

Accredited Standards Committee\*  
**X3, Information Technology**

**Doc. No.:** X3T10/96-139 r1

**Date:** March 20, 1996

**Project:**

**Ref. Doc.:**

**Reply to:** John Lohmeyer

To: Membership of X3T10

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

Subject: Minutes of X3T10 Plenary Meeting #14  
San Diego, CA -- March 14, 1996

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**Agenda**

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  - 8.11 SCSI-3 Primary Commands (SPC) Status {Project 995-D} [Weber]
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  - 8.13 SCSI-3 Stream Commands (SSC) Status {Project 997-D} [Lappin]
  - 8.14 SCSI-3 Graphics Commands (SGC) Status {Project 998-D} [Tewell]
  - 8.15 SCSI-3 Medium Changer Commands (SMC) Status {Project 999-D} [Oetting]
  - 8.16 SCSI-3 Controller Commands (SCC) Status {Project 1047-D} [Penokie]
  - 8.17 Multimedia Command Set (MMC) Status {Project 1048-D} [Roberts]
  - 8.18 SCSI-3 Fast-20 Parallel Interface (Fast-20) {Project 1071-D} [Lamers]
  - 8.19 SCSI Parallel Interface - 2 (SPI-2) {Project 1142-D} [Ham]
  - 8.20 SCSI Enhanced Parallel Interface (EPI) Technical Report {Project 1143-D} [Ham]
  - 8.21 SCSI Fibre Channel Protocol - 2 (FCP-2) {Project 1144-D} [Snively]
  - 8.22 Boot Considerations Technical Report {Project 1154-DT} [Penman]
  - 8.23 SCSI-3 Serial Bus Protocol 2 (SBP-2) {Project 1155-D} [Johansson]

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- 8.24 SCSI Architecture Model - 2 (SAM-2) {Project 1157-D [Monia]}
- 8.25 SCC-2 Study Group [Penokie]

9. Old Business

- 9.1 Results of letter ballot on forwarding SIP

10. New Business

- 10.1 Results of SSA-PH1 and SSA-TL2 Letter Ballots (96-008, 96-009)
- 10.2 Results of SSA-S2P Letter Ballot (96-010)
- 10.3 Results of SPC Letter Ballot (96-012)
- 10.4 Actions on Working Group Recommendations
  - 10.4.1 Software Write Protect addition in SPC [Houlder/Milligan]
  - 10.4.2 Block Granularity in SSC [Lappin]
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- 10.5 SCSI-3 Enclosures Services (SES) Project Proposal [Snively]
- 10.6 Obsolescence vs. Baggage [Milligan]

11. ISO

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- 11.2 Approval of SC 25/WG 4 Delegation
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- 11.4 SSA ISO/IEC NWIs
- 11.5 SSA ISO/IEC CD Contributions
- 11.6 SIP ISO/IEC NWI
- 11.7 SIP ISO/IEC CD Contribution
- 11.8 Clarification of international program fee [Allan]
- 11.9 Results of Letter Ballot 96-014 on recommended response to NWI N 3862 [Milligan]
- 11.10 SPI Amendment to ISO

12. Liaison Reports

- 12.1 X3T11 Liaison Report [Cummings]
- 12.2 X3T13 Liaison Report [Milligan]
- 12.3 SFF Industry Group [Allan]
- 12.4 IEEE 1394 [Marazas]
- 12.5 IEEE P1285 Status
- 12.6 PCMCIA Report []
- 12.7 SCSI Trade Association (STA)

13. Review of Action Items

14. Meeting Schedule

- 14.1 Authorization of Working Group Meetings

15. Adjournment

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## Results of Meeting

### 1. Opening Remarks

John Lohmeyer, the X3T10 Chair, called the meeting to order at 1:03 p.m., Thursday March 14, 1996. He thanked Skip Jones of QLogic Corp. for hosting the meeting.

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 and additions:

Changes:

8.25 SCC-2 Study Group [Penokie]

Additions:

10.4.1 Software Write Protect addition in SPC [Houlder/Milligan]

10.4.2 Block Granularity in SSC [Lappin]

10.4.3 High Availability Profile Project Proposal [Hagerman]

10.5 SCSI-3 Enclosures Services (SES) Project Proposal [Snively]

10.6 Obsolescence vs. Baggage [Milligan]

11.10 SPI Amendment to ISO

## **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. The ANSI International Program Fee (also \$300) is billed at the same time.

The Chair said he had sent letters to 9 people from 3 organizations informing them that their membership was in jeopardy due to non-attendance (see 96-003r0) and that their membership would be terminated if they did not attend this meeting. All organizations were represented at this meeting except:

NEC Technologies  
Trimm Technologies

Organizations not present were 'terminated' (that is, the principal was changed to observer and the first alternate was dropped. Any additional alternates were changed to observer status).

Since Madison Cable was bought by AMP on February 28, 1996, their members have been added to AMP's membership. The day after the last plenary meeting, the chair received an email from Alan Olson resigning the 3M membership. Since Conner Peripherals was purchased by Seagate, their members have been added to Seagate's membership, per instructions from Gene Milligan (the Seagate principle representative).

John reported that Maxtor was purchased by Hyundai. He described a discussion with Jean-Paul Emard, the Director of the X3 Secretariat. Even though both Symbios Logic and Maxtor are owned by Hyundai, the two organizations are separately incorporated with separate boards of directors. Therefore, both organizations can be (and are) separate members of X3T10.

One new organization joined X3T10 at the meeting: KnowledgeTek (Dennis Moore)

The X3T10 membership during the meeting was at 47 organizations down from 50 organizations last time.

Chair's note: The week following the meeting, Katrina Gray informed the chair that Hitachi Cable is a separate organization from the other Hitachi organizations. She changed Zane Daggett from an additional alternate for Hitachi to the Principal from Hitachi Cable. Apparently, some of the other Hitachi members may also be able to

obtain separate membership, however no changes were made due to jeopardy concerns. X3T10 membership is now at 48 organizations.

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 - January Meeting Dallas, TX (X3T10/96-110r1)**

The minutes were approved as written.

#### **5. Document Distribution**

Members who have any problems with their mailing subscription should deal directly with Katrina Gray (kgray@itic.nw.dc.us) (202) 626-5741.

Larry Lamers requested that all documents for the next mailing be in his hands by 10:30 a.m. on Thursday March 21, 1996. Documents received after this time 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 archiving. This means that native-format electronic originals with proper identification must be submitted. Document X3T10/95-147 contains the list of requirements for submissions. Document X3T10/95-361r0 contains instructions for expeditious delivery of documents to Larry.

The electronic copies can be emailed directly to Larry (at ljlammers@corp.adaptecc.com), placed on the SCSI BBS (719-574-0424), or they can be ftp'd to ftp.symbios.com and placed in the /pub/standards/io/incoming directory. In the latter two cases, please also send an email to Larry (at ljlammers@aol.com) informing him of the exact file name and location of the file.

As usual, minutes are also available on the SCSI BBS (719-574-0424) and will be distributed to the SCSI Reflector. John noted that the SCSI BBS will be getting a new phone number around mid-April. The new phone number will be announced at the old BBS phone number for several months after the move.

To be added to the SCSI Reflector, send an email to majordomo@symbios.com with the line 'subscribe scsi' in the message body. The X3 Secretariat maintains a World Wide Web page at <http://www.x3.org>. Symbios Logic maintains a World Wide Web page on behalf of X3T10 at <http://www.symbios.com/x3t10>.

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 reported that he had received an additional letter from Compaq Computer with a favorable response to the ANSI patent policy licensing requirements relating to Compaq's patent position on the ATA-3 security function.

Gene Milligan reported that he has received no additional information regarding a patent policy for Technical Reports (if any). John Lohmeyer noted that he has not received any information either.

