence to "... maximum of 8 SCSI devices on an A cable, 16 ...".

\*\* Wording revised as in item 5), above.

43) In the note at the bottom of page 28 change "the margin is much higher" to "the margin is higher".

\*\* Done.

44) In Table 9 in the "None:" note delete "be" from "not be driven by any SCSI device."

\*\* Done.

45) Sections 9.8 and 9.10 specify specifically how to measure timing for single ended. Shouldn't an analogous requirement be included for differential?

\*\* Probably, but no one associated with differential devices has suggested an appropriate equivalent measurement.

46) The requirement of 10.2.1 is ok. However I note that it would become in conflict with the "Son of Spastic" proposal now being discussed.

\*\* If and when the proposal is accepted, appropriate changes will have to be made.

47) In 10.3.1 change item (3) from "the SCSI ID" to "its SCSI ID".

\*\* Done.

48) At the top of page 40 and in 10.8.4 change "When target PIA" to "When the target PIA".

\*\* Done.

49) In 10.11 the acronym RAT has no convincing correlation with what it stands for.

\*\* Done. (The old acronym smelled like a rat.)

50) Should the first MESSAGE in Table 12 be MESSAGE OUT?

\*\* Done.

51) The note on page 47 was appropriate in SCSI-2. Should it be retired in SCSI-3?

\*\* Done.

52) The two "shalls" should be deleted from Annex A.

\*\* Done.

53) Change the impedance in Annex D from "73 ohms" to "72 ohms" to match Table 5.

\*\* Done.

54) Under the heading of beating my head against a wall, I again take the opportunity to point out the "an SCSI" is an abortion and should be replaced with "a SCSI". Why cater to those who do not know how to pronounce "SCSI"?

\*\* At the risk of sounding impertinent, which is harder, the wall or your head? Seriously, the standard pronunciation is ess, see, ess, eye. Should we add this to the glossary?