Accredited Standards Committee*
X3, Information Processing Systems

To: Membership of X3T10

From: Ralph Weber, Secretary X3T10
            John Lohmeyer, Chair X3T10

Subject: Minutes of X3T10 Plenary Meeting #6
            Palm Springs, CA -- November 10, 1994

Agenda

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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., Thursday November 10, 1994. He thanked Jeff Stai of Western Digital for arranging and hosting the meeting.

John reported that, since the last meeting, Larry Lamers was appointed Vice Chair of X3T10 and Gene Milligan was appointed International Representative. Also, John Scheible was appointed Chair of X3T10.1. John noted that X3T10.1 still needs a Vice Chair. He encouraged any interested persons to apply for the Vice Chair position in X3T10.1.

John said that X3 Subgroup Membership forms and the X3T10 Mailing Subscription form were available on the document table. He said that people should use the X3 forms to insure the X3 Secretariat has the latest membership information. These forms should be mailed directly to the X3 Secretariat.

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 changes:

Item 10.4 (Response to ISO Comments on SCSI-2 [Lamers]) was moved to 11.1.

Added:
10.4   Authorization of Fast-20 Letter Ballot
10.5   Clarification of international program fee [Allan]
10.6   Authorization of a letter ballot for GPP [Lohmeyer]
10.7   Fast-20 Termination [Aloisi]
10.8   Error Handling for SCSI Controllers (94-024r5) [Hagerman]

3. Attendance and Membership

The membership requirements were reviewed. X3 rules permit one vote per organization. An individual from a new organization must attend two out of three consecutive plenary meetings. He/she may apply for voting membership the second meeting via a letter to the Chair of X3T10. The individual may vote at the second plenary meeting. Working group meetings do not count toward attendance requirements.

Organizations must also pay the X3 Service Fee ($300) to maintain membership. This year, the International Program fee ($300) will be billed separately directly from ANSI.

The Chair said he had sent letters to 16 people from 9 organizations informing them that their membership was in jeopardy due to non-attendance (see 94-009r3) and that their membership would be terminated if they did not attend this meeting. All organizations were represented except: Foxconn; Harbor Electronics; and Panasonic Industrial Co. Principal members from these organizations were changed to observers and the alternates were terminated.

The following organization joined X3T10 at the meeting: Trimm Technologies.

The X3T10 membership is now at 56 organizations down from 58 organizations last time. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current X3T10 membership list.

4. Approval of Minutes - September Meeting Houston, TX (X3T10/94-192r2)

The minutes were approved as written.

5.   Document Distribution

Members who have any problems with their mailing subscription should deal directly with Katrina Gray or Dan Arnold at (202) 626-5741.

Larry Lamers requested that all documents for the next mailing be in his hands by noon on Wednesday, November 23, 1994. Documents received after this date will go into a subsequent mailing.

Larry Lamers reminded the committee of the requirements for document submission to be included in the committee mailing. Since X3T10 meets its document archiving requirements by including the X3 Secretariat on the mailing list, documents included in the mailing must be suitable for microfilming. This means that high-quality, single-sided originals with adequate margins and proper identification must be submitted. Document X3T9.2/92-84 R1 contains the list of requirements for submissions.

In keeping with the X3T10 committee's new efforts for electronic document filing and distribution, Larry requested that electronic copies of all documents be made available to him. The electronic copies can be sent directly to Larry. Or, the electronic document can be placed on the SCSI BBS.

As usual, minutes are also available on the SCSI BBS (719-574-0424) and will be distributed to the ATA and SCSI Reflectors. To be added to the ATA Reflector, send an email to majordomo@dt.wdc.com with the line 'subscribe ata your-email-address' in the message body. To subscribe to the SCSI Reflector, send an electronic message to: scsi-request@WichitaKS.NCR.COM.

The current document register is enclosure (3).

6.   Call for Patents

This is a regular agenda item to identify any potential patent issues with developing standards.

A document is available from ANSI, "Procedures for the Development and Coordination of American National Standards", at no charge. Annex I contains the ANSI patent policy.

Gene Milligan said that patents have been identified by their holders for the secure mode. There is one patent from IBM (94-125 in the June '94 X3T10 mailing) and one patent from Maxtor (94-246 in the December '94 mailing). X3T10 does not take a position on the validity or applicability of these patents. Contact the patent holders and/or ANSI for licensing information.

7.   Review of Old Action Items

26) Larry Lamers will issue a letter ballot on the SSA SCSI-2 Protocol Technical Report X3T10/94-196r0. **Complete.**
27) John Lohmeyer will authorize Jean Paul to pay the editing invoice from Sandy. **Complete.**
28) John Lohmeyer will authorize Jean Paul to pay the editing invoice from Kelly. **Complete.**
29) Larry Lamers will create a first working draft of the Fast-20 dpANS. **Complete.**
30) Larry Lamers will revise the SPI based on comments received to date. **Complete.**
31) Larry Lamers will issue a letter ballot on forwarding SCC revision 3 to public review. **Complete.**
32) George Penokie will revise the Log Sense TIB based on comments from Gene Milligan. **Complete.**
33) Larry Lamers will issue a letter ballot on forwarding the Log Sense TIB (as revised) to public review. **Complete.**
34) Larry Lamers will issue a letter ballot on forwarding the Sequential Access TIB to public review. **Complete.**
35) Charles Monia will revise SAM as instructed producing SAM revision 16. **Complete.**

36) John Lohmeyer will forward SAM revision 16 to X3 for further processing toward first public review. **Complete.**

37) Bob Snively will revised FCP based on the approved proposal from Gene Milligan, producing FCP revision 10. **Complete.**

38) John Lohmeyer will forward FCP revision 10 to X3 for further processing toward first public review. **Complete.**

39) Ron Roberts will revise SBP based on comments from Giles Frazier, producing SBP revision 19. **Complete.**

40) John Lohmeyer will forward SBP revision 19 to X3 for further processing toward first public review. **Complete.**

41) Larry Lamers will issue a letter ballot for approval of Gene Milligan's procedures proposal. **Complete.**

42) John Lohmeyer will forward the ATA-3 project proposal to X3 for further processing. **Complete.**

8. Subgroup and/or Project Status Reports

8.1 Project Status Summary and X3/OMC Liaison [Lohmeyer]

John Lohmeyer said that the current X3T10 project status summary was included on the backs of the meeting agendas.

John announced that the rules of X3 (document SD-2) is at X3 letter ballot. The new rules will expedite handling of documents sent to X3 for processing. The compliance review will be overlapped with the first public review. The first public review will be reduced to 2 months (from 4 months). Also, an X3 letter ballot will be overlapped with the second public review. All the tasks described as overlapped above currently are done sequentially.

John announced that the project proposal making GPP a technical report has been approved by X3. The new project number is 991-DT. ESDI is at BSR for reaffirmation.

John announced that OMC has approved sending the FCP, SBP, and SAM dpANS documents to first public review. He is still trying to learn the status of the ATA-3 project proposal, which also was at OMC. It probably was sent to X3 for letter ballot.

8.2 X3T10.1 Task Group Report

Ken Hallam reported that the SSA task group has met several times since September. Meetings have covered the SSA-PH, SSA electrical, and SSA to SCSI-2 mapping. Ken noted that the SSA-PH is very close to being ready. Ken said that the SSA mapping for SCSI-3 is not receiving much attention. Everybody is more interested in the SSA to SCSI-2 mapping. The following actions have been taken.

Adopted recommendations of October/November working groups for SSA-PH and SSA-SCSI-2 (unanimous votes). Reviewed electrical specifications drafted by the working groups in October and November including, comprehensive specifications on drivers/receivers, new benchmark for electrical interface specifications, and completed work except for minor editorial items.

X3T10.1 approved incorporation of electrical specification into next revision of 989-D (11:0). X3T10.1 approved Host ID proposal, (8:2), changes physical and protocol descriptions, 989-D, 1051-D and 94-060 (this allows Target to establish alias for path description, used in some messages, and saves some table lookup time). X3T10.1 approved accumulated error reporting proposal, (11:0) (this provides a way to report recovered error statistics). X3T10.1 approved simplified procedure for reporting ports in Normal Mode, (7:2). The addition of option block description, (unitized connector) to 989-D was

approved (10:0). Also, the response to letter ballot comments for SSA-SCSI-2 project was approved (11:0).

