Accredited Standards Committee*
X3, Information Technology

To:         Membership of X3T10.1

From:       Lawrence J. Lamers, Secretary X3T10
            Ken Hallam, Chair X3T10

Subject:    Minutes of X3T10.1 Working Group : October 30-31, 1995
            October 30-November 1, 1995  -- Botley, England

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                                Agenda

1. Opening Remarks

2. Attendance and Membership, Introductions

3. Approval of Agenda

4. Approval of  Minutes

5. Document Distribution

6. Review of Old Action Items

7. Protocol Topics
    7.1 Review of SSA-S2P working draft [Monia]

8. Transport Layer Topics
    8.1 Review of SSA-TL1 working draft [Scheible]

9. Physical Topics
    9.1 Review on PH Ad Hoc Meeting [Ham]
    9.2 Review of PH1 [Ham]

10. SSA 40 Topics []

11. Call for Patents

12. Action Items

13. Meeting Schedule

14. Adjournment

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# Opening Remarks

Ken Hallam convened the meeting at 9:00 am.  He thanked Neil Edmunds of Xyratex for hosting the meeting.  As is customary, the people attending introduced themselves.  A copy of the attendance list was circulated for attendance and corrections.

It was stated that the meeting had been authorized by X3T10.1 and would be conducted under the X3 rules.  Ad hoc meetings take no final actions, but prepare recommendations for approval by the X3T10 task group.  The voting rules for the meeting are those of the parent committee, X3T10. For the ad hoc, other than straw votes, the voting rules  are:  one vote per participating company

The minutes of this meeting will be posted to the X3T10 BBS and the SSA Reflector and will be included in the next X3T10.1 committee mailing.

Ken stated that the X3T10.1 mailings are now part of the X3T10 mailings.  Persons that want to receive documents should subscribe to the X3T10 mailings by sending their request to the secretariat.  An electronic option should be available during 1996.

# Attendance and Membership, Introductions

Attendance at working group meetings does not count toward minimum attendance requirements for X3T10 membership.  Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

The following people attended the meeting.

| name | company | telephone | email |
| --- | --- | --- | --- |
| Lawrence Lamers | Adaptec | 408-957-7817 | ljlamers@aol.com |
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| Charles Monia | Digital Equipment Corp. | 508-841-6757 | monia@shr.dec.com |
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| Greg Kapraun | Symbios Logic Inc. | 970-225-4843 | greg.kapraun@symbios.com |
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| John Veal | Xyratex | 01705 486363 | |

# Approval of Agenda

The agenda was approved unanimously as shown on page 1.

# Approval of  Minutes

The minutes of the last Working Group meeting (see 95a162r0) were approved with corrections to the meeting schedule.


# Document Distribution


Larry Lamers stated  that the next mailing deadline is Wednesday, November 15, 1995.
Documents are available on the SCSI BBS (714) 574-0424 and at ftp.symbios.com.

| | | |
|---|---|---|
| 95a182R1 | Proposal for QUERY SWITCH SMS | L. Lamers |
| 95a185R1 | Zero Fill SMS | J. Scheible |
| 95a187R0 | Alternate Pathing in S2P | J. Scheible |
| 95a191R0 | Minimum ESD Tolerance Spec for SSA-PH1 | M. DeWilde |
| 95a192R0 | Potential Live-Lock in SSA higher speeds | M. DeWilde |
| 95a193R0 | SSA Port Speed Negotiation alternate Proposal | M. DeWilde |
| 95a194R0 | Assumptions made in SSA-TL1 rev 7 | J. Scheible |
| 95a195R0 | Link Reset Handler process | J. Scheible |
| 95a198R0 | Configuration Process | L. Lamers |
| 95a199R0 | Proposal for Healthy Web | J. Scheible |
| 95a200R0 | Comments on S2P rev 4a | J. Scheible |
| 95a201R0 | Extend the Queue Full mechanism to handle BUSY and RESERVATION CONFLICT | C. Monia |
| 95a202R0 | Allow a TL 1 initiator to perform SCSI target operations | C. Monia |
| 95a203R0 | Define procedures for interlocked protocol emulation | C. Monia |
| 95a204R0 | Restrict all transfers between a given initiator and target to a single path | C. Monia |
| 95a205R0 | Extend the definition of a path to include the sender and receiver ports | C. Monia |
| 95a206R0 | Overview of Proposed Approach to S2P Hot Swap and Fault Recovery | C. Monia |
| 95a208R0 | Proposal on Unique ID | M. DeWilde |
| 95a209R0 | Proposal on Verify Initiator Table | M. DeWilde |
| 95a210R0 | Proposal Loss of Initiator Table Space | M. DeWilde |
| 95a211R0 | Proposal on Un-registering Initiators | M. DeWilde |
| 95a212R0 | Proposal on Re-pathing Support | M. DeWilde |
| 95a213R0 | Proposal on Async Alerts & S2P | M. DeWilde |


