To: Membership of X3T9.2
From: Lawrence J. Lamers, Secretary X3T9.2
John B. Lohmeyer, Chair X3T9.2
Subject: Minutes of X3T9.2 Plenary Meeting #105
St. Peters burg Beach, FL -- April 19-20, 1993

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
   3.1 Roll Call of Members in Jeopardy
4. Approval of Minutes - February Meeting Austin, TX (93-033r1)
5. Document Distribution
6. Liaison Reports and Call for Patents
   6.1 ISO [Milligan]
   6.2 IT8 [Lohmeyer]
   6.3 Fibre Channel [Allan]
   6.4 Small Form Factor Industry Group [Allan]
   6.5 IEEE P1394 [Marazas]
   6.6 SSA Status [Scheible]
   6.7 IEEE P1285 Status [Pak]
   6.8 PCMCIA Report
   6.9 Call for Patents
7. Review of Old Action Items
8. Working Group and/or Project Status Reports
   8.1 Project Status Summary [Lohmeyer]
   8.2 X3T9.2 General Working Group (X3T9.2/93-039r1) [Lamers]
   8.3 SCSI-2 Status [Lamers]
   8.4 SCSI Common Access Method (CAM) [Dallas]
   8.5 AT Attachment Status (ATA) [Allan]
   8.6 ATA Extensions [Finch]
   8.7 SCSI-3 Architecture Model (SAM) Status [Monia]
   8.8 SCSI-3 Parallel Interface (SPI) Status [Lamers]
   8.9 SCSI-3 Interlocked Protocol (SIP) Status [Lamers]
   8.10 SCSI-3 Generic Packetized Protocol (GPP) Status [Stephens]
   8.11 SCSI-3 Serial Bus Protocol (SBP) Status [Gardner]
   8.12 SCSI-3 Fiber Channel Protocol (FCP) Status [Snively]
   8.13 SCSI-3 Primary Commands (SPC) Status [Weber]
   8.14 SCSI-3 Block Commands (SBC) [Lamers]
   8.15 SCSI-3 Stream Commands (SSC) [Stephens]
   8.16 SCSI-3 Graphics Commands (SGC)
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL

8.17 SCSI-3 Medium Changer Commands (SMC) [Stephens]
8.18 Directly-Addressable Device Interface (DADI)
8.19 SCSI Common Access Method -2 (CAM-2) (93-015) [Dallas]
8.20 RAID Study Group (93-029) [Penokie]

9. Old Business
9.1 Power Pin Compatibility Issue Revisited (90-199, 91-023) [Dambach]
9.2 Format Track LBA Proposal (92-185r1) [Lamers]
9.3 Serial Protocol Issues: Isochronous Queue Tag (93-071r0) [Penokie]
9.4 READ LONG Correct bit vs. DCR bit in Read/Write Error Recovery mode page (93-077r0) [Milligan]

10. New Business
10.1 SPI Forwarding Motion
10.2 ATA Forwarding Motion
10.3 Reaffirmation, revision, or withdrawal of ANSI X3.80-1988, Interfaces Between Flexible Disk Cartridges and Their Host Controllers.
10.4 ATA-2 Project Proposal [Finch]
10.5 Recommended X3T9.2 Procedure on electronic notification (93-019) [Lamers]
10.6 SCSI-3 Queue Full Handling Proposal (92-214r1) [DeKoning]
10.7 SCSI-3 Changes for Dual Port Feature (93-041r1) [Houlder]
10.8 Number of Blocks Field Size Limitation (93-032r1) [Penokie]
10.9 When to issue SDTR after WDTR (93-037) [Penokie]
10.10 Scanner Window Descriptor Bytes Proposal (93-036) [Motoyama]
10.11 Review of new documents
10.12 Agendas for the May Working Groups
10.13 Authorization of Payment for Contract Editing Work
10.14 New Optical Memory Density Codes (93-20r1) [Williams]
10.15 Revision to description of partition sizes in SCSI-2 (93-070) [Anjargoli]
10.16 Clearing ACA in SCSI-3 Interlocked Protocol (93-065) [Frazier]
10.17 SPC Issues (93-038, -063, -064) [Weber]
10.18 SDP Issue (93-034) [Lohmeyer]

11. Review of Action Items

12. Meeting Schedule
12.1 Authorization of Working Group Meetings

13. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer, the Chair, called the meeting to order at 9:00 a.m., Monday April 19, 1993. He thanked Chuck Brill of AMP for hosting the meeting. John reported that both he and Dal Allan had been reappointed to their positions.

John said that the X3 Secretariat prefers receiving membership changes on the "X3 Subgroup Membership Forms" which 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 forms should be mailed to the X3 Secretariat with a copy to John Lohmeyer.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections. Copies of the draft agenda and the recent document register were made available to those
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL

2. Approval of Agenda

The draft agenda was approved with the following additions:

10.16 Clearing Autocontingent Allegiance (ACA) in Parallel SCSI-3 (93-65) [Frazier]
10.17 SPC Issues (93-38, -63, -64) [Weber]
10.18 SDP Issue (93-034) [Lohmeyer]

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 X3T9.2. The individual may vote at the second plenary meeting. Working group meetings do not count toward attendance requirements.

With the addition of Sony Corp. and Tandem Computers, the termination of SGS-THOMSON at their request, and the termination of four organizations for nonattendance (see 3.1), the X3T9.2 voting membership is now at 56 organizations down from 59 at the last meeting. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current X3T9.2 membership list.

3.1 Roll Call of Members in Jeopardy

The Chair said he had sent jeopardy letters to 16 people from 8 organizations for lack of meeting attendance (see 93-048r0). The letters said that these organizations had failed to attend two of the last three plenary meetings and that their membership would be terminated unless they attended this meeting. The letters also informed these people of the committee’s ability to retain their membership under special circumstances in spite of their failure to attend.

Subsequently, the Chair received a fax from Forrest Crowell requesting that his membership be terminated and the SGS-THOMSON alternate, Neil Mitchell, be changed to Observer status. The Chair also noted that the letter to Shahnad Nadershahi, the only member from Amdahl, had been returned marked "No longer here". The Chair sent an email to Rich Taborek, an X3T9.3 member, to inform him of the situation.

Representatives were present from all of the other organizations except:

Control Data Systems, Inc., Foxconn International, Inc., Nat. Inst. of Stnds. & Tech., and Yamaichi Electronics, Inc. All representatives from these organizations were changed to observer status.

4. Approval of Minutes – February Meeting Austin, TX (93-033r1)

The minutes were approved as written.

5. Document Distribution

John Lohmeyer said that the committee mailing had been sent to CBEMA the week following the working group meetings in Newport Beach. He expressed his personal appreciation to Larry Lamers (and to Larry’s family) for the enormous amount of work that Larry expended in putting together the huge mailing on the heels of the working group week.
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL

Because of the large size of the mailing, it was split into two sections, with section two mailed out first. People who had not paid their service and subscription fees were not sent a mailing. People who did not receive a mailing should verify that they paid the fees. Members who have any problems with their mailing subscription should deal directly with Katrina Gray 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 10, 1993. 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 X3T9.2 meets its CBEMA document archiving requirements by including CBEMA 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: scsiadm@WichitaKS.NCR.COM.

The current document register is enclosure (3).

6. Liaison Reports and Call for Patents

6.1 ISO [Milligan]

Gene Milligan, the X3T9 International Representative, gave an oral report and later provided an electronic report to X3T9:

ISO Report
4/93

The information for the 1993 SC 25 meetings has been released in the nick of time. SC 25 N 110 dated 3/3/93 provides the venue notice. The meeting will be held in:

Hotel Bel Air
Johan de Wittlaan 30
2517 JR The Hague
The Netherlands
Tel: 31 70 3502021
Fax: 31 70 3512682

The draft agenda for the SC 25/WG 4 meeting was distributed as WG 4 N 622 on 4/1/93. The agenda items cover the scope and breadth of X3T9 activities. The meeting begins at 1440 on Tuesday 15 June and continues through 17 June.

The voting results on SC 25 N 106 Generic Cabling for Customer Premises CD 11801 closed with a 2:11:0:3 vote.

A lengthy comment concerning the pDISP 10608 parts 6 and 14 FDDI from the Netherlands was distributed as WG 4 N 621. In fact this document includes comments from IBM, AT&T, and Digital. By contrast the USA with these same participants has no comments.

A SC 25 TAG meeting is scheduled for 4/27/93. The meeting announcement is not dated. One issue for the meeting is the proposed modifications of the SC 25 programme of work. There do not seem to be any obvious issues relative to X3T9. (This is a
A report of the SC 25 Plenary to JTC 1 dated 3/8/93 has been issued as JTC 1 N 2401. It is mainly an organizational statement for SC 25.


The JTC 1 TAG letter ballot on the NP for SCSI CAM closes 5/13/93. The related JTC 1 letter ballot N 2444 closes 7/12/93. We voted with our NP submittal.

The JTC 1 TAG letter ballot on the NP for ATA closes 5/13/93. The related JTC 1 letter ballot N 2443 closes 7/12/93. We voted with our NP submittal.

The DTR 12075 Planning and Installation Guide for Customer Premises Cabling to Support Attachment of ISO 8802-5 Token Ring Stations has been approved as a Type 3 Technical report by a vote of 16:1:1:6 with a number of comments. The results are contained in JTC 1 N 2340 and N 2367.

JTC 1/SC 25 N 88 provides an update of the SC 25 membership. There are currently 16 Principal members and 9 voting Observer members.

6.2 IT8 [Lohmeyer]
John Lohmeyer had nothing new to report.

6.3 Fibre Channel [Allan]
Dal Allan reported. A new draft (FC-PH) is expected within two weeks; this draft is expected to be forwarded in June. A new tactic of using errata documents will be attempted to get the document into a standard without continuous second public reviews.

6.4 Small Form Factor Industry Group [Allan]
Dal Allan reported. There are six SFF specifications in the latest SFF mailing.

6.5 IEEE P1394 [Marazas]
Jerry Marazas was not present. John Lohmeyer mentioned that there had been a P1394 configuration management meeting on April 6th and that a P1394 meeting was scheduled for Wednesday in the same hotel.

6.6 SSA Status [Scheible]
Ken Hallam reported (see 93-073). The SSA-PH project was approved and X3T9.7 was established. The first official meeting will be in July.

SSA-UIG (user industry group) is alive and growing. Work on silicon, testers, and education is being done by member organizations.

A project proposal for SSA-SCSI is being developed.
6.7 IEEE P1285 Status [Pak]

Dennis Pak was not present, but Scott Smyers provided a written and electronic report when he arrived on Tuesday (see 93-079). John Lohmeyer agreed to post the report to the SCSI Reflector.

John announced that a P1285 co-located meeting will be held Tuesday evening during the next working group week in Santa Fe.

6.8 PCMCIA Report

John Lohmeyer reported that a PCMCIA meeting was scheduled to occur later in the week on the west coast. He expected PCMCIA to take some action on the request that PCMCIA form a working group to address defining a connector for PCMCIA SCSI host adapters.

It was reported that PCMCIA is having difficulty resolving 3.3 volt vs. 5 volt issues with JEIDA. The issue is currently in deadlock. The are mating connector keying issues due to tolerances. A socket services document is still being solidified.

Both 25-pin and 32-pin proposals for PCMCIA SCSI host adapters are being considered.

Norm Harris suggested that the TERMPWR issue within low-power environments should be addressed by X3T9.2 committee. This issue will be added to the May working group agenda.

Dal requested the Chair to write a letter to PCMCIA requesting the meeting schedules of the two groups be coordinated to avoid conflicts.

6.9 Call for Patents

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


John Lohmeyer stated that he had not responded to the December letter received from the attorney for Conner Peripherals. He asked that this action item be dropped.

7. Review of Old Action Items

1) Joe Dambach and Dal Allan will request EIA to develop a standard for the four-pin power connector. This issue is being addressed by the SFF group; Action Item dropped.

2) Larry Lamers will include a document with the recommendations for the power connector in the mailing. Carry over.

3) John Lohmeyer will take the X3T9.2 patent statement position to X3T9. Complete.

4) John Lohmeyer and Larry Lamers will contact ANSI for clarification on the patent policy pertaining to the Conner and Maxtor patents. Dropped.

5) John Lohmeyer will draft a response to the Conner letter on the PrairieTek patents. Dropped.

6) Larry Lamers will prepare revision 4 of ATA. Complete.

7) Larry Lamers will prepare revision 11 of SPI. Complete.

8) Gene Milligan will contact Gerry Houlder regarding 91-149. Completed

9) Larry Lamers will send revision 4 of ATA to Bob Fink of X3T9. Dropped.
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach

10) Larry Lamers will send revision 11 of SPI to Bob Fink of X3T9. Dropped.

8. Working Group and/or Project Status Reports

8.1 Project Status Summary [Lohmeyer]

John Lohmeyer presented the current X3T9.2 project status summary.

8.2 X3T9.2 General Working Group (X3T9.2/93-039r1) [Lamers]

The minutes in the mailing did not include John Lohmeyer’s edits. Revision 1 included the edits and was sent to the SCSI reflector.

8.3 SCSI-2 Status [Lamers]

Revision 10h is the last technical milestone of the committee. Revision 10k includes editorial updates, but was not formally reviewed by X3T9.2.

A clarification agreed to in 1990 for Rev 10c regarding the sequential-access READ POSITION command did not get incorporated into SCSI-2. See item 10.15.

SCSI-2 errata: The 10-byte WRITE command is Mandatory for a device type in the annex and Optional in the device type clause list of commands.

8.4 SCSI Common Access Method (CAM) [Dallas]

A group has been working on the re-write of section 10. It is expected to be available for the May working group. A CAM meeting is planned for Tuesday evening, 4/20/93.

8.5 AT Attachment Status (ATA) [Allan]

A forwarding motion is planned. Larry Lamers enumerated several errata in revision 4.

8.6 ATA Extensions [Finch]

See minutes (93-45). A new project proposal for ATA-2 will be considered later during the meeting.

8.7 SCSI-3 Architecture Model (SAM) Status [Monia]

Charles Monia reported. An editors meeting was held on Sunday afternoon. A new revision will be available at the next working group meeting.

8.8 SCSI-3 Parallel Interface (SPI) Status [Lamers]

Larry Lamers reported that revision 12 was in the mailing. A forwarding motion is planned for this meeting.

8.9 SCSI-3 Interlocked Protocol (SIP) Status [Lamers]

A small group held an editing session on SIP April 5-6 in San Jose. More work needs to be done before revision 2 is ready to distribute. Larry Lamers plans to have revision 2 available for the next working group meeting.
8.10 SCSI-3 Generic Packetized Protocol (GPP) Status [Stephens]
Gary Stephens reported. He is doing restructuring work on the document and has GPP running over SPI. He needs the setup phase which is not explicit in SPI anymore.

8.11 SCSI-3 Serial Bus Protocol (SBP) Status [Gardner]
Scott Smyers reported orally on the SBP Working Group meeting in Santa Clara. Ed Gardner had not yet posted the minutes of the meeting.

8.12 SCSI-3 Fiber Channel Protocol (FCP) Status [Snively]
Bob Snively had arranged for Paul Ramsey to give a report on FCP Tuesday afternoon, but Paul (who was rumored to be in a Fibre Channel meeting) could not be found to give the report.

8.13 SCSI-3 Primary Commands (SPC) Status [Weber]
Ralph Weber reported. A proposal on disposing of the copy functions has been prepared. A compendium of ASC/ASCQ codes for SCSI-3 is available. A separate list of ASC/ASCQ codes will be maintained until a draft document is available.

8.14 SCSI-3 Block Commands (SBC) [Lamers]
No activity.

8.15 SCSI-3 Stream Commands (SSC) [Stephens]
No activity.

8.16 SCSI-3 Graphics Commands (SGC)
No activity.

8.17 SCSI-3 Medium Changer Commands (SMC) [Stephens]
No activity.

8.18 Directly-Addressable Device Interface (DADI)
Larry Lamers reported that Ron Roberts is preparing a draft proposal for the May working group.

8.19 SCSI Common Access Method -2 (CAM-2) (93-015) [Dallas]
Bill Dallas reported. See 93-015.

8.20 RAID Study Group (93-029) [Penokie]
George Penokie reported. Revision 3 of the RAID model was in the mailing. A study group meeting is set for this evening.

Dal Allan reported that the RAID Advisory Board has formed two special interest groups. The first, lead by Mike Firzpatrick (Seagate), is developing a RAID-Ready Drive specification and the second, lead by Keith DuLac (NCR), is doing a mode page investigation.
9. Old Business

9.1 Power Pin Compatibility Issue Revisited (90-199, 91-023) [Dambach]

The SFF Committee has picked up this issue and it will be reported under the SFF liaison report in the future. A proposal is nearing completion to be submitted to the EIA.

9.2 Format Track LBA Proposal (92-185r1) [Lamers]

This proposal was not discussed at last Disk Drive Working Group meeting. It is on hold until the working group makes a recommendation.

9.3 Serial Protocol Issues: Isochronous Queue Tag (93-071r0) [Penokie]

George Penokie presented a proposal to deal with isochronous commands within the SCSI-3 queuing model. Scott Smyers gave a tutorial on isochronous mechanisms to explain how isochronous functions operate.

It was noted that several items need further work. George agreed to develop a revision 1 to deal with these items.

9.4 READ LONG Correct bit vs. DCR bit in Read/Write Error Recovery mode page (93-077r0) [Milligan]

Gene Milligan presented a proposal to resolve the conflict between the DCR bit and the CORRECT bit.

Gene Milligan moved and Scott Smyers seconded that 93-077r0 be accepted for incorporation into SCSI-3. The motion carried 22:0.

10. New Business

10.1 SPI Forwarding Motion

Bill Spence moved and Larry Lamers seconded that SCSI-3 Parallel Interface revision 12 be forwarded to X3T9 for first public review.

Giles Frazier pointed out that the setup and hold times are the same in SPI for slow as for fast. Slow used to be 55 ns setup, 100 ns hold on transmit and 0 ns setup and 45 ns hold on receive in SCSI-2. He was concerned about interoperation with SCSI-2 devices. No one present was sure about the history of this change, so it was recommended that the document not be changed without further investigation. If the investigation shows that a change is necessary, then an X3T9 comment or a public review comment can be made.

Jeff Stai moved and Skip Jones seconded that the motion be amended to forward SCSI-3 Parallel Interface revision 12 as revised by including the following wording:

"While active-negation drivers may be used on any non-OR-tied signal (see 8.2), their usage is particularly valuable on the ACK, REQ, ACKQ, and REQQ signals, because these signals are vulnerable to double clocking on the true-to-false transition. Additional benefit may be achieved by using active-negation drivers on the DATA BUS and parity signals when operating in fast synchronous data transfer mode by reducing the skews between the first group of signals (ACK, REQ, ACKQ, and REQQ) and the DATA BUS and parity signals."

in place of the paragraph:
"SCSI devices should use active-negation drivers for the ACK, ACKQ, REQ, REQQ, DATA BUS, and parity signals during fast synchronous data transfers."

in 7.1.2.