Ken reported that the December mailing will contain new revisions of all working drafts and a letter ballot to forward 989-D.

8.3 AT Attachment (ATA) Status {Project 791-D} [Lamers]

AT Attachment has been published by ANSI as X3.221-1994. Call 212-642-4900 for ordering information.

8.4 SCSI Common Access Method (CAM) {Project 792-D} [Dallas]

Bill Dallas reported that the working group unanimously recommended forwarding CAM to second public review.

8.5 ATA Extensions (ATA-2) Status {Project 948-D} [Finch]

Larry Lamers reported. The review of the document is continuing. All sections except 9 have been reviewed. Section 8 has undergone significant changes. A meeting is scheduled for December 1 and 2 in Irvine, CA. The goal is to request a forwarding letter ballot following the January 1995 Plenary meeting.

8.6 SCSI-3 Parallel Interface (SPI) Status {Project 855-D} [Lamers]

Larry Lamers reported that the SPI document is nearly ready to go to second public review.

Larry Lamers moved that an editing invoice (94-223) for $675.00 be accepted for payment. Paul Aloisi seconded the motion. The motion was approved 33:0:23.

8.7 SCSI-3 Interlocked Protocol (SIP) Status {Project 856-D} [Penman]

Duncan Penman reported that he had been unable to get a first revision of SIP ready yet. Duncan said that his new goal is the next meeting.

8.8 Directly-Addressable Device Interface (DADI) Status {Project 964-D} [open]

John Lohmeyer announced that there still is not editor for DADI. He plans to introduce a motion in January to recommend the project be deleted if there is no progress (volunteer for editor or proposal) by then.

8.9 SCSI Common Access Method -2 (CAM-2) Status {Project 990-D} [Dallas]

Bill Dallas reported that the CAM working group began studying proposals for CAM-2.

8.10   SCSI-3 Generic Packetized Protocol (GPP) Status {Project 991-DT} [Stephens]

John reported that the new project designation is 991-DT. Gary announced intentions to have a draft ready for letter ballot very soon. (See agenda item 10.6.)

8.11   SCSI-3 Serial Bus Protocol (SBP) Status {Project 992-D} [Marazas]

Scott Smyers reported that the editors are waiting for SBP to go to public review and for the comments that may be generated by the public review.

8.12   SCSI-3 Fiber Channel Protocol (FCP) Status {Project 993-D} [Snively]

Bob Snively reported that he is waiting for FCP to go to public review and for the comments that may be generated by the public review.

8.13   SCSI-3 Architecture Model (SAM) Status {Project 994-D} [Monia]

Charles Monia reported that he is waiting for SAM to go to public review and for the comments that may be generated by the public review. The fact that SAM was forwarded with one unresolved negative may increase the probability of such comments.

8.14   SCSI-3 Primary Commands (SPC) Status {Project 995-D} [Weber]

Ralph Weber reported that SPC revision 3 was in the September mailing. The document now is complete, containing all known approved documents that apply to the primary commands. Ralph is awaiting the pleasure of X3T10 regarding further processing of the SPC. Ralph noted that between 2 and 4 working documents will modify the SPC, if approved by X3T10. However, a similar situation likely will exist at nearly every Plenary meeting.

8.15   SCSI-3 Block Commands (SBC) Status {Project 996-D} [Tewell]

John Lohmeyer received a revision 0 copy of the SBC. It will be in the next X3T10 mailing and will be posted on the SCSI BBS and ncrinfo.ncr.com.

8.16   SCSI-3 Stream Commands (SSC) Status {Project 997-D} [Lappin]

Ted Lappin reported that a SSC working group discussed several issues of importance to stream devices. Ted has work items to generate specific proposals to improve the SSC. The proposals cover behavior of the TEST UNIT READY command, addition a READ/WRITE REALLY command, handling of new density codes, changes in the progress indicator sense-key specific data, and other matters.

8.17   SCSI-3 Graphics Commands (SGC) Status {Project 998-D} [open]

John said that he would also introduce a motion to recommend that this project may be terminated if no progress occurs. Gene Milligan asked John to take an action item to send a letter to Ricoh warning of the probable termination of this project. John accepted the action item.

8.18   SCSI-3 Medium Changer Commands (SMC) Status {Project 999-D} [Oetting]

Erich Oetting described the medium changer results of this morning's combined SSC/SMC working group meeting. The working group recommended changes for the next revision of SMC. Reserve and Release Element command will continue to work as in SCSI-2. This will be integrated into the next revision of SMC.

The Device Capabilities Page will be mandatory in the Attached Changer Model. This page is already mandatory for the Independent Changer Model. The Attached Changer Model is restricted to one Data Transfer Element. Other restrictions on element types in the Attached Changer Model will be removed. Volume Tags may be returned by the Read Element Status command in the Attached Changer Model.

The working group also discussed possible enhancements for a future revision of SMC. Any ideas are welcome on how to do these: 1) find a way to allow mixed media types or densities in a media changer device, or 2) find a way to return a global identity for an Import Export Element. This would allow a host to recognize Import Export Elements that pass Media between two changer devices. The working group also would like to find a way to handle groups of elements that move or act together, such as a magazine that imports or exports 6 items at a time.

8.19   SCSI-3 Controller Commands (SCC) Status {Project 1047-D} [Penokie]

George Penokie announced the detailed results of the SCC letter ballot. As a result of the current status of the SCC document, George announced that SCC regular working group meeting have been discontinued. SCC working group meetings will be called on an as-needed basis.

8.20   Multimedia Command Set (MMC) Status {Project 1048-D} [Harris]

The working meeting was convened Monday afternoon at 1:30. There were six attendees total. The current document is 2.0 and was distributed for review. Input from this study group will be placed in the next mailing.

This session was attended by several of the command set and protocol document editors. Good input was received regarding how to resolve cross references and how to split command documentation requirements between existing document and SPC. Outstanding questions were discussed regarding whether the Red, Yellow and Green Books can be cited as normative references since they are proprietary documents. This issue also was discussed during the plenary.

CDB formats will be updated to show the "SCSI-2 LUN field" as reserved per SCSI-3 requirements. A question arose regarding AUDIO SCAN operation. In particular it was asked whether a PLAY AUDIO Command could be issued during a SCAN to resume play at normal speed. The consensus was that this behavior is allowed. AUDIO SCAN and STOP/PLAY descriptions will be updated to describe this behavior.

Norm reported that he is resigning as editor of MMC to pursue other duties. Ron Roberts has agreed to assume duties as editor and will conduct the next working group meeting. Norm will take any input on MMC until that time.

8.21   SCSI-3 Fast-20 Parallel Interface (Fast-20) {Project 1071-D} [Lamers]

Larry Lamers reported that the Fast-20 document is almost ready for a letter ballot. There are a few issues that Paul Aloisi has identified. (See agenda items 10.4 and 10.7).

8.22   AT Attachment-3 Interface (ATA-3) Status {Project _____-D} [Milligan]

Since the last plenary the ATA-3 ad hoc has held two meetings. At the October 19, 1994 meeting there were 27 attendees. Highlights of the meeting included the development of an ATA-3 Project Plan. The ATA-3 Study Group agreed to recommend that key elements of the project plan should be:

   Proposal cut off January 12, 1995 (later items slated for ATA-4)
   Preliminary description of proposed items by 11/10/94
   Consensus on approach and acceptance of a working document by March 1995
   Solidify the dpANS by July 1995
   Final edit by September 1995
   Initiate Letter Ballot for forwarding by November 1995

The group reviewed the list of new items suspended during the ATA-2 project and selected those that should be dealt with by ATA-3. It was agreed that higher transfer rates should be DMA and not PIO.

All prior proposals for ATA-3 that the proposer wishes to champion for inclusion in this project should be re-posted on the ATA reflector to insure that all participants have an opportunity to review and comment on the latest version. The group reviewed key attributes for command overlap and command queuing as a guide to proposers of such functionality.   Gene Milligan is to investigate the appropriateness of command queuing in the ATA-3 project proposal.

At today's ad hoc the group benefitted from the attendance of Bob Snively to discuss the recommended response to ATAPI project proposal letter ballot comments. The group passed a motion recommending that the statement on not complying with SAM be removed from the ATAPI project proposal by a vote of 14:1. Bob Informed us that the motion is sufficient to convert his vote to yes.

