Accredited Standards Committee*
X3, Information Technology

Doc. No.: X3T10/95-123 r0
Date: January 12, 1995
Project: 991-D & 1071-D
Ref. Doc.:
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January 1995 X3T10 Letter Ballot Results

Fast-20 forwarding letter ballot results (ballot: 94-248): "Do you approve of forwarding SCSI-3 Fast-20 to X3 for further processing (compliance review and first public review)?

Ballot Passed 50:2:0:4.

Yes with comment: Adaptec, Unitrode, Western Digital

No: IBM, Gene Milligan (Seagate)

Did not return ballot: AMD, Compaq, Interphase, NEC

GPP forwarding letter ballot results (ballot 94-249): "Do you approve of forwarding GPP Technical Report to X3 for further processing (compliance review, public review, and publication)?

Ballot Passed: 51-0-0-5

Yes with comment: Gene Milligan (Seagate)

Did not return ballot: AMD, Compaq, Interphase, NEC, Sun Microsystems

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Fast-20 Comments

Adaptec (Yes vote):

Adaptec believes that the FAST-20 specification which prohibits mixed width configurations and the clustering of loads pose unnecessary restrictions on the use of FAST-20. These restrictions were placed at a time when the configuration limits of FAST-20 were not well understood. These limits have now been characterized and are well specified in the current document. We believe these restrictions can now be eliminated or modified to pertain to those configurations that are legal per the FAST-20
specification. Adaptec has performed additional experimentation to confirm worst case and typical operation. These findings support our desire to request a change of the specification. We will present this data at the upcoming January working group.

In particular Adaptec proposes that Clause 5.1 currently reading "The bus width shall be constant (i.e., 8- bit and 16 bit wide devices cannot be mixed on the same bus" be replaced by the following: "Mixed width operation (i.e., 8 and 16 bit wide devices on the same bus) shall be permitted within the limits of valid bus configurations defined by this standard".

Clause 5.1 sentence reading: "The loads shall be evenly spaced" be replaced by the following: "It is recommended that the loads be evenly spaced."

Unitrode (Yes vote):

6.2.1, First Sentence, ‘al’ should be ‘all’.

Western Digital (Yes vote):

Fast-20 document as is lacks some key timing definition. See 95-109r0.

IBM (No vote):

In clause 6.1.3 Single-ended input characteristics there is no filter requirements. These filter requirements are defined in clause 7.1.3 of rev 14 of SPI (page 27) as follows:

'The REQ/REQQ and ACK/ACKQ receivers, after recognizing a negation transition, shall not respond to a signal reversal for at least 10ns.'

Without the above requirement in fast-20 a non-fast-20 SCSI-3 device that is replaced with a fast-20 SCSI-3 device may not operate if the bus is marginal even if the fast-20 is
negotiated to non-fast-20 data rates.

This difference must be resolved.

Gene Milligan [Seagate] (No vote):

I am voting No. However the No will automagically change to Yes with satisfactory correction to the problems pointed out in comments 19, 23, 24, 26, and 28.

1) Upon forwarding delete the document status page.

2) The foreword states that the requirements of SPI also apply except where specifically stated otherwise in Fast -20. I get the impression the opposite convention was used. The standard seems to specifically state when SPI applies. Examples are found in the Scope, the citing that the higher layer service interface is specified by SPI, and the note demurring on the slow and asynchronous times. I don’t think there are any instances of the standard specifically stating that SPI does not apply.

3) Change the next to last paragraph of the foreword from “and voting procedures of the American National Standards Institute” to “and voting procedures accredited by the American National Standards Institute”.

4) Why is SIP not included in the Normative references? If the reason is that it is covered by SPI, the why are the EIA/TIA and ISO references included?

5) Why both RS-485 and ISO 8482?

6) What is the “/” at the end of Note 1?

7) Change definition 3.1.7 to “... rate stated in millions at which words ...” or to “... rate at which a million words ...”.

8) Change definition 3.1.14 to “A slow synchronous data transfer with negotiated transfer perios of at least 200 nanoseconds.”

9) Delete “SCSI” from definition 3.1.16.

10) It seems over kill to include “(FAST-20)” as an achronym for “Fast-20” in Section 4. In addition the achronym is not capitalized consistently throughout the standard.

11) The first and third paragraphs of 5.1 are redundant. In spite of the redundancy they fail to address whether or not 9 SCSI devices are legal in some configuration. Depending upon how and if the third paragraph survives, change “cannot be” to “shall not be” or if the “i.e.” does not allow this , change it to “are not”.

12) What aspect is the 50 mV a requirement on? Does it change the wire gage requirements of SPI? Does it change the maximum current of the drivers? Or is it a further requirement on the non SCSI power bussing?

13) Does the lack of any statement on the number of devices and composition of the devices in 5.2 imply that 8, 16, and 32 bit devices can be intermixed with differential?

14) Change the first line of Seciton 6 to from “can use” to “allows”.

15) Contrary to the first paragraph of 6.1.1 I thought Fast 20 was going to discourage internal termination. Why not either outlaw them or as a minimum delete the last sentence in 6.1.1?

16) In this same section in item (f) there is a forward or backward reference to oblivion. Item (b) of 6.1.4 has a similar problem.

17) In Note 4 change “to 15 pF” to “to less than 20 pF” or to “less than 16 pF”.

18) In the first line of 6.2.1 change “al” to “all”. Apparently the spell checker is set to accept “et al” or the spell checker needs to be run. The latter conclusion is supported by “referenc” in Note 4 of Table 1 which needs an “e”.

19) Figure 2 has the wrong grafic. This is not the differential termination.

20) In Annex A the depiction of the 15 ns components needs work.

21) In the second paragraph of Annex C change “When capacitance added” to “When capacitance is added”.

22) The method of calling out Note 1 is differant than in the body of the standard. in any case it would be clearer what “long(1) meant if note 1 was moved to the prior page.

23) The second equation should take the place of “(equation)” and the “where VLO” should come after the equation with the LO and J1 font adjusted for subscript.

24) In this equation L1 should actually be a subscript to a missing “V”.

24) Similary the location of the third and fourth equations need to be adjusted to replace there “(equation)” place holders.

25) The kearning of 3.7 and 0.27 need to be adjusted.

26) Just before the last set of equations a reference is amde to equation (1), however only the hodpodge “2)” is actually identified. If they are to be referred to by number, each equation should be numbered.

27) To the right of the “and” it would be better if the three inequalities had three disticnt separating blank lines. It would also be better to have 85 pf/m all on the same line.

28) The text of Annex C ends with the statement “This”. What is missing?

29) On the vertical axis of Figure 1 in Annex C change “(m” to “(m)”.

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GPP comments

Gene Milligan (Seagate):

I vote yes with the following comments:

1) In the Patent Statement change "standard" to "technical report" five places and in the sixth place (next to last place) change it to "standard or technical report".

2) In the foreword change "has the following members" to "had the following members".

3) In the first paragraph of the introduction change "GPP provides" to "GPP defines".

4) In the first line of section 1.3 change "SCSI-3 standards" to "SCSI-3 standards, technical reports, and related standards"

5) On the first line of page 4 delete "that fall under the jurisdiction of X3T10" and delete the last paragraph of section 1.3 on page 4.

6) Delete the section titles "Normative references" and "Informative references and make section 2 just References without subclauses.

7) In section 3.1 change "used in this standard" to "used in this technical report" and do a global search to see where else this problem may need correction.

8) Why are the Annexes produced in pares? It appears that they could be combined having the number of annexes.

9) In Annex I (the first of two covering ATM), does X3T10 stand unequivocally behind the assertion that "ATM is unreliable?