

To: Membership of X3T10

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

Subject: Minutes of X3T10 Plenary Meeting #7
Lake Tahoe, NV -- January 12, 1995

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. Approval of Minutes - November Meeting Palm Springs, CA (X3T10/94-227r1)
5. Document Distribution
6. Call for Patents
7. Review of Old Action Items
8. Subgroup and/or Project Status Reports
 - 8.1 Project Status Summary and X3/OMC Liaison [Lohmeyer]
 - 8.2 X3T10.1 Task Group Report
 - 8.3 SCSI Common Access Method (CAM) {Project 792-D} [Dallas]
 - 8.4 ATA Extensions (ATA-2) Status {Project 948-D} [Finch]
 - 8.5 SCSI-3 Parallel Interface (SPI) Status {Project 855-D} [Lamers]
 - 8.6 SCSI-3 Interlocked Protocol (SIP) Status {Project 856-D} [Penman]
 - 8.7 Directly-Addressable Device Interface (DADI) Status {Project 964-D} [open]
 - 8.8 SCSI Common Access Method -2 (CAM-2) Status {Project 990-D} [Dallas]
 - 8.9 SCSI-3 Generic Packetized Protocol (GPP) Status {Project 991-DT} [Stephens]
 - 8.10 SCSI-3 Serial Bus Protocol (SBP) Status {Project 992-D} [Roberts]
 - 8.11 SCSI-3 Fiber Channel Protocol (FCP) Status {Project 993-D} [Snively]
 - 8.12 SCSI-3 Architecture Model (SAM) Status {Project 994-D} [Monia]
 - 8.13 SCSI-3 Primary Commands (SPC) Status {Project 995-D} [Weber]
 - 8.14 SCSI-3 Block Commands (SBC) Status {Project 996-D} [Tewell]
 - 8.15 SCSI-3 Stream Commands (SSC) Status {Project 997-D} [Lappin]
 - 8.16 SCSI-3 Graphics Commands (SGC) Status {Project 998-D} [Tewell]
 - 8.17 SCSI-3 Medium Changer Commands (SMC) Status {Project 999-D} [Oetting]
 - 8.18 SCSI-3 Controller Commands (SCC) Status {Project 1047-D} [Penokie]
 - 8.19 Multimedia Command Set (MMC) Status {Project 1048-D} [Roberts]
 - 8.20 SCSI-3 Fast-20 Parallel Interface (Fast-20) {Project 1071-D} [Lamers]
 - 8.21 AT Attachment-3 Interface (ATA-3) Status {Project 2008-D} [Milligan]
 - 8.22 ATA Packet Interface (ATAPI) Status {Project ____-D} []
 - 8.23 XOR Commands Study Group [Houlder]

* Operating under the procedures of The American National Standards Institute.

9. Old Business

- 9.1 X3T10 Procedures [Lamers]
- 9.2 X3T10 Standards Development Policy and Procedure (94-198) [Milligan]
- 9.3 Clarification of international program fee [Allan]

10. New Business

- 10.1 Letter Ballot Results and Resolution
 - 10.1.1 Forwarding SCSI-3 Fast-20 to X3 (94-248)
 - 10.1.2 Forwarding GPP to X3 as a Technical Report (94-249)
- 10.2 Immediate Commands (94-244r1) [Lappin]
- 10.3 Exception Handling Selection Mode Page (94-190r4) [Penokie]
- 10.4 Conflict between READ LONG and Read/Write Error Recovery Page [Milligan]
- 10.5 ATA Systems Issues Study Group [Penman]

11. ISO [Milligan]

12. Liaison Reports

- 12.1 X3T11 Liaison Report [Cummings]
- 12.2 SFF Industry Group [Allan]
- 12.3 IEEE P1394 [Marazas]
- 12.4 IEEE P1285 Status [Pak]
- 12.5 PCMCIA Report [McLean]
- 12.6 AIM C21 [Podio]

13. Review of Action Items

14. Meeting Schedule

- 14.1 Authorization of Working Group Meetings

15. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer, the X3T10 Chair, called the meeting to order at 1:00 p.m., Thursday January 12, 1995. He thanked Steve Finch of Silicon Systems for arranging and hosting the meeting.

John informed the committee that he would be attending the meeting as a non-voting chairperson representing NCR Microelectronics Products Division and not AT&T. His corporate affiliation is changing because NCR Microelectronics is being purchased by Hyundai.

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:

- 10.2 Immediate Commands (94-244r1) [Lappin]
- 10.3 Exception Handling Selection Mode Page (94-190r4) [Penokie]
- 10.4 Conflict between READ LONG and Read/Write Error Recovery Page [Milligan]
- 10.5 ATA Systems Issues Study Group [Penman]

The agenda was approved with the above additions.

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 International Program fee (\$300) is billed separately directly from ANSI.

The Chair said he had sent letters to 11 people from 3 organizations informing them that their membership was in jeopardy due to non-attendance (see 94-009r5) and that their membership would be terminated if they did not attend this meeting. All organizations were represented at this meeting.

The following organization joined X3T10 at the meeting:

Sequoia Advanced Tech., Inc.

The X3T10 membership is now at 57 organizations up from 56 organizations last time. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current X3T10 membership list.

4. Approval of Minutes - November Meeting Palm Springs, CA (X3T10/94-227r1)

The minutes were approved as written.

5. Document Distribution

The 1995 mailing subscription fees have increased substantially (\$410 for USA residents) because the mailing size has increased substantially. Members who have any problems with their mailing subscription should deal directly with Katrina Gray (kgray@itic.nw.dc.us) or Dan Arnold (darnold@itic.nw.dc.us) at (202) 626-5741.

Larry Lamers requested that all documents for the next mailing be in his hands by noon on Thursday January 28, 1995. Documents received after this date will go into a subsequent mailing.

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

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

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

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

- 43) John Lohmeyer will write a letter to Ricoh warning of the probable termination of the SCSI-3 Graphics Commands project. *Overcome by events.*
- 44) Larry Lamers will edit the ATAPI project proposal as revised by the ATA working group. *Complete.*
- 45) John Lohmeyer will forward the ATAPI project proposal to X3 for further processing. *Complete.*
- 46) Larry Lamers will generate a properly formatted Logging Operations TIB. *Complete.*
- 47) John Lohmeyer will forward the Logging Operations TIB to X3 for further processing. *Complete.*
- 48) Ted Lappin will update the Sequential Access Partitions TIB based on the accepted comments. *Complete.*
- 49) John Lohmeyer will forward a properly formatted Sequential Access Partitions TIB to X3 for further processing. *Complete.*
- 50) John Lohmeyer will forward the revised SSA to SCSI-2 Mapping (94-196r1) project proposal to X3 for further processing. *Complete.*
- 51) John Lohmeyer will help Gene Milligan build an email mailing list for the policies and procedures discussion. *Complete.*
- 52) Larry Lamers will prepare SPI revision 15. *Complete.*
- 53) John Lohmeyer will forward SPI revision 15 to X3 for further processing. *Complete.*
- 54) Gene Milligan will report all CAM editorial problems to Bill Dallas. *Complete.*
- 55) Bill Dallas will correct the editorial problems in CAM revision 11, producing revision 12. *Complete.*
- 56) John Lohmeyer will forward CAM revision 12 to X3 for further processing. *Complete.*
- 57) Larry Lamers will revise Fast-20 to strike the second paragraph of 6.1.1. *Complete.*
- 58) Larry Lamers will issue a letter ballot for Fast-20. *Complete.*
- 59) John Lohmeyer will send Dal's international fees letter to Jean-Paul Emard. *Complete.*
- 60) Larry Lamers will generate a properly formatted Sequential Access Partitions TIB. *Complete.*
- 61) Larry Lamers will issue a letter ballot for GPP. *Complete.*
- 62) Larry Lamers will generate the SCSI-2 responses document for distribution to ISO via the IR. *Carryover*
- 63) Larry Lamers will prepare a final ISO version of SCSI-2. *Carryover*
- 64) Gene Milligan will double check the ISO status of all forwarded dpANS documents and to generate new ISO work items for any lacking an approved ISO project, with the exception of ATA. *Carryover*
- 65) John will contact Fernando Podio regarding the status of the C21 project. *Complete.*
- 66) John Lohmeyer will write a letter commenting on the SD-2 requesting that abstentions be permitted on technical votes at TCs and Tgs. *Complete.*

8. Subgroup and/or Project Status Reports

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

John Lohmeyer said that the current X3T10 project status summary was included on the backs of the meeting agendas. John also noted that CBEMA had changed their name to Information Technology Industry Council (ITI). Their email address is now: x3sec@itic.nw.dc.us.

8.2 X3T10.1 Task Group Report

The X3T10.1 Plenary met on January 10, 1995. No other meetings were held since November 1994 plenary. 22 Principle members and 14 other members attend the meeting.

The SSA-PH Draft, (989D-r3) is in preliminary review. Revision 3 was distributed at the meeting. Revision 3 contains major (6 months worth of) changes from revision 2. The meeting approved changes in driver spectrum content values, (electrical I/F). Major editorial work is still needed in the glossary, Intro, unitized connector appendix; style changes throughout; and clean up connector drawings. Action items have been assigned. There will be an editors meeting on Jan17-19,1995 - Austin, Texas. The goal is mailing of revision 4 by the first week of February.

The letter ballot on SSA-SCSI2 (13:0:0) was withdrawn due to many procedural and technical problems. The editor's meeting will review this document, if time permits.

The X3T10.1 plenary meeting approved motion to password protect electronic versions of draft documents with password provided on page 2 in an editor's note, (12:0:1). The password is intended to avoid inadvertent modifications, not a security feature.

Chair will revisit SD-4 project dates as part of annual report.

A working group meeting was authorized for March 6, 1995 in Newport Beach, CA

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

Bill Dallas and John Lohmeyer reported that 792-D is in public review. The review will end on April 4, 1995.

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

The ATA-2 working group completed its review of the proposed ATA-2 standard held at Western Digital on the December 1, 1994. The result was the generation of ATA-2 revision 2j. At the ATA working group held on Wednesday and Thursday of this week made one change to the 2j document, namely it deleted Annex F. This Annex dealt with typical device addressing on PC compatible systems. While the need for this information was felt to be important, it was deemed not to be a requirement for the ATA-2 standard and that attempting to resolve the issues involved would result in delaying the forwarding of ATA-2. Revision 2k was created and will be in the next X3T10 mailing.

The ATA working group approved a motion to request that an X3T10 letter ballot be issued to ask the membership to approve forwarding the ATA-2 working draft Rev 2k to X3 for further processing (first public review). John Lohmeyer agreed to issue the letter ballot.

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

John Lohmeyer reported that 855-D is in second public review. The review will end on April 4, 1995.

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

Duncan Penman reported that SIP revision 4a is ready. It will be in the next mailing. Duncan has a few hard copies for those who need them immediately. John will put electronic copies on the BBS and FTP site. Duncan asked working group time be allocated to reviewing SIP.

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

Gene Milligan moved that X3T10 process a withdrawal request for Project 964-D (Directly-Addressable Device Interface). Bob Snively seconded the motion. Gene Milligan noted that a near-future 1394 trade association meeting agenda includes a presentation from Martin Freeman regarding P1285.

Bob Snively described the original concept, which was to provide a memory-like interface to disk drives.

John Lohmeyer conducted a meeting vote whose results were: 34:0:0:23. John accepted an action item to write a letter to X3 requesting that Project 964-D be withdrawn.

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

Bill Dallas reported that the CAM working group met and came to an agreement about formatting the CCB for SCSI-3, which requires larger field sizes in several places. The general working group agreed that the document title should be changed from CAM-2 to CAM-3 to avoid confusion. There was no objection from the plenary on changing the title.

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

The GPP forwarding letter ballot passed 51:0:0:5. All comments on the Gene Milligan (Seagate) yes ballot were resolved by the working group. Paul Aloisi moved that the revised GPP be accepted as resolving the letter ballot comments and be substituted for the letter ballot version for forwarding to X3 for further processing (first public review). Erich Oetting seconded the motion. The motion passed 35:0:0:22. Gary Stephens took an action item to prepare a revised GPP including the comments resolution. John Lohmeyer took an action item to forward the revised GPP to X3.

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

Ron Roberts reported that 992-D is in public review. The review will end on March 21, 1995.

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

Bob Snively reported that 993-D is in public review. The review will end on March 21, 1995.

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

Charles Monia reported that 994-D is in public review. The review will end on March 21, 1995.

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

Ralph reported that SPC revision 4 was in the previous mailing. George Penokie provided detailed comments in 95-106r0. Those comments were reviewed by the working group. Of the 21 comments, 15 were accepted. Comment 3 was accepted provided Ralph will send the revised wording to George and Bob Snively for approval. Comments 1, 7, 8, 9, and 13 were rejected because they conflict with previously approved documents. George was satisfied with the reasons for rejecting comment 8. However, George maintained that the MOVE MEDIUM, READ ELEMENT STATUS, and processor commands should not be in the SPC.

There had been some complaints about missing entries in the Vendor-ID list in Annex E. John Lohmeyer and Ralph are revising their procedures to avoid future problems. Charles Monia informed Ralph that the parameter rounding material was removed from the SAM last fall with the intent that it will be placed in the SPC. Ralph was unaware of this change.

Ralph promised to generate SPC revision 5 for the next mailing. However, he noted that his workload may make finishing on time difficult.

Based on a comment from Rick Tewell, the committee discussed the presence of references to CCS in the SPC. John suggested that the topic be remanded to the working group.

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

Rick Tewell reported that the revision 0 of the SBC was in the last mailing. George Penokie provided Rick with a list of approved documents that affect the SBC. The approved documents will be included in the next revision of the SBC.

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

Ted Lappin reported that the working group on SSC met earlier that day. SSC revision 2 will be in the next mailing. Ted will be providing several proposals for the next mailing. He mentioned that many of the density codes in the current table are not fully defined. He suggested that such density codes may be changed to reserved if fuller definition information cannot be obtained. Erich Oetting will be writing a proposal for writing tapes without error recovery. There also will be proposals on reading in flaky areas of the tape and ASCs for cleaning tapes.

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

Rick Tewell has volunteered to act as Project Editor on the SGC project. John Lohmeyer expressed his appreciation and asked the committee to support Rick. Rick reported that revision 0 (a rehash of the SCSI-2 graphics commands) will be ready for the mailing. Rick will be contacting IT8 for information that affects the SGC.

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

Erich reported on conceptual discussions on medium changer improvements in the working group meeting. He reported that no action was taken. Ralph Weber will prepare a written proposal regarding elimination of conflicts in operation codes for the MOVE MEDIUM and READ ELEMENT STATUS. That proposal will be in the next mailing.

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

George Penokie moved that SCC revision 4 be accepted as resolving the letter ballot comments and replacing revision 3 for public review. Gene Milligan seconded the motion. The motion passed 34:0:0:23.

John Lohmeyer took an action item to forward SCC revision 4 to X3 for further processing toward public review.

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

Ron Roberts reported that the MMC working group met earlier this week. The working group received a copy of a Sony proposal for CD-ROM commands. That proposal was not reviewed because Sony was unable to attend the working group meeting due to weather problems. Ron requested authorization for an MMC working group meeting in Santa Clara on February 2nd. Western Digital is creating a reflector for MMC issues. The reflector address will be mmc@dt.wd.com. Reflector sign-up messages should be sent to majordomo@dt.wd.com with the line 'subscribe mmc' in the message body.

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

The letter ballot passed 50:2:0:4. The negative votes came from IBM and Gene Milligan (Seagate). Larry reported that all the comments have been resolved. Larry Lamers reviewed the letter ballot comments and responses. The comments and responses are covered in the working group meeting minutes, 95-129.

Larry promised to make a new revision of Fast-20 as soon as possible. Larry Lamers moved that X3T10 accept the resolution of the Fast-20 letter ballot comments, as recommended by the working group. Gene Milligan seconded the motion. The motion passed 36:0:0:21.

8.21 AT Attachment-3 Interface (ATA-3) Status {Project 2008-D} [Milligan]

Gene Milligan reported on the work of the ATA ad hoc group meeting. Early proponents of the ATAPI expressed opposition to X3T10 working on ATAPI prior to "final review" by SFF. Consequently, the ad hoc was not able to generate the ATAPI plan and schedule as yet. A presentation was given on ATASPI which has been offered to the industry for an ATA industry API.

The ad hoc agreed on scope relative to command overlap and queuing. The ad hoc requested that the ATA-3 project editor include the security mode, check power mode, device 1 only description, and DMA Identify command in the initial draft. The ad hoc extended the deadline to the February 15 meeting for PFA, revision reporting, host information, and dynamic power selection. Gene reported that the ATA-3 project is on schedule.

Gene Milligan moved that X3T10 accept the ATA ad hoc's recommendation to include: (a) "weak command overlap"; (b) "strong command overlap"; and (c) "command queuing" in the ATA-3's scope and to establish high priority on (a) with diminishing priority on (b) to (c) -- ultimately dropping (b) and/or (c) to ATA-4, if it (or they) delays accepting the definition beyond February 16, 1995, from ATA. Richard Kalish seconded the motion. The motion passed unanimously.

John Lohmeyer said that his reading of the ATA-3 project proposal suggests that all the concepts in the above motion can be interpreted as being part of the project and asked if there were any objections to his interpretation. There were no objections. Thus, no revision of the project proposal was undertaken.

8.22 ATA Packet Interface (ATAPI) Status {Project ____-D} []

The ATAPI project proposal was on the OMC agenda for this week. Approval of the project proposal by X3 letter ballot is anticipated before the next X3T10 meeting.

8.23 XOR Commands Study Group [Houlder]

Reporting for Gerry Houlder, Gene Milligan said that this week's XOR meeting had higher attendance, with a lot of people contributing to the discussions. This indicates a higher level of interest in this topic. Complete minutes will be in document 95-114.

9. Old Business

9.1 X3T10 Procedures [Lamers]

Since Larry has not yet had time to prepare draft procedures, John said he would remove this agenda item until we have a proposal.

9.2 X3T10 Standards Development Policy and Procedure (94-198) [Milligan]

Gene Milligan led a discussion of 94-198r3. He reported on the history of how the document was developed. Lengthy electronic mail discussions, one working group meeting, one study group meeting, and a review with X3T10 Chair Lohmeyer all were performed to create the document revision presented to this meeting.

Gene Milligan moved that X3T10 accept the revised document as an acceptable response to the letter ballot comments. Ron Roberts seconded the motion. Gene Milligan moved that consideration of the above motion be deferred until March 9th. Ron Roberts seconded the motion. The motion to defer consideration passed unanimously.

9.3 Clarification of international program fee [Allan]

Dal Allan was absent from this meeting. Therefore, this agenda item was carried over to the March Plenary meeting.

10. New Business

10.1 Letter Ballot Results and Resolution

John Lohmeyer reported the results of the two letter ballots. See 95-123 for the complete results.

10.1.1 Forwarding SCSI-3 Fast-20 to X3 (94-248)

This ballot passed 50:2:0:4. Yes comments were received from Adaptec, Unitrode, and Western Digital. The negatives were from IBM and Gene Milligan (Seagate).

10.1.2 Forwarding GPP to X3 as a Technical Report (94-249)

This ballot passed 51:0:0:5. Yes comments were received from Gene Milligan (Seagate).

10.2 Immediate Commands (94-244r1) [Lappin]

Ted Lappin reported on working group revisions to 94-244r0. The proposal modifies the SPC slightly to allow reporting of progress information on all immediate commands (not just immediate FORMAT commands). There was a brief discussion which revealed a new issue. Since consensus was not immediately forthcoming, the question was remanded to the working group.

10.3 Exception Handling Selection Mode Page (94-190r4) [Penokie]

George Penokie reported that the working group unanimously recommended 94-190r4 be accepted for inclusion in the SPC. George moved that 94-190r4 be accepted for inclusion in the SPC. Bob Snively seconded the motion. The motion passed unanimously.

10.4 Conflict between READ LONG and Read/Write Error Recovery Page [Milligan]

Gene Milligan moved that X3T10 accept the working group's recommendation to rescind document X3T10/94-077 resolution to the READ LONG CORRCT bit and Read/Write Recovery Page and to make the following changes to SBC: (1) Add text to READ LONG that states that READ LONG is a command whose definition is independent of the Read/Write Error Recovery Page, but does allow retries; (2) Add text to define that a READ LONG command with CORRCT=0 should result in GOOD status unless data cannot be transferred for some reason other than non-correctable errors.

Jim McGrath seconded the motion. The motion passed 33:0:0:24. Gene took an action item to prepare a written proposal for changing SBC.

10.5 ATA Systems Issues Study Group [Penman]

Duncan Penman reported on a reflector discussion regarding the need for a study group to investigate ATA systems issues (BIOS, software, etc.). The synopsis of the reflector discussion can be found in document 95-133. In the absence of objections, John authorized a study group effort to be lead by Duncan. Currently, there are no plans for study group meetings. The discussion will be conducted via electronic mail. The study group will be called the "System issues study group."

11. ISO [Milligan]

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

ISO Report 1/95

SC 25 Working Group 4 has distributed N626 which is a contribution from Professor, Doctor Oehler on Interfaces of active components to the cabling. Grivna has requested a list of references to convert from EIA to IEC component standards for Fibre Channel. A new ISSN1695 document dated 94/11/30 SD9 Memorandum of Agreement for US TAGs has been distributed.

The enclosed list of ISO documents since the last SC 25 meeting includes nine International Standardized Profiles relating to the X3T12 FDDI work.

The SC 25 Secretary Walter v. Pattay has sent a 94/12/04 letter to Chairman Fujisaki appointing Gene Milligan as the SC 25 to SC 26 Liaison. SC 26 is the ISO group responsible for microcomputer systems.

ISO/IEC is working on a process to publish de facto specifications. Some information has been distributed JTC1N3142 94/12/06 Transposition of Publicly Available Specifications - Management Guide Plan.

Interoperability of implementations (as opposed to standards conformance) is starting to receive ISO attention as noted by JTC1N3325 94/12/06 Req for SWG-CA study of product interoperability. The US contact for Interoperability SWG-CA is the Chair of JTCA Dave Thewlis, of Share Inc. at 71210.76@compuserve.com.

The SC 25 Secretary has decided not to precisely follow the action item to request that the JTC 1 Secretariat, ANSI, reverse their interpretation that the HIPPI and FC new work items failed. Instead he has

decided to, on the basis of the passing CD ballots, submit the HIPPI-FP, LE, SC, & FC-PH DIS documents and resolution of CD comments to JTC 1 for the registration of DIS ballots. The HIPPI-PH is ready for IS publication as soon as an editor's report on DIS ballot comments is received. X3T11 is addressing these items.

A revision of the ISO/IEC procedures is now available as JTC1N3348 94/12/20 Procedures for the Technical work of JTC1 - Third Edition.

JT94-0717 94/12/21 provides a Timeline for JTC1 Strategy for Implementation of Information Technology. The X3T10 IR has requested additional information from the US contact Karen Higginbottom, higginbottom@cup.hp.com, on both the international and US activity on electronic mechanization.

12. Liaison Reports

12.1 X3T11 Liaison Report [Cummings]

X3T11 met on December 7, 1994 with 90 attendees. One member organization was added (TV/COM), bringing the membership of X3T11 to 54.

It was reported that X3.230-1984, FC-PH, and X3.254-1994, FC-FP, had both completed BSR review, and were with the ANSI editors for pre-publication editing. The requests to withdraw the IPI-2 Tape (X3.176-1990) and IPI-3 Communications (X3.177-1990) standards had also completed BSR review and were being actioned.

The FC-SB (Revision 3.3) and FC-AL (Revision 4.4) drafts have completed OMC compliance reviews and have been assigned X3.271-199x and X3.272-199x respectively. First Public Reviews will commence on both drafts early in 1995.

A new naming convention was approved by a vote of F30-O01-NV23. By this change FC-EP will become FC-PH-2 and subsequent generations of all FC projects will follow this convention.

Four project proposals were forwarded for further processing. They were:

- 1) For an amendment to the HIPPI-SC standard, by a rollcall vote of F38-O00-NV16
- 2) For a Technical Report on HIPPI-Serial, by a rollcall vote of F40-O00-NV14
- 3) For an FC-PH-3 standard, by a rollcall vote of F36-O00-NV18
- 4) For a Technical Report on a 10 bit interface, by a rollcall vote of F36-O00-NV18

Letter Ballots for the Revised IPI-3 Disk and Revised IPI-3 Tape projects for a first Public Review, and for the withdrawal of Project 782-D (HIPPI-IPI3) were not issued in advance of the Plenary as had been expected, but are expected to be issued early in the New Year.

A Letter Ballot for the SBCON Project Proposal was also not issued as authorized in October, due to ongoing debates and changes to the proposal, but a new Letter Ballot on a revised SBCON Project Proposal was authorized for issuance subsequent to the meeting. A request for written arguments for and against adoption of the Proposal to accompany the ballot was accepted.

12.2 SFF Industry Group [Allan]

Jim McGrath reported on the progress in connector design progress this week and urged participation in the SFF meeting tomorrow. Bill Ham reported that the very-high density connector SFF group may produce one or two connector choices that will be forwarded to X3T10 for consideration.

12.3 IEEE P1394 [Marazas]

Jerry Marazas provided the following electronic report:

The proposed IEEE Standard 1394, High Performance Serial Bus had successful closure of the IEEE administered ballot on December 22, 1994.

The results are summarized as follows:

- 144 People in Ballot Pool (an unusually large number)
- 133 People eligible to vote upon the ballot

- 84 Affirmative Votes
- 6 Negative Votes
- 10 Abstentions

The 75 per cent criteria was achieved ==> 100 votes / 133 Eligible

The ratio of affirmative votes is 93 per cent ==> 84 Yes / 90 votes.

The IEEE procedures provide for a comments resolution process to be conducted by the given Working Group (P1394 WG in this case). To execute this process I have directed that a 30 day ballot be submitted to the voting members (some 29 people) of the P1394 Working Group. The ballot closes February 6, 95.

The ballot provides:

- <> The P1394 Working Group authorize a Ballot Resolution Committee to act on its behalf for the purpose of executing the IEEE comments resolution procedure.

- <> The Ballot Resolution Committee (BRC) specifically consists of a named slate of persons which are to be approved as a block by the Working Group ballot.

- <> Participation in the BRC meetings is open and not limited to the authorized slate of members.

- <> Notice of BRC meetings is to be posted to reflectors maintained in support of (a) the P1394 Working Group, (b) the P1394 Trade Association, and (c) the X3T10 committee.

The work of the BRC requires that each comment (both positive and negative ballot comments) is to be formally placed in writing (verbatim), and a disposition made indicating acceptance or rejection of the comment. In many instances, the disposition will result in changes to the P1394 draft standard. A written reply is to be sent each comment submitter indicating the disposition.

It is my expectation that comments are sufficiently numerous and sufficiently detailed that the BRC will find it necessary to produce a new draft of the proposed standard. Such new draft, upon its completion by the BRC, will be given to the IEEE so that it may submit the document to the P1394 ballot pool for a vote as to acceptability of comments resolution.

In anticipation of an affirmative vote by the P1394 Working Group as to authorization of the BRC, I have posted announcement of the first meeting of that committee. The first BRC meeting will be hosted by me in Boca Raton at the IBM PC Company main site on February 14, 15, and 16, 1995. I expect additional BRC meetings will be necessary. It is my desire to schedule the second BRC meeting to occur during X3T10 week at the March 6-10 series of meetings in Newport Beach, California. Subject to X3T10 approval (as well as host approval) I wish the March meeting of the BRC to occur Monday, Tuesday, Wednesday, of X3T10 week. The Monday start time would be 1 PM. The Tuesday and Wednesday start times would be at 9 AM.

12.4 IEEE P1285 Status [Pak]

Dennis Pak provided a written report in document 95-128r0. Key elements of the report are as follows. The collaboration with P1596 SCI is finishing up. Another co-located meeting will be held on January 12. The beta

level data structures have been updated to allow for both 32-bit and 64-bit operation. A new P1285 document update is imminent. The beta level and gamma level portions of the document have already been updated.

New features include:

- Mover capability: the reporter
- Setup command for 64-bit addressing
- Event handling support
- Scatter/Gather for beta level
- Command pre-fetching support for the beta level

Future meetings are scheduled as follows:

January 12 Co-located Meeting with IEEE 1596, Santa Clara University,
Bannon Engineering Building

Meetings are usually scheduled from 2:00-5:00 PM. Comments and/or questions should be forwarded to Martin Freeman, IEEE P1285 Chair, @(415)354-0329. His e-mail address is martin@savant.PRPA.Philips.COM.

12.5 PCMCIA Report [McLean]

Pete McLean reported that PCMCIA has publicly announced the next revision of their standard. Several loose ends were discovered in a recent review of that revision. Pete anticipated final adoption at a meeting near the end of January. Pete described a shrouded connector that will allow higher bus speeds. The connector appears headed for inclusion in PCMCIA.

12.6 AIIM C21 [Podio]

John Lohmeyer noted that Fernando Podio had attended the SCSI Working Group meeting on Wednesday and that there had been unanimous consent on resolving the remaining issues involving how to document the log and mode pages (see 95-129 for details).

13. Review of Action Items

- 62) Larry Lamers will generate the SCSI-2 responses document for distribution to ISO via the IR.
- 63) Larry Lamers will prepare a final ISO version of SCSI-2.
- 64) Gene Milligan will double check the ISO status of all forwarded dpANS documents and to generate new ISO work items for any lacking an approved ISO project, with the exception of ATA.
- 67) John Lohmeyer will obtain an electronic copy of the new X3 SD-2 and post it on the SCSI BBS and on the FTP site.
- 68) Larry Lamers will conduct a letter ballot regarding the forwarding ATA-2 to X3 for processing toward first public review.
- 69) John Lohmeyer will send a letter to X3 requesting withdrawal of Project 964-D (Directly-Addressable Device Interface).
- 70) Gary Stephens will prepare a revised GPP for forwarding.
- 71) John Lohmeyer will forward the revised GPP to X3 for further processing.
- 72) John Lohmeyer will forward SCC revision 4 to X3 for further processing toward public review.
- 73) Gene Milligan will prepare a written proposal for changing SBC based on the motion approved under agenda item 10.4.

14. Meeting Schedule

The next plenary meeting of X3T10 will be March 9, 1995, in Newport Beach, CA, at the Hyatt Hotel (714-729-1234), hosted by QLogic. The meeting will begin at 1:00 pm on Thursday.

The meeting list for the next plenary week is:

March '95 Meeting Map

Sunday 3/5	9	10	11	12	1	2	3	4	5	6	7	8	
						+=====+							
						Editor's meeting						(15)	
						+=====+							
Monday 3/6	9	10	11	12	1	2	3	4	5	6	7	8	
						+=====+							
						SPI futures working group						(30)	
						+=====+							
						X3T10.1 working group						(30)	
						+=====+							
						XOR study grp						(20)	
						+=====+-----+							
						P1394						(20)	
						+-----+							
Tuesday 3/7	9	10	11	12	1	2	3	4	5	6	7	8	
						+=====+							
						X3T10.1						(40)	
						+=====+							
						SCSI-3 WG						(40)	
						+=====+							
						CAM-2 WG						(10)	
						+=====+-----+							
						P1394						(20)	
						+-----+							
Wednesday 3/8	9	10	11	12	1	2	3	4	5	6	7	8	9
						+=====+							
						SCSI-3 WG						(45)	
						+=====+							
						System Issues		MMC WG		ATA WG (ATAPI)			(20)
						+-----+							
						SFF Form Factor WG						(20)	
						+=====+-----+							
						P1394						(20)	
						+-----+							
						SSA UIG						(30)	
						+-----+							
Thursday 3/9	9	10	11	12	1	2	3	4	5	6	7	8	9
						+=====+							
						ATA WG (ATA-3)		X3T10 Plenary					(40/80)
						+=====+							
						SSC/SMC WG						(10)	
						+=====+							
						SFF/VHDCI WG						(20)	
						+-----+							
Friday 3/10	8	9	10	11	12								
						+-----+							
						SFF						(40)	
						+-----+							

Meetings marked with == are X3T10-authorized meetings.

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

Meeting Map Abbreviation Key:

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

Several other X3T10 events are also planned:

Event	Day/Date	Time	Location/contact
-----	-----	-----	-----
MMC working group	Thu/02-02	9:30	Santa Clara, Apple
MMC working group	Fri/02-03	9:30	Santa Clara, Apple
ATA-3 working group	Thu/01-26	9:30	Milpitas, Quantum
ATA-3 working group	Wed/02-15	9:30	Milpitas, Quantum
ATA-3 working group	Thu/02-16	9:30	Milpitas, Quantum
SPI Futures working group	Fri/02-17	9:30	Milpitas, Quantum

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

Activity	Contact	Telephone/Email
ATA-2	Steve Finch	(714) 573-6808 5723283@mcimail.com
ATA-3 & ATAPI	Gene Milligan	(405) 324-3070 Gene_Milligan@notes.seagate.com
CAM	Bill Dallas	(603) 881-2508 dallas@wasted.enet.dec.com
SAM	Charles Monia	(508) 841-6757 monia@starch.enet.dec.com
SPI, SCSI-2, Fast-20	Larry Lamers	(408) 432-4776 lamers@aol.com
SIP	Duncan Penman	(408) 894-0800 x35 penman@netcom.com
SSA-PH	Edward Gardner	(719) 548-2247 gardner@acm.org
SSP	John Scheible	(512) 823-8208 Scheible@vnet.ibm.com
FCP	Robert Snively	(415) 336-5332 Bob.Snively@eng.sun.com
GPP	Gary Stephens	(602) 321-1725 6363897@mcimail.com
SBP	Ron Roberts	(408) 432-4322 rkroberts@aol.com
SPC	Ralph Weber	(603) 881-1497 roweber@acm.org
SBC and SGC	Thomas Tewell	(415) 459-7978 thomas.tewell@seqadvtech.com
SSC	Edward Lappin	(303) 447-7718 tedl@exabyte.com
SMC	Erich Oetting	(303) 673-2178 Erich_Oetting@Stortek.com
MMC	Ron Roberts	(916) 677-5714 rkroberts@aol.com
SCC	George Penokie	(507) 253-5208 gop@rchvmp3.vnet.ibm.com
Other Activities	John Lohmeyer	(719) 573-3362 john.lohmeyer@hmpd.com

John presented a foil of a letter from Joe Molina of the RAB complaining about the X3T10 meeting locations for the November '94 and January '95 meetings. This engendered a lengthy discussion on site selection criteria. Of course, each person had his/her favorite criteria, which often conflicted with other's criteria. Some key points made were: a) locations should have convenient air transportation; b) locations should be situated so that component vendors can combine trips with customer visits; c) locations should be selected that have reasonable hotel rates; d) risky travel locations should be avoided (e.g., mountains in winter, Florida in hurricane season); e) avoid repeated locations in the same geographic area; f) restaurants and other business services should be convenient to the hotel; etc.

It was noted that Palm Springs (and to a lesser degree, Lake Tahoe) actually met many of the above criteria. Few people could remember getting better hotel rooms at any rate. Those who actually attended the meetings were generally pleased with the location. However, it was suggested that resort locations should be restricted to no more than once per year to balance the other criteria.

The long-term X3T10 meeting week schedule is:

Date	Location	Host/Comments
Mar 5- 10, 1995	Newport Beach, CA	QLogic
May 7- 12, 1995	Harrisburg, PA	AMP
Jul 9- 14, 1995	Colorado Springs, CO	NCR Microelectronics
Sep 10- 15, 1995	Manchester, NH	Digital
Nov 5- 10, 1995	Southern CA	Western Digital
Jan 8- 12, 1996	*Dallas, TX	*Quantum
Mar 11- 15, 1996	*San Jose, CA	*Quantum
May 6- 10, 1996		
Jul 15- 19, 1996		
Sep 9- 13, 1996	*Northeast USA	*Digital
Nov 4- 8, 1996	Southern CA	Western Digital

* tentative

Volunteers to host 1996 meetings should contact John Lohmeyer.

14.1 Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does X3T10 (that is, one vote per organization) and the results of a working group are not binding on the parent committee. This later requirement is why we have traditionally only used non-binding straw polls in working group meetings. Any issue where the voting rules would make a difference should be deferred to the plenary group. Nonetheless, task groups and ad hocs should strive to achieve consensus prior to bringing issues to X3T10.

Jim McGrath moved and Erich Oetting 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 5:35 p.m. on Thursday January 12, 1995.

Meeting Attendees -- Enclosure (1)

Name	S	Organization	Electronic Mail Address
Mr. Rick Heidick	A	3M Company	usmmm54s@ibmmail.com
Mr. Norm Harris	P	Adaptec, Inc.	nharris@eng.adaptec.com
Mr. Lawrence J. Lamers	A#	Adaptec, Inc.	ljlammers@aol.com
Mr. Richard Kalish	A	Adaptec, Inc.	rkalish@aol.com
Mr. David Wang	P	Advanced Micro Devices	david.wang@amd.com
Mr. Ron Apt	0	Advanced Micro Devices	
Mr. Edward Fong	P	Amdahl Corp.	esf10@amail.amdahl.com
Mr. Carl Booth	0	Amphenol/Spectra-Strip	
Mr. Ron Roberts	A	Apple Computer	rkr Roberts@aol.com
Mr. Dennis R. Haynes	P	Burr-Brown Corp.	haynes_dennis@bbrown.com
Mr. Clifford E. Strang Jr.	P	BusLogic	skip@buslogic.com
Mr. Gerry Johnsen	P	Ciprico Inc.	gerry@ciprico.com
Mr. Ian Morrell	P	Circuit Assembly Corp.	crctassmb@aol.com
Mr. Joe Chen	P	Cirrus Logic Inc.	chen@cirrus.com
Mr. Nicos Syrimis	A	Cirrus Logic Inc.	nicos@cirrus.com
Mr. Peter Johansson	P	Congruent Software, Inc.	pjohansson@aol.com
Mr. Michael Alexenko	A#	Conner Peripherals	Mike.Alexenko@conner.com
Mr. Louis Grantham	P	Dallas Semiconductor	grantham@dalsemi.com
Mr. Charles Monia	P	Digital Equipment Corp.	monia@shr.dec.com
Mr. William Dallas	A#	Digital Equipment Corp.	dallas@wasted.enet.dec.com
Dr. William Ham	A#	Digital Equipment Corp.	ham@subsys.enet.dec.com
Mr. Kenneth J. Hallam	A	ENDL	3450626@mci mail.com
Mr. Ralph O. Weber	A#	ENDL Associate	roweber@acm.com
Mr. Edward Lappin	P	Exabyte Corp.	tedl@exabyte.com
Mr. Mike Chenery	A#	Fujitsu	mchenery@fcpa.fujitsu.com
Mr. Jeff Epstein	A	Future Domain Corp.	jeffe@fdc.mhs.compuserve.com
Mr. Ray Kallio	0	Harbor Electronics	
Mr. J. R. Sims	V	Hewlett Packard Co.	robsims@depeche.lvl.d.hp.com
Mr. Paul Boulay	A#	Hitachi Computer Products	p_boulay@hitachi.com
Mr. John Lohmeyer	0	HMPD	joh.n.lohmeyer@hmpd.com
Mr. Thomas J. Kulesza	A	Honda Connectors	
Mr. George Penokie	P	IBM Corp.	gop@rchvmp3.vnet.ibm.com
Mr. Duncan Penman	0	IIX Consulting	penman@netcom.com
Ms. Jeanne T. Martin	0	Lawrence Livermore Nat'l Lab	jtm@llnl.gov
Mr. Lansing Sloan	0	Lawrence Livermore Nat'l Lab	ljsloan@llnl.gov
Mr. Dean Wallace	P	Linfinity Micro	
Mr. Robert Bellino	P	Madison Cable Corp.	
Mr. Pete McLean	P	Maxtor Corp.	pete_mclean@maxtor.com
Mr. Bob Masterson	P	Methode Electronics, Inc.	rwmast@aol.com
Mr. Joe Dambach	P	Molex Inc.	
Mr. Jay Neer	A	Molex Inc.	jneer@usa.molex.com
Mr. Chris D'Iorio	A#	NEC Technologies	CD-iorio@necotech.com
Mr. Peter Brown	P	Oak Technology, Inc.	brown@oaktech.com
Mr. Doug Prins	A#	QLogic Corp.	d_prins@qlc.com
Mr. James McGrath	P	Quantum Corp.	JMCGRATH@QNTM.COM
Mr. Edward A. Gardner	A	Quantum Corp.	gardner@acm.org

Mr. Keith Staub	V	Quantum Corp.	kstaub@tdh.qntm.com
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Thomas 'Rick' Tewell	P	Sequoia Advanced Tech., Inc.	thomas.tewell@seqadvtech.com
Mr. Stephen G. Finch	P	Silicon Systems, Inc.	5723283@mcimail.com
Mr. Erich Oetting	P	Storage Technology Corp.	Erich_Oetting@Stortek.com
Mr. Roger Cummings	A	Storage Technology Corp.	Roger_Cummings@Stortek.com
Mr. Robert N. Snively	P	Sun Microsystems Computer Co	bob.snively@eng.sun.com
Mr. Patrick Mercer	P	SyQuest Technology Corp.	patrick.mercer@syquest.com
Mr. John Moy	P	Tandem Computers	moy_john@tandem.com
Mr. Harvey Waltersdorf	P	Thomas & Betts	
Mr. Paul D. Aloisi	P	Unitrode Integrated Circuits	Aloisi@ui.cc.com
Mr. Tak Asami	A	Western Digital Corporation	asami@dt.wdc.com
Mr. Tom Hanan	A#	Western Digital Corporation	hanan_t@a1.wdc.com
Mr. Devon Worrell	A#	Western Digital Corporation	worrell@dt.wdc.com
Mr. Doug Piper	P	Woven Electronics	WOVEN ELECTRONICS / MCI ID: 549-9900
Mr. Dennis P. Moore	P	Zadian Technologies	dmoore@netcom.com

62 People Present

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

Jan 17, 1995 - X3T10 Attendance Database - Enclosure (2)

Mr. Alan R. Olson (P)
3M Company
Bldg. 236-GN-06
3M Center
St. Paul, MN 55144-1000
Phone: (612) 736-4821
FAX: (612) 737-2801
Email: usnm1wcb@ibmmail.com

Mr. Richard Kalish (A)
Adaptec, Inc.
691 S. Milpitas Blvd. MS50-4
Milpitas, CA 95035
Phone: (408) 957-7169
FAX: (408) 957-7295
Email: rkalish@aol.com

Mr. David Wang (P)
Advanced Micro Devices
One AMD Place MS 59
P. O. Box 3453
Sunnyvale, CA 94088-3453
Phone: (408) 749-4916
FAX: (408) 774-8450
Email: david.wang@amd.com

Mr. Edward Fong (P)
Amdahl Corp.
1250 E. Arques Ave. MS 193
Sunnyvale, CA 94088-3470
Phone: (408) 944-3780
FAX: (408) 943-6620
Email: esf10@amdahl.amdahl.com

Mr. Charles Brill (P)
AMP, Inc.
Mail Stop 210-20
P. O. Box 3608
Harrisburg, PA 17105
Phone: (717) 558-6198
FAX: (717) 558-6179
Email: cebrill@amp.com

Mr. Michael Wingard (A)
Amphenol Interconnect
20 Valley St.
Endicott, NY 13760
Phone: (607) 786-4241
FAX: (607) 786-4311
Email:

Mr. Gary Porter (A)
Ancot Corp.
115 Constitution Dr.
Menlo Park, CA 94025
Phone: (415) 322-5322
FAX: (415) 322-0455
Email: garyp@ancot.com

Mr. Ron Roberts (A)
Apple Computer
3535 Monroe St. MS:69-G
Santa Clara, CA 95051
Phone: (916) 677-5714
FAX: (916) 677-1218
Email: rkroberts@aol.com

Mr. Christian Mllard (O)
BULL S. A.
Rue Jean Jaures
78340 Les cPayes-Sous-Bois
FRANCE
Phone: 33(1)30807128
FAX: 33(1)30807077
Email:

Mr. Clifford E. Strang Jr. (P)
BusLogic
4151 Burton Dr.

Mr. Rick Heidick (A)
3M Company
6801 River Place Blvd.
Austin, TX 78726-9000
Phone: (512) 984-6832
FAX: (512) 984-2184
Email: usmm54s@ibmmail.com

Mr. Lawrence J. Lamers (A#)
Adaptec, Inc.
691 S. Milpitas Blvd.
Milpitas, CA 95035
Phone: (408) 957-7817
FAX: (408) 957-7193
Email: ljlammers@aol.com

Mr. Ron Apt (O)
Advanced Micro Devices
One AMD Place MS 59
P. O. Box 3453
Sunnyvale, CA 94088-3453
Phone: (408) 749-2578
FAX: (408) 774-8449
Email:

Mr. Peter Haas (A)
Amdahl Corp.
1250 E Arques Avenue, MS 312
Sunnyvale, CA 94088-3470
Phone: (408) 944-5119
FAX: (408) 733-2377
Email:

Mr. Bob Whiteman (A)
AMP, Inc.
P. O. Box 3608 M/S 26-17
Harrisburg, PA 17105
Phone: (717) 780-7481
FAX: (717) 780-7375
Email: whiteman@cup.portal.com

Mr. Carl Booth (O)
Amphenol/Spectra-Strip
720 Sherman Ave.
Hamden, CT 06514
Phone: (203) 287-7455
FAX: (203) 281-5872
Email:

Mr. Dennis Pak (P)
Apple Computer
3535 Monroe St., MS 69-G
Santa Clara, CA 95051
Phone: (408) 974-4874
FAX: (408) 974-2898
Email: dennis.pak@applelink.apple.com

Mr. Joe Lawlor (P)
AT&T
1100 E. Warrenville Rd.
Rm 2A-429
Naperville, IL 60566
Phone: (708) 979-0133
FAX: (708) 979-0291
Email:

Mr. Dennis R. Haynes (P)
Burr-Brown Corp.
Mail Stop #122
P. O. Box 11400
Tucson, AZ 85734
Phone: (602) 746-7262
FAX: (602) 746-7401
Email: haynes_dennis@bbrown.com

Mr. Steven Ranberg (A)
BusLogic
4151 Burton Dr.

Mr. Norm Harris (P)
Adaptec, Inc.
691 S. Milpitas Blvd.
Milpitas, CA 95035
Phone: (408) 945-8600 x2230
FAX: (408) 957-7145
Email: nharris@eng.adaptec.com

Mr. Erik Falk (O)
ADIC
POB 2996
Redmond, WA 98073-2996
Phone: (206) 881-8004
FAX: (206) 881-2296
Email:

Mr. Fernando L. Podio (L)
AIIM C21 Chair
NIST
Bldg. 225, Room A61
Gaithersburg, MD 20899
Phone: (301) 975-2947
FAX: (301) 216-1369
Email: fernando@pegasus.ncsl.nist.gov

Mr. Jerrie L. Allen (O)
Amdahl Corp.
1250 E Arques Ave. MS 312
POB 3470
Sunnyvale, CA 94088-3470
Phone: (408) 944-3712
FAX: (408) 943-6620
Email: Jerrie.Allen@cccmsv.amdahl.com

Mr. Jeff Rosa (P)
Amphenol Interconnect
20 Valley St.
Endicott, NY 13760
Phone: (607) 786-4222
FAX: (607) 786-4311
Email:

Mr. Jan V. Dedek (P)
Ancot Corp.
115 Constitution Dr.
Menlo Park, CA 94025
Phone: (415) 322-5322
FAX: (415) 322-0455
Email: dedek@ancot.com

Mr. Mike Eneboe (A#)
Apple Computer
1 Infinite Loop, MS:60-10
Cupertino, CA 95014
Phone: (408) 974-0615
FAX: (408) 985-6615
Email:

Mr. Stephen Martin (O)
Berk-Tek, Inc.
132 White Oak Road
New Holland, PA 17557
Phone: (717) 354-6200
FAX: (717) 354-7944
Email:

Mr. Joe Stoupa (A)
Burr-Brown Corp.
6730 S. Tucson Blvd.
Tucson, AZ 85706
Phone: (602) 746-1111
FAX: (602) 746-7401
Email: Stoupa_Joe@bbrown.com

Mr. Bob Gannon (O)
C&M Corp.
PO Box 348

Santa Clara, CA 95054
Phone: (408) 970-1432
FAX: (408) 970-0941
Email: skip@buslogi.c.com

Mr. Richard Wagner (O)
Cable Design Technologies
28 Sword Street
Auburn, MA 01501
Phone: (508) 791-3161
FAX: (508) 798-8353
Email:

Mr. Ian Morrell (P)
Circuit Assembly Corp.
18 Thomas St.
Irvine, CA 92718-2703
Phone: (714) 855-7887
FAX: (714) 855-4298
Email: crctassmbl@aol.com

Mr. John Geldman (A#)
Cirrus Logic Inc.
3100 W. Warren Ave.
Fremont, CA 94538
Phone: (510) 249-4953
FAX: (510) 249-4940
Email: johng@cirrus.com

Mr. Edward Haske (P)
CMD Technology
1 Vanderbilt
Irvine, CA 92718
Phone: (714) 454-0800
FAX: (714) 455-1656
Email:

Mr. Bill Galloway (P)
Compaq Computer Corp.
P. O. Box 692000 MD90504
Houston, TX 77269-2000
Phone: (713) 374-6732
FAX: (713) 374-0514
Email: billg@bangate.compaq.com

Mr. Michael Bryan (P)
Conner Peripherals
2400 Trade Centre
Longmont, CO 80503
Phone: (303) 682-8407
FAX: (303) 772-0182
Email: Mike.Bryan@conner.com

Mr. Joseph Wach (A)
Conner Peripherals
2400 Trade Centre
Longmont, CO 80503
Phone: (303) 682-8387
FAX: (303) 772-0182
Email: Joe.Wach@conner.com

DOUGLAS_PICKFORD+AENG+ASAN_JOSE%CONNER@MCI.MAIL.COM

Mr. Ken Smith (O)
Conner Peripherals
3061 Zanker Rd. MS 5302
San Jose, CA 95134
Phone: (408) 456-4088
FAX: (408) 456-3390
Email: Ken.Smith@conner.com

Mr. Michael Smith (A)
Dallas Semiconductor
4401 S. Beltwood Pkwy
Dallas, TX 75244

Santa Clara, CA 95054
Phone: (408) 492-9090
FAX: (408) 490-0941
Email: stever@buslogi.c.com

Mr. Gerry Johnsen (P)
Ciprico Inc.
2800 Campus Dr. Suite 60
Plymouth, MN 55441
Phone: (612) 551-4000
FAX: (612) 551-4002
Email: gerry@ciprico.com

Mr. Dennis Lang (A)
Circuit Assembly Corp.
18 Thomas St.
Irvine, CA 92718-2703
Phone: (714) 855-7887
FAX: (714) 855-4298
Email: crctassmbl@aol.com

Mr. Nicos Syrimis (A)
Cirrus Logic Inc.
3100 W. Fremont Ave.
Fremont, CA 94538
Phone: (510) 226-2153
FAX: (510) 226-2170
Email: nicos@cirrus.com

Mr. George Su (A#)
CMD Technology
1 Vanderbilt
Irvine, CA 92718
Phone: (714) 454-0800
FAX: (714) 455-1656
Email: gsu@cmd.com

Mr. Ken Bush (A)
Compaq Computer Corp.
Box 692000 MD90504
Houston, TX 77269-2000
Phone: (713) 374-5553
FAX: (713) 374-0514
Email: bushk@bangate.compaq.com

Mr. Michael Alexenko (A#)
Conner Peripherals
2400 Trade Centre
Longmont, CO 80503
Phone: (303) 682-8378
FAX: (303) 772-0182
Email: Mike.Alexenko@conner.com

Mr. Ed Carmona (O)
Conner Peripherals
3061 Zanker Rd.
San Jose, CA 95134
Phone: (408) 456-4082
FAX: (408) 456-3390
Email:
ED_CARMONA+AENG+ASAN_JOSE%CONNER@MCI.MAIL.COM

Ms. Adrienne Turenne (A#)
Conner Tape
1650 Sunflower Ave.
Costa Mesa, CA 92646
Phone: (714) 966-4759
FAX:
Email:

Mr. Charles Monia (P)
Digital Equipment Corp.
SHR3-2/W04
334 South Street

51 South Walnut St.
Waregan, CT 06387
Phone: (203) 774-4812
FAX: (203) 774-7330
Email: bobg848740@aol.com

Mr. Kurt Witte (A)
Ciprico Inc.
2800 Campus Drive
Suite 60
Plymouth, MN 55441
Phone: (612) 551-4069
FAX: (612) 551-4002
Email:

Mr. Joe Chen (P)
Cirrus Logic Inc.
3100 W. Warren Ave.
Fremont, CA 94538
Phone: (510) 226-2101
FAX: (510) 226-2170
Email: chen@cirrus.com

Mr. Dave Weber (A)
Cirrus Logic Inc.
3100 W. Warren Ave.
Fremont, CA 94538
Phone: (510) 226-2367
FAX: (510) 226-2170
Email: davew@cirrus.com

Mr. Roger Wang (A)
CMD Technology
1 Vanderbilt
Irvine, CA 92718
Phone: (714) 454-0800
FAX: (714) 455-1656
Email:

Mr. Peter Johansson (P)
Congruent Software, Inc.
3998 Whittle Ave.
Oakland, CA 94602
Phone: (510) 531-5472
FAX: (510) 531-2942
Email: pjohansson@aol.com

Mr. Timothy Feldman (A)
Conner Peripherals
2400 Trade Centre
Longmont, CO 80503
Phone: (303) 682-8329
FAX: (303) 682-8787
Email: Tim.Feldman@conner.com

Mr. Doug Pickford (O)
Conner Peripherals
3061 Zanker Rd. MS 5302
San Jose, CA 95134
Phone: (408) 456-4015
FAX: (408) 456-4330
Email:

Mr. Louis Grantham (P)
Dallas Semiconductor
4401 S. Beltwood Pkwy
Dallas, TX 75244-3292
Phone: (214) 450-8110
FAX: (214) 450-3715
Email: grantham@dalsemi.com

Mr. William Dallas (A#)
Digital Equipment Corp.
ZK03-3/T79
110 Spit Brook Road

Phone: (214) 450-0457
 FAX: (214) 450-3715
 Email: msmith@dalsemi.com

Mr. Douglas Hagerman (A#)
 Digital Equipment Corp.
 SHR3-2/W3
 334 South Street
 Shrewsbury, MA 01545
 Phone: (508) 841-2145
 FAX: (508) 841-6100
 Email: hagerman@starch.enet.dec.com

Mr. Tom Treadway (O)
 Distributed Processing Tech.
 140 Candace Dr.
 Maitland, FL 32751
 Phone: (407) 830-5522
 FAX: (407) 260-5366
 Email: Treadway@dpt.com

Mr. Kenneth J. Hallam (A)
 ENDL
 29112 Country Hills Rd.
 San Juan Capistrano, CA 92675
 Phone: (714) 364-9626
 FAX: (714) 364-3271
 Email: 3450626@mcimail.com

Mr. David Andreatta (A)
 Exabyte Corp.
 Mail Stop 752
 1685 38th Street
 Boulder, CO 80301
 Phone: (303) 447-7966
 FAX: (303) 442-5146
 Email:

Mr. Mike Chenery (A#)
 Fujitsu
 2904 Orchard Pkwy.
 San Jose, CA 95134-2009
 Phone: (408) 894-3627
 FAX: (408) 894-3904
 Email: mchenery@fcpa.fujitsu.com

Mr. Joel Urban (A#)
 Fujitsu Microelectronics/ECD
 3545 North First Street
 San Jose, CA 95134
 Phone: (408) 922-8928
 FAX: (408) 428-0640
 Email:

Mr. Don Coffin (A#)
 Future Domain Corp.
 2801 McGaw Ave.
 Irvine, CA 92714
 Phone: (714) 253-0400
 FAX: (714) 253-0913
 Email:

Mr. Jeffrey L. Williams (P)
 Hewlett Packard Co.
 P. O. Box 39
 Boise, ID 83707
 Phone: (208) 396-5030
 FAX: (208) 396-6858
 Email: jlw@hpdmd48.boi.hp.com

Mr. Donald C. Loughry (XO)
 Hewlett Packard Co.
 M/S 43UC X3 Vice Chair
 19420 Homestead Rd.
 Cupertino, CA 95014
 Phone: (408) 447-2454

Shrewsbury, MA 01545
 Phone: (508) 841-6757
 FAX: (508) 841-6100
 Email: monia@shr.dec.com

Dr. William Ham (A#)
 Digital Equipment Corp.
 SHR3-2/W04
 334 South Street
 Shrewsbury, MA 01545
 Phone: (508) 841-2629
 FAX: (508) 841-5266
 Email: ham@subsys.enet.dec.com

Mr. James D. Converse (XO)
 Eastman Kodak Co.
 Corp. Standards X3 Chair
 343 State Street
 Rochester, NY 14650
 Phone: (716) 781-9091
 FAX: (716) 724-9023
 Email: jdc@kodak.com

Mr. Ralph O. Weber (A#)
 ENDL Associate
 13 Century Road
 Nashua, NH 03060-1187
 Phone: (603) 883-9274
 FAX: (603) 594-0647
 Email: roweber@acm.com

Mr. Nick Ladas (O)
 Foxconn
 930 W. Maude
 Sunnyvale, CA
 Phone: (714) 256-4080
 FAX: (714) 256-2068
 Email:

Mr. Robert Liu (P)
 Fujitsu Computer Products, Am
 2904 Orchard Pkwy.
 San Jose, CA 95134
 Phone: (408) 894-3790
 FAX: (408) 894-3748
 Email: 74503.1610@compuserve.com

Mr. Steve Caron (O)
 Furukawa Electric
 200 Westpark Dr. Suite 190
 Peachtree City, GA 30269
 Phone: (404) 487-1234
 FAX: (404) 487-9910
 Email:

Mr. Jeff Epstein (A)
 Future Domain Corp.
 2801 McGaw Ave.
 Irvine, CA 92714
 Phone: (714) 253-0546
 FAX: (714) 253-0913
 Email: jeffe@fdc.mhs.compuserve.com

Mr. Kurt Chan (A)
 Hewlett Packard Co.
 8000 Foothills Blvd MS 5601
 Roseville, CA 95747-5601
 Phone: (916) 785-5621
 FAX: (916) 785-2875
 Email: kc@core.rose.hp.com

Mr. Pat Edsall (O)
 Hewlett Packard Co.
 11413 Chinden Blvd.
 Boise, ID 83714
 Phone: (208) 396-4804
 FAX: (208) 396-6858

Nashua, NH 03062-2698
 Phone: (603) 881-2508
 FAX: (603) 881-2257
 Email: dallas@wasted.enet.dec.com

Mr. Matt Giovanetti (T)
 Digital Equipment Corp.
 SHR1-3/013
 333 South Street
 Shrewsbury, MA 01545
 Phone: (508) 841-6422
 FAX: (508) 841-6410
 Email: giovanetti@eds.enet.dec.com

Mr. I. Dal Allan (P)
 ENDL
 14426 Black Walnut Ct.
 Saratoga, CA 95070
 Phone: (408) 867-6630
 FAX: (408) 867-2115
 Email: 2501752@mcimail.com

Mr. Edward Lappin (P)
 Exabyte Corp.
 Mail Stop 7W1
 1685 38th Street
 Boulder, CO 80301
 Phone: (303) 447-7718
 FAX: (303) 447-7793
 Email: tedl@exabyte.com

Mr. Gary R. Stephens (P)
 FSI Consulting Services
 1825 N. Norton
 Tucson, AZ 85719
 Phone: (602) 321-1725
 FAX: (602) 321-1725
 Email: 6363897@mcimail.com

Mr. Kevin R. Pokorney (A)
 Fujitsu Computer Products, Am
 2402 Clover Basin Drive
 Longmont, CO 80503
 Phone: (303) 682-6649
 FAX: (303) 682-6401
 Email: pokorney@intellistor.com

Mr. Mark Woithe (P)
 Future Domain Corp.
 2801 McGaw Ave.
 Irvine, CA 92714
 Phone: (714) 253-0482
 FAX: (714) 253-0913
 Email: markw@fdc.mhs.compuserve.com

Mr. Ray Kallio (O)
 Harbor Electronics
 650 Danbury Road
 Ridgefield, CT 06877
 Phone: (203) 438-9625
 FAX: (203) 431-3001
 Email:

Mr. William Clemmey (A#)
 Hewlett Packard Co.
 300 Apollo Dr.
 Chelmsford, MA 01824
 MS CHR-02-DW
 Phone: (508) 436-5356
 FAX: (508) 436-5127
 Email: clemmey@apollo.hp.com

Mr. Peter Stevens (O)
 Hirose Electric (USA), Inc.
 2688 Westhills Ct.
 Simi Valley, CA 93065
 Phone: (805) 522-7958
 FAX: (805) 522-3217

FAX: (408) 447-2247
Email: don_loughry@hp6600.desk.hp.com

Email: edsall@hpdnd48.boi.hp.com

Email: 4733436@mcimail.com

Mr. Paul Boulay (A#)
Hi tachi Computer Products
3101 Tasman Drive
Santa Clara, CA 95054
Phone: (408) 986-9770 x205
FAX: (408) 986-1821
Email: p_boulay@hitachi.com

Mr. S. Nadershahi (P)
Hi tachi Micro Systems, Inc.
179 Tasman Dr.
San Jose, CA 95134
Phone: (408) 456-2006
FAX: (408) 433-0223
Email: nnadersh@hitachi.com

Mr. Danny Yeung (A)
Hi tachi Micro Systems, Inc.
179 East Tasman Dr.
San Jose, CA 95134
Phone: (408) 922-4144
FAX: (408) 954-8507
Email:

Mr. Mtoyasu Tsunoda (O)
Hitachi Micro Systems, Inc.
179 East Tasman Drive
San Jose, CA 95134
Phone: (408) 922-4142
FAX: (408) 433-0223
Email: mtsunoda@hmsi.hitachi.com

Mr. Greg Kapraun (O)
HMPD
2001 Danfield Ct.
Fort Collins, CO 80525
Phone: (303) 225-4843
FAX: (303) 226-9654
Email: Greg.Kapraun@hmpd.com

Mr. John Lohmeyer (O)
HMPD
1635 Aeroplaza Dr.
Colorado Springs, CO 80916
Phone: (719) 573-3362
FAX: (719) 573-3037
Email: john.lohmeyer@hmpd.com

Mr. David McFadden (P)
Honda Connectors
960 Corporate Woods Parkway
Vernon Hills, IL 60061
Phone: (708) 913-9566
FAX: (708) 913-9587
Email:

Mr. Thomas J. Kulesza (A)
Honda Connectors
960 Corporate Woods Parkway
Vernon Hill, IL 60061
Phone: (708) 913-9566
FAX: (708) 913-9587
Email:

Mr. George Penokie (P)
IBM Corp.
2B7/114-2
37st Highway 52 N.
Rochester, MN 55901-7829
Phone: (507) 253-5208
FAX: (507) 253-2432
Email: gop@rchvmp3.vnet.ibm.com

Mr. Dan Colegrove (A#)
IBM Corp.
Dept 292
3605 Highway 52 N.
Rochester, MN 55901
Phone: (507) 286-5558
FAX: (507) 286-5089
Email: colegrove@vnet.ibm.com

Mr. John P. Scheible (A)
IBM Corp.
Bldg 815 MS 4051
11400 Burnett Rd.
Austin, TX 78758
Phone: (512) 823-8208
FAX: (512) 823-0758
Email: Scheible@vnet.ibm.com

Mr. Giles Frazier (O)
IBM Corp.
11400 Burnett Rd.
Austin, TX 78758
Phone: (512) 838-1802
FAX: (512) 838-1852
Email: gfrazier@ausvsn6.vnet.ibm.com

Dr. Gerald Marazas (A#)
IBM PC Company
Mail Stop 5432
1000 NW 51st Street
Boca Raton, FL 33432
Phone: (407) 982-4423
FAX: (407) 982-0067
Email: marazas@bcrvmpc2.vnet.ibm.com

Mr. Duncan Penman (O)
IIX Consulting
1045 Rubis Dr.
Sunnyvale, CA 94087
Phone: (408) 730-2565
FAX: (408) 730-5527
Email: penman@netcom.com

Mr. David Lawson (P)
Interphase Corp.
13800 Senlac
Dallas, TX 75234-8823
Phone: (214) 919-9000
FAX: (214) 919-9200
Email: lawson@iphase.com

Mr. Varouj Der-Hacopian (A)
Interphase Corp.
13800 Senlac
Dallas, TX 75234-8823
Phone: (214) 919-9000
FAX: (214) 919-9200
Email: varouj@iphase.com

Mr. Geoffrey Barton (P)
Omega Corp.
1821 West 4000 South
Roy, UT 84067
Phone: (801) 778-3655
FAX: (801) 778-4667
Email: glbarton@iomega.com

Mr. Gary Brandvold (A)
Omega Corp.
1821 W. 4000 S.
Roy, Utah 84067
Phone: (801) 778-1000
FAX: (801) 778-4667
Email: gbrandv@iomega.com

Mr. David H. Shaff (O)
JAE
2857 NE 26 Street
Ft. Lauderdale, FL 33305
Phone: (305) 563-3484
FAX: (305) 563-3507
Email:

Mr. David J. Fox (O)
JAE Electronics
142 Technology Dr. #100
Irvine, CA 92718-2401
Phone: (714) 753-2600
FAX: (714) 753-2699
Email:

Ms. Jeanne T. Martin (O)
Lawrence Livermore Nat'l Lab
L-300
Lawrence Livermore Nat'l Lab
Livermore, CA 94550-9900
Phone: (510) 422-3753
FAX: (510) 423-8704
Email: jtm@llnl.gov

Mr. Lansing Sloan (O)
Lawrence Livermore Nat'l Lab
7000 East Ave. MS:L-60
Livermore, CA 94550-9900
Phone: (510) 422-4356
FAX: (510) 423-8963
Email: ljsloan@llnl.gov

Mr. Dean Wallace (P)
Linfinity Micro
11861 Western Ave.
Garden Grove, CA 92641
Phone: (714) 898-8121
FAX: (714) 893-2570
Email:

Mr. Shufan Chan (A)
Linfinity Micro
11861 Western Ave.
Garden Grove, CA 92641
Phone: (714) 898-8121
FAX: (714) 893-2570
Email:

Mr. Robert Bellino (P)
Madison Cable Corp.
125 Goddard Memorial Dr.
Worcester, MA 01603
Phone: (508) 752-7320
FAX: (508) 752-4230
Email:

Mr. Chuck Grant (A)
Madison Cable Corp.
125 Goddard Memorial Drive
Worcester, MA 01603
Phone: (508) 752-7320
FAX: (508) 752-4230
Email:

Mr. Ron Crouch (O)
Madison Cable Corp.
125 Goddard Memorial Drive
Worcester, MA 01603
Phone: (508) 752-2884
FAX: (508) 752-4230
Email:

Ms. Donna Pope (P)
Maxoptix Corp.

Mr. Ezra Alcudia (A)
Maxoptix Corp.

Mr. Pete McLean (P)
Maxtor Corp.

2520 Junction Ave.
San Jose, CA 95134
Phone: (408) 954-9700 x315
FAX: (408) 954-9711
Email: 6471084@mcimail.com

2520 Junction Ave.
San Jose, CA 95134
Phone: (408) 954-9700 x207
FAX: (408) 954-9711
Email:

2190 Miller Dr.
Longmont, CO 80501
Phone: (303) 678-2149
FAX: (303) 678-2165
Email: pete_mclean@maxtor.com

Mr. LeRoy Leach (O)
Maxtor Corp.
2190 Miller Dr.
Longmont, CO 80501-6744
Phone: (303) 678-2828
FAX: (303) 678-2308
Email: leroy_leach@maxtor.com

Mr. Andrew J. Toth (O)
Meritec
PO Box 8003
1359 West Jackson
Painsville, OH 44077
Phone: (216) 354-3148
FAX: (216) 354-0687
Email: ajt@po.cwru.edu

Mr. Bob Masterson (P)
Methode Electronics, Inc.
11595A Decatur St.
Westminster, CO 80234
Phone: (303) 465-3940
FAX: (303) 465-3604
Email: rwmast@aol.com

Mr. John Cannon (A)
Methode Electronics, Inc.
7444 West Wilson Ave
Chicago, IL 60656
Phone: (303) 465-3940
FAX: (303) 465-3604
Email:

Mr. Chris Nieves (O)
Micropolis Corp.
21211 Nordhoff St.
Chatsworth, CA 91311
Phone: (818) 718-5163
FAX: (818) 718-5352
Email: Chris_Nieves@microp.com

Mr. Joe Dambach (P)
Molex Inc.
2222 Wellington Court
Lisle, IL 60532
Phone: (708) 527-4546
FAX: (708) 969-1352
Email:

Mr. Jay Neer (A)
Molex Inc.
Suite 224
902 Clint Moore Rd.
Boca Raton, FL 33487
Phone: (407) 241-9371
FAX: (407) 241-0338
Email: jneer@usa.molex.com

Mr. Robbie Shergill (P)
National Semiconductor
M/S D3-970
P.O. Box 58090
Santa Clara, CA 95052
Phone: (408) 721-7959
FAX: (408) 721-7956
Email: rss@berlitz.nsc.com

Mr. Simone Sadri (A)
National Semiconductor
M/S D3-970
P.O. Box 58090
Santa Clara, CA 95052
Phone: (408) 721-7959
FAX: (408) 721-7956
Email: tsissc@tevm2.nsc.com

Mr. Clifford Carlson (O)
NCCOSC RDTE DIV 821
53245 Millimeter St. Rm 2
San Diego, CA 92152-7309
Phone: (619) 553-3421
FAX: (619) 553-6391
Email: wcarlson@nosc.mil

Mr. Robert J. Gallenberger (O)
NCCOSC RDTE DIV 821
53245 Millimeter St. Rm 2
San Diego, CA 92152-7309
Phone: (619) 553-3415
FAX: (619) 553-6391
Email: gallenbe@nosc.mil

Mr. Chris D'Iorio (A#)
NEC Technologies
1255 Michael Dr.
Wood Dale, IL 60191
Phone: (708) 238-7799
FAX: (708) 860-7794
Email: CD-iorio@necotech.com

Mr. Bruce Anderson (P)
NEC Technologies Inc.
1414 Mass Ave.
Boxborough, MA 01719
Phone: (508) 635-6053
FAX: (508) 264-8787
Email: banderson@necotech.com

Mr. Dan Kennedy (A)
NEC Technologies Inc.
1414 Mass Ave.
Boxborough, MA 01719
Phone: (508) 264-8000
FAX: (508) 264-8673
Email:

Mr. Peter Brown (P)
Oak Technology, Inc.
139 Kifer Ct.
Sunnyvale, CA 94086
Phone: (408) 737-0888
FAX: (408) 737-3838
Email: brown@oaktech.com

Mr. Mike Hetzel (A)
Oak Technology, Inc.
139 Kifer Ct.
Sunnyvale, CA 94086
Phone: (408) 737-0888 x257
FAX: (408) 737-3838
Email: mihet@corp.oaktech.com

Mr. Dan Davies (O)
Overland Data Inc.
8975 Balboa Ave.
San Diego, CA 92123-1599
Phone: (619) 571-5555 x213
FAX: (619) 571-3664
Email: ddavies@ctsnet.cts.com

Mr. Earl J. Perera (O)
P. E. Logic Corp.
22695 Old Canal Rd.
Yorba Linda, CA 92687
Phone: (714) 282-6188
FAX: (714) 282-6199
Email:

Mr. Thomas Steury (O)
Pacific Electro Data Inc.
14 Hughes St. B205
Irvine, CA 92718
Phone: (714) 770-3244
FAX: (714) 770-7281
Email:

Mr. Stephen F. Heil (O)
Panasonic Technologies, Inc
2 Research Way, 3rd Floor
Princeton, New Jersey 08540
Phone: (609) 987-3948
FAX: (609) 987-0483
Email: sfh@research.panasonic.com

Mr. Skip Jones (P)
QLogic Corp.
3545 Harbor Blvd.
P.O. Box 6725
Costa Mesa, CA 92626
Phone: (714) 668-5058
FAX: (714) 688-5008
Email: sk_jones@qlc.com

Mr. Ting Le Chan (A)
QLogic Corp.
3545 Harbor Blvd.
P.O. Box 6725
Costa Mesa, CA 92626
Phone: (714) 668-5058
FAX: (714) 688-5008
Email:

Mr. Doug Prins (A#)
QLogic Corp.
3545 Harbor Blvd.
P.O. Box 6725
Costa Mesa, CA 92626
Phone: (714) 668-5040
FAX: (714) 688-6654
Email: d_prins@qlc.com

Mr. James McGrath (P)
Quantum Corp.
500 McCarthy Blvd.
Milpitas, CA 95035
Phone: (408) 894-4504
FAX: (408) 894-6375
Email: JMCGRATH@QNTM.COM

Mr. Edward A. Gardner (A)
Quantum Corp.
301 Rockrimmon Blvd.
Colorado Spgs, CO 80919-2398

Mr. John F. Fobel (O)
Rancho Technology, Inc.
10783 Bell Court
Rancho Cucamonga, CA 91730

Dr. Tetsuro Motoyama (O)
Ricoh Corporation
3001 Orchard Parkway
San Jose, CA 95134-2088

Minutes of X3T10 Plenary Meeting #7 in Lake Tahoe, NV

X3T10/95-130r1

Phone: (719) 536-5512
 FAX: (719) 536-5650
 Email: gardner@acm.org

Phone: (909) 987-3966
 FAX: (909) 989-2365
 Email:

Phone: (408) 954-5445
 FAX: (408) 432-8398
 Email: motoyama@str.ricoh.com

Mr. S. Jauher Zaidi (O)
 Samsung Semiconductor
 3655 N. First Street MS/E3
 San Jose, CA 95134-1713
 Phone: (408) 954-7005
 FAX: (408) 954-7150
 Email: syed@sam.com

Mr. Gene Milligan (P)
 Seagate Technology
 MS OKM 251
 P. O. Box 12313
 Oklahoma City, OK 73157
 Phone: (405) 324-3070
 FAX: (405) 324-3794
 Email: Gene_Milligan@notes.seagate.com

Mr. Gerald Houlder (A)
 Seagate Technology
 MPS043
 8001 E. Bloomington Freeway
 Bloomington, MN 55420-1094
 Phone: (612) 844-5869
 FAX: (612) 844-5708
 Email: Gerry_Houlder@notes.seagate.com

Mr. Brian Johnson (A#)
 Seagate Technology
 2655 Park Center Dr.
 Simi Valley, CA 93065
 Phone: (805) 582-3808
 FAX: (805) 583-8709
 Email:

Mr. John Masiewicz (A#)
 Seagate Technology
 915 Disc Drive
 Scotts Valley, CA 95066
 Phone: (408) 439-2152
 FAX: (408) 438-4846
 Email:

Mr. Edward Hoskins (O)
 Seagate Technology
 2655 Park Center Dr.
 Simi Valley, CA 93065
 Phone: (805) 582-3821
 FAX: (805) 583-1493
 Email: ed_hoskins@notes.seagate.com

Mr. Ron Werbow (O)
 Seagate Technology
 2655 Park Center Dr.
 Simi Valley, CA 93065
 Phone: (805) 582-3815
 FAX: (805) 583-1493
 Email: ron_werbow@notes.seagate.com

Mr. Thomas 'Rick' Tewell (P)
 Sequoia Advanced Tech., Inc.
 55 Shaver Street, Suite 240
 San Rafael, CA 94901
 Phone: (415) 459-7978
 FAX: (415) 459-7988
 Email: thomas.tewell@seqadvtech.com

Dr. Colin Whitby-Stevens (O)
 SGS-Thomson/INMDS
 1000, Aztec West
 Almondsbury,
 Bristol, BS12 4SQ UK
 Phone: +44 454 611 500
 FAX: +44 454 619 796
 Email: colinws@isnet.inmos.co.uk

Mr. Stephen G. Finch (P)
 Silicon Systems, Inc.
 14351 Myford Road
 Tustin, CA 92680-7022
 Phone: (714) 573-6808
 FAX: (714) 573-6916
 Email: 5723283@mcimail.com

Mr. Daniel E. Mbczarny (A)
 Silicon Systems, Inc.
 14351 Myford Rd.
 Tustin, CA 92680-7022
 Phone: (714) 573-6750
 FAX: (714) 573-6914
 Email:

Mr. James Ryland (XO)
 Social Security Admin
 NCC Room 5110 OMC liaison
 6201 Security Blvd.
 Baltimore, MD 21234-0001
 Phone: (410) 965-2166
 FAX: (410) 966-1893
 Email: JRYLAND@SSA.SSW.DHHS.GOV

Mr. David Deming (O)
 Solution Technology
 P. O. Box 104
 Boulder Creek, CA 95006
 Phone: (408) 338-4285
 FAX: (408) 338-4374
 Email:

Mr. Scott Snyers (P)
 Sony Corp. of America
 3300 Zanker Rd. MS#SJ3C1
 San Jose, CA 95134
 Phone: (408) 955-4573
 FAX: (408) 955-5180
 Email: scottss@lsi.sel.sony.com

Mr. Mike Yokoyama (A)
 Sony Electronics, Inc.
 3300 Zanker Rd. MS# SJ-3A7
 San Jose, CA 95134
 Phone: (408) 955-4344
 FAX: (408) 955-5175
 Email: masayuki@cpc.sel.sony.com

Mr. Erich Oetting (P)
 Storage Technology Corp.
 2270 South 88th St.
 Louisville, CO 80028-0268
 Phone: (303) 673-2178
 FAX: (303) 673-8196
 Email: Erich_Oetting@Stortek.com

Mr. Roger Cummings (A)
 Storage Technology Corp.
 2270 South 88th St.
 Louisville, CO 80028-0211
 Phone: (303) 673-6357
 FAX: (303) 673-8196
 Email: Roger_Cummings@Stortek.com

Mr. Robert N. Snively (P)
 Sun Microsystems Computer Co
 Mail Stop UMPK 12-204
 2550 Garcia Avenue
 Mountain View, CA 94043-1100
 Phone: (415) 786-6694
 FAX: (415) 786-6458
 Email: bob.snively@eng.sun.com

Mr. Vit Novak (A)
 Sun Microsystems, Inc.
 Mail Stop 15-46
 2550 Garcia Ave.
 Mountain View, CA 94043-1100
 Phone: (415) 336-2455
 FAX: (415) 968-4873
 Email: vit.novak@sun.com

Mr. Patrick Mercer (P)
 SyQuest Technology Corp.
 47071 Bayside Parkway
 Fremont, CA 94538
 Phone: (510) 226-4000
 FAX: (510) 226-4102
 Email: patrick.mercer@syquest.com

Mr. Akram Atallah (A)
 SyQuest Technology Corp.
 5710 Flatiron Pkwy.
 Boulder, CO 80303
 Phone: (303) 938-8400
 FAX: (303) 938-8588
 Email:

Mr. John Moy (P)
 Tandem Computers
 Loc 100-03
 10555 Ridgeview Ct.
 Cupertino, CA 95014-0789
 Phone: (408) 285-0463
 FAX: (408) 285-9924
 Email: moy_john@tandem.com

Mr. Pete Tobias (A)
 Tandem Computers
 Loc 100-03
 10555 Ridgeview Ct.
 Cupertino, CA 95014-0789
 Phone: (408) 285-9913
 FAX: (408) 285-9924
 Email: tobias_pete@tandem.com

Mr. Bill Boyd (O)
 Texas Instruments
 MS 8218
 8360 LBJ Freeway
 Dallas, TX 75265
 Phone: (214) 997-3673
 FAX: (214) 997-5962
 Email: bboy@mini@magi.c.itg.ti.com

Mr. Greg Kite (O)
 The GCA Group
 Suite 302
 2353 Alexandria Dr.
 Lexington, KY 40504
 Phone: (606) 223-7515

Mr. Harvey Waltersdorf (P)
 Thomas & Betts
 PO Box 389
 Inman, SC 29349
 Phone: (803) 472-7316
 FAX: (803) 472-7373

Mr. Gary M Watson (P)
 Trimm Industries
 350 Pilot Rd.
 Las Vegas, NV 89119
 Phone: (800) 423-2024
 FAX:

FAX:
Email:

Mr. Skip Linehan (O)
U. S. Design
9075 Guilford Road
Columbia, MD 21046
Phone: (410) 381-3000
FAX: (410) 381-3235
Email: skip@usdesign.com

Mr. Arlan P. Stone (A)
UNISYS Corporation
MS 201
25725 Jeronemo Rd.
Mission Viejo, CA 92691
Phone: (714) 380-5982
FAX: (714) 380-6099
Email:

Mr. William C. Rinehuls (XO)
US Dept of Defense
OMC Chair
8457 Rushing Creek Court
Springfield, VA 22153-8015
Phone: (703) 487-3305
FAX: (703) 487-3255
Email: rinehul@cc.ims.di.sa.mil

Mr. Tak Asami (A)
Western Digital Corporation
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7621
FAX: (714) 932-6496
Email: asami@dt.wdc.com

Mr. Doug Piper (P)
Woven Electronics
PO Box 189
Mauldin, SC 29662
Phone: (803) 967-1751
FAX: (803) 963-1761
Email: WOVEN ELECTRONICS / MCI ID: 549-9900

Email:

Mr. Peter Dougherty (P)
UNISYS Corporation
MS-201
25725 Jeronimo Rd.
Mission Viejo, CA 92691
Phone: (714) 380-6270
FAX: (714) 380-5858
Email: peter.dougherty@mv-oc.unisys.com

Mr. Paul D. Aloisi (P)
Unitrode Integrated Circuits
7 Continental Blvd
Merrimack, NH 03054
Phone: (603) 429-8687
FAX: (603) 424-3460
Email: Aloisi@ui.cc.com

Mr. Michael G. Kaminski (O)
Volex Inc.
835 Sinclair Frontage Road
Milpitas, CA 95035
Phone: (408) 945-7766
FAX: (408) 945-4360
Email: Mike_Kaminski@volex.com

Mr. Tom Hanan (A#)
Western Digital Corporation
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7472
FAX: (714) 932-7312
Email: hanan_t@a1.wdc.com

Mr. E. J. Mondor (A)
Woven Electronics
PO Box 189
Mauldin, SC 29662
Phone: (803) 967-1739
FAX: (803) 963-1761
Email: WOVEN ELECTRONICS / MCI ID: 549-9900

Email: trimm@netcom.com

Mr. Allen Spalding (A#)
UNISYS Corporation
25725 Jeronemo Rd.
Mission Viejo, CA 92691
Phone:
FAX:
Email:

Mr. Mark Jordan (A)
Unitrode Integrated Circuits
7 Continental Blvd
Merrimack, NH 03054
Phone: (603) 429-8628
FAX: (603) 424-3460
Email: Jordan@ui.cc.com

Mr. Jeff Stai (P)
Western Digital Corporation
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7644
FAX: (714) 932-6496
Email: stai@dt.wdc.com

Mr. Devon Worrell (A#)
Western Digital Corporation
8105 Irvine Ctr. Dr.
Irvine, CA 92718
Phone: (714) 932-7042
FAX: (714) 932-7796
Email: worrell@dt.wdc.com

Mr. Dennis P. Moore (P)
Zadian Technologies
2305 Bering Drive
San Jose, CA 95131
Phone: (408) 894-0800 x34
FAX: (408) 894-0880
Email: dmoore@netcom.com

Minutes of X3T10 Plenary Meeting #7 in Lake Tahoe, NV

X3T10/95-130r1

Jan 17, 1995 - X3T10 Document Register - Enclosure (3)

X3T10/95-101R0 Date: 1/1/95 Author: Milligan/Lamers [SY-95-01]
Desc: Minutes of ATA-3 Working Group - 11/30/94
Res:

X3T10/95-102R0 Date: 1/11/95 Author: D. Worrell [SY-95-01]
Desc: Proposal for Enhanced IDE 95 Features
Res:

X3T10/95-103R0 Date: 1/16/95 Author: R. Weber [SY-95-01]
Desc: Attached Medium Changer Operation Codes
Res:

X3T10/95-104R0 Date: 1/16/95 Author: S. Snyers [SY-95-01]
Desc: CDR Command Proposal
Res:

X3T10/95-104R0 Date: 1/16/95 Author: S. Snyers [SY-95-01]
Desc: CDR Command Proposal
Res:

X3T10/95-105R0 Date: 1/16/95 Author: G. Penokie [SY-95-01]
Desc: Fast-20 Letter ballot comments
Res:

X3T10/95-106R0 Date: 1/16/95 Author: G. Penokie [SY-95-01]
Desc: SPC comments
Res:

X3T10/95-107R0 Date: 1/16/95 Author: G. Penokie [SY-95-01]
Desc: SAM Public Review Comments
Res:

X3T10/95-108R0 Date: 1/16/95 Author: G. Penokie [SY-95-01]
Desc: XOR Commands comments
Res:

X3T10/95-109R0 Date: 1/16/95 Author: T. Asami [SY-95-01]
Desc: Fast-20 Definition
Res:

X3T10/95-110R0 Date: 1/16/95 Author: C. Monia [SY-95-01]
Desc: Comparison of CA & ACA
Res:

X3T10/95-111R0 Date: 1/16/95 Author: D. Colegrove [SY-95-01]
Desc: PFA for ATA
Res:

X3T10/95-112R0 Date: 1/16/95 Author: L. Sloan [SY-95-01]
Desc: Presentation on 3rd Party Operations
Res:

X3T10/95-113R0 Date: 1/16/95 Author: L. Sloan [SY-95-01]
Desc: Technical details on 3rd Party Proposal
Res:

X3T10/95-114R0 Date: 1/16/95 Author: J. Elrond [SY-95-01]
Desc: Minutes of XOR Study Group - Jan '95
Res:

X3T10/95-115R0 Date: 1/16/95 Author: J. Molina [SY-95-01]
Desc: Letter on hotel locations
Res:

X3T10/95-116R0 Date: 1/16/95 Author: G. Stephens [SY-95-01]
Desc: Response for GPP Letter Ballot
Res:

X3T10/95-117R0 Date: 1/16/95 Author: T. Lappin [SY-95-01]
Desc: Space past EOD
Res:

X3T10/95-118R0 Date: 1/16/95 Author: T. Lappin [SY-95-01]
Desc: READ POSITION
Res:

X3T10/95-119R0 Date: 1/16/95 Author: R. Roberts [SY-95-01]
Desc: Minutes of MMC Working Group - Jan '95
Res:

X3T10/95-120R0 Date: 1/16/95 Author: G. Milligan [SY-95-01]
Desc: Minutes of ATA Working Group - Jan '95
Res:

Minutes of X3T10 Plenary Meeting #7 in Lake Tahoe, NV

X3T10/95-130r1

X3T10/95-121R0 Date: 1/16/95 Author: S. Finch [SY-95-01]
Desc: ATA-2 Annex F Issues
Res:

X3T10/95-122R0 Date: 1/16/95 Author: J. Chen [SY-95-01]
Desc: ATA 22MB/sec Timing Proposal
Res:

X3T10/95-123R0 Date: 1/16/95 Author: J. Lohmeyer [SY-95-01]
Desc: Letter ballot results from mailing SY-9406
Res:

X3T10/95-124R0 Date: 1/16/95 Author: G. Penokie [SY-95-01]
Desc: Public Review Comments on FCP
Res:

X3T10/95-125R0 Date: 1/16/95 Author: M. Chow [SY-95-01]
Desc: Dynamic Power Selection in ATA
Res:

X3T10/95-126R0 Date: 1/16/95 Author: L. Leach [SY-95-01]
Desc: Cable Error Detection Proposal
Res:

X3T10/95-127R0 Date: 1/16/95 Author: D. Penman [SY-95-01]
Desc: Additional ATA-3 Topics
Res:

X3T10/95-128R0 Date: 1/16/95 Author: D. Pak [SY-95-01]
Desc: Liaison Report from 1285
Res:

X3T10/95-129R0 Date: 1/16/95 Author: R. Weber [SY-95-01]
Desc: Minutes of SCSI Working Group - Jan '95
Res:

X3T10/95-130R0 Date: 1/16/95 Author: R. Weber [SY-95-01]
Desc: Minutes of X3T10 Meeting #6 - Jan '95
Res:

X3T10/95-131R0 Date: 1/16/95 Author: D. Penman [SY-95-01]
Desc: ATA Systems Issues
Res:

X3T10/95-132R0 Date: 1/16/95 Author: T. Lappin [SY-95-01]
Desc: Write without read block mode control
Res:

X3T10/95-133R0 Date: 1/16/95 Author: T. Lappin [SY-95-01]
Desc: Clearing ASC/ASCQ
Res:

X3T10/95-134R0 Date: 1/16/95 Author: T. Lappin [SY-95-01]
Desc: Write protect control
Res:

X3T10/95-135R0 Date: 1/16/95 Author: R. Weber [SY-95-01]
Desc: Stust of AIIM C21 M59 Standard at X3T10
Res: