Accredited Standards Committee*
X3, Information Technology

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Project:	
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Reply to:	John Lohmeyer

To: Membership of X3T10

From: Ralph Weber, Secretary X3T10
                  Larry Lamers, Vice-chair X3T10
                  John Lohmeyer, Chair X3T10

Subject: Minutes of X3T10 SCSI Working Group Meeting
                  Palm Springs, CA -- November 7-8, 1995

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Agenda

1. Opening Remarks

2. Approval of Agenda

3. Attendance and Membership

4. Physical Topics
      4.1 SPI-2 Study Group Report
      4.2 EPI Study Group Report

5. Protocol Topics
      5.1 Addressability of TARGET RESET task management function (94-236r1) [Snively]
      5.2 SCSI-3 Interlocked Protocol (SIP) [Penokie]
            5.2.1 Aborting the Untagged Process in SIP (95-351r0) [Monia]
      5.3 Problem with Non-interlocked Busses (95-352r0) [Monia]
      5.4 FCP-2 use of Disconnect-Reconnect Mode Page (95-348r0) [Gardner]
      5.5 Simplified Queuing [McGrath]

6. Command Set Topics
      6.1 Set/Sense Environmental Services Function (95-324r1) [Snively]
      6.2 SCSI Accessed Fault-Tolerant Enclosures (SAF-TE) {Conner/Intel Spec.}
      6.3 Set Capacity (95-260r2) [Houlder]
      6.4 Device Identification Page Proposal (95-240r1) [Lohmeyer]
      6.5 Reporting Version Information [Milligan]
      6.6 Secure Multiple Port Operations (95-322) [Snively]
      6.7 Should the Immed bit be qualified by FOV in the FORMAT UNIT command (95-355) [Houlder]
      6.8 ASC Stuff (95-344 & 95-345) [Penokie]
      6.9 SPC Status [Monia]

7. Other Topics
      7.1 What is in a name? [Milligan]
      7.2 Systems Issues Considerations [Penman]
      7.3 High Availability Controller Failover Proposal [Sicola]
      7.4 High Availability SCSI Profile (95-314) [Hagerman]
      7.5 X3 Procedure for managing OUI Code [Johansson/Lohmeyer]
      7.6 SCSI Marketing [Hagerman]

8. Meeting Schedule

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Results of Meeting

1.   Opening Remarks

John Lohmeyer, the X3T10 Chair, called the meeting to order at 1:00 p.m., Tuesday November 7, 1995.
He thanked Jeff Stai of Western Digital Corp. for hosting the meeting.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated.
Copies of the draft agenda and general information on X3T10 were made available to those attending.

2.   Approval of Agenda

The draft agenda was approved with the following additions:

>   5.4 FCP-2 use of Disconnect-Reconnect Mode Page (95-348) [Gardner]
>   5.5 Simplified Queuing [McGrath]
>   6.8 ASC Stuff (95-344 & 95-345) [Penokie]
>   6.9 SPC Status [Monia]
>   7.6 SCSI Marketing [Hagerman]

3.   Attendance and Membership

   Attendance at working group meetings does not count toward minimum attendance requirements for X3T10
   membership. Working group meetings are open to any person or organization directly and materially affected by
   X3T10's scope of work.

   The following people attended the meeting:

