

Accredited Standards Committee*
X3, Information Processing Systems

Doc. No. X3T10/94-117R0
Date: May 19, 1994
Project:
Ref. Doc.:
Reply to: J. Lohmeyer

To: Membership of X3T10

From: L. Lamers

Subject: SBP Forwarding Letter Ballot Comments

SBP Letter Ballot Results: 50:2:0:7 = 59

Yes, with comment: Apple, Quantum

No: Digital Equipment, IBM

Did not respond: AMD, Compaq, DPT, Harbor Electronics, Maxtor, P.E. Logic, Samsung

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Apple comment:

My comment is that there needs to be a section describing the format of the isochronous control CDS. I propose specific text for this section, which will be forwarded separately to the officers of X3T10 and to the current editors of SBP.

Quantum comment:

Our comment is that this approval, like our approval of FCP, is given reluctantly given the lack of approval of SAM.

Digital Equipment comment:

My no vote on forwarding SBP is based on the following comments, which identify areas where SBP is not compliant with SAM.

1. Section 6.3, Task Management Services

The task management services in this section do not define the protocol for executing the TERMINATE TASK task management function.

According to the last paragraph in section 5 on page 61 of SAM R13:

"All SCSI-3 protocol specifications shall provide the functionality needed for a task manager to implement all of the task management functions defined above."

2. Section 6.3.6, "Clear Auto Contingent Allegiance", second sentence.

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The sentence states:

"It is an error for an Auto Contingent Allegiance CDS to be received at a target unless that target is in the state such that an ACA condition is true."

The quoted sentence has the following problems:

1. An ACA is a task set condition, not a target condition.
2. As specified in section 5.3 of SAM, a CLEAR ACA task management function is not an error if there is no ACA in effect for the task set.

IBM comment:

My vote is not to forward SBP because I believe that several critical characteristics are omitted. The problems which I found are indicated and changes have been suggested.

Items preceded by "*" are technical. Others are editorial.

3.2. Define CDS & ATA

*5.2.1. Add a sentence: "In a cooperative multi-initiator environment in which no initiator is exceeding its tap slot allocation, a target must never reject a tap."

*6.1.1:

Paragraph 1:

Add the sentence: "A target must always have the ability to receive a CDS and examine its contents."

(Without this requirement, a target cannot return a status block as specified because it would not know the status address.) Also, the fact that the busy/retry protocol may have been carried out before the tap was received should be clarified by addition of the following sentence:

"As in any P1394 transaction, the busy/retry protocol may be carried out before the application responds to the tap." (The best place to insert these two sentences is after the last sentence of the paragraph.)

Paragraph 2:

Add the sentence: "In a cooperative multi-initiator environment in which no initiator is exceeding its tap slot allocation, a target must never reject a tap."

*6.1.2.Paragraph 2 should be replaced by:

"If the target SBP receives FROM ITS TRANSACTION LAYER anything other than COMPLETE, then....."

The reason for this is because, as defined in P1394 section 7.1.2.2, transaction data confirmations go from the transaction layer to the application layer within a target or an initiator, they do not go from initiators to targets or vice versa. Also, the words "FROM ITS TRANSACTION LAYER" are needed to stress the fact that the busy/retry protocol inside the transaction layer may have been executed before the COMPLETE response was sent up to the application layer. As mentioned in comment 6.1.1, this can be clarified by adding the following sentence at the end of paragraph 2:

"As in any P1394 transaction, the busy/retry protocol may be carried out before the application responds to the tap."

*6.2.1 As in comment 6.1.2, paragraph 3 should be replaced by:

"If the target SBP receives FROM ITS TRANSACTION LAYER anything other than COMPLETE, then....."

Please see comment 6.1.2 for the explanation. Also as mentioned in comment 6.1.1, the fact that the busy/retry protocol may have been carried out before the COMPLETE response was sent to the

application layer should again be made clear. This can be done by adding the following sentence at the end of paragraph 3:

“As in any P1394 transaction, the busy/retry protocol must be carried out before the COMPLETE response is returned.”

Finally, the case in which the target’s transaction layer responds with DATA ERROR should also be included. As specified in section 6.3.5, if the target’s transaction layer returns DATA ERROR, then the target retries the transaction indefinitely.

*6.2.2 Paragraph 3. Please refer to comment 6.2.1 above.

*6.3.5. Paragraph 3 and following. The “Deal with ...” phrase seems to be out of context. This phrase and the all the following paragraphs should be either be removed from SBP, or completely revised. Here are some problems with the information.

All the definitions seem to imply that TR_DATA.confirmations go from an initiator to a target. P1394 section 7.1.2.2 defines them as going from a target’s (or an initiator’s) transaction layer to its application layer. When this definition is applied, the “TARGET CASE” and “INITIATOR CASE” headings are reversed. Also, as mentioned above, section 6.2.1 needs to be made compatible with these definitions.

*7. Please see comment 6.3.5.

*7.1. Paragraph 3. Please see comment 6.1.1, equivalent revisions are needed.

*7.3.1. Paragraph 3:

Please refer to comment 6.2.1. As stated, a more appropriate wording would be:

“If the target SBP receives FROM ITS TRANSACTION LAYER anything other than COMPLETE with rcode of resp_complete, then.....” (Please refer to comment 6.2.1 for justification.) Also, the text describing the busy/retry and DATA ERROR cases needs to be included as in 6.2.1.

*7.3.2. Please refer to comment 7.3.1.

*7.4. Please refer to comment 7.3.1

*8.2.1. Add a sentence: “In a cooperative multi-initiator environment in which no initiator is exceeding its tap slot allocation, a target must never reject a tap.”

*8.2.2. Add a sentence: “In a cooperative multi-initiator environment in which no initiator is exceeding its tap slot allocation, a target must never reject a tap.”

*9.1 Table 8

The “Tap slot available” flag is defined here to mean that a tap slot previously used by the initiator is available for reuse. This is the correct function of this bit and this function should be made clear.

(Note also that section 6.1.1 seems to imply that this flag is used for telling the initiator that the tap slot it just attempted to use was unavailable. This usage conflicts with the definition in Table 8.)

*9.1 Table 13

Residue over and underrun field definitions do not indicate what value is placed in this field. I suggest borrowing the wording in FCP rev.008a for the definitions.

10.1 Table 14

As in FCP, it would be helpful to refer to SAM for the definition of the command byte count. Please see SAM R13, section 4.3.1.

*10.1.1 Table 19-20

These fields deal with physical parameters of the underlying transport medium and should not be put in the SBP ULP command protocol unless absolutely required. These parameters should be

established at login. If this is done, then the ULP will not need to manage physical configurations except at login time.

*10.2. The CDS Codes field is not defined in this section.

10.3. Either remove or expand on the words "rkr notes" on p. 27.

10.3 Table 26.

The "Number of Slots" field is not defined properly. I think the intent is that this field is the REQUESTED number of slots which the initiator is requesting to be allocated to it.

*11.1.3. Last paragraph seems vague. I think wording such as this might better express the intent:

"Initiators are not required to limit their use of tap slots to the number they have been allocated. If all initiators using the target are cooperating by staying within their allocations, then the availability of their slots is guaranteed. In all other cases, tap slot accesses may result in rejections."

Notes:

1. All references to P1394 refer to revision 6.8v1.
2. Please fix Scott Smyers telephone number on the front of the document. The FAX number is listed twice.
3. It would be useful to add an implementers note somewhere in the document (perhaps in section 6.1) discussing the setting of RETRY LIMIT. This should mention 1) that P1394 REQUIRES implementation of at least one retry for each transaction, 2) that setting the retry limit too high may result in wasting bus bandwidth on transactions which may never successfully complete anyway, and 3) setting it too low may waste an application's resources by causing the application to repeatedly perform retries best done at the lower protocol layers.