On the assumption that this would resolve the project proposal issues, the group discussed the plan to transition ATAPI from SFF to X3T10. SFF plans to resolve all outstanding issues on SFF 8020 and 8029 and then submit rev 2.0 of 8020 to X3T10 probably at the January meeting. A study group on this topic is requested for the week of January 9.

As a result of the two ad hoc meetings the following topics are items the ad hoc is recommending for consideration in ATA-3:

a) Secure Mode
b) ATA-3 Command overlap and command queuing proposals
c) Greater than 16.6 MB/s DMA transfer rates
d) Reset pulse width - to be resolved via Internet
e) Power mode additional capability
f) Predictive failure analysis reporting
g) Error Detection
h) Reduced command set
I) 3.3 Volt signal level definition
J) Additional DMA Commands

All participants are requested to post existing proposals for ATA-3 on the ATA reflector and/or to submit new ATA-3 proposals for consideration in preliminary concept form by November 10, 1994 and final form by January 12, 1995.

The ad hoc requests authorization for meetings November 30 in Irvine, CA. hosted by Western Digital and January 12, 1995 at South Lake Tahoe, CA. hosted by Silicon Systems.

The ad hoc also requested that the X3T10 Chair authorize an ATAPI ad hoc meeting for the week of 9 January with a willingness for 13 January if necessary and that the X3T10 Chair appoint a leader for the meeting.

Jim McGrath presented an overview of his proposal on command queuing and command overlapping. Because of the limited time Devon Worrell deferred his overview presentation and will be the first presenter on 30 November.

8.23   XOR Commands Study Group [Houlder]

Bob Snively reported that the XOR study group is working on a new mode page that identifies RAID strips on a drive. The study group also worked on XOR error recovery. Bob reported that the system is being made responsible for managing the error recovery.

9. Old Business

9.1 X3T10 Procedures [Lamers]

Larry Lamers reported that he has not made much progress on drafting procedures.

9.2 Resolution of ATAPI Letter Ballot Comments

Tom Hanan moved that X3T10 delete the statement "The application for the proposed standard does not require compliance with the SCSI-3 Architectural Model (SAM)." from the project proposal (2.2 Scope) for ATAPI in response to the letter ballot comments and forward the revised project proposal to X3 for further processing. Paul Aloisi seconded the motion.

The roll-call vote passed 38:2:0:16. Details of the roll-call vote are as follows:

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.	Mr. Bob Whiteman	1			
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Lawrence J. Lamers	1			
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
Amphenol Interconnect					1
Ancot Corp.	Mr. Jan V. Dedek	1			
Apple Computer	Mr. Mike Eneboe	1			
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic					1
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.	Mr. Gerry Johnsen	1			
Circuit Assembly Corp.					1
Cirrus Logic Inc.	Mr. Joe Chen	1			
Compaq Computer Corp.					1
Congruent Software, Inc.					1
Conner Peripherals					1
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Mr. Charles Monia	1			
ENDL	Mr. Kenneth J. Hallam	1			
Exabyte Corp.	Mr. Edward Lappin	1			
FSI Consulting Services	Mr. Gary R. Stephens	1			
Fujitsu Computer Products,Am					1
Future Domain Corp.					1
Hewlett Packard Co.	Mr. Pat Edsall	1			
Hitachi Micro Systems, Inc.					1
Honda Connectors	Mr. Thomas J. Kulesza	1			
IBM Corp.	Mr. George Penokie	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.					1
Linfinity Micro	Mr. Dean Wallace	1			
Madison Cable Corp.					1
Maxoptix Corp.	Mr. Ezra Alcudia	1			
Maxtor Corp.	Mr. Pete McLean	1			
Methode Electronics, Inc.	Mr. Bob Masterson	1			
Molex Inc.					1
NEC Technologies	Mr. Chris D'Iorio	1			
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.	Mr. Peter Brown		1		
QLogic Corp.	Mr. Skip Jones	1			
Quantum Corp.	Mr. James McGrath		1		
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.					1
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Robert N. Snively	1			
SyQuest Technology Corp.					1
Tandem Computers					1
Thomas & Betts	Mr. Harvey Waltersdorf	1			
Trimm Industries	Mr. Gary M. Watson	1			
UNISYS Corporation	Mr. Peter Dougherty	1			
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation	Mr. Tom Hanan	1			
Woven Electronics	Mr. Doug Piper	1			
Zadian Technologies	Mr. Duncan Penman	1			
	Totals:	38	2	0	16 = 56

Quantum described their no vote as being based on the need for a statement about SAM compliance in the project proposal.

Larry took an action item to edit the revised project proposal. John took an action item to forward the project proposal to X3 for further processing.

10. New Business

10.1   Letter Ballot Results and Resolution

John Lohmeyer reported the results of five letter ballots (see 94-231).

10.1.1 Forwarding Log Sense TIB to X3 (94-204)

On 94-204 (Logging Operations TIB), the letter ballot results were 55:0:0:3. There were no comments received on 94-204. Larry took an action item to generate a properly formatted TIB. John took an action item to forward the TIB to X3 for further processing. [Chair's note: A late arriving letter ballot included an editorial 'Yes comment' which will be dealt with during the document formatting.]

10.1.2 Forwarding Sequential-Access TIB to X3 (94-205)

On 94-205 (Sequential Access Partitions TIB), the letter ballot results were 55:0:0:3. A yes-with-comments ballot was received from Gene Milligan (Seagate). Ted Lappin led a discussion of the comments from Gene Milligan (Seagate). Gene Milligan moved that X3T10 accept all the Seagate comments except number 6 and assign such action items as are necessary to get the TIB to X3 for further processing. Ted Lappin seconded the motion. The motion passed 38:0:0:18.

Ted Lappin took an action item to update the TIB based on the accepted comments. Larry took an action item to properly format the TIB and John will forward the TIB to X3 for further processing.

10.1.3 Forwarding SCC to First Public Review (94-206)

On 94-206 (SCC forwarding to 1st public review), the letter ballot results were 54:1:0:3. Yes-with-comments ballots were received from IBM and Unitrode. The no vote came from Gene Milligan (Seagate). Gene Milligan moved that X3T10 accept the resolution of the comments (as represented in 94-228). Gary Stephens seconded the motion. The motion passed 32:0:24.

Gene Milligan requested that his letter ballot vote on 94-206 be changed from a no to a yes (final results: 55:0:0:3).

10.1.4 Project Proposal on SSA SCSI-2 Mapping Technical Report (94-207)

On 94-207 (SSA to SCSI-2 Mapping technical report project proposal, 94-196r1), the letter ballot results were 53:2:0:3. The no votes came from Gene Milligan (Seagate) and Unitrode. Ken Hallam moved that X3T10 accept the responses to the letter ballot comments (as represented in document in 94-235). Gene Milligan seconded the motion. The motion passed 35:0:21.

John took an action item to forward the revised project proposal to X3 for further processing.

10.1.5 Approving X3T10 Standards Development Policy and Procedure (94-208)

On 94-208 (X3T10 Policies and Procedures), the letter ballot results were 47:7:1:3. Yes-with-comments ballots were received from Cirrus Logic, Digital Equipment, and Unitrode. No votes were received from Adaptec, Amdahl, AT&T, FSI, Oak Technology, Storage Technology, and Western Digital.

John reported that the working group attempted to resolve the negative comments but failed to complete the task. John asked that a study group be established to resolve the comments. John and Gene felt that email would be helpful for obtaining a resolution. The Monday afternoon of the next X3T10 meeting week (9 January 1995) will be set aside for face-to-face work on a resolution.

John Lohmeyer asked that anyone interested in participating in the discussion send mail to Gene Milligan (Gene_Milligan@notes.seagate.com). Gene will compile the mailing list based on responses that he receives. Discussion turned to ensuring that all those who commented on the letter ballot are automatically on the email list. John took an action item to help Gene build an email mailing list for the policies and procedures discussion.

Gary Stephens moved that the policies and procedures document be forwarded to X3 without changes. John Lohmeyer ruled the motion out of order. John based the ruling on his belief that X3T10 must work to resolve the negative comments.

Gary Stephens moved to appeal the decision of the chair. Gary's motion to appeal the decision of the chair failed for lack of a second.

10.2   Forwarding SPI to Second Public Review

Gary Stephens moved that SPI revision 15 be forward to X3 for second public review. Gary Watson seconded the motion. Gene Milligan moved that consideration of Gary's motion be postponed until the issue of regulated terminators (Aloisi) has been considered. Dean Wallace seconded the motion. The motion to postpone passed 21:5.

Paul Aloisi presented his issue with regulated terminators in the presence of active negation drivers. Paul explained that a source sink regulator is needed to be sure that terminators do not pull lines out of range when negation drivers pull other data lines close to the negation limit.

Paul's specific proposal is to add the following at the end of bullet b) in Section 6.1.1 of the Fast-20 document:

"even when all other signal lines are driven at 4,0 V d.c."

Larry noted that the proposal applies to the Fast-20 document, however a similar problem exists in SPI. The main difference between Fast-20 and SPI is that active negation is optional in SPI and required in Fast-20.

Gene Milligan moved that consideration of regulated terminators topic be assigned to SPI-2. Skip Jones seconded the motion. The effect of passing Gene's motion to assign consideration would be that the committee will return to the forwarding motion on SPI. The motion to assign consideration to SPI-2 passed unanimously.

Consideration returned to forwarding SPI to second public review. A roll-call vote was taken on the motion. The roll-call vote passed 38:0:0:18. Details of the roll-call vote were as follows:

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.	Mr. Bob Whiteman	1			
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Norm Harris	1			
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
Amphenol Interconnect	Mr. Michael Wingard	1			
Ancot Corp.	Mr. Jan V. Dedek	1			
Apple Computer					1
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic					1
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.	Mr. Gerry Johnsen	1			
Circuit Assembly Corp.				1	
Cirrus Logic Inc.				1	
Compaq Computer Corp.				1	
Congruent Software, Inc.				1	
Conner Peripherals				1	
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Dr. William Ham	1			
ENDL	Mr. Kenneth J. Hallam	1			
Exabyte Corp.	Mr. Edward Lappin	1			
FSI Consulting Services	Mr. Gary R. Stephens	1			
Fujitsu Computer Products,Am				1	
Future Domain Corp.				1	
Hewlett Packard Co.	Mr. Pat Edsall	1			
Hitachi Micro Systems, Inc.					1
Honda Connectors	Mr. Thomas J. Kulesza	1			
IBM Corp.	Mr. George Penokie	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.				1	
Linfinity Micro	Mr. Dean Wallace	1			
Madison Cable Corp.				1	
Maxoptix Corp.	Mr. Ezra Alcudia	1			
Maxtor Corp.	Mr. Pete McLean	1			
Methode Electronics, Inc.	Mr. Bob Masterson	1			
Molex Inc.				1	
NEC Technologies	Mr. Chris D'Iorio	1			
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.	Mr. Peter Brown	1			
QLogic Corp.	Mr. Skip Jones	1			
Quantum Corp.				1	
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.				1	
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Vit Novak	1			
SyQuest Technology Corp.				1	
Tandem Computers					1
Thomas & Betts	Mr. Harvey Waltersdorf	1			
Trimm Industries	Mr. Gary M. Watson	1			
UNISYS Corporation	Mr. Peter Dougherty	1			
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation	Mr. Jeff Stai	1			
Woven Electronics	Mr. Doug Piper	1			
Zadian Technologies	Mr. Duncan Penman	1			
	Totals:	38	0	0	18

Larry took an action item to prepare SPI revision 15. John took an action item to forward SPI revision 15 to X3 for further processing.

10.3   Forwarding CAM to Second Public Review

Bill Dallas described the events that caused CAM revision 10 to be corrected to produce revision 11. The changes were described in a message to the SCSI Reflector over two weeks ago. The CAM working group unanimously recommended forwarding CAM revision 11.

Gene Milligan questioned the blank page marked "Foreword" and several other editorial problems. Gene took an action item to report all editorial problems to Bill Dallas. Bill Dallas took an action item to correct the editorial problems.

Neil Wanamaker moved that CAM revision 12 be forward to second public review. Ralph Weber seconded the motion. A roll-call vote was taken. The roll-call vote passed 37:0:0:19. Details of the roll-call vote were as follows:

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.	Mr. Bob Whiteman	1			
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Norm Harris	1			
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
Amphenol Interconnect	Mr. Michael Wingard	1			
Ancot Corp.	Mr. Jan V. Dedek	1			
Apple Computer					1
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic					1
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.	Mr. Gerry Johnsen	1			
Circuit Assembly Corp.					1
Cirrus Logic Inc.					1
Compaq Computer Corp.					1
Congruent Software, Inc.					1
Conner Peripherals					1
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Dr. William Ham	1			
ENDL	Mr. Kenneth J. Hallam	1			
Exabyte Corp.	Mr. Edward Lappin	1			
FSI Consulting Services	Mr. Gary R. Stephens	1			
Fujitsu Computer Products,Am					1
Future Domain Corp.					1
Hewlett Packard Co.	Mr. Pat Edsall	1			
Hitachi Micro Systems, Inc.					1
Honda Connectors	Mr. Thomas J. Kulesza	1			
IBM Corp.					1
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.					1
Linfinity Micro	Mr. Dean Wallace	1			
Madison Cable Corp.					1
Maxoptix Corp.	Mr. Ezra Alcudia	1			
Maxtor Corp.	Mr. Pete McLean	1			
Methode Electronics, Inc.	Mr. Bob Masterson	1			
Molex Inc.					1
NEC Technologies	Mr. Chris D'Iorio	1			
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.	Mr. Peter Brown	1			
QLogic Corp.	Mr. Skip Jones	1			
Quantum Corp.					1
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.					1
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Vit Novak	1			
SyQuest Technology Corp.					1
Tandem Computers					1
Thomas & Betts	Mr. Harvey Waltersdorf	1			
Trimm Industries	Mr. Gary M. Watson	1			
UNISYS Corporation	Mr. Peter Dougherty	1			
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation	Mr. Jeff Stai	1			
Woven Electronics	Mr. Doug Piper	1			
Zadian Technologies	Mr. Duncan Penman	1			
	Totals:	37	0	0	19

John took an action item to forward CAM revision 12 to X3 for further processing.

10.4   Authorization of a letter ballot for Fast-20 [Lohmeyer]

John asked if anyone was opposed to issuing a letter ballot for forwarding Fast-20 to first public review. There were no objections. Larry took an action item to revise Fast-20 as noted in 10.7 below. Larry took a second action item to issue a letter ballot for Fast-20.

10.5   Clarification of international program fee [Allan]

Dal Allan presented a letter to John asking X3 why committee members are charged international program fees for each X3 technical committee in which they participate. This is not the situation in IEEE. Dal asked John to forward his (Dal's) letter to X3. John took an action item to send Dal's letter to Jean-Paul Emard.

10.6   Authorization of a letter ballot for GPP [Lohmeyer]

John asked if anyone was opposed to issuing a letter ballot for forwarding the GPP technical report to first public review. There were no objections. Larry took an action item to issue a letter ballot for GPP.

10.7   Fast-20 Termination [Aloisi]

Paul Aloisi presented a proposal that a statement prohibiting on-device termination be removed from the Fast-20 document. After some discussion, Paul Aloisi moved that the second paragraph in clause 6.1.1 (specifically, "SCSI devices shall not include termination.") be removed from the Fast-20 document. Jim McGrath seconded the motion. The motion passed 32:2.

Gene Milligan moved that an informative Annex be added specifying the capacitance budget within a Fast-20 device. Dal Allan seconded the motion. The motion failed unanimously.

[Also note that under agenda item 10.2, a motion to assign the regulated terminators issue to the SPI-2 study group passed unanimously.]

10.8   Error Handling for SCSI Controllers (94-024r5) [Hagerman]

Erich Oetting moved and Ed Gardner seconded that the technical editor be directed to include 94-024r5 into the SPC document. The motion passed 23:0.

11. ISO [Milligan]

Gene Milligan, the X3T10 International Representative, gave an oral report and provided the following electronic report:

```
                        ISO Report
                      November 1994

   Gene Milligan reported that he has established contact points for
   determining the equivalent IEC standard for any copper components.
   If IEC does not have a standard, we can ask them to start a project
   to create one.  In summary, we now have peace between X3T10 and
   IEC.
```

Gene Milligan moved that X3T10 request the IR to double check the ISO status of all forwarded dpANS documents and to generate new ISO work items for any lacking an approved ISO project, with the exception of ATA. Larry Lamers seconded the motion. The motion passed 28:0.

Gene Milligan took an action item to double check the ISO status of all forwarded dpANS documents and to generate new work ISO items for any lacking an approved ISO project, with the exception of ATA.

11.1　Response to ISO Comments on SCSI-2 [Lamers]

Larry Lamers reported that SCSI-2 received 182 comments from Japan and 32 comments from Germany.　The major problems were use of "American National Standards" and non-international references in the optical media table.　Also, we should move the diode in the DIFFSENSE circuit and fix the pin 1 problems in the Flexible Disk mode page.　This was recommended by the working group.

Larry Lamers moved that X3T10 accept the DIFFSENSE circuit and pin 1 changes for inclusion in the ISO version of SCSI-2 and that the technical editor be authorized to make the editorial changes required by the balance of the comments from Japan and Germany.　Dal Allan seconded the motion.　The motion passed 34:0.

Larry took an action item to generate the responses document for distribution to ISO via the IR.　Larry took an action item to prepare a final ISO version of SCSI-2.

12. Liaison Reports

12.1　X3T11 Liaison Report [Cummings]

X3T11 met on October 12, 1994 with 69 attenders. Two member organizations were added (Hitachi America and Mitre), and one deleted (Storage Concepts), bringing the membership of X3T11 to 53.

X3 Letter Ballots on X3.230-199x, FC-PH Revision 4.3, and X3.254-199x, FC-FP Revision 2.2 closed with no negatives.　In addition, the recommendations to withdraw X3.176 and X3.177 also completed X3 Letter Ballots successfully.　The next step for all of these items is therefore BSR review.

The first Public Review for X3.210-DAM:1, the Amendment to the HIPPI Framing Protocol (HIPPI-FP), is expected to start early in November.

By a roll call vote of F37-O0-A16, FC-AL Revision 4.4 was forwarded for further processing, including an OMC Compliance Review and a first Public Review.　This vote is subsequent to an earlier Letter Ballot, which met the 2/3rds rule but included some comments.

A Project Proposal for a Fibre Channel Avionics Environment (FC-AE) was forwarded for further processing by a vote of F30-O00-A23.

X3T11 Letter Ballots were authorized for the Revised IPI-3 Disk and Revised IPI-3 Tape projects. These ballots will be timed to close before the 12/94 X3T11 Plenary.　At the same time, a letter ballot to withdraw Project 782-D, HIPPI-I3 will be circulated.　The information which was to be included in the standard produced by this project is now part of the Revised IPI-3 Disk document.

Submission of the X3.210 (HIPPI-FP), X3.218 (HIPPI-LE) and X3.222 (HIPPI-SC) published ANSI standards for ISO Fast Track processing was authorized.

A vote to forward a Project Proposal for a standard named SBCON, which is based on IBM's proprietary ESCON channel, failed late in the day for lack of people in the room.　A letter ballot on this Project Proposal has therefore been authorized.

The FC-EP0 Ad Hoc group raised the issue of optimal specifications for shortwave laser variants at

speeds greater than 1 gigabaud, and this was discussed in detail. The group has some concern that adequate testing may not be possible within the constraints of the schedule currently planned for FC-EP.

12.2   SFF Industry Group [Allan]

The PCI SIG which had also been using the name of SFF agreed to change its name to Small PCI.

A dimension difference between SFF-8009 and SFF-8012 on power pin dimensions has to be resolved. Two SSWGs on device form factors and associated connectors are expected to produce several Specifications in the near future. The project for rack mount of drives with the Unitized Connector has been canceled.

An idea on how to use the two remaining Reserved pins in the SCA connector to gather information from sensors in the cabinet was discussed. The suggestion that disk drives provide the gathered information in a SCSI Mode Page met with a noticeable lack of enthusiasm by the drive vendors present.

Concerns were expressed over intermatability of AMP's SCA-2 blind mate connector proposal with the Molex SCA design. A related issue is whether the resistor for the power pins will be on the drive or the backplane.

All but one of the outstanding issues on ATAPI SFF-8020 have been resolved. A new revision of SFF-8020 will be generated for submittal to X3T10 as part of the ATA-3 and ATAPI projects.

The meetings on Friday morning have been going so smoothly that it may be possible to reduce the amount of time needed for SFF, and make do with an evening meeting. With the ATA-3 and ATAPI projects wanting time, it is suggested a re-scheduling of plenary week meetings be considered.

12.3   IEEE P1394 [Marazas]

Jerry Marazas provided the following electronic report:

> As previously reported, the IEEE of the ballot pool for voting upon the P1394 draft standard has been formed. The ballot pool consists of over 130 voting members as well as an additional 15 individuals who have been granted the right to review and comments even though they have not met IEEE requirements in order to vote. Revision 7.1 of the 1394 document has been mailed to participants in the ballot pool for their review, comment, and as appropriate their vote. Closure date (due date for vote and comments) is November 22, 1994.

> Revision 7.1 differs in very minor respects from revision 7.0 which was distributed to the X3T10 membership in the June mailing. There are no technical changes in revision 7.1 relative to revision 7.0. There are editorial changes in revision 7.1 introduced so as to bring the format of the draft standard into conformity to recent changes in IEEE editorial standards. It is expected that these editorial conformance changes will act so as to minimize style and format comments from various IEEE reviewers during the public review phase.

> To repeat my previous offer, if there is any member of the X3T10 group who is not a member of the IEEE 1394 ballot pool, but wishes to comment upon IEEE 1394, you may send your comments to me in electronic form and I will incorporate those comments into my own. So that I may complete my own vote on time, I need to have received those comments prior to November 22, 1994.

I will post results of the IEEE 1394 ballot to both the SCSI and to the 1394 reflectors. Based on experience of others who have gone through the ratification process for an IEEE Standard, I expect the comments regarding IEEE 1394 to be sufficiently numerous and sufficiently technical that I will find it necessary to form a comments response committee. Assuming such a comments response committee to be necessary, I shall seek to limit its size to 15 or fewer parties and to require that all participants be willing to undertake detailed level editing work. I expect that the first meeting of the IEEE 1394 comments response committee will occur at the end of January, 1995 and for the group to meet in the San Jose, California area.

12.4   IT8 [Lohmeyer]

No report. Gene proposed and John agreed that this liaison report be deleted from future agendas unless we received a specific report/request.

12.5   IEEE P1285 Status [Pak]

No report received.

12.6   PCMCIA Report [McLean]

The last meeting was two weeks ago, devoted to a page by page review of the new release. The schedule for the new release is review in December and public release in January.

Larry Barnes (NCR) is heading a PCMCIA subgroup to review the relationship of SCSI to PCMCIA. That group will report to PCMCIA.

12.7   AIIM C21 [Podio]

George Penokie reported that he had been contacted by Fernando Podio. Fernando believes that, by assigning codes, X3T10 has approved their entire proposal. George (and other committee members) believed that AIIM would be bringing a revised proposal back to X3T10. John took an action item to contact Fernando Podio regarding the status of the C21 project.

13. Review of Action Items

43) John Lohmeyer will write a letter to Ricoh warning of the probable termination of the SCSI-3 Graphics Commands project.
44) Larry Lamers will edit the ATAPI project proposal as revised by the ATA working group.
45) John Lohmeyer will forward the ATAPI project proposal to X3 for further processing.
46) Larry Lamers will generate a properly formatted Logging Operations TIB.
47) John Lohmeyer will forward the Logging Operations TIB to X3 for further processing.
48) Ted Lappin will update the Sequential Access Partitions TIB based on the accepted comments.
49) John Lohmeyer will forward a properly formatted Sequential Access Partitions TIB to X3 for further processing.
50) John Lohmeyer will forward the revised SSA to SCSI-2 Mapping (94-196r1) project proposal to X3 for further processing.
51) John Lohmeyer will help Gene Milligan build an email mailing list for the policies and procedures discussion.
52) Larry Lamers will prepare SPI revision 15.
53) John Lohmeyer will forward SPI revision 15 to X3 for further processing.
54) Gene Milligan will report all CAM editorial problems to Bill Dallas.
55) Bill Dallas will correct the editorial problems in CAM revision 11, producing revision 12.

56) John Lohmeyer will forward CAM revision 12 to X3 for further processing.
57) Larry Lamers will revise Fast-20 to strike the second paragraph of 6.1.1.
58) Larry Lamers will issue a letter ballot for Fast-20.
59) John Lohmeyer will send Dal's international fees letter to Jean-Paul Emard.
60) Larry Lamers will generate a properly formatted Sequential Access Partitions TIB.
61) Larry Lamers will issue a letter ballot for GPP.
62) Larry Lamers will generate the SCSI-2 responses document for distribution to ISO via the IR.
63) Larry Lamers will prepare a final ISO version of SCSI-2.
64) Gene Milligan will double check the ISO status of all forwarded dpANS documents and to generate new ISO work items for any lacking an approved ISO project, with the exception of ATA.
65) John will contact Fernando Podio regarding the status of the C21 project.
66) John Lohmeyer will write a letter commenting on the SD-2 requesting that abstentions be permitted on technical votes at TCs and TGs.

14. Meeting Schedule

The next plenary meeting of X3T10 will be January 12, 1995, in Lake Tahoe, CA, at the Harrahs Lake Tahoe Hotel (702-786-3232), hosted by Silicon Systems, Inc. The meeting will begin at 1:00 pm on Thursday.

The meeting list for the next plenary week is:

January '95 Meeting Map

```
Sunday 1/8        9   10  11  12  1   2   3   4   5   6   7   8
                                      +=======================+
                                      | Editor's meeting      |      (15)
                                      +=======================+

Monday 1/9        9   10  11  12  1   2   3   4   5   6   7   8
                  +===========================================+
                  | Procedures Study Group                    |      (20)
                  +==============================+============+
                  | SSA-PH working group         | SSA UIG    |      (30)
                  +===============+==============+============+
                                  | XOR study grp|                   (20)
                                  +==============+


Tuesday 1/10      9   10  11  12  1   2   3   4   5   6   7   8
                  +===========================================+
                  |   X3T10.1                                 |      (40)
                  +===========================================+
                  |   SCSI-3 WG                               |      (40)
                  +==============+============================+
                  |  CAM-2 WG    |                                   (10)
                  +==============+


Wednesday 1/11    9   10  11  12  1   2   3   4   5   6   7   8   9
                  +===============================================+
                  | SCSI-3 WG                                     |  (45)
                  +==============+===========+=========+=======+
                                 |   MMC WG  | ATAPI WG |           (20)
                  +--------------+===========+==+=======+
                  | SFF Form Factor WG                 |            (20)
                  +-----------------------------------+


Thursday 1/12     9   10  11  12  1   2   3   4   5   6   7   8   9
                  +==============+================================+
                  |  ATA-3 WG    | X3T10 Plenary                  |  (40/80)
                  +==============+================================+
                  |  SSC/SMC WG  |                                   (10)
                  +==============+

Friday 1/13    8  9   10  11  12
                  +--------------+
                  | SFF          |                                   (40)
                  +--------------+
```

   Meetings marked with == are X3T10-authorized meetings.
   Meetings marked with -- are authorized by other groups and may change
   without notice.

```
Meeting Map Abbreviation Key:
ATA:            AT Attachment (a.k.a. IDE)
ATAPI:          ATA Packet Interface
CAM:            Common Access Method
El:             Electrical
Fast-20:        Synchronous Data Transfer at 20 Megatransfers/second
I/F:            Interface
LB:             Letter Ballot
MMC:            SCSI-3 Multimedia Commands (CD-ROM)
P1394:          IEEE Project on High Performance Serial Bus (not an X3
                activity)
PH:             Physical (Connectors, Cables, Transceivers, etc.)
Plenary:        Full Committee Meeting
RAB:            RAID Advisory Board (not an X3 activity)
RAID:           Redundant Array of Independent Devices
SCC:            SCSI-3 Controller Commands (RAID)
SCSI:           Small Computer System Interface
SFF:            Small Form Factor Industry Group (not an X3 activity)
SG:             Study Group
SMC:            SCSI-3 Medium Changer Commands
SPI2:           Second Generation SCSI-3 Parallel Interface
SSA:            Serial Storage Interface
SSC:            SCSI-3 Stream Commands (includes Tape)
SSP:            Serial Storage Protocol (Protocol for SSA)
UIG:            User Interest Group (not an X3 activity)
WG:             Working Group (same as Ad Hoc Group)
X3T10:          Lower Level Interfaces Technical Committee (was X3T9.2)
X3T10.1:        SSA Task Group of X3T10 (was X3T9.7)
XOR:            Exclusive OR
```

Several other X3T10 events are also planned:

```
Event                            Day/Date   Time       Location/contact
-------------------------------- ---------  ---------  -----------------------
ATA-3 working group              Wed/11-30  9:30       Irvine CA/Tom Hanan
ATA-2 working group              Thu/12-01  9:30       Irvine CA/Tom Hanan
ATA-2 working group              Fri/12-02  9:30       Irvine CA/Tom Hanan
```

For more information about X3T10 activities, please contact the following people:

```
Activity                     Contact         Telephone/Email
---------------------------- --------------- -------------------------------
ATA-2                        Steve Finch     (714) 573-6808
                                             5723283@mcimail.com
ATA-3                        Gene Milligan   (405) 324-3070
                                             Gene_Milligan@notes.seagate.com
CAM                          Bill Dallas     (603) 881-2508
                                             dallas@wasted.enet.dec.com
SAM                          Charles Monia   (508) 841-6757
                                             monia@starch.enet.dec.com
ATA, SPI, SCSI-2, Fast-20    Larry Lamers    (408) 432-4776
                                             lamers@aol.com
SIP                          Duncan Penman   (408) 894-0800 x35
                                             penman@netcom.com
SSA-PH                       Edward Gardner  (719) 548-2247
                                             gardner@acm.com
SSP                          John Scheible   (512) 823-8208
                                             Scheible@vnet.ibm.com
FCP                          Robert Snively  (415) 336-5332
                                             Bob.Snively@eng.sun.com
GPP                          Gary Stephens   (602) 321-1725
                                             6363897@mcimail.com
SBP                          Ron Roberts     (408) 432-4322
                                             rkroberts@aol.com
SPC                          Ralph Weber     (603) 881-1497
                                             weber@star.enet.dec.com
SBC                          Thomas Tewell   (415) 459-7978
                                             thomas.tewell@seqadvtech.com
SSC                          Edward Lappin   (303) 447-7718
                                             tedl@exabyte.com
SMC                          Erich Oetting   (303) 673-2178
                                             Erich_Oetting@Stortek.com
MMC                          Norm Harris     (408) 945-8600 x2230
                                             nharris@adaptec.com
SCC                          George Penokie  (507) 253-5208
                                             gop@rchvmp3.vnet.ibm.com
Other Activities             John Lohmeyer   (719) 573-3362
                                             john.lohmeyer@ftcollinsco.ncr.com
```

The long-term X3T10 meeting week schedule is:

```
Date              Location                   Host/Comments
----------------  ------------------------   --------------------------
Jan  9-13, 1995   Lake Tahoe, NV             SSI
Mar  5-10, 1995   Newport Beach, CA          QLogic
May  7-12, 1995   Harrisburg, PA             AMP
Jul  9-14, 1995   Colorado Springs, CO       NCR Microelectronics
Sep 10-15, 1995   Manchester, NH             Digital
Nov  5-10, 1995   Southern CA                Western Digital
Jan  8-12, 1996
Mar 11-15, 1996
May  6-10, 1996
Jul 15-19, 1996
Sep  9-13, 1996
Nov  4- 8, 1996   Southern CA                Western Digital
```

14.1   Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does X3T10 (that is, one vote per organization) and the results of a working group are not binding on the parent committee. This later requirement is why we have traditionally only used non-binding straw polls in working group meetings. Any issue where the voting rules would make a difference

should be deferred to the plenary group. Nonetheless, task groups and ad hocs should strive to achieve consensus prior to bringing issues to X3T10.

Gary Watson moved and Pete McLean seconded that X3T10 authorize the X3T10-related meetings and events in the list above. The motion passed unanimously.

15. Adjournment

The meeting was adjourned at 6:47 p.m. on Thursday November 10, 1994.

Meeting Attenders -- Enclosure (1)

Name	S	Organization	Electronic Mail Address
Mr. Rick Heidick	A	3M Company	usmmm54s@ibmmail.com
Mr. Norm Harris	P	Adaptec, Inc.	nharris@eng.adaptec.com
Mr. Lawrence J. Lamers	A#	Adaptec, Inc.	ljlamers@aol.com
Mr. Neil T. Wanamaker	P	Amdahl Corp.	ntw20@eng.amdahl.com
Mr. Edward Fong	O	Amdahl Corp.	esf10@amail.amdahl.com
Mr. Bob Whiteman	A	AMP, Inc.	whiteman@cup.portal.com
Mr. Michael Wingard	A	Amphenol Interconnect	
Mr. Jan V. Dedek	P	Ancot Corp.	dedek@ancot.com
Mr. Ron Roberts	P	Apple Computer	rkroberts@aol.com
Mr. Mike Eneboe	A#	Apple Computer	teener@apple.com
Mr. John Lohmeyer	P	AT&T/ NCR Microelectronics	john.lohmeyer@ftcollinsco.ncr.com
Mr. Jason Albanus	P	Burr-Brown Corp.	Albanus_Jason@bbrown.com
Mr. Gerry Johnsen	P	Ciprico Inc.	gerry@ciprico.com
Mr. Ian Morrell	P	Circuit Assembly Corp.	crctassmbl@aol.com
Mr. Joe Chen	P	Cirrus Logic Inc.	chen@cirrus.com
Mr. Edward Haske	P	CMD Technology	
Mr. Louis Grantham	P	Dallas Semiconductor	grantham@dalsemi.com
Mr. Charles Monia	P	Digital Equipment Corp.	monia@starch.enet.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. Ralph Weber	A#	Digital Equipment Corp.	roweber@acm.com
Mr. I. Dal Allan	P	ENDL	2501752@mcimail.com
Mr. Kenneth J. Hallam	A	ENDL	3450626@mcimail.com
Mr. Edward Lappin	P	Exabyte Corp.	tedl@exabyte.com
Mr. Gary R. Stephens	P	FSI Consulting Services	6363897@mcimail.com
Mr. Pat Edsall	O	Hewlett Packard Co.	edsall@hpdmd48.boi.hp.com
Mr. Thomas J. Kulesza	A	Honda Connectors	
Mr. George Penokie	P	IBM Corp.	gop@rchvmp3.vnet.ibm.com
Dr. Gerald Marazas	A#	IBM PC Company	marazas@bcrvmpc2.vnet.ibm.com
Mr. David Lawson	P	Interphase Corp.	lawson@iphase.com
Mr. Lansing Sloan	O	Lawrence Livermore Nat'l Lab	ljsloan@llnl.gov
Mr. Dean Wallace	P	Linfinity Micro	
Mr. Robert Bellino	P	Madison Cable Corp.	
Mr. Ezra Alcudia	A	Maxoptix Corp.	
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Mr. Bob Masterson	P	Methode Electronics, Inc.	
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                    Nov 15, 1994 - X3T10 Document Register - Enclosure (3)

X3T10/94-002R4        Date: 9/21/94  Author: J. Lohmeyer  [10/15/94]
Desc: X3T10 Project Status Summary
 Res:

X3T10/94-007R0        Date:   Author: J. Lohmeyer  [10/15/94]
Desc: Draft Agenda for X3T10 Meeting - November '94
 Res:

X3T10/94-009R3        Date: 9/21/94  Author: J. Lohmeyer  [10/15/94]
Desc: Jeopardy Letter - Letter Ballots
 Res:

X3T10/94-009R4        Date: 9/21/94  Author: J. Lohmeyer  [10/15/94]
Desc: Jeopardy Letter - Letter Ballots
 Res:

X3T10/94-106R3        Date: 9/17/94  Author: R. Weber  [10/15/94]
Desc: RESERVE & RELEASE in SPC
 Res:

X3T10/94-146R3        Date: 7/20/94  Author: K. Cummings  [10/15/94]
Desc: Proposal for FORMAT MEDIUM command for Sequential Access Devices
 Res:

X3T10/94-164R1        Date: 7/22/94  Author: P. Aloisi  [10/15/94]
Desc: 3.3 volt SCSI Issues
 Res:

X3T10/94-168R1        Date: 8/5/94  Author: G. Penokie  [10/15/94]
Desc: TIB Procedures for Logging Operations in SCSI-2
 Res:

X3T10/94-170R0        Date: 8/16/94  Author: Penokie/Lamers  [10/15/94]
Desc: Minutes of X3T10 SCC Working Group Meeting -August 16, 1994
 Res:

X3T10/94-171R0        Date: 8/21/94  Author: C. Monia  [10/15/94]
Desc: Proposal for SCSI-3 Status Priority Definition
 Res:

X3T10/94-172R0        Date: 8/21/94  Author: C. Monia  [10/15/94]
Desc: Definition of Mandatory and Optional Features in SAM
 Res:

X3T10/94-173R2        Date: 8/21/94  Author: C. Monia  [10/15/94]
Desc: Summary of SAM, Revision 15 Changes
 Res:

X3T10/94-174R0        Date: 8/25/94  Author: S. Smith  [10/15/94]
Desc: Invoice on ATA ANSI editing
 Res:

X3T10/94-175R0        Date: 8/31/94  Author: H. Landis  [10/15/94]
Desc: Comments on ATA revision 2f
 Res:

X3T10/94-176R0        Date: 9/3/94  Author: R. Weber  [10/15/94]
Desc: Proposed Change for PORT STATUS Command Operation Code
 Res:

X3T10/94-177R0        Date: 9/6/94  Author: C. Monia  [10/15/94]
Desc: INQUIRY Change to Indicate Supported ACA Recovery Methods
 Res:

X3T10/94-178R0        Date: 9/6/94  Author: R. Weber  [10/16/94]
Desc: Proposal for Test Support Command
 Res:

X3T10/94-179R0        Date: 9/7/94  Author: J. Scheible  [10/15/94]
Desc: Protecting against out of order writes to the media
 Res:

X3T10/94-180R0        Date: 9/8/94  Author: G. Penokie  [10/15/94]
Desc: Tutorial on SCSI-3 Storage Arrays
 Res:

X3T10/94-182R0        Date: 9/12/94  Author: R. Shergill  [10/15/94]
Desc: Minutes of the ATA Working Group - 8/31-9/1/94
 Res:

X3T10/94-183R0        Date: 9/12/94  Author: Lamers/Penokie  [10/15/94]
Desc: Minutes of SCC Working Group - 9/94
 Res:

X3T10/94-184R0        Date: 9/12/94  Author: G. Houlder  [10/15/94]
Desc: System recovery on 3rd party commands
 Res:

X3T10/94-185R0        Date: 9/12/94  Author: N. Harris  [10/15/94]
Desc: Fast 20 Synchronous Negotiation Period Values
 Res:

X3T10/94-186R0        Date: 9/12/94  Author: C. Monia  [10/15/94]
Desc: Dual Port and ACA
 Res:

X3T10/94-187R0        Date: 9/12/94  Author: Weber/Lohmeyer  [10/15/94]
Desc: Minutes of the SCSI WG Mtg - 9/94
 Res:

X3T10/94-188R0        Date: 9/13/94  Author: R. Weber  [10/15/94]
Desc: Enhancements to INQUIRY Command
 Res:
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X3T10/94-189R1          Date: 9/13/94  Author: R. Snively  [10/15/94]
Desc: ACA/CA resolution
 Res:

X3T10/94-190R0          Date: 9/14/94  Author: G. Penokie  [10/15/94]
Desc: Exception Handling Selection Mode Page
 Res:

X3T10/94-191R0          Date: 9/14/94  Author: Lamers/Finch  [10/15/94]
Desc: Minutes of the ATA Working Group - 9/15/94
 Res:

X3T10/94-192R0          Date: 9/14/94  Author: Weber/Lohmeyer  [10/15/94]
Desc: Minutes of the X3T10 Plenary Meeting #5
 Res:

X3T10/94-193R0          Date: 9/14/94  Author: J. Lohmeyer  [10/15/94]
Desc: Letter Ballot results on the ATA-3 and ATAPI Project Proposals
 Res:

X3T10/94-194R0          Date: 9/14/94  Author: T. Hanan  [10/15/94]
Desc: ATA/ATAPI - Multi Threading
 Res:

X3T10/94-195R0          Date: 9/14/94  Author: J. McGrath  [10/15/94]
Desc: Comments on WD Command Queuing Proposal
 Res:

X3T10/94-196R0          Date: 7/19/94  Author: S. Finch  [10/15/94]
Desc: Project Proposal for Technical Report on SSA SCSI-2 Protocol
 Res:

X3T10/94-196R1          Date: 11/10/94  Author: K. Hallum  [12/15/94]
Desc: Project Proposal for Technical Report on SSA SCSI-2 Protocol
 Res:

X3T10/94-197R0          Date: 9/14/94  Author: B. Dallas  [10/15/94]
Desc: Minutes of CAM WG - 9/13/94
 Res:

X3T10/94-198R0          Date: 9/2/94  Author: G. Milligan  [10/15/94]
Desc: X3T10 standards development policy & procedure
 Res:

X3T10/94-199R1          Date: 9/15/94  Author: R. Weber  [10/15/94]
Desc: Minutes of the XOR WG - 9/12/94
 Res:

X3T10/94-200R0          Date: 9/16/94  Author: Kelley Shrock  [10/15/94]
Desc: Invoice
 Res:

X3T10/94-201R0          Date: 9/26/94  Author: J. Lohmeyer  [10/15/94]
Desc: Project Proposal for SPI-2
 Res:

X3T10/94-202R0          Date: 9/26/94  Author: B. Ham  [10/18/94]
Desc: Effects of 20pF Capacitance on SE FAST 20
 Res:

X3T10/94-203R0          Date: 9/28/94  Author: P. Jocelyn  [10/15/94]
Desc: Command Extensions for PCMCIA
 Res:

X3T10/94-204R0          Date: 9/29/94  Author: L. Lamers  [10/15/94]
Desc: Letter Ballot on SCSI-2 TIB #1
 Res:

X3T10/94-205R0          Date: 9/29/94  Author: L. Lamers  [10/15/94]
Desc: Letter Ballot on SCSI-2 TIB #2
 Res:

X3T10/94-206R0          Date: 9/29/94  Author: L. Lamers  [10/15/94]
Desc: Letter Ballot on forwarding SCC to X3
 Res:

X3T10/94-207R0          Date: 9/29/94  Author: L. Lamers  [10/15/94]
Desc: Letter Ballot on forwarding SSA-SCSI2 project proposal
 Res:

X3T10/94-208R0          Date: 9/29/94  Author: L. Lamers  [10/15/94]
Desc: Letter Ballot on approval of X3T10 Policies and Procedures
 Res:

X3T10/94-209R0          Date: 9/14/94  Author: D. Pak  [10/15/94]
Desc: Liaison Report from IEEE P1285
 Res:

X3T10/94-210R0          Date: 8/29/94  Author: G. Milligan  [10/15/94]
Desc: Provisionof X3.170  ESDI to the ITTF for Publication of IS 10222
 Res:

X3T10/94-211R0          Date: 10/19/94  Author: Lamers/Milligan  [12/15/94]
Desc: Minutes of ATA-3 Working Group - 10/19/94
 Res:

X3T10/94-212R0          Date: 10/19/94  Author: S. Finch  [12/15/94]
Desc: Clarification/Expansion of Table 7 in ATA-2
 Res:

X3T10/94-213R0          Date: 10/23/94  Author: B. Dallas  [12/15/94]
Desc: CAM comments
 Res:

X3T10/94-214R0          Date: 10/23/94  Author: J. McGrath  [12/15/94]
Desc: ATA Command Queuing Presentation
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 Res:

X3T10/94-215R0          Date: 10/12/94  Author: T. Hanan  [12/15/94]
Desc: ATA-3 WG Presentation
 Res:

X3T10/94-216R0          Date: 8/24/94  Author: H. Landis  [12/15/94]
Desc: ATA Single Device Configurations
 Res:

X3T10/94-217R0          Date: 10/23/94  Author: K. Gingerich  [12/15/94]
Desc: Annex C for Fast-20
 Res:

X3T10/94-218R0          Date: 10/26/94  Author: L. Lee  [12/15/94]
Desc: ATA Command Queueing Proposal
 Res:

X3T10/94-219R0          Date: 10/28/94  Author: T. Battle  [12/15/94]
Desc: Minutes of PFA Study Group - 10/94
 Res:

X3T10/94-220R0          Date: 11/1/94  Author: S. Smyers  [12/15/94]
Desc: Negotiating spatial distribution of recorded isochronous data
 Res:

X3T10/94-221R0          Date: 11/8/94  Author: L. Lamers  [12/15/94]
Desc: Comments from Germany on SCSI-2 DIS 9316-1
 Res:

X3T10/94-222R0          Date: 11/8/94  Author: P. Aloisi  [12/15/94]
Desc: SPIT Presentation
 Res:

X3T10/94-223R0          Date: 11/8/94  Author: K. Schrok  [12/15/94]
Desc: Invoice for Frame work
 Res:

X3T10/94-224R0          Date:   Author: B. Dallas  [12/15/94]
Desc: Minutes of CAM Working Group - 11/94
 Res:

X3T10/94-225R0          Date: 11/10/94  Author: G. Penokie  [12/15/94]
Desc: Minutes of SCC Working Group - 11/94
 Res:

X3T10/94-226R0          Date: 11/10/94  Author: R. Weber  [12/15/94]
Desc: Minutes of SCSI Working Group - 11/94
 Res:

X3T10/94-227R0          Date: 11/10/94  Author: Weber/Lohmeyer  [12/15/94]
Desc: Minutes of X3T10 Meeting #5 - 11/94
 Res:

X3T10/94-228R0          Date: 11/10/94  Author: G. Penokie  [12/15/94]
Desc: SCC Comment Resolution
 Res:

X3T10/94-229R0          Date: 11/10/94  Author: P. Aloisi  [12/15/94]
Desc: Low Power SCSI
 Res:

X3T10/94-230R0          Date: 11/10/94  Author: P. Aloisi  [12/15/94]
Desc: Hot Swap Issues
 Res:

X3T10/94-231R0          Date: 11/10/94  Author: J. Lohmeyer  [12/15/94]
Desc: Results of SY-94-05 Letter Ballots
 Res:

X3T10/94-232R0          Date: 11/10/94  Author: N. Harris  [12/15/94]
Desc: Fast-20 SCSI I/O Subsystem Study
 Res:

X3T10/94-233R0          Date: 11/10/94  Author: R. Snively  [12/15/94]
Desc: Multi-initiator, multi-port Issues
 Res:

X3T10/94-234R0          Date: 11/10/94  Author: B. Ham  [12/15/94]
Desc: Fast-20 SE SCSI testing update
 Res:

X3T10/94-235R0          Date: 11/10/94  Author: J. Scheible  [12/15/94]
Desc: Comment resolution on SSA-SCSI-2 project proposal
 Res:

X3T10/94-236R0          Date:   Author: R. Snively  [12/15/94]
Desc: LUN 0 Reset
 Res:

X3T10/94-237R0          Date: 11/10/94  Author: Lamers/Milligan  [12/15/94]
Desc: Minutes of the ATA Working Group - 11/94
 Res:

X3T10/94-238R0          Date: 11/10/94  Author: J. Rabie  [12/15/94]
Desc: ATA-3 Command Overlap
 Res:

X3T10/94-239R0          Date: 11/10/94  Author: T. Hanan  [12/15/94]
Desc: WD EIDE Presentation
 Res:

X3T10/94-240R0          Date: 11/10/94  Author: D. Penman  [12/15/94]
Desc: Comparison of Overlapped Command Execution on ATA Bus
 Res:
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X3T10/94-241R0          Date: 11/10/94  Author: T. Lappin  [12/15/94]
Desc: Minutes of the SSC/SMC Working Group - 11/94
 Res:

X3T10/94-242R0          Date: 11/7/94  Author: I. Allan  [12/15/94]
Desc: Letter on International Participation Fee
 Res:

X3T10/94-243R0          Date: 11/15/94  Author: R. Weber  [12/15/94]
Desc: Corrections to SPC for SCC
 Res:

X3T10/94-244R0          Date: 11/15/94  Author: T. Lappin  [12/15/94]
Desc: Media Commands Status Reporting in SPC
 Res:

X3T10/94-245R0          Date: 11/15/94  Author: T. Lappin  [12/15/94]
Desc: Read/Write w/o retries in SSC
 Res:
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