#### **7. Review of Old Action Items**

- 116) Gene Milligan will document the usage of the 0Dh mode page code in SBC as per the wishes of X3T10 expressed in item 10.6 of the meeting #10 minutes. *Complete.*
- 131) John Lohmeyer will request that the X3 Secretariat pay the editing services invoice. *Complete.*
- 132) Ralph Weber will change the SftRe bit in the standard INQUIRY data to vendor-specific. *Complete.*
- 133) John Lohmeyer will forward the SPI amendment project proposal to X3 for further processing. *Complete.*
- 134) Peter Johansson will write detailed comments on the defects in Annexes B and D of SPI Rev 15A by the March meeting. *Complete*
- 135) Ron Roberts will supply the summary of substantive changes between SBP R19 and R22 to the IR by 3/18/96. *Complete*
- 136) Bob Snively will supply the summary of substantive changes between FCP R10 and R12 to the IR by 3/18/96.

## **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 and will be included in the mailing as usual.

### **8.2 X3T10.1 Task Group Report [Lamers]**

Larry Lamers, acting X3T10.1 chair, provided the following written report, which was read to the committee.

X3T10.1 Report to X3T10 and SSA-IA -- February 29, 1996  
Lawrence J. Lamers, Chair X3T10.1 (acting)

X3T10.1 met in Stateline, NV, Wednesday February 28, 1996 with 26 people present. Membership is now at 23 voting organizations.

The X3T10 letter ballot comments on SSA-PH1, SSA-TL1, and SSA-S2P were resolved and approved. The comment resolution and revised working drafts have been submitted to X3T10 for their approval.

A draft of a delta document to the first generation SSA is planned containing the current thinking on 40 MB/sec topics. This document will serve as input for the SSA-PH2 working draft.

Work on the second generation standards will begin in earnest at the next meeting.

The next plenary meeting of X3T10.1 will be May 1, 1996, in South Burlington, VT at the Ramada Inn & Conference Center, South Burlington, VT, hosted by IBM, Phone: (802) 658-0250. The meeting will begin at 3:00 p.m.

The next working group meeting of X3T10.1 is scheduled for April 29-May 1, 1996. A study group on S3P plans to meet on Sunday, April 28, 1996 at 1:30 p.m. A study group on Enclosures plans to meet on Thursday, May 2, 1996 at 9:00 am. A PH2 working group has been authorized in the event it is needed.

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

John Lohmeyer reported that CAM was approved by BSR on February 5, 1996. It will be X3.232:1996.

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

Larry Lamers reported that Andrew Hubbard is preparing the camera ready copy of SPI at ANSI. The ANSI editors located a date error on one of the ASME standards. The referenced ASME standard was superseded by a newer standard. It was reported that new ASME standard requires some different symbols. The difference

raised concerns that the connector drawings in SPI would not conform to the new ASME standard. After some frantic phone calls, it was determined that the new ASME standard will require minor changes in the connector drawings. The nature of the changes was described to the committee.

Bob Snively moved that the SPI project editor be authorized to work with the ANSI editor to resolve the editorial issues raised by the new ASME standard, including perhaps revising the affected figures. Gary Porter seconded the motion. Several committee members noted that the SPI project editor should avoid redrawing the figures, if possible. The motion passed 32:0:0:15=47.

George reported a concern with table 9, describing DB8-15 and DBP(1) in the P Cable description. Information in the table can be viewed as conflicting with the text in section 10.11.3. George reported that a working group discussion agreed that the table defines the actions of the transmitter, while the text concerns the signals as observed by receivers. As such, it was agreed that both the table and the text are correct as written. George raised concerns that the text does not clearly state that it applies to receivers. George took an action item to write a document describing his concerns so that they can be addressed in SPI-2.

Peter Johansson reviewed the material planned for the SPI Amendment. He noted that several Annex B and Annex D changes have been reviewed several times, and are understood and needed changes. He then described an editorial oversight in Annex B, reported by Chris Burns (from Adaptec). Larry noted that this matter is covered in document 96-147.

Peter presented a description of a missing "not" in the description of reselection that had been identified by Gerry Houlder. Larry noted that this matter is covered by document 96-144.

Larry took an action item to prepare an amendment document including all the problems needing correction for review and consideration at the May meeting.

#### **8.5 SCSI-3 Interlocked Protocol (SIP) Status {Project 856-D} [Penokie]**

George Penokie reported that the mailing contained SIP revision 9, which incorporated all the letter ballot comments. He described some minor changes that resulted in revision 9a, and were discussed in the SCSI working group. George noted plans to forward SIP revision 9a to X3 for further processing towards first public review later in the meeting.

#### **8.6 SCSI Common Access Method -3 (CAM-3) Status {Project 990-D} [Dallas]**

John reported that a draft document is ready for review in CAM-3. John noted that no one (other than the project editor) attended the working group meeting.

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

John reported that the GPP Technical Report is ready to be published by ANSI. John informed the committee that this item will be removed from the next meeting agenda.

#### **8.8 SCSI-3 Serial Bus Protocol (SBP) Status {Project 992-D} [Roberts]**

John reported that SBP is in second public review and the review ends on April 30, 1996.

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

John reported that FCP is at BSR for final approval.

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

John reported that SAM is at BSR for final approval.

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

Ralph reported on requests for meeting authorizations to work on SPC. An editing meeting is requested for April 17, 18. A review meeting is requested for 3:30 pm on Monday, May 6, 1996. Ralph also noted that good progress was made toward resolving the letter ballot comments at the SCSI working group meeting.

**8.12 SCSI-3 Block Commands (SBC) Status {Project 996-D} [Milligan]**

Gene Milligan reported that revision 2 has been distributed. Highlights of the changes were reviewed at the SCSI Working Group. Detailed technical issues were reviewed up to page 40 at the SCSI Working Group meeting.

Gene Milligan reported that the working group recommended that revision 2 be accepted as the current working draft of SBC and he moved that the committee accept the working group recommendation. The motion passed unanimously.

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

Ted Lappin reported that six people attend the SSC/SMC working group meeting. He described interest in the communications device model, the first such interest Ted has seen. Ted solicited input from anyone interested in communications devices or printers.

**8.14 SCSI-3 Graphics Commands (SGC) Status {Project 998-D} [Tewell]**

John reported that no progress has been made on SGC. John asked that anyone interested in scanner commands notify him of their desire to edit the document or make significant proposals. John informed the committee that unless progress is made on SGC, he will propose this project be discontinued at the September plenary meeting.

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

Erich Oetting reported that SMC revision 5 was in the last mailing. He described conflicts between SMC and MMC for moving media, but expressed the belief that a resolution of the conflicts might be possible. Erich described efforts to relax the medium changer device model to accommodate stackers, which can be viewed as media changes that have no storage elements.

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

John reported that SCC is at BSR for final approval.

**8.17 Multimedia Command Set (MMC) Status {Project 1048-D} [Roberts]**

Ron Roberts reported that the working group reviewed MMC revision 5 page-by-page and completed 64 pages. No new proposals were received and Ron expressed satisfaction with this change from past working group meetings. He noted that he expects to request a forwarding letter ballot to first public review following the May plenary meeting.

Ron described for the following working group schedule of meetings:

April 22, 23, & 24, 1996 Bay Area

\*meeting on 4/25 is a joint meeting with X3T13 to review ATAPI commands.

May 7 & 8, 1996 Ft Lauderdale

June 17, 18, & 19, 1996 Irvine (WD) with X3T13 on 6/19

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

Larry Lamers reported that no news has been received from ANSI regarding BSR approval (although it has only been there a couple weeks).

**8.19 SCSI Parallel Interface - 2 (SPI-2) {Project 1142-D} [Ham]**

Bill Ham reported that the working held an interesting and intense meeting on Monday of this meeting week. He described the document as nearly technically stable.

Bill noted that the receivers need a higher level of signal intensity under some conditions. After a long string of zeros (about three bit times), the transition to one needs more signal strength than expected. A similar problem occurs with one-to-zero transitions. He described the effect as being like a capacitance effect, but not necessarily the result of capacitance.

Bill also noted that halving the device capacitance gives a dramatic improvement in signal performance. He described the need for a digital glitch filter (see the SPI-2 working group minutes, 96-134).

**8.20 SCSI Enhanced Parallel Interface (EPI) Technical Report {Project 1143-D} [Ham]**

Bill Ham reported that revision 5 of the EPI document has been distributed and reviewed. The major addition at this week's working group was information regarding TERMPWR management and requirements. The minutes of the EPI working group can be found in document 96-135.

**8.21 SCSI Fibre Channel Protocol - 2 (FCP-2) {Project 1144-D} [Snively]**

Bob reported that insufficient work exists to proceed on FCP-2 at this time. He described plans to start working on FCP-2 later this year.

**8.22 Boot Considerations Technical Report {Project 1154-DT} [Penman]**

John reported that Duncan Penman is willing to continue editing the boot considerations document. The goal is produce a technical report. It may be necessary to hire an editor to convert the document to proper technical report format. John noted that Duncan feels that the technical content of the document is stable and ready for forwarding.

**8.23 SCSI-3 Serial Bus Protocol 2 (SBP-2) {Project 1155-D} [Johansson]**

Peter Johansson reported that July will be the target for the first draft of SBP-2.

**8.24 SCSI Architecture Model - 2 (SAM-2) {Project 1157-D} [Monia]**

Charles reported that he will bring list of changes for SAM-2 to the May meeting.

**8.25 SCC-2 Study Group [Penokie]**

George reported on the high availability issues meetings. As a result of that discussion, it was decided that a universal identification field needs to be added to several commands, also new reporting commands were discussed, and new commands for removing a drive were discussed. The meeting discussed the need to start an SCC-2 project. The minutes of the meeting can be found in document 96-142.

George reported that the working group agreed to generate a project proposal for SCC-2. John Lohmeyer took an action item to generate a draft SCC-2 project proposal.

George reported that the next meeting will be during the May meeting week.



## **9. Old Business**

### **9.1 Results of letter ballot on forwarding SIP**

George Penokie reported all issues raised by the letter ballot have been resolved. The comments resolution document is 96-120. George Penokie moved that the resolution document be accepted as resolving the letter ballot comments and that the committee accept SIP revision 9a for forwarding to X3 for first public review. Gene Milligan seconded the motion. The motion passed 32:0:0:15=47.

Gene Milligan requested that his no vote on revision 8be changed to a yes vote on revision 9a.

John Lohmeyer took an action item to forward SIP revision 9a to X3 for processing toward first public review.

## **10. New Business**

### **10.1 Results of SSA-PH1 and SSA-TL2 Letter Ballots (96-008, 96-009)**

Larry Lamers described the letter ballot results and comments resolution process for the SSA documents.

Questions were raised regarding the Digital "no" vote on the SSA-TL1 comments resolution. Charles described his concern regarding an implementor's note that describes past SSA implementations that do not work under specific circumstances defined in the note. Charles expressed the belief that such notes were inappropriate in a standard. Greg Kapraun described the need for the implementor's note and the majority X3T10.1 belief that the note is needed.

Ted Lappin questioned the letter ballot results. He noted that he returned all his letter ballots. The problems with FAX ballots were discussed briefly. The ballot totals were corrected to reflect Ted's Yes votes.

Larry Lamers moved that X3T10 accept document 96-131r0 as the comments resolution for the letter ballot comments on SSA-PH1 and that SSA-PH1 revision 9 be accept as resolving the comments. The motion passed 32:0:0:15=47. John Lohmeyer took an action item to forward SSA-PH1 revision 9 to X3 for further processing toward first public review.

Larry Lamers moved that X3T10 accept document 96-132r0 as the comments resolution for the letter ballot comments on SSA-TL1 and that SSA-TL1 revision 10 be accept as resolving the comments. The motion passed 31:1:0:15=47. Charles Monia gave the implementor's notes described above as the reason for his negative vote. John Lohmeyer took an action item to forward SSA-TL1 revision 10 to X3 for further processing toward first public review.

### **10.2 Results of SSA-S2P Letter Ballot (96-010)**

Larry Lamers moved that X3T10 accept document 96-133r0 as the comments resolution for the letter ballot comments on SSA-S2P and that SSA-S2P revision 7 be accept as resolving the comments. The motion passed 32:0:0:15=47. John Lohmeyer took an action item to forward SSA-S2P revision 7 to X3 for further processing toward first public review.

### **10.3 Results of SPC Letter Ballot (96-012)**

John Lohmeyer reported that the SPC forwarding ballot had passed 39:3:0:7=49. The detailed balloting results are in 96-020 r1. The working group made progress in addressing the comments received and an editing session was been scheduled for April 17-18 in the San Jose area. Gene Milligan of Seagate plans to host the meeting. Additionally, a review session was scheduled to begin at 3:30 pm on May 6 in Ft. Lauderdale.

### **10.4 Actions on Working Group Recommendations**

#### **10.4.1 Software Write Protect addition in SPC [Houlder/Milligan]**

Gene Milligan presented a brief review of 96-121r2, a proposal that adds a software write protect bit to the control mode page. Based on the working group's recommendation, Gene Milligan moved that 96-121r2 be approved for inclusion in the documents that it references. Erich Oetting seconded the motion. The motion passed 32:1:0:14=47.

#### **10.4.2 Block Granularity in SSC [Lappin]**

Ted Lappin presented his proposal (96-114) to include granularity limits in support block sizes for stream devices (tapes). Based on the working group's recommendation, Ted moved that 96-114r1 be approved for inclusion in SSC. Skip Jones seconded the motion. The motion passed 33:0:0:14=47.

#### **10.4.3 High Availability Profile Project Proposal [Hagerman]**

Doug Hagerman presented a project proposal for a high availability concepts in SCSI parallel bus systems (96-151). The group discussed the proposal and suggested improvements. Based on the relaxed time requirements of the proposal, it was decided to edit the proposal, distributed it in the mailing, and vote to send the proposal to X3 at the next plenary meeting.

John Lohmeyer took an action item to help Doug write a project proposal in time for distribution in the next mailing.

#### **10.5 SCSI-3 Enclosures Services (SES) Project Proposal [Snively]**

Bob Snively presented a project proposal for a new command set document, SCSI-3 Enclosure Services (SES). The relationship between this work and projects in other organizations was discussed. The relationship of this work and SFF was discussed. The need for expeditious action on this project was discussed. Editorial revisions were made in the project proposal.

Bob Snively moved that the SES project proposal, 96-146r1, be forwarded to X3 for further processing. Charles Monia seconded the motion. The motion passed 29:0:0:18=47. John took an action time to forward 96-146r1 (the SES project proposal) to X3 for further processing.

#### **10.6 Obsolescence vs. Baggage [Milligan]**

Gene Milligan called the committee's attention to the "keywords" section in SBC which is the same as used by X3T13. The words defined in the keywords sections are: expected, may, shall, should, mandatory, etc. Gene's particular interest fell on the word obsolete, a word to be used in describing features whose definition can be found in a previous version of the standard but is one that the committee wants to be phased out of new implementations as the market permits. Gene asked the committee to think about using the word obsolete in X3T10 documents to make unwanted commands and features obsolete in future versions of committee standards.

### **11. ISO**

#### **11.1 ISO Report [Milligan]**

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

#### **ISO Report 3/96**

As reported previously JTC 1 issued twenty one NWI letter ballots concerning X3T10, 11, and 12 closes 19 January. The ballot results on SC 25 projects were:

The following ballots all passed:

ISO/IEC JTC 1 N 3696 SPI NWI NP14776

ISO/IEC JTC 1 N 3697 SBP NWI NP14777

ISO/IEC JTC 1 N 3698 SAM NWI NP15281

ISO/IEC JTC 1 N 3699 Fast-20 NWI NP14778

ISO/IEC JTC 1 N 3701 SCC NWI NP14779

ISO/IEC JTC 1 N 3693, NWI Pathways and Spaces for Customer Premises Cabling and Equipment

ISO/IEC JTC 1 N 3715 (DTR 15067), Information Technology - Home Electronic Systems Lighting Model for HES approved for publication as a Technical Report Type 3.

ISO/IEC JTC 1 N 3708, NWI FC-PH-2 NP14773

ISO/IEC JTC 1 N 3709, NWI FC-SB NP14774

ISO/IEC JTC 1 N 3710, NWI FC-FP NP14775

ISO/IEC JTC 1 N 3716 (DTR 14543-1), Information Technology - Home Electronic Systems Architecture Part 1: Device Modularity approved for publication as a Technical Report Type 2.

ISO/IEC JTC 1 N 3717 (DTR 14543-2), Information Technology - Home Electronic Systems Architecture Part 2: Communication Layers approved for publication as a Technical Report Type 2.

ISO/IEC JTC 1 N 3714, Proposal for a New Work Item on Fibre Channel - Arbitrated Loop (FC-AL) NP15273

ISO/IEC JTC 1 N 3712, NWI FC-PH-3 NP15275

ISO/IEC JTC 1 N 3707, Proposal for a New Work Item on Fibre Channel - Fabric Generic (FC-FG) NP15276

ISO/IEC JTC 1 N 3706, NWI FC-LE NP15277

ISO/IEC JTC 1 N 3705, NWI FC-SW NP15278

ISO/IEC JTC 1 N 3704, NWI HPPI-ATM NP15279

ISO/IEC JTC 1 N 3703, NWI HPPI-SE NP15280

The FCP NWI ballot N3702 results have not been received. There were two result documents received with a not uncommon word processing error of being a duplicate of the same document under a different document number. I have not yet found out what these documents should have been (e.g. FCP).

At the January meeting the IR recommended that X3T10 approve their recommended delegation for the SC 25/WG 4 meeting during the March meeting. Any potential delegates were to confirm their management's support for their attendance and notify the IR that they wish to be nominated to the delegation. The X3T10 May meeting agenda should include an ISO agenda item for instructions to the delegation.

Letter ballots SC 25 N 262-267 were received since the last meeting for SPI Rev 15A, SBP Rev 19, SAM Rev 18, Fast 20 Rev 6, and SCC Rev 6 with a closing date of 4/30/96. X3T10 should pre-acted on these letter ballots at the January meeting. Although a copy of the CD for FCP Rev 10 was expected, it has not been received. We need to modify the action we took on SPI Rev 15A based upon the discussions at this meeting.

IR96001 96/02/15 letter was sent to Michel Vecchis, and others, with EIA documents for selection or generation of IEC equivalents.

An accelerated letter ballot was conducted on JTC1N3862 96/01/15 NWI Proposal SCSI Specs for OMC Reader/Writer to approve a recommended vote to the US TAG. The letter ballot passed.

IR96002 96/02/27 was sent to the appropriate parties with the recommended vote NWI N 3862 SCSI OMC.

An updated list of ISO documents is attached to this report:

Doc. #	Date	Description
=====	=====	=====
JTC1N3699	95/10/02	NWI SCSI-3 Fast-20 LB closes 1/19/96
JTC1N3698	95/10/02	NWI SCSI-3 SAM LB closes 1/19/96
JTC1N3697	95/10/02	NWI SCSI-3 SBP LB closes 1/19/96
JTC1N3696	95/10/02	NWI SCSI-3 SPI LB closes 1/19/96
JTC1N3702	95/10/02	NWI SCSI-3 FCP LB closes 1/19/96
JTC1N3714	95/10/02	NWI FC-AL closes 1/19/96
JTC1N3713	95/10/02	NWI FC-GS closes 1/19/96
JTC1N3712	95/10/02	NWI FC-PH-3 closes 1/19/96
JTC1N3711	95/10/02	NWI FC-ATM closes 1/19/96
JTC1N3710	95/10/02	NWI FC-FP closes 1/19/96
JTC1N3709	95/10/02	NWI FC-SB closes 1/19/96
JTC1N3708	95/10/02	NWI FC-PH-2 closes 1/19/96
JTC1N3707	95/10/02	NWI FC-FG closes 1/19/96
JTC1N3706	95/10/02	NWI FC-LE closes 1/19/96
JTC1N3705	95/10/02	NWI FC-SW closes 1/19/96
JTC1N3704	95/10/02	NWI HIPPI-ATM closes 1/19/96
JTC1N3703	95/10/02	NWI HIPPI-SE closes 1/19/96
JTC1N3695	95/10/02	NWI FDDI TP-PMD closes 1/19/96
JTC1N3694	95/10/02	NWI FDDI SMT-2 closes 1/19/96
JTC1N3693	95/10/02	NWI Pathways for cabling closes 1/19/96
JTC1N3717	95/10/02	DTR 14543-2 Home Electronics Systems Arch. Part 2: Communication Layers - Closes 1/19/96
JTC1N3716	95/10/02	DTR 14543-1 Home Electronics Systems Arch. Part 1: Device Modularity - Closes 1/19/96
JTC1N3715	95/10/02	DTR 15067 Home Electronics Systems Lighting Model for HES
Pattay	95/10/10	Fax of ITTF final editorial requests 9316-1
Milligan	95/10/11	Ack 9316-1 comm; use SMT-2 as is;SMT-ATS p148
IR95015	95/10/12	Yes vote with Comment LCF-PMD CD
JTC1N3701	95/10/2	NWI SCSI-3 SCC LB closes 1/19/96
SC25N250	95/10/20	List of documents N 201-250
SC25N252	95/10/20	Voting CD14709-3 IT- Planning & installation Guides for cabling Prt 3: Copper & Fibre Cable
SC25N259	95/10/20	Oehlers' presentation on 11801 Generic Cablin
SC25N274	95/10/20	SC25/WG3 Draft Minutes of 6/95 meeting
SC25N247	95/10/20	CD9314-10 FDDI TP-PMD closes 96/04/30
SC25N246A	95/10/20	Missing pages for CD9314-25 FDDI SMT-ATS
SC25N272	95/10/20	Venue notice SC25 6/17-21/96 London
SC25N247	95/10/20	CD9314-10 FDDI TP-PMD Closes 4/30/96
SC25N268	95/10/20	CD9314-27 FDDI SMT-2-CS Closes 4/30/96
SC25N269	95/10/20	CD9314-28 FDDI SMT-2-IS Closes 4/30/96
SC25N270	95/10/20	CD9314-29 FDDI SMT-2-PS Closes 4/30/96

SC25N262	95/10/20	CDxxxx-9 SPI Rev 15a Closes 4/30/96
SC25N263	95/10/20	CDxxxx-10 SBP Rev 19 Closes 4/30/96
SC25N265	95/10/20	CDxxxx-yy Fast 20 Rev 6 Closes 4/30/96
SC25N266	95/10/20	CD NNNN - 1 SAM Rev 18 Closes 4/30/96
SC25N267	95/10/20	CD NNNN - z SCC Rev 6 Closes 4/30/96
WG4N650	95/11/03	Liaison proposal on keyboards from SC18/WG9
WG4N651	95/11/07	List of NWI ballots
IR95016	95/11/27	Camera Ready Copy of 9316-1 SCSI-2
IR95017	95/11/27	Replacement of SPI with Rev 15a for CD LB
Barra	95/11/8	Req for rec votes on NWIs SCC; Fast-20; SAM; SBP; SPI; and FCP due 12/8 for JTC1 1/19/96
IR95018	95/12/18	Conversion of EIA Specifications to Anderson
JTC1N3862	96/01/15	NWI Proposal SCSI Specs for OMC Reader/Writer
1N3939	96/02/14	SC26 Report
IR96001	96/02/15	Letter to Vecchis with EIA docs for IEC docs
IR96002	96/02/27	Recommended vote NWI N 3862 SCSI OMC
X3/902298	None	SC25 TAG's editorial change to area of work

### 11.2 Approval of SC 25/WG 4 Delegation

Gene Milligan moved that X3T10 approve Gene Milligan and Roger Cummings as its representatives to the SC 25/WG 4 meeting. Erich Oetting seconded the motion. The motion passed 24:1. Ed Gardner stated that his negative vote was based a lack of clarification of the IPF from X3.

### 11.3 Instructions to Delegation to SC 25/WG 4

Action on this item was deferred to the May meeting.

### 11.4 SSA ISO/IEC NWIs

Larry reported that X3T10.1 had not reached agreement about forwarding SSA documents to ISO. John recommended that action on the SSA documents be deferred until May. Gene noted that delaying would push ISO consideration out by several months.

### 11.5 SSA ISO/IEC CD Contributions

Like the previous topic, action on this item was deferred until May.

### 11.6 SIP ISO/IEC NWI

Gene Milligan moved that X3T10 approve submittal of a new work item for SIP and that we contribute SIP revision 9a as the CD for the new work item. Charles Monia seconded the motion. The motion passed 27:1:0:19=47. Ed Gardner stated that his negative vote was based a lack of clarification of the IPF from X3.

### 11.7 SIP ISO/IEC CD Contribution

Action on this item was covered in the motion made under the previous agenda item.

### 11.8 Clarification of international program fee [Allan]

John Lohmeyer reported on the responses received regarding the international program fee. He complemented Dick Gibson, ITCC Chair, for responding promptly to the X3T10 request for information. John showed two graphs summarizing income and expenses in the international program. It was noted that X3 contributes about half of the IPF and that about two thirds of the IPF goes to support SCs. John displayed statistics provided by Jean-Paul Emard showing the X3T10, X3T11, and X3T12 contributions to X3's collections of the International Program Fee.

Ed Gardner expressed appreciation for the information presented and requested that the presentation be updated annually (at about the time that the IPF bills are mailed).

### 11.9 Results of Letter Ballot 96-014 on recommended response to NWI N 3862 [Milligan]

IR96002 96/02/27 was sent to Christopher Dyball, X3B10 Chairman, concerning JTC 1 N3862 Proposal for a New Work Item (NWI): SCSI Specifications for Optical Memory Card Reader/Writer. The letter stated that X3T10 approved the comments concerning the subject ballot by a vote of 35:3:0:12=50. Two of the three no votes (FSI & Unitrode) in effect supported the comments but would have been more adamant that the work should be undertaken as a part of the family of SCSI-3 standards. The third no vote (QLogic) was a protest vote concerning domestic IPF fees and did not address the ballot issues. A similar comment was attached to a Yes ballot from Quantum Corp. Ballots were not received from Conner Peripherals (which was acquired during the ballot period), Digital, Exabyte, Honda, IIX Consulting, LInfinity Micro, NEC Technologies, Ophidian Designs, Sun Microsystems, Trimm Technologies, Western Digital, and Woven Electronics. This ballot will not affect the voting record of these organizations since it was an accelerated ballot. The comments parsed through the six questions were that we would agree to the definition if certain adjustments were made to the definition:

- a) Peripheral interface standards and SCSI interface standards in particular are within the scope of SC 25, not SC 17. However SC 17 does have the scope for the Optical Memory Cards. Consequently the definition should be changed to propose the work be assigned to SC 25 with co-operation and liaison with SC 17.
- b) ISO/IEC 9316 SCSI has been withdrawn and therefore can not have an addendum added. Two alternatives are possibilities. The proposed specification perhaps should be an addendum to ISO/IEC 9316-1 SCSI-2 which replaced 9316. However current work is primarily based upon the family of SCSI-3 draft standards. Perhaps the proposed work should be another addition (separate standard with normative references to the other SCSI-3 standards) to the SCSI-3 family of standards. Review of the 31 July 1996 preparatory work would be appropriate to determine which of these alternatives would be best. The review might also reveal that some of the desired specifications were more appropriate for a profile.

We support the addition to ISO/IEC JTC 1 but not to SC 17. It should be assigned to SC 25 with co-operation and liaison with SC 17.

We can commit an editor to either assist an editor from Japan (which we understand to be the source of a proposed contribution) or to be the editor according to whichever course the committee may prefer. However we prefer to nominate a specific name after the scope of the task is further defined.

Our initial contributions would not be SCSI Specifications for OMC R/W but instead the 9316-1 SCSI-2 base standard and/or the family of SCSI-3 drafts.

The contributions have already been provided through SC 25.

Copies of the letter were also sent to:

Judy Anderson	SC 25 TAG Secretariat
Barbara Bennett	JTC 1 TAG Administrator
Dr. Nikolaus Kovacs	Secretary WG 4
John Lohmeyer	Chairman X3T10
Walter v. Pattay	SC 25 Secretariat

Christopher Dyball informed the X3T10 IR that X3B10 agreed that the work belongs in SC 25.

### 11.10 SPI Amendment to ISO

The IR, Gene Milligan, moved that X3T10 revise their prior recommendation to "X3T10 recommends a YES vote on the SPI Rev 15A ballot with a comment concerning the defects in Annexes B and D along with the editorial

changes to the drafting standard and the reselect requirement." George Penokie seconded the motion. The motion passed 27:0:0:20=47.

## 12. Liaison Reports

### 12.1 X3T11 Liaison Report [Cummings]

Roger Cummings, X3T11 Chair, made an oral report to the committee and provided the following electronic report:

#### X3T11 LIAISON REPORT to X3T10 & X3T12

X3T11 met on February 7, 1996 with 82 people in attendance. Cambex and Conner Peripherals Inc. lost membership for failure to attend meetings. Connectivity Solutions, Ophidian Designs and Vixel were added as new member organizations. The membership of X3T11 is now 61 organizations.

The results of two X3T11 LBs which closed on 1/31/96 were announced:

- 1) Forwarding a working dpANS, for the FC-FG project, for further processing including an OMC review and a first Public Review passed with F49-O00-DNV11.
- 2) Forwarding a working dpANS, for the SBICON project, for further processing including an OMC review and a first Public Review passed with F49-O01-DNV10. Two of the For ballots also included comments.

Liaison reports were presented on the FC Loop Community and the 802.3 High Speed Study Group, and it was noted that the latter group had taken a decision to use components meeting the FC-0 and FC-1 specifications, but at a yet-unspecified rate. A report was also given on the newly-formed FCA Video working group.

A report was received on the first Study Group meeting for a new higher-speed version of HIPPI, called HIPPI-6400. Another Study Group was approved for March 13-14 in Mountain View, CA. Project proposals for both HIPPI-6400-PH and HIPPI-MP, the latter being for an interim scheme to use multiple paths in parallel, were presented to X3T11, and will be voted on in April.

It was reported that the Enhanced IPI-2 Disk draft, Revision 4.0, has recently been approved for publication as X3.236-1995.

A motion to forward FC-PH-2 Revision 7.3, incorporating responses to the X3T11 Letter ballot comments, for further processing including an OMC review and a first Public Review, passed with F44-O00-DNV17.

The Jitter Study group is continuing to do state-of-the-art work in the characterization and measurement of jitter. Another study group was approved for March 15 in Colorado Springs, CO.

A motion to request that Project 1025-D, FC-ATM, be withdrawn passed with F39-O00-DNV32.

It was reported that the comments from the X3T11 Letter Ballot on the SBICON draft were considered at an Ad Hoc meeting before the Plenary. A new revision, and comment responses, will be included in the mailing for approval in April.

A motion to assign action items to individuals to create an escrow account for 1997 IPFs, to investigate the process for withdrawing existing NWIs at SC25/WG 4, to see if any Trade Association is willing to become accredited as a Secretariat, to investigate replacement of the Document Distribution system, and to recommend that all 1996 invoices are paid in full, was approved by a rollcall vote of F21-O02-A13-DNV25.

A meeting fee of \$100 for those attending the August 1996 X3T11 meeting week in Honolulu, but not staying at the meeting hotel, was approved by F26-O00-A02-DNV34.

The following X3T11 Letter Ballots were authorized:

- 1) Forwarding a working dpANS, for the HIPPI-ATM project, for further processing including an OMC review and a first Public Review.
- 2) Forwarding a working dpANS, for the Revised HIPPI-SC project, for further processing including an OMC review and a first Public Review.

Public Reviews ending on May 14, 1996 have been announced for the 10-bit Interface TR project and the FC-LE, FC-GS, FC-FG, Revised IPI-3 Tape and Revised IPI-3 Disk projects. All of these Public Reviews are contingent on the successful completion of Compliance Reviews at the March OMC meeting.

The next meeting of X3T11 is being hosted by Western Digital on THURSDAY April 11, 1996 at the Hyatt Regency Suites Palm Springs, 285 North Palm Canyon Drive, Palm Springs, CA 92262. The phone number for the hotel is (619) 322-9000. The cutoff date for reservations is March 18.

### **12.2 X3T13 Liaison Report [Milligan]**

Gene Milligan, the acting chairman for X3T13, gave an oral report and provided the following electronic report:

X3T13 had their organizational meeting 23 through 26 January with 27 members. During the plenary and a subsequent ad hoc meeting 21 through 23 February the group addressed the letter ballot comments on ATA-3 Revision 6. Since the X3T13 projects are all considered to be internal interfaces, X3T13 concluded that they have no present need for ISO/IEC standards and have no present plans to have any International projects. Several letter ballots are being conducted on X3T13 procedures. The letter ballots close 22 March. The next ad hoc meeting is 27 through 29 March at the Historic Hotel Boulderado in Bolder Colorado hosted by Seagate. Devon Worrell has postulated that X3T13 should address new command sets that will be needed by devices using ATA / ATAPI -4. This will likely be a subject of discussion during the joint agenda item for MMC and ATA on 24 April in Milpitas. The next plenary meeting of X3T13 will be held April 26, 1996 beginning at 0800 in the Holiday Inn in Milpitas, California hosted by Quantum. Ad hoc meetings will proceed the plenary on April 24-25, 1996 at the same hotel.

### **12.3 SFF Industry Group [Allan]**

Dal Allan was forced to leave early but provided the following electronic report on SFF activities:

#### **SFF Committee Report**

Bill Ham distributed the first drafts on the VHDCI (Very High Density Cable Interconnects) and SCA-2 (Single Connector Attach) backend specifications. These were based on the EIA-prepared material by AMP and editors SSWG's (Specific Subject Working Groups) held in Harrisburg.

No terminators were supplied to disk drive manufacturers to test whether they made any improvements to the electrical characteristics of ATA. It is hoped they will be provided prior to the next SSWG.

A viable technique to configure disks using high voltage with some form of mechanical interlock was presented by John Fulponi. By thickening the plastic at the ends of the 'D' shell about 0.75mm of blocking occurs. If this is not sufficient to prevent signal mating when 70 pounds of force is applied, the shell will be inverted in addition to thickening the wall. The drive manufacturers are generally reluctant to move to a higher voltage, so there is no immediate use for this specification. It has been readied in anticipation of a perceived need.

Doug Wagner proposed changes on the SFF-8012 power connector which were accepted as first pass values suitable for the EIA drafts. Doug will also prepare a characterized mating half for members to consider.

The 1.8" and 2 1/2" form factor standards at EIA passed the letter ballot with technical comments on the length of the connector pins being inconsistent between them. Doug Wagner will prepare modified dimensions and re-submit for EIA letter ballot and SFF letter ballot (in parallel).



Several comments were received by Seagate on SFF-8067 to transfer enclosure information across the 40-position SCA-2 connector. Ambiguities and some implications that drives would do more than pass information blindly will be addressed.

There have been several recent introductions of connector/cable plant for Fibre Channel and Bill Ham suggested projects to define the backend of all these alternatives. The general response was positive.

In addition to Dal's report, Bob Snively mentioned an intent to remove the EFW function in SFF-8045 document. Bob noted that the proposal will be distributed on the reflector.

#### **12.4 IEEE 1394 [Marazas]**

Peter Johansson described proposals to extend 1394. The proposals included giga-bit data rate extensions and bus bridges. Peter noted a couple of projects that were rejected, mostly due to lack of editors.

#### **12.5 IEEE P1285 Status**

No report.

#### **12.6 PCMCIA Report []**

Gene Milligan reported that there was a PCMCIA meeting to consider a project for a PC CardBus host adapter for SCSI. No conclusion was reached.

#### **12.7 SCSI Trade Association (STA)**

Mark Evans reported that two requests were addressed to X3T10 by STA.

- 1) X3T10 take a vote stabilize LVD SCSI at the March plenary meeting.
- 2) X3T10 set a goal of conducting a forwarding letter ballot on SPI-2 following the November plenary meeting.

The X3T10 SPI-2 LVD working group had concluded that LVD is not sufficiently stable at this time to stabilize it. They expect that it may be sufficiently stable by the May meeting, however.

John Lohmeyer reported that STA had agreed on a naming convention that he summarized on a foil. Basically, it is: [Wide] [Fast|Ultra|Ultra2] SCSI. STA permits the usage of the word "Narrow" to resolve ambiguity, but in the absence of the word "Wide", one should assume an 8-bit data path. "Wide" means a 16-bit data path. STA will ignore 32-bit data paths unless they become interesting. STA will publish a more detailed explanation of its naming conventions.

### **13. Review of Action Items**

- 136) Bob Snively will supply the summary of substantive changes between FCP R10 and R12 to the IR by 3/18/96.
- 137) George Penokie will write a document describing his concerns with table 9 and the text in clause 10.11.3, so that they can be addressed in SPI-2.
- 138) Larry Lamers will prepare a SPI amendment document for review and consideration at the May meeting.
- 139) John Lohmeyer will generate a draft SCC-2 project proposal.
- 140) John Lohmeyer will forward SIP revision 9a to X3 for processing toward first public review.
- 141) John Lohmeyer will forward SSA-PH1 revision 9 to X3 for further processing toward first public review, including information about the unresolved negative letter ballot comment.
- 142) John Lohmeyer will forward SSA-TL1 revision 10 to X3 for further processing toward first public review.
- 143) John Lohmeyer will forward SSA-S2P revision 7 to X3 for further processing toward first public review.

- 144) John Lohmeyer will help Doug Hagerman write a high availability project proposal in time for distribution in the next mailing.
- 145) John Lohmeyer will forward the SES project proposal to X3 for further processing.

**14. Meeting Schedule**

The next plenary meeting of X3T10 will be May 9, 1996, in Ft. Lauderdale, FL, at the Marriott Ft. Lauderdale North (305-771-0440), hosted by Adaptec, Inc. The meeting will begin at 1:00 p.m. on Thursday.

The meeting list for the next plenary week is:

**May '96 Meeting Map**  
(3/14/96 Version)

Monday 5/6	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+-----+													
		SPI-2/EPI Working Group											(35)	
	+-----+													
									SPC Review				(15)	
	+-----+													
Tuesday 5/7	9	10	11	12	1	2	3	4	5	6	7	8		
	+-----+													
		SCSI-3 WG											(40)	
	+-----+													
		MMC WG											(20)	
	+-----+													
		SCC/RAB WG				RAB								(20)
	+-----+													
		CAM-3 WG											(5)	
	+-----+													
Wednesday 5/8	9	10	11	12	1	2	3	4	5	6	7	8		
	+-----+													
		SCSI-3 WG											(40)	
	+-----+													
		MMC Working Group											(20)	
	+-----+													
		SFF SSWGs											(40)	
	+-----+													
		RAB											(20)	
	+-----+													
Thursday 5/9	9	10	11	12	1	2	3	4	5	6	7	8		
	+-----+													
		SFF				X3T10 Plenary							(40/70)	
	+-----+													
		SSC/SMC WG											(10)	
	+-----+													
		STA											(30)	
	+-----+													
Friday 5/10	8	9	10	11	12	1	2	3	4	5				
	+-----+													
		SBC Review											(15)	
	+-----+													

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

Meeting Map Abbreviation Key:  
 CAM: Common Access Method  
 CAM-3: Next generation CAM for SCSI-3

EPI: SCSI Enhanced Parallel Interface (Technical Report)  
 Fast-20: Synchronous Data Transfer at 20 Megatransfers/second  
 FC-AL: Fibre Channel - Arbitrated Loop (an X3T11 project)  
 FCLC: Fibre Channel Loop Community (not an X3 activity)  
 I/F: Interface  
 High Avail.: High Availability  
 LB: Letter Ballot  
 MMC: SCSI-3 Multimedia Commands (CD-ROM)  
 PH: Physical (Connectors, Cables, Transceivers, etc.)  
 Plenary: Full Committee Meeting  
 RAB: RAID Advisory Board (not an X3 activity)  
 RAID: Redundant Array of Independent Devices  
 SBC: SCSI-3 Block Commands  
 SBP: SCSI-3 Serial Bus Protocol  
 SCC: SCSI-3 Controller Commands (RAID)  
 SCSI: Small Computer System Interface  
 STA: SCSI Trade Association (not an X3 activity)  
 SFF: SFF Industry Group (not an X3 activity)  
 SG: Study Group  
 SMC: SCSI-3 Medium Changer Commands  
 SPI-2: Second Generation SCSI-3 Parallel Interface  
 SSA: Serial Storage Interface  
 SSC: SCSI-3 Stream Commands (includes Tape)  
 SSWGs: Specific-Subject Working Groups  
 VHDCI: Very High Density Cabled Interconnect  
 WG: Working Group (same as Ad Hoc Group)  
 X3T10: Lower Level Interfaces Technical Committee  
 X3T10.1: SSA Task Group of X3T10

Several other X3T10 events are also planned:

Event	Day/Date	Time	Location/contact
SPI-2 LVD WG	Mon-Tue April 22-23	9a-5p	Milpitas, CA / Norm Harris
SPI-2 LVD WG	Thur-Fri June 6-7	9a-5p	Colo Spgs, CO / John Lohmeyer
MMC WG	Mon-Wed April 22-24	9a-5p	San Jose, CA / Ron Roberts
SPC Edit Session	Wed-Thur April 17-18	9a-5p	San Jose, CA / Gene Milligan

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

Activity	Contact	Telephone/Email
BOOT TR	Duncan Penman	(408) 730-2565 penman@netcom.com
CAM-3	Bill Dallas	(603) 881-2508 dallas@wasted.enet.dec.com
EPI & SPI-2	Bill Ham	(508) 841-2629 ham@subsys.enet.dec.com
FCP & FCP-2	Robert Snively	(415) 336-5332 Bob.Snively@eng.sun.com
GPP	Gary Stephens	(602) 321-1725 6363897@mcimail.com
SAM	Charles Monia	(508) 841-6757 monia@starch.enet.dec.com
SBC	Gene Milligan	(405) 324-3070 gene_milligan@notes.seagate.com
SBP and MMC	Ron Roberts	(916) 677-5714 rkroberts@aol.com
SBP-2	Peter Johansson	(510) 531-5472 pjohansson@aol.com
SGC	Thomas Tewell	(415) 459-7978 thomas.tewell@seqadvtech.com
SIP, SCC	George Penokie	(507) 253-5208 gop@rchvmp3.vnet.ibm.com
SMC	Erich Oetting	(303) 673-2178 Erich_Oetting@Stortek.com
SPC	Ralph Weber	(603) 881-1497 roweber@acm.org
SSA-PH1, -PH2, -TL1, -TL2	Larry Lamers	(408) 957-7817 ljlammers@aol.com
SSA-S2P & -S3P	John Scheible	(512) 823-8208 Scheible@vnet.ibm.com
SSC	Edward Lappin	(303) 447-7718 tedl@exabyte.com
Other Activities	John Lohmeyer	(719) 573-3362 john.lohmeyer@symbios.com

The long-term X3T10 meeting week schedule is:

Date	Location	Host/Comments
Jan 8-12, 1996	Dallas, TX	Quantum
Mar 11-15, 1996	Newport Beach, CA	QLogic
May 6-10, 1996	Ft. Lauderdale, FL	Adaptec
Jul 15-19, 1996	Colorado Springs, CO	Symbios Logic
Sep 9-13, 1996	Natick, MA (near Boston)	Digital
Nov 4- 8, 1996	Palm Springs, CA	Western Digital
Jan 6-10, 1997	Dallas, TX	Quantum
Mar 10-14, 1997	San Diego, CA	QLogic
May 5-9, 1997	Natick, MA (near Boston)	Digital
Jul 14-18, 1997	Colorado Springs, CO	Symbios Logic
Sep 8-12, 1997	Nashua, NH	Unitrode
Nov 3-7, 1997	Palm Springs, CA	Western Digital (?)
Jan 5-9, 1998	{1998 dates are tentative (except March)}	
Mar 9-13, 1998		
May 4-8, 1998		
Jul 13-17, 1998		
Sep 14-18, 1998		
Nov 9-13, 1998		

#### **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 hoc groups should strive to achieve consensus prior to bringing issues to X3T10.

Charles Monia moved that X3T10 authorize the X3T10-related meetings and events in the list above. Norm Harris seconded the motion. The motion passed unanimously.

#### **15. Adjournment**

The meeting was adjourned at 6:34 p.m. on Thursday March 14, 1996.

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



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# Minutes of X3T10 Plenary Meeting #14 in San Diego, CA

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# Minutes of X3T10 Plenary Meeting #14 in San Diego, CA

X3T10/96-139 r1

Mar 20, 1996 - X3T10 Document Register - Enclosure (3)

X3T10/96-001R0 Date: 11/20/95 Author: J. Lohmeyer [SY-96-01]  
Desc: Agenda for X3T10 Meeting #14 (Mar '96)

X3T10/96-002R0 Date: 11/20/95 Author: J. Lohmeyer [SY-96-01]  
Desc: X3T10 Project Summary - January '96

X3T10/96-003R0 Date: 11/20/95 Author: J. Lohmeyer [SY-96-01]  
Desc: Jeopardy letter for Mar '96 meeting

X3T10/96-004R1 Date: 1/4/96 Author: J. Lohmeyer [SY-96-01]  
Desc: Summary of Letter Ballot Results on ATA-3 (95-044) and SIP (95-045)

X3T10/96-005R0 Date: 11/20/95 Author: J. Lohmeyer [SY-96-01]  
Desc: Response to Public Review Comment #1 on SBP

X3T10/96-006R0 Date: 11/20/95 Author: J. Lohmeyer [SY-96-01]  
Desc: Response to Public Review Comment #2 on SBP

X3T10/96-007R0 Date: 11/29/95 Author: J. David Cabello [SY-96-01]  
Desc: ltr to John Lohmeyer re Compaq patent position on SMART proposed standard

X3T10/96-008R0 Date: 1/5/96 Author: L. Lamers [SY-96-01]  
Desc: Letter Ballot forwarding SSA-PH1 to 1PR

X3T10/96-009R0 Date: 1/5/96 Author: L. Lamers [SY-96-01]  
Desc: Letter Ballot forwarding SSA-TL1 to 1PR

X3T10/96-010R0 Date: 1/5/96 Author: L. Lamers [SY-96-01]  
Desc: Letter Ballot forwarding SSA-S2P to 1PR

X3T10/96-011R0 Date: 1/10/96 Author: J. Lohmeyer [SY-96-01]  
Desc: Jeopardy Letter - Letter Ballots

X3T10/96-012R0 Date: 1/17/96 Author: J. Lohmeyer [SY-96-01]  
Desc: Letter Ballot forwarding SPC to 1PR

X3T10/96-013R0 Date: 1/17/96 Author: J. Lohmeyer [SY-96-01]  
Desc: ltr to Richard Gibson, Chair ITCC, re IPF

X3T10/96-014R0 Date: 2/2/96 Author: Gene Milligan [SY-96-01]  
Desc: Letter Ballot on recommended response to NWI N 3862

X3T10/96-015R0 Date: 2/6/96 Author: J. Lohmeyer [SY-96-02]  
Desc: Agenda for X3T10 Meeting #15 (May '96)

X3T10/96-016R0 Date: 2/6/96 Author: J. Lohmeyer [SY-96-02]  
Desc: X3T10 Project Summary - March '96

X3T10/96-017R0 Date: 2/6/96 Author: J. Lohmeyer [SY-96-02]  
Desc: Jeopardy letter for May '96 meeting

X3T10/96-018R1 Date: 2/13/96 Author: J. Lohmeyer [SY-96-02]  
Desc: Letter Ballot Results on forwarding SSA-PH1 (96-008) & SSA-TL1 (96-009)

X3T10/96-019R0 Date: 2/16/96 Author: J. Lohmeyer [SY-96-02]  
Desc: Letter Ballot Results on forwarding SSA-S2P (96-010)

X3T10/96-020R1 Date: 3/12/96 Author: J. Lohmeyer [SY-96-02]  
Desc: Letter Ballot Results on forwarding SPC (96-012)

X3T10/96-021R0 Date: 2/29/96 Author: J. Lohmeyer [SY-96-02]  
Desc: Letter from R. Gibson, Chair ITCC, re IPF

X3T10/96-101R0 Date: 12/14/95 Author: R. Roberts [SY-96-01]  
Desc: Minutes of MMC Working Group - 12/95

X3T10/96-102R0 Date: 12/16/95 Author: J. Lohmeyer [SY-96-01]  
Desc: Minutes of X3T10 SPI-2 LVDS Working Group Meeting

X3T10/96-103R0 Date: 12/16/95 Author: W. Bridgewater [SY-96-01]  
Desc: Proposed Change for Setup Time Budget

X3T10/96-104R0 Date: 12/16/95 Author: J. McGrath [SY-96-01]  
Desc: Request for full SCSI support with LVDS

X3T10/96-105R0 Date: 12/16/95 Author: J. McGrath [SY-96-01]  
Desc: Request for SPI (Fast-40/LVDS) Stabilization

X3T10/96-106R0 Date: 1/4/96 Author: J. Lohmeyer [SY-96-01]  
Desc: Minutes of SPI-2 Working Group - 1/96

X3T10/96-107R0 Date: 1/4/96 Author: J. Lohmeyer [SY-96-01]  
Desc: Minutes of EPI Working Group - 1/96

X3T10/96-108R0 Date: 1/4/96 Author: J. Lohmeyer [SY-96-01]  
Desc: Minutes of SCSI-3 Working Group - 1/96

X3T10/96-109R0 Date: 1/4/96 Author: R. Roberts [SY-96-01]  
Desc: Minutes of MMC Working Group - 1/96

X3T10/96-110R0 Date: 1/4/96 Author: J. Lohmeyer [SY-96-01]

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Desc: Minutes of X3T10 Plenary Meeting #13

X3T10/96-111R0 Date: 1/5/96 Author: J. Emard [SY-96-01]  
Desc: X3T10 Actions Regarding ANSI/ITCC IPF Payments and X3 TC Membership

X3T10/96-112R0 Date: 1/9/96 Author: J. McGrath [SY-96-01]  
Desc: SIP and Command Queuing

X3T10/96-113R0 Date: 1/9/96 Author: G. Penokie [SY-96-01]  
Desc: Minutes of SCC working group

X3T10/96-114R1 Date: 1/10/96 Author: T. Lappin [SY-96-01]  
Desc: Granularity of Block Size for Tape

X3T10/96-115R0 Date: 1/10/96 Author: T. Lappin [SY-96-01]  
Desc: Minutes of the SSC/SMC Working Group - 1/95

X3T10/96-116R0 Date: 1/10/96 Author: K. Hallam [SY-96-01]  
Desc: Clarification of WRITE BUFFER

X3T10/96-117R0 Date: 1/11/96 Author: P. Kornitski [SY-96-01]  
Desc: Invoice for ATA-2 Pre-edit

X3T10/96-118R1 Date: 1/11/96 Author: Johansson/Lamers/Lohmeyer [SY-96-01]  
Desc: Project Proposal for SPI Amendment

X3T10/96-119R0 Date: 1/11/96 Author: D. Allan [SY-96-01]  
Desc: ANSI International Participation Fee Levy

X3T10/96-120R0 Date: 1/11/96 Author: G. Penokie [SY-96-01]  
Desc: Resolution of Comments on SIP

X3T10/96-121R0 Date: 1/23/96 Author: G. Houlder [SY-96-01]  
Desc: Addition of software write protect to Mode Page Ah

X3T10/96-122R0 Date: 1/23/96 Author: Lohmeyer/Ham [SY-96-01]  
Desc: Minutes of SPI-2 LVD SCSI Working Group Meeting -- 1/29-30/95

X3T10/96-123R0 Date: 1/30/96 Author: K. Gingerich [SY-96-01]  
Desc: LVD SCSI Models

X3T10/96-124R0 Date: 1/30/96 Author: K. Gingerich [SY-96-01]  
Desc: LVD SCSI Driver/Receiver Specifications

X3T10/96-125R0 Date: 1/30/96 Author: Paul Aloisi [SY-96-01]  
Desc: Additional Termination Issue

X3T10/96-126R0 Date: 1/30/96 Author: D. Uber [SY-96-01]  
Desc: Active Negation to Release Issues

X3T10/96-127R0 Date: 2/1/96 Author: B. Ham [SY-96-01]  
Desc: LVD SCSI Signals

X3T10/96-128R0 Date: 2/2/96 Author: X3 Secretariat [SY-96-01]  
Desc: Proposa for NWI-SCSI Specifications for Optical Memory Card Reader/Writer

X3T10/96-129R0 Date: 1/9/96 Author: W. Bridgewater [SY-96-01]  
Desc: Voltage Driven Outputs

X3T10/96-130R0 Date: 2/6/96 Author: Johansson/Lamers [SY-96-01]  
Desc: Ammendment to SPI

X3T10/96-131R0 Date: 2/15/96 Author: J. Scheible [SY-96-02]  
Desc: SSA-PH1 Letter Ballot Comment Resolution

X3T10/96-132R0 Date: 2/15/96 Author: J. Scheible [SY-96-02]  
Desc: SSA-TL1 Letter Ballot Comment Resolution

X3T10/96-133R0 Date: 2/15/96 Author: J. Scheible [SY-96-02]  
Desc: SSA-S2P Letter Ballot Comment Resolution

X3T10/96-134R0 Date: 3/7/96 Author: Weber/Ham/Lohmeyer [SY-96-02]  
Desc: Minutes of SPI-2 LVD Working Group Meeting - 3/11/96

X3T10/96-135R0 Date: 3/7/96 Author: Weber/Ham/Lohmeyer [SY-96-02]  
Desc: Minutes of X3T10 EPI Working Group Meeting - 3/12/96

X3T10/96-136R0 Date: 3/7/96 Author: Weber/Lamers/Lohmeyer [SY-96-02]  
Desc: Minutes of X3T10 SCSI Working Group Meeting

X3T10/96-137R0 Date: 3/7/96 Author: R. Roberts [SY-96-02]  
Desc: Minutes of MMC Working Group Meeting - 3/12-13/96

X3T10/96-138R0 Date: 3/7/96 Author: B. Dallas [SY-96-02]  
Desc: Minutes of CAM-3 Working Group Meeting - 3/12/96

X3T10/96-139R0 Date: 3/7/96 Author: Weber/Lamers/Lohmeyer [SY-96-02]  
Desc: Minutes of X3T10 Plenary Meeting #14

X3T10/96-140R0 Date: 3/8/96 Author: G. Penokie [SY-96-02]  
Desc: Clarification of sleep mode



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X3T10/96-141R0           Date: 3/11/96   Author: B. Ham   [SY-96-02]  
Desc: Test Results with Controlled Loads for LVD SCSI

X3T10/96-142R0           Date: 3/12/96   Author: G. Penokie   [SY-96-02]  
Desc: Minutes of SCC Working Group - 3/12/96

X3T10/96-143R0           Date: 3/12/96   Author: G. Houlder   [SY-96-02]  
Desc: Clarification of Set Capacity Feature

X3T10/96-144R0           Date: 3/12/96   Author: G. Houlder   [SY-96-02]  
Desc: Comment on SPI Error

X3T10/96-145R0           Date: 3/12/96   Author: R. Moore   [SY-96-02]  
Desc: LVD SCSI Assertion and Negation Currents

X3T10/96-146R0           Date: 3/13/96   Author: R. Snively   [SY-96-02]  
Desc: Project Proposal for Enclosure Services Interface (ESI) Standard

X3T10/96-147R0           Date: 3/13/96   Author: C. Burns   [SY-96-02]  
Desc: Question on use of SEL during SCAM

X3T10/96-148R0           Date: 3/13/96   Author: R. Weber   [SY-96-02]  
Desc: Comment Resolution on SPC X3T10 Letter Ballot

X3T10/96-149R0           Date: 3/14/96   Author: E. Oetting   [SY-96-02]  
Desc: Minutes of SCC Working Group - 2/96

X3T10/96-150R0           Date: 3/14/96   Author: B. Ham   [SY-96-02]  
Desc: LVD Test Results

X3T10/96-151R0           Date: 3/14/96   Author: D. Hagerman   [SY-96-02]  
Desc: Project Proposal for High Availability Profile Technical Report