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         Name            S        Organization        Electronic Mail Address
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Mr. Norm Harris          P  Adaptec, Inc.             nharris@eng.adaptec.com
Mr. Lawrence J. Lamers  A#  Adaptec, Inc.             ljlamers@aol.com
Mr. Ron Roberts          A  Apple Computer            rkroberts@aol.com
Mr. Clifford E. Strang   P  BusLogic                  skip@buslogic.com
Jr.
Mr. Bernie Wu            V  Conner                    bernie.wu@conner.com
Mr. Greg McSorley        V  Data General Corp.        greg_mcsorley@dgc.ceo.dg.
                                                      com
Mr. Charles Monia        P  Digital Equipment Corp.   monia@shr.dec.com
Mr. William Dallas      A#  Digital Equipment Corp.   dallas@wasted.enet.dec.com
Dr. William Ham         A#  Digital Equipment Corp.   ham@subsys.enet.dec.com
Mr. Douglas Hagerman    A#  Digital Equipment Corp.   hagerman@starch.enet.dec.
                                                      com
Mr. Stephen J. Sicola    O  Digital Equipment Corp.   sicola@peaks.dec.com
Mr. I. Dal Allan         P  ENDL                      2501752@mcimail.com
Mr. Ralph O. Weber      A#  ENDL Associate            roweber@acm.org
Mr. Edward Lappin        P  Exabyte Corp.             tedl@exabyte.com
Mr. Andy Chen           A#  Fujitsu Computer Prods    achen@fcpa.fujitsu.com
                            Amer
Mr. Stephen Holmstead    P  Hewlett Packard Co.       stephen@mail.boi.hp.com
Mr. Ruben Yomtoubian    A#  Hitachi                   r_yomtoubian@hitachi.com
Mr. Anthony Yang        A#  Hitachi America Ltd.      yang_a@halsp.hitachi.com
Mr. Zane Daggett        A#  Hitachi Cable             74354.2576@compuserve.com
                            Manchester,Inc
Mr. George Penokie       P  IBM Corp.                 gop@rchvmp3.vnet.ibm.com
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Mr. Dan Colegrove	A#	IBM Corp.	colegrove@vnet.ibm.com
Mr. Giles Frazier	O	IBM Corp.	gfrazier@ausvm6.vnet.ibm.com
Mr. Lansing Sloan	V	Lawrence Livermore Nat'l Lab	ljsloan@llnl.gov
Mr. Pete McLean	P	Maxtor Corp.	pete_mclean@maxtor.com
Mr. Edward A. Gardner	V	Ophidian Designs	gardner@acm.org
Mr. Param Panesar	O	Pioneer Research	
Mr. Skip Jones	P	QLogic Corp.	sk_jones@qlc.com
Mr. James McGrath	P	Quantum Corp.	JMCGRATH@QNTM.COM
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Gerald Houlder	A	Seagate Technology	Gerry_Houlder@notes.seagate.com
Mr. Stephen G. Finch	P	Silicon Systems, Inc.	steve.finch@tus.ssi1.com
Mr. Robert N. Snively	P	Sun Microsystems Computer Co	bob.snively@eng.sun.com
Mr. John Lohmeyer	P	Symbios Logic Inc.	john.lohmeyer@symbios.com
Mr. Rod DeKoning	V	Symbios Logic Inc.	rod.dekoning@symbios.com
Mr. Patrick Mercer	P	SyQuest Technology, Inc.	patrick.mercer@syquest.com
Mr. Steve Walker	P	Thomas & Betts	walkertnb@aol.com
Mr. Tokayuki Totani	O	Toshiba America	ttotaniAtaisdpd.geis.com
Mr. Kenneth J. Hallam	P	UNISYS Corporation	ken.hallam@mv.unisys.com
Mr. Paul D. Aloisi	P	Unitrode Integrated Circuits	Aloisi@uicc.com
Mr. Eric Swartz	V	Verisys	eric@verisys.com
Mr. Jeff Stai	P	Western Digital Corporation	stai@dt.wdc.com
Mr. Tak Asami	A	Western Digital Corporation	asami@dt.wdc.com
Mr. Doug Piper	P	Woven Electronics	549.9900@mcimail.com
Mr. Arnold Limjoco	O	Yamaichi Electronics	6371175@mcimail.com
Mr. Don Johnson	V	Zitel Corporation	djohnson@zitel.com

45 People Present

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Status Key:  P    -  Principal
             A,A# -  Alternate
             O    -  Observer
             L    -  Liaison
             V    -  Visitor
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4.   Physical Topics

4.1   SPI-2 Study Group Report

John Lohmeyer reported that the SPI-2 Study Group meeting was held earlier in the week and it did not finish the whole agenda in the allotted time. See 95-340 for the minutes. The project has been approved by X3 and SPI-2 was assigned project number 1142-D.

