Accredited Standards Committee*
X3, Information Processing Systems

To: Membership of X3T10

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

Subject: Minutes of X3T10 Plenary Meeting #3
           Harrisburg, PA -- May 19-20, 1994

Agenda

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

Results of Meeting

1. Opening Remarks

John Lohmeyer, the Acting Chair, called the meeting to order at 1:00 p.m., Thursday May 19, 1994. He thanked Chuck Brill of AMP, Inc. for arranging and 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. The X3 Membership forms were recently revised. 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 additions:

    10.8   16.6 MB/sec Transfers in ATA-2 (94-045r3) [Finch]
    10.9   ACA Bit in Control Byte Equals 1 Mandatory [Penokie]
    10.10   Processor Commands in the SPC (94-018r0) [Weber]
    10.11   Checking of Reserved Fields

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 Participation fee ($300) will be billed separately directly from ANSI. Payments must be received by April 8, 1994 or the membership will be dropped and the organization will not be permitted to vote or receive mailings. One voting organization, Harting Electronik, Inc., was dropped for non-payment since the last meeting.

QLogic Corp. joined the committee with Skip Jones as principal and Ting Le Chan as alternate.

The X3T10 membership remains at 60 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 - March Meeting Newport Beach, CA (X3T10/94-074r0)

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 must be sent so as to be received by noon on Thursday, June 2, 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.

As usual, minutes are also available on the SCSI BBS (719-574-0424) and will be distributed to the SCSI Reflector E-mail list. To be added 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.

7. Review of Old Action Items

10) John Lohmeyer will contact Lynn Barra to resurrect the LOG SENSE TIB (X3T9.2/90-165). **Carry over.**
11) Larry Lamers will incorporate SCAM in SPI. **Complete.**
12) John Lohmeyer will write a letter accepting the SPI public review comment regarding SCAM. **Complete.**
13) John Lohmeyer will inform X3 of the recommendation to reaffirm ESDI (ANSI X3.170-1989). **Complete.**
14) John Lohmeyer will monitor AIIM activities in C21 (ANSI/AIIM MS59-199x) and write the letter if necessary. **Complete--AIIM is revising their draft standard.**
15) Bob Snively will investigate liaison with IEEE P1244.5. **Carry over.**

8. Subgroup and/or Project Status Reports

8.1 Project Status Summary [Lohmeyer]

John Lohmeyer said that the current X3T10 project status summary was included on the backs of the meeting agendas. He noted that the SCC, SSP, and MMC projects had been approved by X3.

8.2 X3T10.1 Task Group Report {SSA-PH: Project 989-D} [Scheible]

Reporting for John Scheible, Ed Gardner reported that the task group is still looking for volunteers for officers.

An electrical interface working group has agreed to a set of tests to characterize existing silicon, to ensure the specification and reality are consistent. Contact Bill Ham for information about the work.

By formal vote, X3T10.1 has accepted responsibility for the SSA/SSP standard document. Also, the project proposal for SSA/SSP has been approved by X3 OMC. X3T10.1 decided to propose a project to develop a separate SCSI-2/SSA specification, to be published as a Technical Report. Currently, X3T10.1 is preparing a project proposal for the document.

Two electrical interface meetings are scheduled:

> Wednesday, June 28 in the Irvine area; electrical interfaces
> Monday, July 18, in Bedford, NH; electrical interfaces
> Tuesday, July 19, in Bedford, NH; X3T10.1 working group and plenary

8.3 SCSI-2 Status {Project 375-M} [Lamers]

Larry reported that Bob Hager, the ANSI editor, found several changes that are required before ANSI will publish the document. Larry informed the meeting that a role call vote will be needed to approve the changes required by the ANSI editor. Agenda item 10.7 covered the work of approving the changes required by the ANSI editor.

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

Ralph Weber reported for Bill Dallas on the CAM Working Group meeting held Monday May 16th. Revision 7 of CAM, which should resolve the public review comment, will be in the mailing.

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

The ANSI BSR approval ballot on AT Attachment closed May 12, 1994. John Lohmeyer had not heard the official results, but he was confident that it had passed.

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

The latest meeting of the ATA Working Group met May 19, 1994 from 9:00 AM to 12:30 PM, in Harrisburg, PA.

Of the documents distributed was the Proposed Working Draft for ATA-2 Rev 2c. A copy was provided for inclusion in the next mailing. There are two issues still being considered for inclusion into the proposed working draft ATA-2:

> 16.6 MB/sec corrections made with unanimous approval
> This document will be present later for plenary approval for inclusion.
>
> Identify Drive Data Requirements:
>   Pending forwarding from SFF (information for Large Disk Drives 528 MB)

A majority of the time was spent reviewing comments received on the ATA-3 project proposal votes. A number of no votes were received with comments that most believe should be addressed. The working group hopes to address these issues at the next working group meeting.

The next working group meeting will be June 1. The first hour will concentrate on ATA-3 Project Proposal letter ballot comments. We are looking for suggestions (text changes) to how to make the proposal better and to address the issues raised by no votes. The remainder of the meeting will be a review of the proposed working draft ATA-2 Rev 2C.

It is the desire of the working group to move at the next plenary that the ATA-2 proposed working document to be accepted as the official working draft for the ATA-2 project.

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

Charles Monia reported that a consensus has been reached for a description of the queuing model. See 94-107 for details of the working group consideration of the comments on SAM from the forwarding letter ballot.

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

A copy of SPI 12c was in the mailing. That draft contains the results of a few comments received for the SPI draft and the SCAM document, as approved at the September Plenary.

Preparatory to a motion to revise SPI for SCAM changes, Ed Gardner described several required corrections in the SCAM definition. In essence, Ed was asking for a vote to approve 93-173r0 for inclusion in the SCAM annex in SPI plus several other recent changes.

Ed Gardner moved that Larry Lamers be instructed to review SPI according the changes described. Tak Asami seconded. During the discussion, questions were raised regarding application of the 2-week rule to this proposal. Gene Milligan requested a written proposal for changes, and that Ed withdraw his motion, and that work be remanded to the working group. Norm Harris was concerned that the dominant master proposal be approved ASAP.

There was no consensus on anything that could be approved formally at this meeting. Ed withdrew his motion and the meeting continued. Ed agreed to prepare a proposal on revising SCAM.

Paul Aloisi noted that other topics concerning SPI are under discussion in the working group.

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

Larry and John discussed whether a new editor might be appointed. No resolution of the matter was announced.

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

John reported on the status of the GPP and the motion to change it to Technical Report. John noted the presence of a project proposal under agenda item 9.2.

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

Responses with comments on the SBP (revision 16) letter ballot have been received from:

  o Giles Frazier, IBM Corporation
  o Charles Monia, DEC
  o Scott Smyers, Apple Computer
  o Jim McGrath,   Quantum Computer

Gerald Marazas has discussed these comments with each of the originating parties above, and secured tentative resolution, mutually agreeable, on each comment item. There remain no known open (unresolved) technical issues being raised against SBP. The resolution is listed as tentative pending examination next week by these parties of the specific text changes relative to the SBP, revision 16, document.

The comments cited above will be documented along with proposed disposition in a SBP resolution document. Additionally, revision 17 of SBP will be produced consistent with the proposed disposition.

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Both the resolution document and the SBP revision 17 document will be made available to the X3T10 secretary in time for the June mailing deadline. Gerald Marazas will request a meeting vote at the July X3T10 meeting for acceptance of both the proposed disposition and the revision 17 of SBP.

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

Bob Snively reported that FCP revision 008a is available. Bob also distributed 94-109r0, the document listing the comments resolution for all review comments on FCP 008. Bob described an April 18th meeting in which the letter ballot comments were resolved. Bob requested that everybody review the FCP document with special attention to clause 6.

Bob noted two editorial problems identified in FCP 008a. There are usages of X3T9.2 that should be X3T10. There is a problem with streaming list in table 5.

Bob noted the following contentious issue. There is a disagreement regarding definitions of mandatory and optional with respect to requirements statements in the SAM.

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

Ralph reported that draft copies of the SPC have been distributed during this meeting. Ralph said that footnotes in the draft document indicate places where he is looking for comments from the committee membership.

Larry ask Ralph if the document incorporates all approved committee documents. Larry felt that a long working group meeting should be scheduled for a line-by-line review of the fully updated document. Ralph felt that a good target for such a meeting would be the July plenary week.

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

The committee still is looking for an editor for this document. If none is forthcoming, the project may have to be dropped.

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

Edward Lappin reported that he is working on a revision of the READ POSITION command. Edward also has distributed a first draft of the SSC.

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

The committee is still looking for a volunteer editor. John and Ken Hallam discussed coordinating with AIIM. Nothing has happened that area.

Chair's note: The following week, I was contacted by Roy Pierce, Chair of AIIM C8. This issue will be discussed at the June 14th meeting of the AIIM Standards Board.

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

Erich Oetting has accepted the editorship of SMC. He is still collecting the document files associated with his new job. There was a short discussion of the correctness of the decision to put two SMC commands in the SPC. The issue was returned to the working group for further work.

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

John had no report on DADI. John did discuss DADI with OMC and felt that getting this project moving would be important.

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

This project is in hibernation pending completion of the resolution work for CAM public review comments.

8.20   SCSI-3 Serial Storage Protocol (SSP) Status {Project 1051-D} [Scheible]

This project has been approved by X3 and will be assigned to X3T10.1 per motions at the last X3T10 meeting and at the X3T10.1 meeting.

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

George reported on the RAID Working Group meeting. The minutes of that meeting are available in document 94-108r0.

George moved that eight operation codes (A3h, A4h, BAh, BBh, BCh, BDh, BEh, BFh) be accepted for use devices conforming to the controller device model. Jim McGrath seconded the motion. After a short discussion, the motion was approved 24:0.

George moved that document 94-031r2 be accepted for inclusion in the SCC document. George noted that 94-031r2 has been stable for several months and that it was distributed a couple of mailings ago. The motion was approved 22:0.

Questions were raised about a Seagate proposal for RAID devices. Jim McGrath questioned George about whether the RAID Working Group will give Seagate a hearing on their proposal. George said that the RAID Working Group will hear the proposal.

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

MMC project is now approved with project number 1048-D assigned. Rev 0 of a proposal document was distributed in March at the Newport Beach meeting. It was included in the last mailing. Norm had received a number of comments and looking for more. He plans extensive editing to include new format support, XA, etc. New document incorporating comments is to be distributed in July. He expects a working group meeting at the end of July--probably around the ATA meeting time (West Coast).

Norm moved document 94-057 be accepted as the base working draft for project 1048-D. Skip Jones seconded the motion. The motion was approved 28:0.

8.23   Replacement of ANSI X3.80-1988, Interfaces Between Flexible Disk Cartridges and Their Host Controllers, with ISO 9315:1989. {Project 52-M}

X3 approved adopting ISO 9315:1989 as an American National Standard (X3 LB 2347) by a vote of 24-0-2-4. ANSI BSR approval is expected by June. The standard will be designated: ANSI/ISO/IEC 9315:1989[1994]

8.24   Fast-20 Study Group [Ham]

Bill Ham reported that the proposal is essentially complete. The incomplete area concerns threshold levels. There will be another study group meeting on June 2nd in Milpitas, CA. Changes for slew rate and Voh were also noted.

9.   Old Business

9.1 Technical Information Bulletins

John mentioned the old LOG SENSE/SELECT TIB and asked that anyone who is interested review it. John asked Gary Stephens about his TIB on tapes. Gary said that the TIB is in revision.

9.2 Revised GPP Project Proposal (94-099r0) [Milligan]

Gene Milligan moved, and Ed Gardner seconded, that document 94-099r0 be forward to X3 for further processing. John reported on his conversations with X3 OMC and the X3 secretariat. Both organizations felt that making a technical report is an appropriate action for a draft standard that cannot achieve consensus.

Bob Snively suggested that several additions should be made to the section 2.3 of the project proposal (94-099r0). John noted that additions in the nature of those Bob described probably will not make any difference in the X3 consideration of the project proposal.

The actions that X3T10 must take (in terms of reviews, voting, and other procedural actions) were discussed at length. Concerns were raised about the level of review, internal and public. John accepted an action item to find out how the technical report process differs from the standards process.

A motion to forward 94-099 failed 20:4:0:35 due to lack of a majority of the committee voting in the affirmative. John plans to issue a letter ballot on the forwarding motion.

9.3 ASC Codes for Scanner Window Descriptor Bytes Proposal (93-036r2) [Weber]

Ralph presented a concern that ASC/ASCQ values mentioned last July were in used but not approved. Dal suggested an effective way of contacting the original document author. Ralph took an action item to make that contact.

10. New Business

10.1   Review of new documents

10.2   SAM Letter Ballot Results

SAM Letter Ballot Results: 49:3:0:7 = 59

Yes, with comment: AT&T Global Information Solutions

No: Hewlett Packard, IBM, Quantum

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

See 94-118 for a list of the comments received.

10.3   SBP Letter Ballot Results

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

Yes, with comment: Apple, Quantum

No: Digital Equipment, IBM

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

See 94-117 for a list of the comments received.

10.4   ATA-3 Project Proposals Letter Ballot Results

ATA3-PH Letter Ballot Results: 44:6:0:9 = 59

No: Cirrus Logic, Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

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

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ATA3-XPT Letter Ballot Results: 44:6:0:9 = 59

No: Cirrus Logic, Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

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

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ATA3-PI Letter Ballot Results: 45:5:0:9 = 59

No: Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

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

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ATA3-BC Letter Ballot Results: 44:6:0:9 = 59

No: Cirrus Logic, Hewlett Packard, IBM, Quantum, Milligan (Seagate), Unitrode

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

See 94-120 for a list of the comments received on all four ATA-3 project proposals.

Steve Finch reported on a comments resolution meeting held earlier in the day. Many of the editorial comments were resolved easily. The comments that proved more difficult to resolve are as follows. How many projects (and documents) belong in this area? How should these projects relate to the SAM? How can the projects clearly delineate the various layers? Will hard disk drives be allowed on the ATAPI protocol?

10.5   Fast-20 Project Proposal Letter Ballot Results

Fast-20 Letter Ballot Results: 51:0:0:8 = 59

Yes, with comment: Quantum, Milligan (Seagate), Unitrode, Western Digital

Did not respond: AMD, Apple, Compaq, Future Domain, Harbor Electronics, Maxtor, P.E. Logic, Samsung

See 94-119 for a list of the comments received.

Since there were no negatives, John asked that the committee address the comments on the yes votes during the meeting so that the project proposal could be sent on to OMC without delay. The comment from Quantum merely expressed support for Fast-20. Several of the Milligan comments were accepted. The Unitrode comment actually addressed the Fast-20 proposal, not the project proposal. The Western Digital comment was not accepted as it is a customary statement that is included in all of our project proposals to avoid controversy during the compliance review upon forwarding a dpANS.

John took an action item to revise the project proposal to include the comments that were accepted from Milligan.   John also will send the revised project proposal to Lynn Barra with the appropriate documentation.

10.6   Payment Authorization of Technical Editing Invoice

John Lohmeyer said he had received a copy of an invoice (X3T10/94-122) in the amount of $350.00 for SPI editing work. The work had been authorized at the March '94 X3T10 meeting (see quotation 94-082 and agenda item 10.8 in 94-074).

Steve Finch moved and Bob Snively seconded that X3T10 authorize the X3 Secretariat to pay the SPI editing invoice (94-122) from Sandi Smith. The motion passed unanimously.

10.7   Approval of ANSI Editing Changes to SCSI-2

Larry Lamers presented the SCSI-2 changes required by the ANSI editor. Gene Milligan requested information be provided about the nature of the specific changes. Larry reported that the changes are mostly in tables 198, 153, and 101. Larry displayed foils of all the corrected tables and the other changes requested by the ANSI editor.

Charles Monia moved that the changes shown on the foils be approved. Larry Lamers seconded the motion. John Lohmeyer conducted a role call vote. The motion was approved 35:0:0:24. The details of the vote are shown below.

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Organization                  Name                    Yes No Abs NP

3M Company                    Mr. Alan R. Olson         1
AMP, Inc.                     Mr. Bob Whiteman          1
AT&T/ NCR Microelectronics    Mr. John Lohmeyer         1
Adaptec, Inc.                 Mr. Norm Harris           1
Advanced Micro Devices        Mr. David Wang            1
Amdahl Corp.                  Mr. Neil T. Wanamaker     1
Ancot Corp.                                                        1
Apple Computer                                                     1
BusLogic                                                          1
CMD Technology                Mr. George Su             1
Ciprico Inc.                                                      1
Circuit Assembly Corp.        Mr. Ian Morrell           1
Cirrus Logic Inc.             Mr. John Geldman          1
Compaq Computer Corp.                                             1
Conner Peripherals            Mr. Michael Bryan         1
Dallas Semiconductor          Mr. Louis Grantham        1
Digital Equipment Corp.       Mr. Charles Monia         1
Distributed Processing Tech.                                      1
ENDL                          Mr. Kenneth J. Hallam     1
Exabyte Corp.                 Mr. Edward Lappin         1
FSI Consulting Services       Mr. Gary R. Stephens      1
Foxconn                                                          1
Fujitsu Computer Products,Am Mr. Robert Liu             1
Future Domain Corp.           Mr. Rene Macare           1
Harbor Electronics                                               1
Hewlett Packard Co.           Mr. Jeffrey L. Williams   1
Hitachi Micro Systems, Inc.   Dr. Sam Karunanithi       1
Honda Connectors                                                 1
IBM Corp.                     Mr. George Penokie        1
Interphase Corp.              Mr. David Lawson          1
JAE                                                              1
Linfinity Micro               Mr. Dean Wallace          1
Madison Cable Corp.           Mr. Chuck Grant           1
Maxoptix Corp.                                                   1
Maxtor Corp.                  Mr. Pete McLean           1
Methode Electronics, Inc.     Mr. Bob Masterson         1
Molex Inc.                                                       1
NEC Technologies Inc.         Mr. Bruce Anderson        1
National Semiconductor                                           1
Oak Technology, Inc.                                             1
P. E. Logic Corp.                                               1
Pacific Electro Data Inc.                                        1
Panasonic Technologies, Inc                                      1
Quantum Corp.                 Mr. James McGrath         1
Rancho Technology, Inc.                                          1
Ricoh Corporation                                               1
Samsung Semiconductor                                            1
Seagate Technology            Mr. Gene Milligan         1
Silicon Systems, Inc.         Mr. Stephen G. Finch      1
Sony Electronics, Inc.                                           1
Storage Technology Corp.      Mr. Roger Cummings        1
Sun Microsystems, Inc.        Mr. Robert N. Snively     1
Tandem Computers              Mr. John Moy              1
Thomas & Betts                                                  1
U.S. Design                                                     1
UNISYS Corporation                                              1
Unitrode Integrated Circuits Mr. Paul D. Aloisi         1
Western Digital Corporation  Mr. Tak Asami             1
Woven Electronics            Mr. Doug Piper            1

                              Totals:                  35  0  0  24  = 59
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10.8   16.6 MB/sec Transfers in ATA-2 (94-045r3) [Finch]

Steve Finch moved that 94-045r4 (a revision of 94-045r3 that Steve described to the group) be accepted for inclusion in ATA-2. Rick Kalish seconded the motion. The motion was approved 22:0.

10.9   ACA Bit in Control Byte Equals 1 Mandatory [Penokie]

George Penokie moved that X3T10 require all SCSI-3 devices to support the behavior specified for the ACA=1 condition in the Control byte. Jeff Williams seconded the motion. The motion failed 1:25.

10.10   Processor Commands in the SPC (94-018r0) [Weber]

Ralph Weber moved that X3T10 adopt 94-018r0 thus requiring the SPC editor to incorporate the processor commands in the SPC as optional commands. Gene Milligan seconded the motion. It was noted that the motion applies to the processor commands. The location of the processor device model shall be left to the discretion of the affected document editors. After a short discussion, the motion passed 22:0.

10.11   Checking of Reserved Fields

Jim McGrath moved that initiators be required to set all reserved fields to zero and that targets not be required to verify that all reserved fields contain zero. (Note: The motion reverses the sense of the current reserved field checking requirements.) Gene Milligan seconded the motion. The motion was approved 16:10.

Given the nature of the motion and the divisive vote, John suggested additional proposals be brought to the July working group.

11. ISO [Milligan]

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

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                          ISO Report
                          May 1994

     Based upon the prior meetings of X3T10, X3T11, and X3T12 the
  Acting IR has submitted recommended votes to:

  Approve: nine committee drafts comprising CD 9314-8 FDDI MAC-2;
  CD 9314-6 FDDI SMT with corrections resulting from the IBM X3
  letter ballot comments; CD 9314-7 FDDI PHY-2; CD 9314-13 FDDI
  CT-PICS substituting Revision 3.5 for the DIS; CD 11518-6 HIPPI-SC
  Revision 2.6;  CD  11518-2 HIPPI-FP Revision 4.3; CD 9318-6, IPI
  Enhanced Physical, dated 1/4/93; CD 11518-3, HIPPI-LE Revision
  3.4, dated 1/29/93; and CD 11518-1 HIPPI-PH.

  Reconfirm IS 9314-1 FDDI PHY; IS 9314-2 FDDI MAC; and IS 9315
  FDD.

  Withdraw IS 9316  SCSI upon publication of 9316-1 SCSI-2 and IS
  6548  Description of interface between process computing system
  and technical process.

     A recommendation to approve the FC-PH CD will be submitted as
  soon  as  the  large  number  of  comments  from  the  public  review
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resolution can be edited for the ballot.

The Chair of the U.S.A. TAG to ISO/IEC JTC 1 has sent out a
letter discussing the possibility of the U.S.A giving into pressure
to agree to a four month DIS ballot period rather than six months.
The Acting IR plans to submit a personal letter on the subject
and is soliciting official committee positions on the proposal.

Finally there is a call for inputs on whether the FDDI project
should be in SC 6 or SC 25 resulting from a Resolution at the
last JTC 1 meeting. The reason for the Resolution is a mystery.
There does not seem to be any papers on the subject more recent
than four years ago. Again the Acting IR will submit a personal
letter and seek an official position from X3T12.

11.1   Recommendation for new DIS procedures

Gene Milligan noted that proposed changes to DIS procedures limits DIS votes to yes or no. No
technical comments would be allowed. Gene expressed concern that the proposal eliminates a critical
source of debate. He cannot believe that draft standards will achieve the necessary technical stability
prior to DIS voting. Gene did note that he approves of reducing the review period from six months to
four months.

Larry Lamers moved that X3T10 formally support the position of its International Representative with
regard to the proposed changes in DIS procedures. Ralph Weber seconded the motion. The motion
was approved 24:0.

11.2   Alternative ISO process [Allan]

Dal Allan presented a proposal for X3T10 response to the negative ISO votes regarding standards
approved by X3T10. Dal's proposal is in document 94-121r0. Essentially, Dal proposed that X3T10
attempt to gain international approval of X3T10 standards by working with ECMA (in addition to ISO).
As a test case, Dal proposed that X3T10 ask one its members send ATA-1 to ECMA for international
approval. John noted that ATA-1 may already be copyrighted by ANSI. Gene Milligan suggested that
CAM might be a better choice.

Several favorable and unfavorable points were raised and discussed. John and Dal discussed whether
ATA or CAM would be a better choice. Dal took a straw poll and found no significant opposition to
trying to work with ECMA. John took an action item to contact the X3 Secretariat regarding the issue.

12. Liaison Reports

12.1   X3T11 Liaison Report [Cummings]

Roger Cummings reported that X3T11 Met on April 20 with 71 people in attendance. 2 organizations
were dropped as members on the orders of the Secretariat for non payment of fees, and Conner
Peripherals became a member company.   Therefore the membership of X3T11 stands at 48
organizations.

Responses to the Second Public Review comments on FC-PH (Fibre Channel Physical and Signaling
Interface) Revision 4.2 were approved. None are expected to result in substantive changes.

A detailed tutorial was presented on the FC Link Encapsulation project, and the use of FC subsystems
within various sort of larger network. Limitations on bridging and routing schemes were discussed. A
detailed review of the FC-LE draft was also begun.

The X3T11 Letter Ballot on forwarding the two page Amendment to X3.210-1992 for a first Public Review passed with no negative votes, and therefore will be forwarded for further processing.

The X3T11 Letter Ballots on FC-SB (SBCCS Mapping) Revision 3.0 and FC-AL (Arbitrated Loop) Revision 4.2 closed with one and four negative votes respectively. A number of comments were also made with affirmative votes. All comments are being addressed, and both editors expect to have new document revisions available in June.

Work on FC-EP (Enhanced Physical) is accelerating, with the cutoff date for first submission of paper on items to be included also being at the June 1994 FC Ad Hoc meetings.

A first publicly-available draft for the HIPPI-ATM project was reviewed in detail in an Ad Hoc meeting during the week, and a number of significant comments were generated.

The next X3T11 Plenary will be held on June 22, 1994 at the Hotel Sofitel, 5601 West 78th Street, Bloomington, Minnesota 55439. The telephone number is (612) 835-1900 and the fax number is (612) 835-2696. The reservation deadline is May 26, 1994, and the conference rate is $102.00 single occupancy or $112.00 double occupancy. Fibre Channel Ad Hoc meetings will also be held on June 20, 21, and 23.

12.2   SFF Industry Group [Allan]

Dal reported that no meeting has been held since the last X3T10 meeting. Dal reminded the committee that SFF-8017 describes all the connector and cable variations for single ended and differential SCSI. This is a very valuable document. Many of those who have read it to date have commented favorably on it's content. Dal stated that SFF-8017 is essential reading for any SCSI implementor.

12.3   IEEE P1394 [Marazas]

On April 20, 1994 a P1394 Working Group vote was concluded and yielded the decision to forward the draft standard to the IEEE sponsor which is the Microprocessor and Microcomputer Standards Subcommittee (MSC) of the IEEE Computer Society. Comments presented by the Working Group voting members were processed by a Vote Response Committee formed by the P1394 Chair. These comments are incorporated into P1394 version 7.0, dated May 6, 1994.

The P1394 Chair presented version 7.0 to the MSC at their May 9, 1994 meeting. The MSC voted to accept this document for purposes of conducting a Sponsor Group ballot. Such ballot is administered by the IEEE standards office and constitutes the public review and voting process by which an IEEE standard is developed. Progress notes will be posted to the P1394 and to the SCSI reflectors. It is expected that actual formulation of the P1394 Voter Pool and mailing of the document to these members will require between two and three months.

Given these events, the P1394 group has entered a suspended state with no further meetings being scheduled.

Upon completion of the Sponsor Ballot for P1394, it is the intention of the P1394 Chair to convene a Ballot Response Committee composed of the Working Group Officers, Editors, and principal contributors. A notice of this meeting will be posted to both the P1394 and the SCSI reflectors so that other interested parties may participate. The P1394 Chair estimates this Ballot Response Committee meeting is most likely to occur in the September or October time frame.

Should all of the received comments be editorial in nature, then the Response Committee will produce a Version 8 of the draft standard and forward it to the IEEE Editors for processing and publication as

an IEEE standard. In the
alternative, should there be technical comments, then the version 8 will need to be forwarded to the
MSC for another Sponsor Ballot.

As stated in prior meetings, joining the P1394 Sponsor Group Voter Pool requires action by each
interested party to contact in writing:

> The IEEE Standards Department
> 445 Hoes Lane
> Piscataway, New Jersey 08855

Any party, including persons who are not members of the IEEE, may comment on the document being
subjected to a Sponsor Group Ballot. In order to exercise a vote which is included in the Ballot Tally,
the person must be a member of
the IEEE. Additionally, in the IEEE procedures, persons vote as individuals representing themselves
rather than as an authorized representative of some corporate entity or other organization.

In order to facilitate comments by X3T10 members who do not wish to become members of the P1394
Sponsor Ballot Pool, the P1394 Chair repeats his previous offer to include within his own comments,
those comments from X3T10 members. The P1394 chair is also attempting to gain permission from
the IEEE Standards office for a copy of version 7.0 of the P1394 document to be included in the next
X3T10 mailing. At the present time it appears the IEEE is willing to grant explicit permission via a letter
to John Lohmeyer for reproduction and distribution by X3T10 on a one-time basis of the P1394 draft
standard. A new and more recent version of the IEEE Copyright notice will be placed on the P1394
Face Sheet. Such a document, with the new copyright notice, will carry version number 7.01 in order
to distinguish it from the previously distributed version 7.0.

12.4   IT8 [Lohmeyer]

No report.

12.5   IEEE P1285 Status [Pak]

Dennis Pak provided the following report by email:
> Scope
>
> IEEE P1285 is a standards group organized to define a new interface for "high-latency",
> non-volatile memory elements such as rotating media and solid state memory. The group
> is targeting configurations where storage elements are small enough to be attached directly
> to the motherboard. The goals are to provide support for scheduling of data transfers
> spanning large numbers of units and to represent the traditional secondary storage
> elements as an extension to the system's main memory (memory-mapped).
>
> Issues of concurrency, latency, bandwidth, extensibility, scalability are being addressed.
> The increasing demand for deterministic data transfers by real-time applications is being
> examined. Support is to be provided for scheduling data transfers in a predetermined
> manner in order to support time dependent applications.
>
> The major features of P1285 are identified below:
>
> > o Control and data space is memory mapped using P1212
> > o One controller, multiple slaves model
> > o Byte addressable, true memory mapped disk architecture

o Inherent spindle synchronization support
o Isochronous support
o Live insertion/removal
o Motherboard direct attach
o Scalability in performance and cost

IEEE P1285 Project Status

New commands have been added to the P1285 beta level interface to allow a device to transfer data between main memory and a beta level device buffer.

A power control section has been added to the P1285 document, and the text of an error control section to be added to the P1285 has been completed.

The P1285 gamma level interface, which was originally being considered for SCI (IEEE 1596) systems, has been generalized to accommodate a wider range of physical level interfaces. Each supported interface will have an annex in the P1285 document.

The beta level document and the gamma level document have been merged into one P1285 working document version number 0.210.

A co-located meeting was held in May with the SCI (IEEE 1596) working group to start work on defining a gamma level P1285 interface for SCI. In the future, co-located meetings will be held with 1596 each time there is a 1596 working group meeting in the Bay Area.

A co-located meeting is planned with X3T10 during its July meeting week. Martin Freeman and John Lohmeyer will co-ordinate on this meeting.

Upcoming Events

Future meetings are scheduled as follows:

June 9   Quantum Corp, 500 McCarthy Blvd, Milpitas, CA
July 7   Apple Computer, 1 Infinite Loop, Cupertino, CA
July 12   Co-located Meeting with X3T10 (Tentative)
August 4   Quantum Corp, 500 McCarthy Blvd, Milpitas, CA
August 17   Co-located Meeting with IEEE 1596 (Tentative)

These meetings are scheduled from 2:00-5:00 PM. Co-located meetings may not occur at this scheduled time.

Ralph Weber noted that the July 12th meeting date may be in error as it is the week prior to the X3T10 meetings he is hosting in New Hampshire. John will contact Martin Freeman regarding the issue.

12.6   PCMCIA Report [McLean]

Pete McLean reported on the recent PCMCIA activities and provided the following electronic report:

PCMCIA Report

PCMCIA is working on finalizing the input for the next release of PCMCIA, code named 'Berlin'. The next meeting is June 14-16, 1994 in Santa Clara, CA. Pre-registration is now

required. A meeting fee is being assessed on all participants. A reflector for PCMIA is being supported by Cirrus Logic. However it is not clear whether non-members will be allowed to subscribe.

1)   A proposal for adding DMA capability to R2 sockets has advanced to balloting for inclusion in the next release of PCMCIA. There was a discussion in the PC-Card ATA working group as to whether or not it should be considered for disk drives or explicitly disallowed in favor of a CardBus solution.

2)   Power Management - This topic includes several issues all related to the control of power and the device behavior. The requirement for a response to power-on within 3 seconds has advanced to the ballot stage. The current draw at power-on was revised to 70 ma maximum for 3.3 volt devices and 100 ma maximum for 5 volt devices. A power management proposal was made to address the Microsoft Advanced Power Management specification.

3)   Developers Guide - PCMCIA is selling a book authored by a third source called 'The PCMCIA Developers Guide'. It is available from the PCMCIA office.

5)   Card Bus - The Card Bus proposal continues to advance through the stages necessary for inclusion in the next release. However, there are intellectual property issues that need to be resolved before the final approval.

6)   SCSI Connector - Still undecided. The PC Card SCSI group concluded that the alternative connectors were technically equivalent. The Card Physical sub-committee will address the issue of deciding which connector to select PCMCIA meeting.

7)   Software - There was a preliminary discussion on consideration for developing a specification for a Master Device Driver with 'mini-port' drivers underneath to allow Card Services to better manage card swapping and provide the upper layer protocols a more consistent interface. It would also seek to make differences amoung cards of the same type (e.g., all SCSI adpaters) appear the same to the host and thus be interchangeable.

12.7   AIIM C21 [Podio]

John Lohmeyer reported that Fernando Podio visited the working group meeting on Wednesday. Refer to 94-107 for more information.

13. Review of Action Items

10) John Lohmeyer will contact Lynn Barra regarding the LOG SENSE TIB (X3T9.2/90-165) which is on hold.
15) Bob Snively will investigate liaison with IEEE P1244.5.
16) Ralph Weber will contact Tetsuro Motoyama regarding his desired disposition of X3T9.2/93-036r1.
17) John Lohmeyer will revise the SCSI-3 Fast-20 project proposal (94-060r1) based on the comments accepted at the Plenary meeting.
18) John Lohmeyer will forward the revised SCSI-3 Fast-20 project proposal (94-060r2) to Lynn Barra with appropriate documentation.
19) John Lohmeyer will send Lynn Barra the results of the SCSI-2 vote.
20) John Lohmeyer conduct a letter ballot on the GPP project proposal (94-099r0).
21) George Penokie will prepare a revision of the LOG SENSE TIB.

14. Meeting Schedule

The next plenary meeting of X3T10 will be July 21-22, 1994, in Bedford, NH, at the Sheraton Tara Wayfarer Inn (603-622-3766), hosted by Digital Equipment Corp. The meeting will begin at 1:00 pm on Thursday and at 8:30 am on Friday (if necessary).

The meeting list for the next plenary week is:

```
                          July '94 Meeting Map

Monday 7/18          9   10  11  12  1   2   3   4   5   6   7   8
                     +==========================================+
                     | SCSI CAM Working Group                   |   (25)
                     +================+=============+===========+
                                      |SSA El I/F WG|               (20)
                                      +=============+

Tuesday 5/19         9   10  11  12  1   2   3   4   5   6   7   8
                     +---------------------------------+--------+
                     |    X3T10.1     / SSP        / SSA-UIG    |   (40)
                     +================+=======================+=+
                                      |        SCSI-3 WG       |   (40)
                     +================+=======================+
                     | SCC & RAB Joint Meeting      |               (40)
                     +==============================+

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

Thursday 5/21        9   10  11  12  1   2   3   4   5   6   7   8
                     +=============+============================+
                     | ATA WG      | X3T10 Plenary              | (40/80)
                     +=============+============================+

Friday 5/22    8   9   10  11  12  1   2
                   +====================+
                   | X3T10 (*) / SFF    |                          (80)
                   +====================+
```

(*) If X3T10 meeting runs until Friday, Small Form Factor will follow
    the X3T10 meeting; Otherwise, SFF starts at 8:30 am.
    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)
CAM:             Common Access Method
Gen Edit Sess:   General Editing Session
El:              Electrical
I/F:             Interface
LB:              Letter Ballot
P1394:           IEEE Project on High Performance Serial Bus (not an X3
                 activity)
Plenary:         Full Committee Meeting
RAB:             RAID Advisory Board (not an X3 activity)
RAID:            Redundant Array of Independent Devices
SCC:             SCSI-3 Controller Commands (RAID)
SFF:             Small Form Factor Industry Group (not an X3 activity)
SG:              Study Group
SSA:             Serial Storage Interface
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)
```

Several other X3T10 events are also planned:

```
Event                            Day/Date  Time      Location/contact
------------------------------   --------- --------- ----------------------
ATA Working Group                Wed  6/1  9a - 5p   Milpitas/Finch
ATA Working Group                Wed  6/29 9a - 5p   Milpitas/Finch
ATA Working Group                Thu  7/21 9a - 12p  Manchester/Digital
Fast-20 Working Group            Thu  6/2  9:30-4p   Milpitas/McGrath
RAID Study Group                 Tue  6/28 9a - 5p   Minneapolis/Penokie
```

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

```
Activity                       Contact         Telephone/Email
-----------------------------  --------------  -------------------------------
CAM Working Group              Bill Dallas     (603) 881-2508
                                               dallas@wasted.enet.dec.com
ATA Working Group              Steve Finch     (714) 573-6808
                                               5723283@mcimail.com
GPP Working Group              Gary Stephens   (602) 321-1725
                                               6363897@mcimail.com
MMC Study Group                Norm Harris     (408) 945-8600 x2230
                                               nharris@adaptec.com
SSC Contact                    Edward Lappin   (303) 447-7718
                                               tedl@exabyte.com
SPC Contact                    Ralph Weber     (603) 881-1497
                                               weber@star.enet.dec.com
RAID Study Group               George Penokie  (507) 253-5208
                                               gop@rchvmp3.vnet.ibm.com
SAM Working Group              Charles Monia   (508) 841-6757
                                               monia@starch.enet.dec.com
SBP Working Group              Jerry Marazas   (407) 982-4423
                                               marazas@bcrvmpc2.vnet.ibm.com
SPI Contact                    Larry Lamers    (408) 432-4776
                                               71540.2756@compuserve.com
SIP Contact                    Larry Lamers    (408) 432-4776
                                               71540.2756@compuserve.com
SCAM Contact                   Ed Gardner      (719) 548-2247
                                               gardner@ssag.enet.dec.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
--------------- ------------------------- --------------------------
Jul 18-22, 1994 Bedford, NH               DEC
Sep 12-16, 1994 Houston, TX               Compaq
Nov 7-11,  1994 Palm Springs, CA          Western Digital
```
Jan 8-13, 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   AT&T/NCR Microelectronics

Sep 10-15, 1995 Manchester, NH   Digital

Nov 5-10, 1995 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 is automatically deferred to the plenary group.

Gary Stephens moved and Steve Finch 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 7:45 p.m. on Thursday May 19, 1994.

Meeting Attenders -- Enclosure (1)

Name	S	Organization	Electronic Mail Address
Mr. Alan R. Olson	P	3M Company	usmmm5cd@ibmmail.com
Mr. Norm Harris	P	Adaptec, Inc.	nharris@adaptec.com
Mr. Lawrence J. Lamers	A#	Adaptec, Inc.	ljlamers@adaptec.com
Mr. Richard Kalish	A	Adaptec, Inc.	rkalish@aol.com
Mr. David Wang	P	Advanced Micro Devices	dwang@angelo.amd.com
Mr. Neil T. Wanamaker	P	Amdahl Corp.	ntw20@eng.amdahl.com
Mr. Charles Brill	P	AMP, Inc.	cebrill@amp.com
Mr. Bob Whiteman	A	AMP, Inc.	whiteman@cup.portal.com
Mr. Michael Wingard	O	Amphenol Interconnect	
Mr. Ken Scherzinger	V	Amphenol Spectra Strip	
Mr. John Lohmeyer	P	AT&T/ NCR Microelectronics	john.lohmeyer@ftcollinsco.ncr.com
Mr. Joe Stoupa	O	Burr-Brown Corp.	
Mr. Ian Morrell	A	Circuit Assembly Corp.	
Mr. Joe Chen	P	Cirrus Logic Inc.	chen@cirrus.com
Mr. John Geldman	A#	Cirrus Logic Inc.	johng@cirrus.com
Mr. George Su	A#	CMD Technology	gsu@cmd.com
Mr. Peter Johansson	O	Congruent Software, Inc.	
Mr. Michael Bryan	P	Conner Peripherals	Mike_Bryan+aDevelopment+a Colorado%conner@mcimail.com
Mr. Louis Grantham	P	Dallas Semiconductor	grantham@dalsemi.com
Mr. Charles Monia	P	Digital Equipment Corp.	monia@starch.enet.dec.com
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Mr. Robert Liu	P	Fujitsu Computer Products,Am	74503.1610@compuserve.com
Mr. Jeffrey L. Williams	P	Hewlett Packard Co.	jlw@hpdmd48.boi.hp.com
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Mr. George Penokie	P	IBM Corp.	gop@rchvmp3.vnet.ibm.com
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Mr. Ken Cummings	O	IBM Corp.	kcummings@vnet.ibm.com
Mr. Giles Frazier	O	IBM Corp.	gfrazier@ausvm6.vnet.ibm.com
Mr. David Lawson	P	Interphase Corp.	lawson@iphase.com
Mr. Dean Wallace	P	Linfinity Micro	
Mr. Chuck Grant	A	Madison Cable Corp.	
Mr. Pete McLean	A	Maxtor Corp.	pete_mclean@maxtor.com
Mr. Ray Heineman	O	Maxtor Corp.	ray_heineman@maxtor.com
Mr. Andrew J. Toth	O	Meritec	ajt@po.cwru.edu
Mr. Bob Masterson	P	Methode Electronics, Inc.	
Mr. Jay Neer	O	Molex Inc.	
Mr. Robert J. Gallenberger	O	NCCOSC RDTE DIV 821	gallenbe@nosc.mil
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Name	S	Organization	Electronic Mail Address
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Mr. Tak Asami	A	Western Digital Corporation	asami@dt.wdc.com
Mr. Doug Piper	P	Woven Electronics	WOVEN ELECTRONICS / MCI ID: 549-9900

60 People Present

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

May 25, 1994 - X3T10 Membership - Enclosure (2)

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                    May 25, 1994 - X3T10 Document Register - Enclosure (3)

X3T10/94-001R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Annual Report for X3T10
 Res:

X3T10/94-002R0        Date: 1/25/94  Author: J. Lohmeyer  [2/15/94]
Desc: X3T10 Project Status Summary
 Res:

X3T10/94-002R1        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: X3T10 Project Status Summary
 Res:

X3T10/94-003R0        Date: 1/24/94  Author: J. Lohmeyer  [2/15/94]
Desc: Draft Agenda for X3T10 Meeting - Mar '94
 Res:

X3T10/94-004R0        Date: 1/1/94  Author: J. Lohmeyer  [4/15/94]
Desc: Draft Agenda for X3T10 Meeting - May '94
 Res:

X3T10/94-005R0        Date:   Author: J. Lohmeyer  []
Desc: Draft Agenda for X3T10 Meeting - July '94
 Res:

X3T10/94-006R0        Date:   Author: J. Lohmeyer  []
Desc: Draft Agenda for X3T10 Meeting - September '94
 Res:

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

X3T10/94-008R0        Date:   Author: J. Lohmeyer  []
Desc: Draft Agenda for X3T10 Meeting - January '95
 Res:

X3T10/94-009R0        Date:   Author: J. Lohmeyer  []
Desc: Jeopardy Letter
 Res:

X3T10/94-010R0        Date: 12/7/93  Author: G. Penokie  [2/15/94]
Desc: Minutes of Raid Study Group - Dec '93
 Res:

X3T10/94-011R0        Date: 1/11/94  Author: G. Penokie  [2/15/94]
Desc: Minutes of Raid Study Group - Jan '94
 Res:

X3T10/94-012R0        Date: 1/21/93  Author: Lamers/Finch  [2/15/94]
Desc: Minutes of ATA Working Group - Jan '94
 Res:

X3T10/94-013R0        Date: 1/21/94  Author: Lamers/Lohmeyer  [2/15/94]
Desc: Minutes of General Working Group - Jan '94
 Res:

X3T10/94-013R1        Date: 1/28/94  Author: Lamers/Lohmeyer  []
Desc: Minutes of General Working Group - Jan '94
 Res:

X3T10/94-014R0        Date: 11/22/94  Author: R. Snively  [2/15/94]
Desc: Response to Comments for FCP
 Res:

X3T10/94-015R0        Date: 1/12/94  Author: R. Weber  [2/15/94]
Desc: Minutes of the CAM Working Group - Jan '94
 Res:

X3T10/94-016R0        Date: 1/21/94  Author: Lamers/Lohmeyer  []
Desc: Minutes of X3T10 Meeting #1 - Jan '94
 Res:

X3T10/94-016R1        Date: 1/25/94  Author: Lamers/Lohmeyer  [2/15/94]
Desc: Minutes of X3T10 Meeting #1 - Jan '94
 Res:

X3T10/94-016R2        Date: 1/30/94  Author: Lamers/Lohmeyer  []
Desc: Minutes of X3T10 Meeting #1 - Jan '94
 Res:

X3T10/94-017R0        Date: 1/13/94  Author: J. Scheible  [2/15/94]
Desc: Minutes of X3T10.1 Meeting #1 - Jan '94
 Res:

X3T10/94-018R0        Date:   Author: R. Weber  [2/15/94]
Desc: Processor Commands for SPC
 Res:

X3T10/94-019R0        Date: 1/14/94  Author: S. Finch  [2/15/94]
Desc: Project Proposal ATA3-PH Standard
 Res:

X3T10/94-019R1        Date: 2/11/94  Author: S. Finch  []
Desc: Project Proposal ATA3-PH Standard
 Res:

X3T10/94-019R2        Date: 3/30/94  Author: S. Finch  [4/15/94]
Desc: Project Proposal ATA3-PH Standard
 Res:

X3T10/94-020R0        Date: 1/14/94  Author: S. Finch  [2/15/94]
Desc: Project Proposal for ATA3-XPT Standard
 Res:
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X3T10/94-020R1         Date: 2/11/94  Author: S. Finch  []
Desc: Project Proposal for ATA3-XPT Standard
 Res:

X3T10/94-020R2         Date: 3/30/94  Author: S. Finch  [4/15/94]
Desc: Project Proposal for ATA3-XPT Standard
 Res:

X3T10/94-021R0         Date: 1/14/94  Author: S. Finch  [2/15/94]
Desc: Project Proposal for ATA3-PI Standard
 Res:

X3T10/94-021R1         Date: 2/11/94  Author: S. Finch  []
Desc: Project Proposal for ATA3-PI Standard
 Res:

X3T10/94-021R2         Date: 3/30/94  Author: S. Finch  [4/15/94]
Desc: Project Proposal for ATA3-PI Standard
 Res:

X3T10/94-022R0         Date:    Author: S. Finch  [2/15/94]
Desc: Project Proposal for ATA3-BC Standard
 Res:

X3T10/94-022R1         Date: 3/30/94  Author: S. Finch  [4/15/94]
Desc: Project Proposal for ATA3-BC Standard
 Res:

X3T10/94-022R1         Date: 2/11/94  Author: S. Finch  []
Desc: Project Proposal for ATA3-BC Standard
 Res:

X3T10/94-023R0         Date: 1/12/94  Author: B. Ham  [2/15/94]
Desc: Ultra-SCSI Update 1
 Res:

X3T10/94-024R0         Date: 1/5/94  Author: D. Hagerman  [2/15/94]
Desc: Error Handling for SCSI Controllers
 Res:

X3T10/94-025R0         Date: 1/5/94  Author: D. Hagerman  [2/15/94]
Desc: Additional Device Models
 Res:

X3T10/94-026R0         Date: 1/5/94  Author: D. Hagerman  [2/15/94]
Desc: Comments on SDA States
 Res:

X3T10/94-027R0         Date: 12/6/93  Author: R. Kalish  [2/15/94]
Desc: Proposal for Data CRC across the Cable
 Res:

X3T10/94-027R2         Date: 1/20/94  Author: R. Kalish  [4/15/94]
Desc: Proposal for Data CRC across the Cable
 Res:

X3T10/94-028R0         Date:    Author: C. Monia  [2/15/94]
Desc: Summary of Proposed Responses to Comments on SAM, revision 12
 Res:

X3T10/94-029R0         Date:    Author: C. Monia  [2/15/94]
Desc: Summary of Proposed SAM responses for Working Group Discussion
 Res:

X3T10/94-030R0         Date:    Author: C. Monia  [2/15/94]
Desc: Key Issues from Review of SAM, Revision 12
 Res:

X3T10/94-031R0         Date:    Author: G. Penokie  [2/15/94]
Desc: SCSI Logical Unit Addressing
 Res:

X3T10/94-031R1         Date: 2/8/94  Author: G. Penokie  []
Desc: SCSI Logical Unit Addressing
 Res:

X3T10/94-031R2         Date: 3/1/94  Author: G. Penokie  [4/15/94]
Desc: SCSI Logical Unit Addressing
 Res:

X3T10/94-032R0         Date:    Author: G. Houlder  [2/15/94]
Desc: Message Handling
 Res:

X3T10/94-033R0         Date:    Author: R. Snively  [2/15/94]
Desc: Fibre Channel Icon Proposal
 Res:

X3T10/94-034R0         Date:    Author: OMC  [2/15/94]
Desc: Presentation on X3 Procedures
 Res:

X3T10/94-035R0         Date:    Author: D. Hagerman  [2/15/94]
Desc: Project Proposal for SCSI-3 Controller Commands Standard
 Res:

X3T10/94-035R1         Date: 2/4/94  Author: D. Hagerman  [4/15/94]
Desc: Project Proposal for SCSI-3 Controller Commands Standard
 Res:

X3T10/94-036R0         Date:    Author: Lohmeyer/Harris  [2/15/94]
Desc: Project Proposal for Multi-Media Command Set Standard
 Res:
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X3T10/94-036R1        Date: 2/4/94  Author: Lohmeyer/Harris  [4/15/94]
Desc: Project Proposal for Multi-Media Command Set Standard
 Res:

X3T10/94-037R0        Date: 1/14/94  Author: D. Pak  [2/15/94]
Desc: Liaison Report from P1285 - 1/94
 Res:

X3T10/94-038R0        Date: 1/20/94  Author: P. Aloisi  [2/15/94]
Desc: Proposed changes to SPI
 Res:

X3T10/94-038R2        Date: 5/1/94  Author: P. Aloisi  [6/15/94]
Desc: SCSI-3 SPI Issues
 Res:

X3T10/94-039R0        Date: 1/13/94  Author: D. Arnold  [2/15/94]
Desc: Call for Volunteers - X3T10
 Res:

X3T10/94-040R0        Date: 12/10/93  Author: G. Penokie  [2/15/94]
Desc: SCSI Disk Array Model
 Res:

X3T10/94-040R1        Date: 2/8/94  Author: G. Penokie  []
Desc: SCSI Disk Array Model
 Res:

X3T10/94-040R2        Date: 3/5/94  Author: G. Penokie  []
Desc: SCSI Disk Array Model
 Res:

X3T10/94-040R3        Date: 3/17/94  Author: G. Penokie  [4/15/94]
Desc: SCSI Disk Array Model
 Res:

X3T10/94-040R4        Date: 5/6/94  Author: G. Penokie  [6/15/94]
Desc: SCSI Disk Array Model
 Res:

X3T10/94-041R0        Date: 12/12/93  Author: G. Penokie  [2/15/94]
Desc: SDA States and Types
 Res:

X3T10/94-041R1        Date: 2/8/94  Author: G. Penokie  []
Desc: SDA States and Types
 Res:

X3T10/94-041R2        Date: 3/5/94  Author: G. Penokie  []
Desc: SDA States and Types
 Res:

X3T10/94-041R3        Date: 3/16/94  Author: G. Penokie  [4/15/94]
Desc: SDA States and Types
 Res:

X3T10/94-041R4        Date: 5/6/94  Author: G. Penokie  [6/15/94]
Desc: SDA States and Types
 Res:

X3T10/94-042R0        Date: 1/21/94  Author: G. Penokie  [2/15/94]
Desc: SDA Commands & Mode Pages
 Res:

X3T10/94-042R1        Date: 2/8/94  Author: G. Penokie  []
Desc: SDA Commands & Mode Pages
 Res:

X3T10/94-042R1        Date: 3/5/94  Author: G. Penokie  []
Desc: SDA Commands & Mode Pages
 Res:

X3T10/94-042R2        Date: 3/1/94  Author: G. Penokie  []
Desc: SDA Commands & Mode Pages
 Res:

X3T10/94-042R3        Date: 3/16/94  Author: G. Penokie  [4/15/94]
Desc: SDA Commands & Mode Pages
 Res:

X3T10/94-043R0        Date: 1/24/94  Author: C. Monia  [2/15/94]
Desc: Results of 1/11/94 SAM WG Review
 Res:

X3T10/94-044R0        Date: 1/24/94  Author: J. Lohmeyer  [2/15/94]
Desc: Letter Ballot on FCP
 Res:

X3T10/94-045R0        Date: 1/28/94  Author: T. Hanan  []
Desc: 16.6 MB/Sec Timing
 Res:

X3T10/94-045R1        Date: 1/28/94  Author: T. Hanan  []
Desc: 16.6 MB/Sec Timing
 Res:

X3T10/94-045R2        Date: 1/28/94  Author: T. Hanan  []
Desc: 16.6 MB/Sec Timing
 Res:

X3T10/94-045R2        Date: 3/16/94  Author: T. Hanan  []
Desc: 16.6 MB/Sec Timing
 Res:
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X3T10/94-045R3        Date: 3/31/94  Author: T. Hanan  [4/15/94]
Desc: 16.6 MB/Sec Timing
 Res:

X3T10/94-046R0        Date:   Author: H. Landis  [4/15/94]
Desc: Master/Slave Issues
 Res:

X3T10/94-047R0        Date: 1/28/94  Author: R. Shergill  [4/15/94]
Desc: Minutes of ATA Working Group - 1/28/94
 Res:

X3T10/94-048R0        Date:   Author: T. Hanan  [6/15/94]
Desc: Data Integrity Proposal
 Res:

X3T10/94-049R0        Date: 2/7/94  Author: J. Lohmeyer  [4/15/94]
Desc: Public review comment on SPI re adding SCAM as normative annex
 Res:

X3T10/94-050R0        Date: 2/4/94  Author: W. Rinehuls  [4/15/94]
Desc: ltr Rinehuls to Lohmeyer re IEEE P1244.5 PINS
 Res:

X3T10/94-051R0        Date: 1/1/94  Author: J. Masiewicz  []
Desc: Comments/Recommendations on ATA-2 working draft
 Res:

X3T10/94-051R1        Date: 1/1/94  Author: J. Masiewicz  [4/15/94]
Desc: Comments/Recommendations on ATA-2 working draft
 Res:

X3T10/94-052R0        Date: 2/12/94  Author: T. Hanan  [6/15/94]
Desc: Proposed Change to Mode 4 T0 definition and diagrams
 Res:

X3T10/94-053R0        Date: 2/23/94  Author: R. Kalish  []
Desc: RESET on the Bus - ATA
 Res:

X3T10/94-053R1        Date: 3/31/94  Author: R. Kalish  [4/15/94]
Desc: RESET on the Bus - ATA
 Res:

X3T10/94-054R0        Date: 2/22/94  Author: T. Hanan  [4/15/94]
Desc: New Timing Modes
 Res:

X3T10/94-055R0        Date: 2/25/94  Author: Shergill/Finch  [4/15/94]
Desc: Minutes of ATA WG 23FEB94
 Res:

X3T10/94-056R0        Date: 2/25/94  Author: T. Hanan  [6/15/94]
Desc: DRQ Timing on Last Data Transfer
 Res:

X3T10/94-057R0        Date: 3/14/94  Author: N. Harris  [4/15/94]
Desc: Proposal for the working draft on Mulit-Media Commands
 Res:

X3T10/94-058R0        Date: 2/25/94  Author: J. Masiewicz  [4/15/94]
Desc: Word 51,52, 64, 66 Revisions for comments
 Res:

X3T10/94-059R0        Date: 2/25/94  Author: G. Penokie  [4/15/94]
Desc: Minutes of RAID Study Group - 2/14/94
 Res:

X3T10/94-060R0        Date: 3/2/94  Author: Ham/Lohmeyer  []
Desc: Project Proposal for Fast-20 SCSI-3 Parallel Interface Standard
 Res:

X3T10/94-060R1        Date: 3/31/94  Author: Ham/Lohmeyer  [4/15/94]
Desc: Project Proposal for Fast-20 SCSI-3 Parallel Interface Standard
 Res:

X3T10/94-061R0        Date: 3/13/94  Author: Lamers/Lohmeyer/Ham  []
Desc: Fast-20 SCSI Proposal
 Res:

X3T10/94-061R1        Date: 3/25/94  Author: Lamers/Lohmeyer/Ham  []
Desc: Fast-20 SCSI Proposal
 Res:

X3T10/94-061R2        Date: 4/1/94  Author: Lamers/Lohmeyer/Ham  [4/15/94]
Desc: Fast-20 SCSI Proposal
 Res:

X3T10/94-062R0        Date: 3/10/94  Author: G. Penokie  [4/15/94]
Desc: Minutes of RAID WG - March 14, 1994
 Res:

X3T10/94-063R5        Date: 3/10/94  Author: H. Landis  [4/15/94]
Desc: DMA Command Description Cleanup
 Res:

X3T10/94-064R1        Date: 3/10/94  Author: H. Landis  [4/15/94]
Desc: Power Managment Description Cleanup
 Res:

X3T10/94-065R0        Date: 3/10/94  Author: H. Landis  [4/15/94]
Desc: Master/Slave Handshaking
 Res:
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X3T10/94-065R2        Date: 4/25/94  Author: H. Landis  [6/15/94]
Desc: Master/Slave Handshaking
 Res:

X3T10/94-066R0        Date: 3/15/94  Author: Lamers/Finch  [4/15/94]
Desc: Minutes of ATA WG - March 14, 1994
 Res:

X3T10/94-067R0        Date: 2/2/94  Author: G. Houlder  [4/15/94]
Desc: Data Recovery on Deferred Errors
 Res:

X3T10/94-067R1        Date: 4/18/94  Author: G. Houlder  [6/15/94]
Desc: Data Recovery on Deferred Errors
 Res:

X3T10/94-068R0        Date: 3/16/94  Author: B. Ham  [4/15/94]
Desc: Ultra SCSI progress report
 Res:

X3T10/94-069R0        Date: 3/11/94  Author: R. Snively  [4/15/94]
Desc: Proposal for WRITE BUFFER command
 Res:

X3T10/94-070R0        Date: 3/21/94  Author: Lamers/Lohmeyer  [4/15/94]
Desc: Minutes of the X3T10 General Working Group - March 16, 1994
 Res:

X3T10/94-071R0        Date: 5/13/94  Author: R. Gannon  [6/15/94]
Desc: SCSI Cable Variations for SFF Consideration
 Res:

X3T10/94-072R0        Date: 3/21/94  Author: S. Finch  [4/15/94]
Desc: Minor errors in SPI
 Res:

X3T10/94-073R0        Date: 3/21/94  Author: B. Dallas  [6/15/94]
Desc: Minutes of CAM Working Group- 3/14/94
 Res:

X3T10/94-074R0        Date: 3/24/94  Author: Weber/Lohmeyer  [4/15/94]
Desc: Minutes of X3T10 Plenary Meeting #2
 Res:

X3T10/94-075R0        Date: 3/21/94  Author: E. Gardner  [4/15/94]
Desc: Presentation on ATM
 Res:

X3T10/94-076R0        Date: 3/21/94  Author: D. Pak  [4/15/94]
Desc: Liaison Report from P1285 - 3/95
 Res:

X3T10/94-077R0        Date: 3/21/94  Author: L. Barnes  [4/15/94]
Desc: Liaison Report from PCMCIA - 3/95
 Res:

X3T10/94-078R0        Date: 3/21/94  Author: R. Cummings  [4/15/94]
Desc: Liaison Report from X3T11-3/95
 Res:

X3T10/94-079R0        Date: 3/21/94  Author: J. McGrath  []
Desc: Comments on INQUIRY command
 Res:

X3T10/94-079R1        Date: 3/21/94  Author: J. McGrath  [4/15/94]
Desc: Comments on INQUIRY command
 Res:

X3T10/94-080R0        Date: 3/21/94  Author: J. McGrath  []
Desc: Comments on Download Microcode
 Res:

X3T10/94-080R1        Date: 3/21/94  Author: J. McGrath  [4/15/94]
Desc: Comments on Download Microcode
 Res:

X3T10/94-081R0        Date: 3/21/94  Author: J. McGrath  [4/15/94]
Desc: Comments on optional/mandatory features
 Res:

X3T10/94-082R0        Date: 3/21/94  Author: S. Smith  [4/15/94]
Desc: Quotation on SPI ANSI editing
 Res:

X3T10/94-083R0        Date: 3/21/94  Author: W. Burr  [4/15/94]
Desc: Liaison report from AIIM - 3/94
 Res:

X3T10/94-084R0        Date: 3/21/94  Author: F. Podia  [4/15/94]
Desc: Media Error Reporting and Monitoring...
 Res:

X3T10/94-085R0        Date: 3/21/94  Author: G. Marazas  [4/15/94]
Desc: Letter Ballot comment resolution for SBP
 Res:

X3T10/94-086R0        Date: 3/23/94  Author: J. Scheible  [6/15/94]
Desc: Minutes of SSP Study Group - 3/94
 Res:

X3T10/94-087R0        Date: 3/30/94  Author: P. McLean  [4/15/94]
Desc: Secure Mode Command
 Res:
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X3T10/94-088R0        Date: 3/30/94  Author: R. Shergill  [6/15/94]
Desc: Minutes of SPI-2 Working Group - 3/2/94
 Res:

X3T10/94-089R0        Date: 3/30/94  Author: H. Landis  [6/15/94]
Desc: Handling High Capacity Drives
 Res:

X3T10/94-090R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for SAM Forwarding
 Res:

X3T10/94-091R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for SBP Forwarding
 Res:

X3T10/94-092R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for ATA-3 PH Project Proposal
 Res:

X3T10/94-093R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for ATA-3 XPT Project Proposal
 Res:

X3T10/94-094R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for ATA-3 PI Project Proposal
 Res:

X3T10/94-095R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for ATA-3 BC Project Proposal
 Res:

X3T10/94-096R0        Date: 3/31/94  Author: J. Lohmeyer  [4/15/94]
Desc: Letter  Ballot for Fast-20 Project Proposal
 Res:

X3T10/94-097R0        Date: 3/29/94  Author: J. Lohmeyer  [4/15/94]
Desc: Project Proposal for Serial Storage Protocol (SSP) Standard
 Res:

X3T10/94-098R0        Date: 3/31/94  Author: B. Ham  [4/15/94]
Desc: Ultra-SCSI Report to 3/31/94 WG
 Res:

X3T10/94-099R0        Date: 3/31/94  Author: G. Milligan  [4/15/94]
Desc: Project Proposal for GPP Technical Report
 Res:

X3T10/94-100R0        Date: 4/22/94  Author: G. Penokie  [6/15/94]
Desc: Minutes of RAID Study Group - April '94
 Res:

X3T10/94-101R0        Date: 3/30/94  Author: R. Shergill  [6/15/94]
Desc: Minutes of ATA Working Group - 3/30/94
 Res:

X3T10/94-102R0        Date: 3/30/94  Author: R. Shergill  [6/15/94]
Desc: Minutes of ATA Working Group - 4/30/94
 Res:

X3T10/94-103R0        Date: 5/9/94  Author: V. Novak  [6/15/94]
Desc: Proposed Annex for Ultra Fast SCSI Node Capacitance
 Res:

X3T10/94-104R0        Date: 5/17/94  Author: K. Cummings  [6/15/94]
Desc: Downloading Microcode using WRITE BUFFER
 Res:

X3T10/94-105R0        Date: 5/13/94  Author: R. Weber  [6/15/94]
Desc: KeyIssues in SPC
 Res:

X3T10/94-106R0        Date:   Author: R. Weber  [6/15/94]
Desc: RESERVE & RELEASE issues in SPC
 Res:

X3T10/94-107R0        Date:   Author: Weber/Lohmeyer  [6/15/94]
Desc: Minutes of SCSI General Working Group - May 19, 1994
 Res:

X3T10/94-108R0        Date:   Author: G. Penokie  [6/15/94]
Desc: Minutes of RAID Study Group - 5/94
 Res:

X3T10/94-109R0        Date: 5/12/94  Author: R. Snively  [6/15/94]
Desc: Response to Comments on FCP Letter Ballot
 Res:

X3T10/94-110R0        Date: 5/12/94  Author: Motoyama/Weber  [6/15/94]
Desc: Scanner Window Descriptor Bytes Proposal
 Res:

X3T10/94-111R0        Date: 5/2/94  Author: G. Houlder  [6/15/94]
Desc: RAID 5 Support on SCSI Disk Drives
 Res:

X3T10/94-112R0        Date: 5/13/94  Author: C. Monia  [6/15/94]
Desc: Proposed Responses to LB comments on SAM rev 13
 Res:

X3T10/94-113R0        Date: 5/18/94  Author: F. Podio  [6/15/94]
Desc: AIIM C21 Liason Report
 Res:
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X3T10/94-114R0         Date: 5/19/94  Author: Lamers/Finch  [6/15/94]
Desc: Minutes of ATA WG - May 19,1994
 Res:

X3T10/94-115R0         Date: 5/17/94  Author: J. Geldman  [6/15/94]
Desc: Comments on ATA Revision 2c
 Res:

X3T10/94-116R0         Date: 5/5/94  Author: B. Ham  [6/15/94]
Desc: Fast 360 SCSI Single Ended
 Res:

X3T10/94-117R0         Date: 5/19/94  Author: J. Lohmeyer  [6/15/94]
Desc: SBP Forwarding Letter Ballot Comments
 Res:

X3T10/94-118R0         Date: 5/19/94  Author: J. Lohmeyer  [6/15/94]
Desc: SAM Forwarding Letter Ballot Comments
 Res:

X3T10/94-119R0         Date: 5/19/94  Author: J. Lohmeyer  [6/15/94]
Desc: FAST-20 Project Proposal Letter Ballot Comments
 Res:

X3T10/94-120R0         Date: 5/19/94  Author: J. Lohmeyer  [6/15/94]
Desc: ATA-3 Project Proposals Letter Ballot Comments
 Res:

X3T10/94-121R0         Date: 5/13/94  Author: D. Allan  [6/15/94]
Desc: ISO Standards
 Res:

X3T10/94-122R0         Date: 5/8/94  Author: S. Smith  [6/15/94]
Desc: Invoice for SPI
 Res:

X3T10/94-123R0         Date: 5/22/94  Author: Weber/Lohmeyer  [6/15/94]
Desc: Minutes of X3T10 Meeting #3 - 5/94
 Res:

X3T10/94-124R0         Date: 5/23/94  Author: J. Lohmeyer  [6/15/94]
Desc: Letter Ballot on GPP Project Proposal for Technical Report
 Res:

X3T10/94-125R0         Date: 4/13/94  Author: D. Bensimon  [6/15/94]
Desc: Security Command Patent Policy Letter from IBM
 Res:

X3T10/94-126R0         Date: 5/13/94  Author: J. Lohmeyer  [6/15/94]
Desc: Acceptance of Public Review Comment #1 on SPI
 Res:

X3T10/94-127R0         Date: 3/28/94  Author: J. Lohmeyer  [6/15/94]
Desc: Reaffirmation of ESDI
 Res:
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