# Review of Old Action Items


None.


# Protocol Topics


**6**1      Review of SSA-S2P working draft [Monia]

Charles Monia reviewed the rev 4a document.

Comments on S2P rev 4 (see 95a200r0).  John Scheible stepped through his comments.
    1) accept
    2) change term to Queue Locked and generate error with return code INVALID FIELD
    3) not accepted
    4) accepted

Queue Full Extensions (see 95a201r0).  This proposal introduced the concept of Queue Blocked to provide an interlock to avoid out-of-order command execution.  Horatio Lo expressed a desire to separate the SMS buffer full condition from the condition of a device command queue being full.  Proposal 201 was deferred while the author revised it for consideration at the December meeting. It will include an amendment to the wording to clarify that it only would apply to SCSI command SMSs that encounter the queue full condition.

Allow Initiators to Perform SCSI Target Operations (see 95a202r0).  Since a node is identified as neither a target nor an initiator based on the ULP code value it reports in QUERY NODE REPLY, it should have another method of reporting if it can perform both Target and Initiator operations.  This proposal was not adopted, as the implications throughout the document were not yet clear.

Interlocked Protocol Emulation (see 95a203r0).  This proposal to provide an emulation of parallel SCSI interlocked protocol was discussed at length but not adopted. It was deferred for S3P.

Restrict all Transfers to One Path (see 95a204r0) and Redefine Path to Include a Specifiic Port, (see 95a205r0) .  These proposals had many potential implications and both need further work.

Use of S2P SCSI Status  vs. Async Alert (see 95a213).  Rejected as an S2P solution; will be considered for TL1.

Charles proposed that S2P rev 4 be adopted with only editorial changes and a change in terminology; Initiator ID will become Return Path ID. The working group unanimously agreed to recommend that SSA-S2P rev 4 as amended be forwarded for letter ballot at X3T10.

Charles Monia made a second attempt at wording regarding multiple path support but failed to achieve consensus.
Charles made a presentation on hot swapping topics.  See 95a206.  This topic is slated for TL2 and S3P.  It addresses issues related to sequential-access devices.

# Transport Layer Topics

71      Review of SSA-TL1 working draft [Scheible]

John Scheible reviewed the changes incorporated into revision 7b.

Assumptions made in TL1 (see 94-194r1).
        1) accepted, added a check of the alert information for  validity.
        2) do not generate extra alerts while in the recovery process; modify the alert process to update loop topology before generating alerts; added a one second time-out.
        3) Changed 3rd Party term to RITE, checking of return paths removed.
        4) accepted.
        5) accepted all except a);  along discussion on terminology ensued - (Master Capable Node, Initiator, and Target). The editor will attempt to clean up the situation with consistent use of terms and avoid using SCSI specific terms in TL1.
Nodes will no longer be assumed to have only Target functions or only Initiator functions.  Charles Monica objected to leaving this issue unresolved by TL1 protocol.
        6) accepted
        7) accepted
        8) accepted

Link reset handling (see 95a195r1).  Rejected 7:0.

Healthy Web Process (see 95a199r0).  The group rejected the proposal as written by a poll of 6:2.  The main reason was the requirement to test every node and the bandwidth and resources this would entail. Paul Hooton suggested that the proposal be toned down by only querying the ends of a string or loop. Mark DeWilde suggested that a round robin approach would lower the bandwidth consumed.  Mark's suggestion was expanded into a new Master Alive process by John Scheible. It involves a timer started when the first QUERY NODE SMS with a master alive bit asserted arrives at a node. The timer is suspended during the configuration process. John will rewrite proposal 199 to conform to the new Master Alive process and it was given provisional approval.

95a182R3 - QUERY SWITCH SMS - accepted as modified
95a183r1 - Fix length of QUERY PROTOCOL REPLY SMS - accepted.
95a198r1 - Clarify Configuration Process - accepted as modified
Unique ID Proposal (see 95a208r1).  Accepted.
95a213r1 - Amend MASTER ALERT SMS  This appended three bytes (Channel, ULP and SMS code) of the offending SMS to the MASTER ALERT so that the type of error can be determined.  Accepted.
95a209r0 - rejected.
95a210r0 -Case A does not affect interoperability and was thus rejected.  Case B is a real deficiency that could exist when adding a Master Capable node to the web.  Mark DeWilde agreed to modify the proposal to address Case B.

# Physical Topics

**8**1      Review on PH Ad Hoc Meeting [Ham]

Bill Ham reported.  He noted the following issues:
1)      Should we update the driver requirements in PH1 due to a change in specified capacitive loading during measurement?  The consensus was yes, this could affect interoperability.
2)      Should the jackscrew threads show an optional size of 2-56 due to existing products?  The consensus was no.
3)      Where should the jitter budget be defined?  The consensus was to consider this as part of PH2.
4)      Should the termination requirements on existing, (legacy) parts be left in PH1?  The consensus was yes.
5)      How to show implementation recommendations?  Develop as separate document that can be dropped into the working draft as an informative annex.
6)      Consideration of alternate external connector.  The consensus was to defer this to the plenary.

The study group recommended that pins 3, 5 and 8 shall not be connected on links between ports.  The intent of these pins is to provide power and ground to an optical transducer.

**8**2      Review of PH1 [Ham]

Bill Ham review the changes to rev 6d.  All the TBD items have been completed. A number of new tables with testing specifications have been added.

95a191r0 - Minimum ESD Tolerance - This was considered to be basically a marketing issue. While it may be needed for some external ports, it is not desirable for internal devices. Material on this subject will be considered for inclusion in Annex E if Mark provides it.

95a190r0 - Precharge Changes - This change is already in the UIG 95PH document and Bill will incorporate it into SSA PH1.

Ken Hallam noted that due to the number of proposals and resulting changes to TL1 and PH1, forwarding the documents for letter ballot will be delayed until the December, 1995 meeting.

# SSA 40 Topics []

95a192r0 - Potential Live-Lock Issues- defer consideration to PH2
95a193r0 - SSA Port Speed Negotiation Proposal - defer consideration to PH2
95a179r1 - Proposal for SSA-TL2 for 40 MB/sec - defer consideration to PH2

A lengthy discussion was held regarding the power-on process for character synchronization & speed negotiation of a link. Several different interpretations were evident. Some of the fundamental questions included:

Does a port need to see a DIS character to be considered synchronized and enter the Enabled State?
Exactly when does the 200 DIS character period start when attempting to achieve synchronization?
Should do you set the speed lower if the link error rate crosses some threshold?

Ian Judd provided two flow charts to illustrate the synchronization and speed negotiation process. Since they were very helpful, they will be included in the mailing.

## Call for Patents

Ken Hallam requested that anyone aware of any patents required for the proposals be disclosed in accordance with the ANSI patent policy. Refer to the minutes of prior meetings for items already identified.

## Action Items

10)    none.

## Meeting Schedule

The next working group meeting of X3T10.1 is scheduled for December 11-13, 1995, in Milpitas, CA at the Sheraton Milpitas Hotel, Milpitas, CA, hosted by VLSI Technology. The meeting will begin at 9:00 AM.

The long-term SSA week of meetings are scheduled as follows:
Week of February 26, 1996 in Lake Tahoe, CA hosted by Samsung.
Week of April 29, 1996 in Burlington, VT hosted by IBM.
Week of June 24, 1996 in St. Petersburg Beach, FL hosted by AMP.
Week of August 26, 1996 in Ft. Collins, CO hosted by Symbios Logic, Inc.
Week of October 30, 1996 in San Jose hosted by Adaptec *
Week of December 9, 1996 in Hawaii hosted by IBM. *
* = Tentative locations
Please note that changes to this schedule may occur. All changes to meeting dates, locations, and agendas will be posted to the SSA reflector.

## Adjournment

The meeting adjourned at 12:30 p.m. on Wednesday.