4.2   EPI Study Group Report

John Lohmeyer reported that the EPI-2 Study Group meeting was held earlier in the week. See 95-341 for the minutes. The project has been approved by X3 and EPI was assigned project number 1143-DT.

5.   Protocol Topics

5.1   Addressability of TARGET RESET task management function (94-236r1) [Snively]

Bob Snively reported that the changes are ready for incorporation in SIP. George Penokie noted that a change in the message code value will be necessary for the Reset LUN message.

5.2   SCSI-3 Interlocked Protocol (SIP) [Penokie]

George Penokie reported that revision 7 was in the mailing. He noted receipt of additional comments from Charles Binford (Symbios). George reviewed the changes from revision 6 to 7. George asked the group to study the current SIP carefully, as he plans to recommend a letter ballot on revision 8. George received plenty of advice regarding the issues that he presented.

During the SIP discussion, a controversy developed regarding SCAM, reset conditions, and the BUS DEVICE RESET message. The ultimate question was, "Does a BUS DEVICE RESET message reset device IDs and initiate SCAMing of the system?" Behind this was a controversial interpretation of the wording, "reset condition," as it appeared in the SCAM Annex. If "reset condition" was interpreted to mean both the bus reset signal and the BUS DEVICE RESET message, then the BUS DEVICE RESET message would reset IDs and initiate SCAM. However, a careful reading of SCSI-2 (upon which the SCAM Annex was based) led the working group to conclude that "reset condition" refers **only** to the bus reset signal; thus the BUS DEVICE RESET message was determined to **not** reset device ID's and to **not** initiate SCAM protocol.

Chair's note: While the above conclusion was widely supported by the SCAM-literate, the actual English in SCSI-2 remains open to interpretation as to whether a BUS DEVICE RESET message **causes** a hard reset condition. Certainly the message has the effect of a hard reset condition on a given device, but it is not clear whether this should include resetting device IDs -- a concept that was not contemplated in SCSI-2. A planned amendment to SPI should make it clear that only the RST signal has the effect of clearing the device IDs for SCAM devices.

5.2.1   Aborting the Untagged Process in SIP (95-351r0) [Monia]

Charles Monia presented a concern that ABORT TAG is the only way to abort a process, leaving no way to abort untagged processes. He noted that SCSI-3 allows one untagged process mixed with tagged processes. He proposed modifications to the ABORT TAG message to correct the problem. Minor editorial changes to the proposal were recommended by the working group.

In the absence of any objections, the group recommended that the Plenary approve including 95-351r1 in SIP.

5.3   Problem with Non-interlocked Busses (95-352r0) [Monia]

Charles Monia presented a scenario where non-interlocked busses may mis-order ordered commands when status codes of BUSY, RESERVATION CONFLICT, TASK SET FULL, or ACA ACTIVE are returned. The group discussed the seriousness of the issue and the conditions under which the issue produces problems.

Many in the working group expressed substantial concerns about the costs of the proposed solution and a strong desire that the solution be as optional as possible. Some went so far as to express a belief that no unusual problem exists. Charles accepted many comments and guidance for revising the proposal.

5.4   FCP-2 use of Disconnect-Reconnect Mode Page (95-348r0) [Gardner]

Ed Gardner presented the first draft of the document that applies the disconnect-reconnect mode page to FCP. He noted that the previous disconnect-reconnect work laid the ground-work for this proposal. He also stated that the proposal has been reviewed by several FC-AL experts, and has been found satisfactory.

Ed then began a line-by-line review of the draft proposal. Ed received comments on the proposal from Bob Snively, Giles Frazier, Gerry Houlder, Doug Hagerman, and Dal Allan. Ed agreed to prepare another revision based on the input received at this meeting. He will bring the revision to the January meetings.

5.5 Simplified Queuing [McGrath]

Jim McGrath, speaking extemporaneously, proposed that the Ordered Queue Tag be made optional. He proposed methods by which hosts could compensate for the absence of ordered queuing. He described the benefits of building a disk that does only simple queue processing. A short, heated debate was cut off by the chair, based on time concerns and the lack of a written proposal.

6.   Command Set Topics

6.1 Set/Sense Environmental Services Function (95-324r1) [Snively]

Bob Snively presented an overview of the proposed Set/Sense Environmental Services capabilities that he wants added to SCSI-3. He described the new device model aspects of the proposal. Then, he described the enhancements to the RECEIVE DIAGNOSTIC RESULTS and SEND DIAGNOSTIC commands. Bob took a straw poll for preferences between READ/WRITE BUFFER and RECEIVE/SEND DIAGNOSTICS. RECEIVE/SEND DIAGNOSTICS won the poll 11:3.

6.2 SCSI Accessed Fault-Tolerant Enclosures (SAF-TE) {Conner/Intel Spec.}

Bob Snively presented an overview of the proposed SAF-TE proposal. He noted that SAF-TE uses a separate target, based on the processor device mode. At the conclusion of the presentation, Bob Snively offered the following observations and suggestions. He complimented the SAF-TE work, noting that it contained numerous useful ideas that his work had not yet incorporated. He suggested that SAF-TE be asked to adopt the ESI (Environmental Services Interface) device model. He indicated a strong personal preference for the SEND DIAGNOSTICS / RECEIVE DIAGNOSTIC RESULTS commands (as opposed to WRITE BUFFER and READ BUFFER). He noted the straw poll vote taken during the previous agenda items, affirming his personal opinion. He proposed that the SAF-TE page definitions be incorporated in the ESI proposal and that the proposal be enhanced to handle vendor unique strings, based on the concepts in the SAF-TE work.

On Wednesday afternoon, Bernie Wu (Conner) visited the working group to discuss SAF-TE. Those present who expressed an opinion, felt that a large amount of synergy exists between SAF-TE and the working group's ideas. The group discussed mechanisms by which further communications and meetings can occur to coordinate work efforts between SAF-TE and X3T10. Continued contact between the two groups was strongly supported, although no one present had sufficient knowledge of future schedules to define specific meeting plans yet.

6.3 Set Capacity (95-260r2) [Houlder]

Gerry Houlder presented a proposal for adding a set capacity function to the READ CAPACITY command. The revision was based on comments received at the September working group meeting (minutes 95-319).

Gene Milligan moved that the proposal be revised to use the mode page mechanism (and reclaim a "unused" byte). Steve Holmstead second the motion. The working group approved the motion 11:3.

6.4 Device Identification Page Proposal (95-240r1) [Lohmeyer]

John Lohmeyer presented a proposal for a new vital product data page to be used for reporting many different identifiers (and many different kinds of identifiers). He noted that the group identifier concept is not meeting the needs of the high availability study group. Some participants in the high availability group have asked that the group identifiers be removed from the proposal.

John led a discussion of the proposal, including a description of IEEE identifiers. John agreed to revise the document based on input received from the working group. He noted that the identifier category field will be changed to reserved and other aspects of the group identifiers will be removed. Other minor changes in wording and possible additions of examples will be considered for the next revision.

6.5 Reporting Version Information [Milligan]

Gene Milligan presented a proposal for extending the INQUIRY data to return version data for each standard implemented by a product. There was a lengthy discussion of the needs for version reporting and how

the proposal met, or did not meet, those needs. The discussion ended with no clear resolution of the next step. (See item 8.12 of the plenary minutes, 95-343, for additional information.)

6.6   Secure Multiple Port Operations (95-322) [Snively]

Bob Snively reviewed the Persistent Reservation proposal (95-229). The group discussed whether reservations should persist across power cycles. Rod DeKoning suggested that persistence of reservations across power cycles be optional. Returned status (presence/absence) of the option could be communicated via a bit in PRIN data. The group discussed this at length. Bob Snively agreed to bring proposed wording changes to the plenary meeting.

Jim McGrath questioned the robustness of persistent reservations in the presence of SCSI ID changes. Bob noted that persistent reservations depend on having no changes in initiator IDs but changes in target IDs cause no unique problems for persistent reservations.

Lansing Sloan gave a presentation (slides in 95-353) describing the need for protected persistent reservations. He received many comments, several of them negative. The most serious technical objection appeared to be to having persistent passwords in devices (especially disks). A device with an unknown password is useless and the costs of dealing with such devices in pools of spares is considered unacceptable, especially for low-cost, high-volume commodity products.

6.7   Should the Immed bit be qualified by FOV in the FORMAT UNIT command (95-355) [Houlder]

Gerry Houlder presented a concern regarding validating the FOV bit in the presence of the immediate bit. The group discussed the intent of the original "immediate" proposal. Gerry was not looking for an immediate change in the standard. He asked everyone present to check their implementations, software and drive microcode, to see how the FOV and immediate bits are tested in relation to each other.

6.8   ASC Stuff (95-344 & 95-345) [Penokie]

George Penokie presented a request for change in the wording of LOW POWER Condition Active ASC/ASCQ and a request for two new ASC/ASCQ codes, both under a new ASC. The group discussed George's proposals. In the absence of any objections, the working group recommended that the plenary approve both proposals as revised.

6.9   SPC Status [Monia]

Charles Monia proposed that the current revision of the SPC be forwarded. John noted that there are a few outstanding proposals for SPC and the lack of progress on other command set documents may indicate a need to delay the forwarding. The group discussed taking a stabilization vote on the SPC at the up-coming plenary meeting. A list of currently in-progress proposals that should be allowed into a stabilized SPC-1 was developed. Chief among the listed proposals were the new ASC/ASCQ changes (see above), John's IDs VPD page, and Persistent Reservations. Charles and Gene Milligan agreed to craft a stabilization motion for the plenary meeting.

7.   Other Topics

7.1   What is in a name? [Milligan]

Gene expressed the belief that the ongoing SCSI name escalation should be ended (SCSI-1, SCSI-2, SCSI-3, SCSI-4 ...). He further felt that other mechanisms be devised to report the revision status of a product. He stated that, from an X3T10 perspective, the question has been over taken by events; specifically the formation of the SCSI marketing group.

7.2   Systems Issues Considerations [Penman]

The working group took no action on this subject at this meeting. It was agreed that this is a recurring working group agenda item.

7.3   High Availability Controller Failover Proposal [Sicola]

Steve Sicola presented the current thinking for high availability controller failover (95-358) and SCSI-3 fault tolerant controller configurations (95-357). The major concern expressed by the working group was scheduling a meeting that can (and will) be attended by RAB members. The group spent a few minutes discussing meeting schedules. George Penokie agreed to present the idea of another SCC/RAB joint meeting to the RAB people at their Wednesday evening dinner meeting.

7.4   High Availability SCSI Profile (95-314) [Hagerman]

Doug Hagerman gave a presentation regarding profiles for highly available SCSI configurations (95-314). He proposed that the ideas in the presentation form the basis for a technical report.

7.5   X3 Procedure for managing OUI Code [Johansson/Lohmeyer]

John described a problem where the SBP needs an OUI to use to identify the SBP protocol in the Control Status Register (CSR) space of IEEE 1394. John described the process by which IEEE has agreed to give one OUI to X3. John said that X3 will require a proposed process for managing X3 usage of the OUI. John presented a proposed process that we will ask X3T10 to recommend to X3. He further described how X3 and X3T10 would use the sub-fields associated with the OUI.

7.6   SCSI Marketing [Hagerman]

Doug presented a short talk that he previously gave to the first SCSI marketing group meeting. The crux of his presentation was that the name SCSI 2000 be adopted. He received some comments. It was noted that the talk best belongs at the SCSI marketing meeting.

8.   Meeting Schedule

John reviewed the proposed meeting week schedule for January 1996. The next meeting of X3T10 SCSI Working Group will be January 9-10, 1996, in Dallas, TX at the Doubletree Hotel (214-869-4300), hosted by Quantum Corp.

9.   Adjournment

The meeting was adjourned at 6:22 p.m. on Wednesday November 8, 1995.