The amendment passed 34:1:0.

The amended motion is "that SCSI-3 Parallel Interface revision 12 as revised (rev 12a) be forwarded to X3T9 for first public review".

A roll call vote was conducted on the amended motion with the following results:
<table>
<thead>
<tr>
<th>Organization</th>
<th>Voter</th>
<th>Yes</th>
<th>No</th>
<th>Abstain</th>
<th>NotPresent</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M Company</td>
<td>Mr. Robert C. Herron</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptec, Inc.</td>
<td>Mr. Norm Harris</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amdahl Corp.</td>
<td>Mr. Neil T. Wannamaker</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMP, Inc.</td>
<td>Mr. Bob Whiteman</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphenol Interconnect</td>
<td>Mr. Jeff Rosa</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ancot Corp.</td>
<td>Mr. Gary Porter</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple Computer</td>
<td>Mr. Scott Smyers</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT&amp;T / NCR Corp.</td>
<td>Mr. John Lohmeyer</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Berk-Tek, Inc.</td>
<td>Mr. Tom Debiec</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULL S.A.</td>
<td>Mr. Schreck Philippe</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burndy Corp.</td>
<td></td>
<td>44</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>BusLogic</td>
<td>Mr. Steve Chang</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Data</td>
<td>Ms. Janet Schank</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ciprico Inc.</td>
<td>Mr. Kurt Witte</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cirrus Logic Inc.</td>
<td>Mr. Dave Weber</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMD Technology</td>
<td>Mr. George Su</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conner Peripherals</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data General Corp.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Equipment Corp.</td>
<td>Dr. William Ham</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emulex Corp.</td>
<td>Mr. Skip Jones</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENDL Associates</td>
<td>Mr. D. W. Spence</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exabyte Corp.</td>
<td>Mr. Edward Lappin</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fujitsu Microelectronics</td>
<td>Mr. Joel Urban</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furukawa Electric America</td>
<td>Mr. Steve Caron</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Domain</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hewlett Packard Co.</td>
<td>Mr. Jeffrey L. Williams</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hirote Electric U.S.A.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hitachi Micro Systems, Inc.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honda Connector</td>
<td>Mr. David McFadden</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM Corp.</td>
<td>Mr. George Penokie</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interphase Corp.</td>
<td>Mr. David Lawson</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iomega Corp.</td>
<td>Mr. Geoff Barton</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAE</td>
<td>Mr. David H. Shaff</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madison Cable Corp.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxoptix Corp.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxtor Corp.</td>
<td>Mr. Lawrence J. Lamers</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methode Electronics, Inc.</td>
<td>Mr. Bob Masterson</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molex Inc.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Semiconductor</td>
<td>Mr. Manish Gupta</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEC Technologies Inc.</td>
<td>Mr. Bruce Anderson</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panasonic Technologies, Inc.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantum Corp.</td>
<td>Mr. James McGrath</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ricoh Corporation</td>
<td>Mr. Satwinder S. Mangat</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seagate Technology</td>
<td>Mr. Gene Milligan</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicon Systems, Inc.</td>
<td>Mr. Stephen G. Finch</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sony Corp. of America</td>
<td>Mr. Mike Yokoyama</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Technology Corp.</td>
<td>Mr. Erich Oetting</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sun Microsystems, Inc.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem Computers</td>
<td>Mr. John Moy</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas Instruments</td>
<td>Mr. Alan Wetzel</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thomas &amp; Betts</td>
<td>Mr. Harvey Waltersdorf</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toshiba America, Inc.</td>
<td>Mr. James Mang</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Design</td>
<td>Mr. Dennis Melling</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNISYS</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Digital</td>
<td>Mr. Jeff Stai</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woven Electronics</td>
<td>Mr. Doug Piper</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The motion passed 44-0-0-12.
10.2 ATA Forwarding Motion

Larry Lamers noted several minor corrections that had been identified for the ATA document.

Larry Lamers moved and Skip Jones seconded that AT Attachment revision 4 as corrected (revision 4a) be forwarded to X3T9 for second public review.

A roll call vote was conducted with the following results:
<table>
<thead>
<tr>
<th>Organization</th>
<th>Voter</th>
<th>Yes</th>
<th>No</th>
<th>Abstain</th>
<th>NotPresent</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M Company</td>
<td>Mr. Robert C. Herron</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptec, Inc.</td>
<td>Mr. Norm Harris</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amdahl Corp.</td>
<td>Mr. Neil T. Wanamaker</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMP, Inc.</td>
<td>Mr. Bob Whiteman</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphenol Interconnect</td>
<td>Mr. Jeff Rosa</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ancot Corp.</td>
<td>Mr. Gary Porter</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple Computer</td>
<td>Mr. Scott Smyers</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT&amp;T / NCR Corp.</td>
<td>Mr. John Lohmeyer</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Berk-Tek, Inc.</td>
<td>Mr. Tom Debiec</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULL S.A.</td>
<td>Mr. Schreck Philippe</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burned Corp.</td>
<td>Mr. Steve Chang</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Data</td>
<td>Ms. Janet Schank</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ciprico Inc.</td>
<td>Mr. Kurt Witte</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cirrus Logic Inc.</td>
<td>Mr. Dave Weber</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMD Technology</td>
<td>Mr. George Su</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conner Peripherals</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data General Corp.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Equipment Corp.</td>
<td>Mr. Charles Monia</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emulex Corp.</td>
<td>Mr. Skip Jones</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENDL Associates</td>
<td>Mr. D. W. Spence</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exabyte Corp.</td>
<td>Mr. Edward Lappin</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fujitsu Microelectronics</td>
<td>Mr. Joel Urban</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furukawa Electric America</td>
<td>Mr. Steve Caron</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Domain</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hewlett Packard Co.</td>
<td>Mr. Jeffrey L. Williams</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hirose Electric U.S.A.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hitachi Micro Systems, Inc.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honda Connector</td>
<td>Mr. David McFadden</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM Corp.</td>
<td>Mr. George Penokie</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interphase Corp.</td>
<td>Mr. David Lawson</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iomega Corp.</td>
<td>Mr. Geoff Barton</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAE</td>
<td>Mr. David H. Shaff</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madison Cable Corp.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxoptix Corp.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxtor Corp.</td>
<td>Mr. Lawrence J. Lamers</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methode Electronics, Inc.</td>
<td>Mr. Bob Masterson</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molex Inc.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Semiconductor</td>
<td>Mr. Manish Gupta</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEC Technologies Inc.</td>
<td>Mr. Bruce Anderson</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panasonic Technologies, Inc.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantum Corp.</td>
<td>Mr. James McGrath</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ricoh Corporation</td>
<td>Mr. Satwinder S. Mangat</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seagate Technology</td>
<td>Mr. Gene Milligan</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicon Systems, Inc.</td>
<td>Mr. Stephen G. Finch</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sony Corp. of America</td>
<td>Mr. Mike Yokoyama</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Technology Corp.</td>
<td>Mr. Erich Oetting</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sun Microsystems, Inc.</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tandem Computers</td>
<td>Mr. John Moy</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas Instruments</td>
<td>Mr. Alan Wetzel</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thomas &amp; Betts</td>
<td>Mr. Harvey Waltersdorf</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toshiba America, Inc.</td>
<td>Mr. James Mang</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Design</td>
<td>Mr. Dennis Mellinger</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNISYS</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Digital</td>
<td>Mr. Jeff Stai</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woven Electronics</td>
<td>Mr. Doug Piper</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The motion passed 44-0-0-12.
10.3 Reaffirmation, revision, or withdrawal of ANSI X3.80-1988, Interfaces Between Flexible Disk Cartridges and Their Host Controllers.

John Lohmeyer stated the three alternatives:

a) withdraw the standard,
b) reaffirm the standard,
c) revise the standard.

Gene offered a fourth alternative. He stated that we should withdraw the ANSI standard but recommend that the ISO equivalent standard be maintained. The bulk of activity in this area is now international (i.e., Japan).

Gene Milligan moved and Jeff Stai seconded that X3T9.2 recommend to X3T9 that ANSI X3.80-1988, “Interface Between Flexible Disk Cartridges and Their Host Controllers”, be withdrawn in favor of ISO 9315:1989.

The motion passed 45:0:0:11.

John Lohmeyer, after consulting with the X3T9 Chair, stated that his understanding of the actual effect of the motion is to recommend the simultaneous withdrawal of X3.80-1988 and adoption of ISO 9315:1989 as an ANSI standard. If approved, the standard would be called ANSI/ISO 9315:1989.

10.4 ATA-2 Project Proposal [Finch]

Steve Finch made a presentation on having an ATA-2 project to add features and functions such as higher transfer rates, error detection mechanisms, and command obsolescence. This would be a new document and may delete some existing commands. ATA-2 may evolve to not being fully backward compatible.

Larry Lamers moved and Steve Finch seconded that the project proposal for ATA-2 be forwarded to X3T9 for further processing.

There was considerable discussion over the relationship of the ATA Extensions project and the proposed ATA-2 project. In order to give people more time to think about the issues, Larry and Steve agreed to withdraw the motion.

10.5 Recommended X3T9.2 Procedure on electronic notification (93-019) [Lamers]

John briefly outlined the X3 Secretariat’s successes (and failures) in using electronic mail. Lynn Barra has agreed to post X3 Press Releases on the SCSI BBS and she has recently succeeded in logging into the BBS. The X3 experiment on using a separate Compuserve forum called OASIS has been disappointing with about $10,000 spent and only 13 users. An X3 ad hoc group has agreed to investigate ways to improve OASIS and/or use alternative means.

Larry Lamers reviewed the basis for his proposal and asked the membership to review it for consideration at the July plenary meeting.

10.6 SCSI-3 Queue Full Handling Proposal (92-214r1) [DeKoning]

A revised proposal is being developed, but it is not available yet. Rod is expected at the next working group.
10.7 SCSI-3 Changes for Dual Port Feature (93-041r1) [Houlder]

A new revision is being prepared incorporating the changes requested at the last working group.

Gene Milligan presented revision 2, which incorporates a change recommended by the March working group. Two bits in a mode page control the behavior of the target when a reset condition or BUS DEVICE RESET message are received on a port. This permits the resetting function to be isolated to the one port or to affect both ports.

Gene Milligan moved and Jeff Williams seconded that 93-041r2 be accepted for incorporation in SCSI-3. The motion passed 30:0.

10.8 Number of Blocks Field Size Limitation (93-032r1) [Penokie]

George presented the proposal the working group recommended.

Jeff Williams moved and Ralph Weber seconded that 93-032r1 be incorporated into SCSI-3. The motion passed 28:0.

10.9 When to issue SDTR after WDTR (93-037) [Penokie]

George Penokie presented 93-037 and the committee debated. When an SDTR is in effect is it invalidated by a WDTR? Does sending the WDTR or accepting the WDTR cause an SDTR to be renegotiated?

The committee favored that a reject of WDTR does not change the state of the sync/async negotiated. If WDTR is accepted the device state is async until a sync negotiation is completed.

George will prepare revision 2.

10.10 Scanner Window Descriptor Bytes Proposal (93-036) [Motoyama]

Tetsuro Motoyama introduced the proposal. He stated that the intention is to incorporate this in the SCSI-3 Graphics Commands. A detailed presentation will be made at the July meeting.

10.11 Review of new documents

All new documents were addressed under other agenda items.

10.12 Agendas for the May Working Groups

The following draft agenda was generated for the May X3T9.2 General Working Group meeting in Santa Fe, NM:
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL X3T9.2/93-072r0

Draft Agenda
May 18-19, 1993 X3T9.2 General Working Group

1. Opening Remarks
2. Attendance and Membership
3. Physical Topics (Tuesday am)
   3.1 Low-power (3.3 volt) SCSI Physical Layer [Lohmeyer]
   3.2 Slow synchronous setup and hold times [Frazier]
   3.3 PCMCIA SCSI connector and cable (93-023) [Lohmeyer]
   3.4 Comments on SPI R12 Section 10 (93-081) [Stai]
4. General WG Topics (Tuesday am)
   4.1 X3T9.2 Procedure on Electronic Notification (93-019) [Lamers]
5. SCSI-3 Architecture Model (SAM) (Tuesday pm)
   5.1 Queue Full Handling (92-214r1) [DeKoning]
   5.2 Isochronous Queue Tags (93-071) [Penokie]
6. SCSI-3 Command Sets (SPC, SBC, SSC, SGC, and SMC) (Wednesday am)
   6.1 SCSI-3 Primary Commands
      6.1.1 Dealing with 8-bit tag values in ASC 4Dh when SAM allows for
            64-bit tag values 93-064r0 [Weber]
      6.1.2 Structure of parameter data to add source and destination
            identifiers (93-038r1) [Weber]
7. Protocol Topics (Wednesday am-pm)
   7.1 SCSI-3 Interlocked Protocol (SIP)
      7.1.1 Interoperation issues with SCSI-2 initiators and SCSI-3
            targets pertaining to ACA (93-065) [Frazier]
      7.1.2 Review of SIP Revision 2 [Lamers]
   7.2 SCSI-3 Serial Bus Protocol (SBP)
   7.3 SCSI-3 Fiber Channel Protocol (FCP)
   7.4 SCSI-3 Generic Packetized Protocol (GPP)
8. Working Group Schedule
9. Adjournment

Agendas for the other scheduled working group meetings will be distributed
on the SCSI reflector by the chairs of the working group meetings.

10.13 Authorization of Payment for Contract Editing Work

John read a facsimilie he had received from Jean-Paul Emard, Director of the
X3 Secretariat, regarding invoices for editing work authorized by X3T9.2.
The current fund balance is $5,500. He noted that a vote is required
approving the expenditures.

Gary Porter moved and Steve Finch seconded that the X3 Secretariat be
authorized to pay the invoices submitted for SCSI-2 rev 10k and CAM rev 3 in
the amounts of $3000 and $650.

The motion passed 26:0:0.

John Lohmeyer accepted an action item to request Jean-Paul Emard to pay the
invoices from the editors fund.

10.14 New Optical Memory Density Codes (93-20r1) [Williams]

The proposal would add a density code for the "times two" Magneto-Optical
standard with 650 MB per side.

Jeff Williams moved and Jeff Stai seconded that 93-020r1 be incorporated into
SCSI-3. The motion passed 28:0:0.
10.15 Revision to description of partition sizes in SCSI-2 (93-070) [Anjargoli]

George Anjargoli (WangDAT) sent a letter pointing out that a clarification to the sequential-access section of SCSI-2 was agreed to as a result of a request for interpretation back in 1990 and was not in the current SCSI-2 document.

John Lohmeyer said that apparently neither clarification in interpretations 90-116r1 or 90-117 were incorporated. Both had been viewed as editorial clarifications with justifications for the interpretation contained in the sequential-access device type model. However, Lynn Barra and Del Shoemaker both agreed that any changes of this nature at this point in the process would require another public review.

No one was in favor of delaying SCSI-2 for these clarifications. John suggested that he send a letter to George explaining the oversight and stating that the committee still believes the interpretations to be correct and will attempt to include the changes into the SCSI-3 Stream Commands document. Gary Stephens accepted an action item to write a Technical Information Bulletin for SCSI-2. John Lohmeyer accepted an action item to respond to George Anjargoli.

10.16 Clearing ACA in SCSI-3 Interlocked Protocol (93-065) [Frazier]

This proposal would establish a special rule in SIP to clear ACA by any untagged command in SIP.

Giles Frazier moved and John Lohmeyer seconded that "A target shall treat the receipt of any untagged command from an I_T_x nexus as an ACA tagged command followed by a CLEAR ACA message for the I_T_x nexus".

During the discussion of the motion, the alternative methods of dealing with the problem were identified: 1) Gile’s approach, 2) have the target start out in SCSI-2 mode and use CHANGE DEFINITION to move to SCSI-3 mode, and 3) use a new bit in a mode page.

Other problems not addressed in the proposal included the ACA ACTIVE status.

The motion failed 3:13:0.

The topic was remanded to the working group.

10.17 SPC Issues (93-038, -063, -064) [Weber]

93-063r0 - Third-party commands - disposition of copy function codes.

George Penokie moved and Jeff Williams seconded that 93-063r0 with corrected spelling be accepted for incorporation into SCSI-3.

The motion passed 27:1.

93-064r0 - Dealing with 8-bit tag values in ASC 4Dh when SAM allows for 64-bit tag values.

Jeff Williams stated that checking the 64-bit tag value is optional per an agreement reached when the length of that tag value was adopted in SAM. The checking operation is difficult in hardware due to the length and too slow in firmware to be practical. There is an ASC/ASCQ for a failure that does not identify the tag.

The consensus was that this is not a real problem. The working group was assigned to review the options and make a recommendation.
93-038r1 - Structure of parameter data to add source and destination identifiers.

32-bytes of parameter data needs to be added somewhere. Ralph presented three alternatives. A desire to have alignment on 64-bit boundaries was expressed.

George Penokie’s 92-184r1 document contains two ASC/ASCQ codes in error. The codes should be changed as follows:

<table>
<thead>
<tr>
<th>Wrong codes</th>
<th>Correct Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>38 0D</td>
<td>3B 0D</td>
</tr>
<tr>
<td>38 0E</td>
<td>3B 0E</td>
</tr>
</tbody>
</table>

Gerry Houlder’s 92-046r1 document should include the M and C devices for the ASC/ASCQ code 65 00.

10.18 SDP Issue (93-034) [Lohmeyer]

Steve Finch moved and Jim McGrath seconded that 93-034 be incorporated into SCSI-3 at the technical editor’s discretion as to location so as to ensure that the concept is adequately covered.

The motion failed 7:7:0

John Lohmeyer, fearful that people would misunderstand the results of this motion, requested the following note be included in the minutes:

SCSI-2 already clearly states that the value of the data pointer at I/O process completion does not necessarily reflect the actual transfer length. The committee was divided over adding redundant notes to further clarify the point.

11. Review of Action Items

1) John Lohmeyer will send a letter to PCMCIA regarding meeting dates.
2) John Lohmeyer will send a letter to the X3 Secretariat on approval of expenditures for editing.
3) John Lohmeyer will send a letter to George Anjargoli regarding tape partition reporting.
4) Gary Stephens will draft a technical information bulletin on reporting tape partitions.
5) John Lohmeyer will post the P1285 Liaison report to the SCSI reflector.

12. Meeting Schedule

The next plenary meeting of X3T9.2 will be July 22-23, 1993 at the Sheraton Tara Wayfarer Inn (603-622-3766) in Bedford, New Hampshire, hosted by Digital Equipment Corp. The room rates are $85.00, plus tax, single or double. The reservation deadline for these rates is June 28, 1993. The meeting will begin at 1:30 pm on Thursday and at 8:00 am on Friday.

The near-term ad hoc meeting schedule is:
## Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location/Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATA Working Group</td>
<td>28-APR-93</td>
<td>09:00-16:00</td>
<td>Milpitas, CA</td>
</tr>
<tr>
<td>Disk Drive Working Group</td>
<td>26-MAY-93</td>
<td>09:00-16:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>ATA Working Group</td>
<td>30-JUN-93</td>
<td>09:00-16:00</td>
<td>Milpitas, CA</td>
</tr>
<tr>
<td>Disk Drive Working Group</td>
<td>19-JUL-93</td>
<td>13:30-20:00</td>
<td>Bedford, NH</td>
</tr>
<tr>
<td>ATA Working Group</td>
<td>28-JUL-93</td>
<td>09:00-16:00</td>
<td>Milpitas, CA</td>
</tr>
<tr>
<td>RAID Study Group</td>
<td>17-MAY-93</td>
<td>17:00-20:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>RAID Study Group</td>
<td>xx-JUN-93</td>
<td></td>
<td>East Coast</td>
</tr>
<tr>
<td>RAID Study Group</td>
<td>22-JUL-93</td>
<td>09:00-12:30</td>
<td>Bedford, NH</td>
</tr>
<tr>
<td>CAM Working Group</td>
<td>17-MAY-93</td>
<td>09:00-17:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>CAM Working Group</td>
<td>19-JUL-93</td>
<td>09:00-17:00</td>
<td>Bedford, NH</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>22-APR-93</td>
<td>09:00-17:00</td>
<td>St. Petersburg Beach</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>06-MAY-93</td>
<td>09:00-17:00</td>
<td>Santa Clara, CA</td>
</tr>
<tr>
<td>HTB Working Group</td>
<td>07-MAY-93</td>
<td>09:00-17:00</td>
<td>Santa Clara, CA</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>xx-MAY-93</td>
<td>xx:00-xx:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>02-JUN-93</td>
<td>09:00-17:00</td>
<td>Irvine, CA</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>03-JUN-93</td>
<td>09:00-17:00</td>
<td>Irvine, CA</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>24-JUN-93</td>
<td>09:00-17:00</td>
<td>Minneapolis, MN</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>14-JUL-93</td>
<td>09:00-17:00</td>
<td>Colo Spgs, CO</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>15-JUL-93</td>
<td>09:00-17:00</td>
<td>Colo Spgs, CO</td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>20-JUL-93</td>
<td>09:00-17:00</td>
<td>Bedford, NH</td>
</tr>
<tr>
<td>X3T9.2 Working Group</td>
<td>18-MAY-93</td>
<td>09:00-17:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>X3T9.2 Working Group</td>
<td>19-MAY-93</td>
<td>09:00-17:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>SAM Editing Session</td>
<td>19-MAY-93</td>
<td>17:00-20:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>GPP Working Group</td>
<td>18-MAY-93</td>
<td>17:00-20:00</td>
<td>Santa Fe, NM</td>
</tr>
<tr>
<td>Protocol Working Group</td>
<td>21-JUL-93</td>
<td>09:00-12:30</td>
<td>Bedford, NH</td>
</tr>
<tr>
<td>Command Set Working Group</td>
<td>21-JUL-93</td>
<td>13:30-17:00</td>
<td>Bedford, NH</td>
</tr>
<tr>
<td>General Editing Session</td>
<td>18-JUL-93</td>
<td>13:30-17:00</td>
<td>Bedford, NH</td>
</tr>
</tbody>
</table>

### Activity Contact Telephone/Email

<table>
<thead>
<tr>
<th>Activity</th>
<th>Contact</th>
<th>Telephone/Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM Working Group</td>
<td>Bill Dallas</td>
<td>(603) 881-2508 <a href="mailto:dallas@wasted.enet.dec.com">dallas@wasted.enet.dec.com</a></td>
</tr>
<tr>
<td>Disk Drive Working Group/ATA</td>
<td>Steve Finch</td>
<td>(714) 573-6808 <a href="mailto:5732383@mcimail.com">5732383@mcimail.com</a></td>
</tr>
<tr>
<td>GPP Working Group</td>
<td>Gary Stephens</td>
<td>(602) 799-2246 <a href="mailto:gstephen@tucvm2.vnet.ibm.com">gstephen@tucvm2.vnet.ibm.com</a></td>
</tr>
<tr>
<td>RAID Study Group</td>
<td>George Penokie</td>
<td>(307) 253-5208 <a href="mailto:gop@rchvmp3.vnet.ibm.com">gop@rchvmp3.vnet.ibm.com</a></td>
</tr>
<tr>
<td>SAM Working Group</td>
<td>Charles Monia</td>
<td>(508) 841-6757 <a href="mailto:monia@starch.enet.dec.com">monia@starch.enet.dec.com</a></td>
</tr>
<tr>
<td>SBP Working Group</td>
<td>Jerry Marazas</td>
<td>(407) 982-4423 <a href="mailto:marazas@bcrvmpc2.vnet.ibm.com">marazas@bcrvmpc2.vnet.ibm.com</a></td>
</tr>
<tr>
<td>SPI Contact</td>
<td>Larry Lamers</td>
<td>(408) 432-3889 <a href="mailto:71540.2756@compuserve.com">71540.2756@compuserve.com</a></td>
</tr>
<tr>
<td>SIP Contact</td>
<td>Larry Lamers</td>
<td>(408) 432-3889 <a href="mailto:71540.2756@compuserve.com">71540.2756@compuserve.com</a></td>
</tr>
</tbody>
</table>

The long-term meeting schedule is:
12.1 Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does X3T9.2 (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.

Jim McGrath moved and Scott Smyers seconded that X3T9.2 authorize the meetings in the list under agenda item 12. The motion passed unanimously.

13. Adjournment

The meeting was adjourned at 4:00 p.m. on Tuesday April 20, 1993.
Meeting Attenders -- Enclosure (1)

<table>
<thead>
<tr>
<th>Name</th>
<th>S</th>
<th>Organization</th>
<th>Electronic Mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Robert C. Herron</td>
<td>A</td>
<td>3M Company</td>
<td><a href="mailto:harris@adaptec.com">harris@adaptec.com</a></td>
</tr>
<tr>
<td>Mr. Norm Harris</td>
<td>P</td>
<td>Adaptec, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Richard L. Kalish</td>
<td>V</td>
<td>Adaptec, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. David Wang</td>
<td>O</td>
<td>Advanced Micro Devices</td>
<td><a href="mailto:dwang@angelo.amd.com">dwang@angelo.amd.com</a></td>
</tr>
<tr>
<td>Mr. Neil T. Wanamaker</td>
<td>A</td>
<td>Amdahl Corp.</td>
<td><a href="mailto:ntw20@mail.amdahl.com">ntw20@mail.amdahl.com</a></td>
</tr>
<tr>
<td>Mr. Charles Brill</td>
<td>P</td>
<td>AMP, Inc.</td>
<td><a href="mailto:cbrill@cup.portal.com">cbrill@cup.portal.com</a></td>
</tr>
<tr>
<td>Mr. Bob Whiteman</td>
<td>A</td>
<td>AMP, Inc.</td>
<td><a href="mailto:whiteman@cup.portal.com">whiteman@cup.portal.com</a></td>
</tr>
<tr>
<td>Mr. J. Michael Evans</td>
<td>O</td>
<td>AMP, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Larry Freeland</td>
<td>V</td>
<td>AMP, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Jeff Rosa</td>
<td>P</td>
<td>Amphenol Interconnect</td>
<td></td>
</tr>
<tr>
<td>Mr. Gary Porter</td>
<td>A</td>
<td>Ancot Corp.</td>
<td></td>
</tr>
<tr>
<td>Mr. Scott Smyers</td>
<td>P</td>
<td>Apple Computer</td>
<td><a href="mailto:smyers.s@applelink.apple.com">smyers.s@applelink.apple.com</a></td>
</tr>
<tr>
<td>Mr. Tom Debiec</td>
<td>P</td>
<td>Berk-Tek, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Schreck Philippe</td>
<td>O</td>
<td>BULL S.A.</td>
<td><a href="mailto:L.Schreck@frcl.bull.fr">L.Schreck@frcl.bull.fr</a></td>
</tr>
<tr>
<td>Mr. Joseph Salamone</td>
<td>O</td>
<td>Burndy Corp.</td>
<td></td>
</tr>
<tr>
<td>Mr. Steve Chang</td>
<td>A</td>
<td>BusLogic</td>
<td></td>
</tr>
<tr>
<td>Ms. Janet Schank</td>
<td>P</td>
<td>Central Data</td>
<td><a href="mailto:janet@cd.com">janet@cd.com</a></td>
</tr>
<tr>
<td>Mr. Kurt Witte</td>
<td>P</td>
<td>Ciprico Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Dave Weber</td>
<td>A</td>
<td>Cirrus Logic Inc.</td>
<td><a href="mailto:su@cmd.com">su@cmd.com</a></td>
</tr>
<tr>
<td>Mr. George Su</td>
<td>A</td>
<td>CMD Technology</td>
<td></td>
</tr>
<tr>
<td>Mr. Louis Grantham</td>
<td>O</td>
<td>Dallas Semiconductor</td>
<td><a href="mailto:74230.2271@compuserve.com">74230.2271@compuserve.com</a></td>
</tr>
<tr>
<td>Mr. Michael Smith</td>
<td>O</td>
<td>Dallas Semiconductor</td>
<td><a href="mailto:monia@starch.enet.dec.com">monia@starch.enet.dec.com</a></td>
</tr>
<tr>
<td>Mr. Tom Hunt</td>
<td>S</td>
<td>Digital Equipment Corp.</td>
<td><a href="mailto:weber@star.enet.dec.com">weber@star.enet.dec.com</a></td>
</tr>
<tr>
<td>Mr. William Dallas</td>
<td>A</td>
<td>Digital Equipment Corp.</td>
<td><a href="mailto:dallas@wasted.enet.dec.com">dallas@wasted.enet.dec.com</a></td>
</tr>
<tr>
<td>Dr. William Ham</td>
<td>A</td>
<td>Digital Equipment Corp.</td>
<td><a href="mailto:ham@subsys.enet.dec.com">ham@subsys.enet.dec.com</a></td>
</tr>
<tr>
<td>Mrs. Patricia Moore</td>
<td>S</td>
<td>EIE, America, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Skip Jones</td>
<td>P</td>
<td>Emulex Corp.</td>
<td><a href="mailto:sk_jones@emulex.com">sk_jones@emulex.com</a></td>
</tr>
<tr>
<td>Mr. I. Dal Allan</td>
<td>P</td>
<td>ENDL</td>
<td><a href="mailto:2501752@mcmail.com">2501752@mcmail.com</a></td>
</tr>
<tr>
<td>Mr. Kenneth J. Hallam</td>
<td>S</td>
<td>ENDL</td>
<td><a href="mailto:3450626@mcmail.com">3450626@mcmail.com</a></td>
</tr>
<tr>
<td>Mr. D. W. Spence</td>
<td>A</td>
<td>ENDL Associates</td>
<td><a href="mailto:5051038@mcmail.com">5051038@mcmail.com</a></td>
</tr>
<tr>
<td>Mr. Edward Lappin</td>
<td>P</td>
<td>Exabyte Corp.</td>
<td><a href="mailto:tedl@exabyte.com">tedl@exabyte.com</a></td>
</tr>
<tr>
<td>Mr. Mike O’Halloran</td>
<td>O</td>
<td>Fujitsu Microelectronics</td>
<td></td>
</tr>
<tr>
<td>Mr. Joel Urban</td>
<td>O</td>
<td>Fujitsu Microelectronics</td>
<td></td>
</tr>
<tr>
<td>Mr. Steve Caron</td>
<td>P</td>
<td>Furukawa Electric America</td>
<td></td>
</tr>
<tr>
<td>Mr. Ray Kallio</td>
<td>P</td>
<td>Harbor Electronics</td>
<td></td>
</tr>
<tr>
<td>Mr. Jeffrey L.</td>
<td>P</td>
<td>Hewlett Packard Co.</td>
<td><a href="mailto:jlw@hpmd48.boi.hp.com">jlw@hpmd48.boi.hp.com</a></td>
</tr>
<tr>
<td>Williams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. William Clemmey</td>
<td>O</td>
<td>Hewlett Packard Co.</td>
<td><a href="mailto:clemmey_w@apollo.hp.com">clemmey_w@apollo.hp.com</a></td>
</tr>
<tr>
<td>Mr. Oscar Kornblum</td>
<td>V</td>
<td>Hirose Electric U.S.A.</td>
<td></td>
</tr>
<tr>
<td>Mr. Yoshihiko Yano</td>
<td>V</td>
<td>Hitachi Computer Products</td>
<td><a href="mailto:y_yano@ipd.hitachi.com">y_yano@ipd.hitachi.com</a></td>
</tr>
<tr>
<td>Mr. David McFadden</td>
<td>P</td>
<td>Honda Connector</td>
<td></td>
</tr>
<tr>
<td>Mr. George Penokie</td>
<td>P</td>
<td>IBM Corp.</td>
<td>goprchvmp3.vnet.ibm.com</td>
</tr>
<tr>
<td>Mr. Gary R. Stephens</td>
<td>A</td>
<td>IBM Corp.</td>
<td><a href="mailto:gstephen@tucvm2.vnet.ibm.com">gstephen@tucvm2.vnet.ibm.com</a></td>
</tr>
<tr>
<td>Mr. Giles Frazier</td>
<td>S</td>
<td>IBM Corp.</td>
<td><a href="mailto:gfrazier@austin.vnet.ibm.com">gfrazier@austin.vnet.ibm.com</a></td>
</tr>
<tr>
<td>Mr. David Lawson</td>
<td>P</td>
<td>Interphase Corp.</td>
<td><a href="mailto:lawson@iphase.com">lawson@iphase.com</a></td>
</tr>
<tr>
<td>Mr. Geoff Barton</td>
<td>P</td>
<td>Iomega Corp.</td>
<td></td>
</tr>
<tr>
<td>Mr. Gary Brandvold</td>
<td>A</td>
<td>Iomega Corp.</td>
<td></td>
</tr>
<tr>
<td>Mr. David H. Shaff</td>
<td>P</td>
<td>JAE</td>
<td></td>
</tr>
<tr>
<td>Mr. Robert Bellino</td>
<td>P</td>
<td>Madison Cable Corp.</td>
<td><a href="mailto:71540.2756@compuserve.com">71540.2756@compuserve.com</a></td>
</tr>
<tr>
<td>Mr. Lawrence J. Lamers</td>
<td>P</td>
<td>Maxtor Corp.</td>
<td></td>
</tr>
<tr>
<td>Mr. Roger Pandanda</td>
<td>O</td>
<td>MCS</td>
<td><a href="mailto:pandanda@surf.net">pandanda@surf.net</a></td>
</tr>
<tr>
<td>Mr. Bob Masterson</td>
<td>P</td>
<td>Methode Electronics, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Manish Gupta</td>
<td>A</td>
<td>National Semiconductor</td>
<td></td>
</tr>
</tbody>
</table>
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg 

Meeting Attenders -- Enclosure (1)

<table>
<thead>
<tr>
<th>Name</th>
<th>S</th>
<th>Organization</th>
<th>Electronic Mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. John Lohmeyer</td>
<td>P</td>
<td>NCR Corp.</td>
<td><a href="mailto:john.lohmeyer@ftcollinsco.ncr.com">john.lohmeyer@ftcollinsco.ncr.com</a></td>
</tr>
<tr>
<td>Mr. Bruce Anderson</td>
<td>P</td>
<td>NEC Technologies Inc.</td>
<td><a href="mailto:banderson@nectech.com">banderson@nectech.com</a></td>
</tr>
<tr>
<td>Mr. James McGrath</td>
<td>P</td>
<td>Quantum Corp.</td>
<td><a href="mailto:75000.1241@compuserve.com">75000.1241@compuserve.com</a></td>
</tr>
<tr>
<td>Mr. Satwinder S. Mangat</td>
<td>A</td>
<td>Ricoh Corporation</td>
<td><a href="mailto:mangat@str.ricoh.com">mangat@str.ricoh.com</a></td>
</tr>
<tr>
<td>Mr. Gerald Houlder</td>
<td>A</td>
<td>Seagate Technology</td>
<td><a href="mailto:Gerry_Houlder@notes.seagate.com">Gerry_Houlder@notes.seagate.com</a></td>
</tr>
<tr>
<td>Mr. Gene Milligan</td>
<td>A</td>
<td>Seagate Technology</td>
<td><a href="mailto:Gene_Milligan@notes.seagate.com">Gene_Milligan@notes.seagate.com</a></td>
</tr>
<tr>
<td>Mr. Stephen G. Finch</td>
<td>P</td>
<td>Silicon Systems, Inc.</td>
<td><a href="mailto:5723283@mcimail.com">5723283@mcimail.com</a></td>
</tr>
<tr>
<td>Mr. Mike Yokoyama</td>
<td>P</td>
<td>Sony Corp. of America</td>
<td><a href="mailto:75140.300@compuserve.com">75140.300@compuserve.com</a></td>
</tr>
<tr>
<td>Mr. Erich Oetting</td>
<td>P</td>
<td>Storage Technology Corp.</td>
<td><a href="mailto:Erich_Oetting@Stortek.com">Erich_Oetting@Stortek.com</a></td>
</tr>
<tr>
<td>Mr. John Moy</td>
<td>P</td>
<td>Tandem Computers</td>
<td><a href="mailto:moy_john@tandem.com">moy_john@tandem.com</a></td>
</tr>
<tr>
<td>Mr. Alan Wetzel</td>
<td>A</td>
<td>Texas Instruments</td>
<td><a href="mailto:4274968@mcimail.com">4274968@mcimail.com</a></td>
</tr>
<tr>
<td>Mr. Harvey Waltersdorf</td>
<td>P</td>
<td>Thomas &amp; Betts</td>
<td></td>
</tr>
<tr>
<td>Mr. James Mang</td>
<td>P</td>
<td>Toshiba America, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mr. Dennis Mellinger</td>
<td>A</td>
<td>U.S. Design</td>
<td></td>
</tr>
<tr>
<td>Mr. Paul D. Aloisi</td>
<td>S</td>
<td>Unitrode Integrated Circuits</td>
<td><a href="mailto:Aloisi@uicc.com">Aloisi@uicc.com</a></td>
</tr>
<tr>
<td>Mr. Mark Jordan</td>
<td>S</td>
<td>Unitrode Integrated Circuits</td>
<td><a href="mailto:Jordan@uicc.com">Jordan@uicc.com</a></td>
</tr>
<tr>
<td>Mr. Jeff Stai</td>
<td>P</td>
<td>Western Digital</td>
<td><a href="mailto:382-5280@mcimail.com">382-5280@mcimail.com</a> or <a href="mailto:stai@wdc.com">stai@wdc.com</a></td>
</tr>
<tr>
<td>Mr. Tak Asami</td>
<td>A</td>
<td>Western Digital</td>
<td><a href="mailto:asami@wdc.com">asami@wdc.com</a></td>
</tr>
<tr>
<td>Mr. Doug Piper</td>
<td>P</td>
<td>Woven Electronics</td>
<td>WOVEN ELECTRONICS / MCI ID: 549-9900</td>
</tr>
</tbody>
</table>

73 people present

Status Key:  
P - Principal  
A - Alternate  
O - Observer  
L - Liaison  
S,V - Visitor
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL
X3T9.2/93-072r0

Mr. Scott Smyers (P) Mr. Jon Ablay (A) Mr. Harlan Andrews (A)
Apple Computer Apple Computer Apple Computer
MS 696 Mail Stop 81-CS Mail Stop 69-G
3535 Monroe St. Cupertino, CA 95014
Santa Clara, CA 95060 Phone: (408) 974-0615 Phone: (408) 974-6430
Email: Email: Email:
FAX: FAX: FAX:

Mr. James Blair (A) Mr. Mike Enroe (A) Mr. Ray Kubick (A)
Apple Computer Apple Computer Apple Computer
Apple Computer Apple Computer
20525 Mariani Ave. 20525 Mariani Ave. 3535 Monroe St.
Cupertino, CA 95014 Cupertino, CA 95014 Santa Clara, CA 95060
Email: Email: Email:
FAX: FAX: FAX:

Mr. Dennis Pak (A) Mr. Paul Wolf (A) Mr. Jeff Chen (O)
Apple Computer Apple Computer Apple Computer
Apple Computer Apple Computer
3535 Monroe St., MS 69-G 20525 Mariani Ave. M/S 81-CS Mail Stop 69G
Santa Clara, CA 95051 Cupertino, CA 95014 20525 Mariana Ave.
Phone: (408) 974-4874 Phone: (408) 862-7720 Phone: (408) 974-2898
Email: Email: Email:
FAX: FAX: FAX:

Mr. Matt Gulick (O) Mr. Jerry Katzung (O) Mr. Robert Brown (O)
Apple Computer Apple Computer Apple Computer
Archive Corp. Apple Computer Array Technology Corp.
Mail Stop 27-AL Mail Stop 27-AJ 3535 Monroe St. MS 69-G
10500 DeAnza Blvd. 20525 Mariani Ave. Santa Clara, CA 95051
Cupertino, CA 95014 Phone: (408) 974-2354 Phone: (408) 974-5382 Phone: (408) 974-6430
Email: Email: Email:
FAX: FAX: FAX:

Mr. Bill Infield (O) Ms. Adrienne Turenne (O) Mr. Joe Lawlor (A)
Archive Corp. Array Technology Corp. AT&T
Archive Corp. Array Technology Corp. Archive Corp.
1650 Sunflower Ave. 5692 Aurora Plc. 1100 E. Warrenville Rd.
Costa Mesa, CA 92626 Boulder, CO 80303 Rm 2A-429
Phone: (714) 966-4788 Phone: (303) 938-6014 Phone: (708) 979-0291
Email: Email: Email:
FAX: FAX: FAX:

Mr. David W. Gordon (O) Mr. Mark Lippitt (O) Mr. Joe Abbatiello (O)
Array Technology Corp. Computing Corp. Aura Electronics
Suite B Array Technology Corp. 50 McDermott Rd.
2200 US Hwy 27 South 5692 Aurora Plc. North Hanford, CA 93233
Boulder, CO 80301 Phone: (303) 938-6014 Phone: (203) 777-2541 Phone: (303) 444-9300
Email: Email: Email:
FAX: FAX: FAX:

Mr. Richard Naslin (O) Mr. Joe Abbatte (O) Mr. Gregory Fry (O)
AT&T 50 McDermott Rd. Ballard Synergy Corp.
1255 Cedar Crest Blvd. North Hanford, CA 93233 10601 S. DeAnza Blvd. #212
Phone: (215) 770-2345 Phone: (203) 777-2541 Phone: (408) 257-8844
Email: Email: Email:
FAX: FAX: FAX:

Mr. Douglas Brenneke (O) Mr. Claude Allars (O) Mr. Tom Debiec (P)
Array Technology Corp. Bull HN Inc. Belden Wire & Cable
Suite B Bull HN Inc. 2200 US Hwy 27 South
Boulder, CO 80301 Richmond, IN 47374 Richmond, IN 47374
Phone: (303) 444-9300 Phone: (714) 294-2079 Phone: (317) 983-5554
Email: Email: Email:
FAX: FAX: FAX:

Mr. John F. Osborn (A) Mr. Tadashi Ehara (O) Mr. Edward Hrvatin (P)
Berko Tek Inc. Biomation Corp. Brand-Rex Company
Suite B 1255 Cedar Crest Blvd. 132 White Oak Rd.
Boulder, CO 80303 Allentown, PA 18103 New Holland, PA 17557
Phone: (215) 770-2345 Phone: (408) 864-7792 Phone: (714) 841-7095
Email: Email: Email:
FAX: FAX: FAX:

Mr. Keli Kowal (O) Mr. Robert Brad (O) Mr. Kris Kowal (O)
Bull HN Inc. Bull S.A. Bull HN Inc.
300 Concord Road Rue Jean Jaures Rue Jean Jaures
Billerica, MA 01821 Rue Jean Jaures
Phone: (508) 294-3333 Lea Clays Sous Bois
FAX: (717) 354-6200 Rue Jean Jaures
Email: Email: Email:
FAX: FAX: FAX:

Mr. Charles Lollard (O) Mr. Schreck Philippe (O) Mr. Grount (O)
BULL Systems BULL S.A. Bull SA
Rue Jean Jaures Rue Jean Jaures Rue Jean Jaures
Bull HN Inc. Bull HN Inc. Rue Jean Jaures
Phone: (33) 30807128 Phone: (33) 130807285 Phone: (508) 294-3333
Email: Email: Email:
FAX: FAX: FAX:

Mr. Heinz Pionarneack (A) Mr. Philip Burdo (O) Mr. Joseph Salamone (O)
Bunrudy Corp. Bunrudy Corp. Bunrudy Corp.
Burndy Corp. Bunrudy Corp. Bunrudy Corp.
38 Richards Ave. 38 Richards Ave. 38 Richards Ave.
Norwalk, CT 06856 Norwalk, CT 06856 Norwalk, CT 06856
Phone: (203) 852-8440 Phone: (203) 852-8556 Phone: (203) 852-8455
Email: Email: Email:
FAX: FAX: FAX:
<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Tom Kulesza</td>
<td>Honda Connector</td>
<td>8050 Corporate Woods Parkway</td>
<td>(708)</td>
<td>913-9566</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Tsuyoshi Takizawa</td>
<td>IBM (Japan)</td>
<td>8050 Corporate Woods Parkway</td>
<td>(408)</td>
<td>284-2148</td>
<td>FAX: (408) 284-7817</td>
</tr>
<tr>
<td>Mr. George Penokie</td>
<td>IBM Corp.</td>
<td>3754 Highway 52 N.</td>
<td>(507)</td>
<td>253-5208</td>
<td>Email: <a href="mailto:gop@rchvmp3.vnet.ibm.com">gop@rchvmp3.vnet.ibm.com</a></td>
</tr>
<tr>
<td>Mr. Paul Anderson</td>
<td>IBM Corp.</td>
<td>3605 Highway 52 N.</td>
<td>(507)</td>
<td>253-5208</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Gerard Marazas</td>
<td>IBM Corp.</td>
<td>3605 Highway 52 N.</td>
<td>(507)</td>
<td>253-5208</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. John Diabrow</td>
<td>IBM Corp.</td>
<td>960 Corporate Woods Parkway</td>
<td>(408)</td>
<td>256-9776</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Jim Kopec</td>
<td>IBM Corp.</td>
<td>1701 North St.</td>
<td>(407)</td>
<td>913-9566</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Gerald Rouse</td>
<td>IBM Corp.</td>
<td>1701 North St.</td>
<td>(407)</td>
<td>913-9566</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Gary Fredrickson</td>
<td>ICL National Computer</td>
<td>9801 Northland Drive</td>
<td>(714)</td>
<td>458-7282</td>
<td>FAX: (714) 458-7282</td>
</tr>
<tr>
<td>Mr. Kevin R. Pokorney</td>
<td>Intellistor, Inc.</td>
<td>2602 Clover Basin Drive</td>
<td>(303)</td>
<td>682-6401</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. David Watson</td>
<td>Interphase Corp.</td>
<td>13800 S. 40th</td>
<td>(214)</td>
<td>919-9200</td>
<td>FAX: (214) 919-9200</td>
</tr>
<tr>
<td>Mr. David Buyse</td>
<td>Interphase Corp.</td>
<td>13800 S. 40th</td>
<td>(214)</td>
<td>919-9200</td>
<td>FAX: (214) 919-9200</td>
</tr>
<tr>
<td>Mr. Geoff Barton</td>
<td>Iomega Corp.</td>
<td>1821 West 4000 South</td>
<td>(801)</td>
<td>778-7000</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Ted Dubbs</td>
<td>IOMEGA Corp.</td>
<td>1821 West 4000 South</td>
<td>(801)</td>
<td>778-7000</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Daniel Wang</td>
<td>Joincom Electronic Corp.</td>
<td>1851 E. Deere Ave.</td>
<td>(714)</td>
<td>757-8442</td>
<td>FAX: (714) 757-8301</td>
</tr>
<tr>
<td>Mr. Ed Gershenson</td>
<td>Kendall Square Research Corp.</td>
<td>170 Tracer Lane</td>
<td>(408)</td>
<td>773-9551</td>
<td>FAX: (408) 773-9551</td>
</tr>
<tr>
<td>Mr. James Lee</td>
<td>Laser Magnetic Storage Int'l</td>
<td>6F NO. 245, Sec. 3</td>
<td>(408)</td>
<td>773-9551</td>
<td>FAX: (408) 773-9551</td>
</tr>
<tr>
<td>Mr. David H. Shaff</td>
<td>JAE</td>
<td>2857 NE 26 Street</td>
<td>(305)</td>
<td>563-3507</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Jon Miller</td>
<td>IBM Consultants Inc</td>
<td>2857 NE 26 Street</td>
<td>(305)</td>
<td>563-3507</td>
<td>Email:</td>
</tr>
<tr>
<td>Mr. Don Tolmie</td>
<td>Los Alamos Labs</td>
<td>777 N. Pachecostrisa Ave</td>
<td>(408)</td>
<td>773-9551</td>
<td>FAX: (408) 773-9551</td>
</tr>
</tbody>
</table>
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach

Apr 22, 1993 - X3T9.2 Document Register - Enclosure (3)

X3T9.2/93-001R0 Date: 3/12/93 Author: J. Lohmeyer [3/15/93]
Desc: X3T9.2 Annual Report
Res:

X3T9.2/93-002R0 Date: 1/6/93 Author: G. Penokie [3/15/93]
Desc: Summary of SCSI Disk Array Items submitted to the RAID Study Group
Res:

X3T9.2/93-003R0 Date: 2/13/93 Author: G. Penokie
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-003R1 Date: 2/13/93 Author: G. Penokie
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-003R3 Date: 3/21/93 Author: G. Penokie [3/15/93]
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-003R4 Date: 4/15/93 Author: G. Penokie [6/15/93]
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-004R0 Date: 1/11/93 Author: S. Finch [3/15/93]
Desc: ATA Extensions Working Group Minutes (1/11/93)
Res:

X3T9.2/93-005R0 Date: Author: G. Penokie [3/15/93]
Desc: RAID Study Group Minutes (1/11/93)
Res:

X3T9.2/93-006R0 Date: 1/12/93 Author: J. Lohmeyer [3/15/93]
Desc: X3T9.2 General Working Group Minutes (1/12-13/93)
Res:

X3T9.2/93-007R0 Date: 1/11/93 Author: J. McGrath [3/15/93]
Desc: Support of Local Bus in ATA
Res:

X3T9.2/93-008R0 Date: 10/21/92 Author: D. Kummer [3/15/93]
Desc: Local Bus IDE Modes
Res:

X3T9.2/93-009R0 Date: Author: S. Finch
Desc: ATA Extensions draft document
Res:

X3T9.2/93-010R0 Date: 1/11/93 Author: R. Roberts [3/15/93]
Desc: "What does the Customer Want?" presentation
Res:

X3T9.2/93-011R0 Date: 1/4/93 Author: S. Todd [3/15/93]
Desc: Dual Array Controller issues
Res:

X3T9.2/93-012R0 Date: 1/5/93 Author: G. Houlder [3/15/93]
Desc: Clarification of TTD, CIOP
Res:

X3T9.2/93-013R0 Date: 1/4/93 Author: P. Entzel [3/15/93]
Desc: Request for two SCSI-3 (SSC) Density Codes
Res: Gary Stephens to assign codes

X3T9.2/93-014R0 Date: 1/12/93 Author: G. Marazas [3/15/93]
Desc: Serial Bus Protocol Fundamentals
Res:

X3T9.2/93-015R0 Date: Author: B. Dallas [3/15/93]
Desc: Minutes of CAM-2 Study Group Meeting (1/11/93)
Res:

X3T9.2/93-016R0 Date: 1/21/93 Author: R. Weber [3/15/93]
Desc: Why SCSI-3 needs ABORT (all initiator tasks)
Res:

X3T9.2/93-017R0 Date: 1/21/93 Author: J. Lohmeyer [3/15/93]
Desc: X3T9.2 Meeting Schedule
Res:

X3T9.2/93-018R0 Date: 1/25/93 Author: S. Finch [3/15/93]
Desc: ATA Extensions-Specifications of Electrical Characteristics
Res:

X3T9.2/93-019R0 Date: 2/15/93 Author: L. Lamers [3/15/93]
Desc: X3T9.2 Procedure on Electronic Notification
Res:

X3T9.2/93-020R0 Date: 2/15/93 Author: J. Williams [3/15/93]
Desc: New Optical Memory Density Codes
Res:

X3T9.2/93-020R1 Date: 2/22/93 Author: J. Williams [3/15/93]
Desc: New Optical Memory Density Codes
Res: Accepted for SCSI-3 in 4/93.

X3T9.2/93-021R0 Date: 2/11/93 Author: R. Jesup [3/15/93]
Desc: Response to Public Review Comment on CAM
Res:

X3T9.2/93-022R0 Date: 1/28/93 Author: T. Hanus [3/15/93]
Desc: Minutes of SFF SSWG on Local Bus ATA
Res:
Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg

X3T9.2/93-042R0 Date: 3/17/93 Author: E. Gardner [ ]
Desc: SBP Command Block CDB Alignment
Res:

X3T9.2/93-042R1 Date: 3/17/93 Author: E. Gardner [3/15/93]
Desc: SBP Command Block CDB Alignment
Res:

X3T9.2/93-043R0 Date: 3/17/93 Author: N. Hayes [3/15/93]
Desc: SQRL SCSI Queued Reference List
Res:

X3T9.2/93-044R0 Date: 3/18/93 Author: R. Roberts [3/15/93]
Desc: Presentation on BASE-1
Res:

X3T9.2/93-045R0 Date: 3/18/93 Author: S. Finch [3/15/93]
Desc: Minutes of the Disk Drive Working Group Mtg
Res:

X3T9.2/93-046R0 Date: 2/24/93 Author: R. Roberts [3/15/93]
Desc: Minutes of SFF SSWG on Local Bus ATA
Res:

X3T9.2/93-047R0 Date: 3/19/93 Author: J. Lohmeyer [3/15/93]
Desc: CAM Minutes
Res:

X3T9.2/93-048R0 Date: 3/21/93 Author: J. Lohmeyer [3/15/93]
Desc: Jeopardy Letter for 1993
Res:

X3T9.2/93-049R0 Date: 3/22/93 Author: L. Lamers [3/15/93]
Desc: Minutes of the RAID Study Group
Res:

X3T9.2/93-050R0 Date: 3/22/93 Author: S. Finch/Allan [3/15/93]
Desc: Proposal Proposal for ATA-2
Res:

X3T9.2/93-051R0 Date: 1/6/93 Author: I. Larsen [3/15/93]
Desc: Asynch transfer question & reply
Res:

X3T9.2/93-052R0 Date: 3/14/93 Author: K. Gingerich [3/15/93]
Desc: Suggested Changes to Fig 8 in SPI
Res:

X3T9.2/93-053R0 Date: 1/31/93 Author: J. Cohen [3/15/93]
Desc: Quotation on SCSI-2 edit
Res:

X3T9.2/93-054R0 Date: 1/31/93 Author: J. Cohen [3/15/93]
Desc: Quotation on ATA edit
Res:

X3T9.2/93-055R0 Date: 1/31/93 Author: J. Cohen [3/15/93]
Desc: Quotation on CAM edit
Res:

X3T9.2/93-056R0 Date: 3/12/93 Author: C. Nosnik [3/15/93]
Desc: Copyright fo Single Connector Attachment Document
Res:

X3T9.2/93-057R0 Date: 3/12/93 Author: R. Snively [3/15/93]
Desc: Single Connector Attachment for Small SCSI Disk Drives
Res:

X3T9.2/93-058R0 Date: 3/12/93 Author: R. Weber [3/15/93]
Desc: SIMport Specification
Res:

X3T9.2/93-059R0 Date: 4/21/93 Author: L. Lamers [6/15/93]
Desc: ATA Rev 4 Errata
Res:

X3T9.2/93-060R0 Date: 4/22/93 Author: E. Gardner [6/15/93]
Desc: Minutes of SBP meeting April 7-8, 1993
Res:

X3T9.2/93-061R0 Date: 4/22/93 Author: J. Scheible [6/15/93]
Desc: Project Proposal for Serial Storage Protocol
Res:

X3T9.2/93-062R0 Date: 3/29/93 Author: S. Washburn [6/15/93]
Desc: New Code for QIC 555 Tape - mini cartridge
Res:

X3T9.2/93-063R0 Date: 3/29/93 Author: R. Weber [6/15/93]
Desc: Disposition of COPY Function Codes in 90-048r7
Res:

X3T9.2/93-063R1 Date: 4/20/93 Author: R. Weber [6/15/93]
Desc: Disposition of COPY Function Codes in 90-048r7
Res: Accepted for SCSI-3 in 4/93

X3T9.2/93-064R0 Date: 3/30/93 Author: R. Weber [6/15/93]
Desc: Disposition of ASC/ASCQ tag number in X3T9.2/92-141R5
Res:

X3T9.2/93-065R0 Date: 4/19/93 Author: J. Frazier [6/15/93]
Desc: Clearing an ACA in SIP
Res: