Accredited Standards Committee*

InterNational Committee for Information Technology Standards (INCITS)

Date: January 16, 2006

Reply to: John Lohmeyer

To: T10 Membership

From: Ralph Weber / John Lohmeyer

Subject: Minutes of T10 Plenary Meeting #71 -- January 12, 2006

Phoenix, AZ

Agenda

- 1. Opening Remarks
- 2. Approval of Agenda
- 3. Attendance and Membership
- 4. Approval of Minutes November 2005 Austin, TX (T10/05-420r0)
- 5. Document Distribution
- 6. Call for Patents
- 7. Review of Old Action Items
- 8. Project Status Reports
 - 8.1 Project Status Summary and INCITS Liaison [Lohmeyer]
 - 8.1.1 INCITS Antitrust Guidelines
 - 8.2 Bridge Controller Commands (BCC) Project 1528-D [Elliott]
 - 8.3 SCSI Enclosure Services 2 (SES-2) Project 1559-D [Elliott]
 - 8.4 Fibre Channel Protocol 3 (FCP-3) Project 1560-D [Peterson]
 - 8.5 Serial Attached SCSI 1.1 (SAS-1.1) Project 1601-D [Elliott]
 - 8.6 SCSI Stream Commands 3 (SSC-3) Project 1611-D [Peterson]
 - 8.7 MultiMedia Command Set 5 (MMC-5) Project 1675-D [McFerrin]
 - 8.8 SCSI Architecture Model 4 (SAM-4) Project 1683-D [Penokie]
 - 8.9 SCSI / ATA Translation (SAT) Project 1711-D [Sheffield]
 - 8.10 Object-Based Storage Devices 2 (OSD-2) Project 1729-D [Weber]
 - 8.11 SCSI Media Changer Command Set 3 (SMC-3) Project 1730-D [Banther]
 - 8.12 SCSI Primary Commands 4 (SPC-4) Project 1731-D [Weber]
 - 8.13 Serial Attached SCSI Driver Interface (SDI) Project 1740-D [Elliott]
 - 8.14 Automation/Drive Interface Commands 2 (ADC-2) Project 1741-D [Suhler]
 - 8.15 Automation/Drive Interface Transport Protocol 2 (ADT-2) Project 1742-D [Suhler]
 - 8.16 Serial Attached SCSI 2 (SAS-2) Project 1760-D [Elliott]
 - 8.17 SCSI Block Commands 3 (SBC-3) Project 1799-D [Penokie]
- 9. Old Business
- 10. New Business
 - 10.1 Project proposal for SCSI / ATA Translation 2 (SAT-2) (05-444r1) [Overby]
 - 10.2 Actions on SAS Protocol Working Group Recommendations
 - 10.3 Actions on SAS PHY Working Group Recommendations
 - 10.4 Actions on SAT Working Group Recommendations
 - 10.5 Actions on CAP Working Group Recommendations
 - 10.6 Actions on Other Working Group Recommendations
 - 10.7 Project Proposal for Fibre Channel Protocol for SCSI 4 (FCP-4) (06-032r1) [Peterson]
- 11. ISO/IEC
 - 11.1 ISO/IEC Report [Robinson]

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

INCITS Secretariat, Information Technology Industry Council (ITI)

1250 Eye Street NW, Suite 200, Washington, DC 20005-3922

Email: incits@itic.org Telephone: 202-737-8888 FAX: 202-638-4922

- 11.2 ISO/IEC Business [Robinson]
 - 11.2.1 NWIP for FCP-3 (06-045) [Robinson]
- 12. Liaison Reports
 - 12.1 T11 Liaison Report [Snively]
 - 12.2 T13 Liaison Report [Colegrove]
 - 12.3 SFF Industry Group [Allan]
 - 12.4 IEEE 1394 [Johansson]
 - 12.5 SCSI Trade Association (STA) [Czekalski]
 - 12.6 IETF SCSI over IP [Black/Robinson]
 - 12.7 SNIA [open]
 - 12.8 Trusted Computing Group [Fitzpatrick]
- 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 T10 Chair, called the meeting to order at 9:00 a.m., Thursday January 12, 2006. He thanked Bob Sheffield of Intel Corp. for hosting the meeting.

John said that INCITS subgroup membership forms and the T10 document subscription forms are available on the meeting web site. He said that people should use these forms to ensure the INCITS Secretariat has the latest membership information. These forms should be mailed directly to the INCITS Secretariat.

As is customary, the people attending introduced themselves. Attendance was taken electronically via the meeting web site.

2. Approval of Agenda

No additions/changes were made to the draft agenda:

John Lohmeyer moved and Ralph Weber seconded that the agenda be approved. In the absence of any objections, the motion passed unanimously.

The following items were added to the agenda during the course of the meeting:

8.17 SCSI Block Commands - 3 (SBC-3) Project 1799-D [Penokie]

3. Attendance and Membership

The membership requirements were reviewed. INCITS 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 T10. The individual may begin voting at the beginning of his/her second meeting.

To maintain membership, organizations must pay the INCITS Service Fee (\$800).

John briefly discussed the mailing fees. Complete pricing information is contained in the 2006 membership form (available at http://www.t10.org/ftp/t10/mem_form.txt).

There are also minimum attendance requirements to maintain voting membership on T10. If a member organization fails to attend two of the last three T10 meetings, they are warned that failing to attend the next T10 meeting would result in their membership being terminated.

The Chair said he had sent emails to 11 people from 6 organizations informing them that their membership was in jeopardy due to non-attendance (see 05-442r0) and that their membership would be terminated if they did not attend this meeting. The following organizations were in attendance jeopardy:

Amphenol Interconnect Brocade Comm. Systems, Inc. Cisco Systems, Inc. General Dynamics Iomega Corp. Toshiba

All organizations in attendance jeopardy were present except:

Cisco Systems, Inc. Toshiba

The organizations that were not present had their representatives changed to Advisory (non-voting) status.

John Lohmeyer called for requests to join the committee. No organizations joined at this meeting

The T10 membership during the meeting was 45 organizations, down from the 47 member organizations extant at the time the meeting was convened. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current T10 membership list.

John Lohmeyer reminded members that failure to vote on two out of the last three letter ballots also would result in membership jeopardy. The current letter ballot jeopardy status is as shown:

```
T10 Letter Ballot Jeopardy Report -- 2005/04/29
```

Organization		04-326r0 04-327r0 SPC-3	05-125r0 05-126r0 SAS-1.1	05-134r0 05-135r0 FCP-3
Agilent Technologies		DNV	Yes	Yes
Crossroads Systems, Inc.	(*)	Yes	DNV	DNV
QLogic Corp.		DNV	Yes	Yes

```
QLogic Corp.

DNV

Yes

Yes

Key:

Yes

Organization voted Yes

No Organization voted No

Abs Organization voted Abstain

DNV

Organization failed to return letter ballot

-- Organization was not a voting member for the letter ballot

(*) Organization is in letter ballot jeopardy (and has voluntarily changed to Advisory status)
```

4. Approval of Minutes - November 2005 - Austin, TX (T10/05-420r0)

John Lohmeyer moved and Ralph Weber seconded that the minutes be approved as written. In the absence of any objections, the motion passed unanimously.

5. Document Distribution

Members who have any problems with their mailing subscription should deal directly with Parthenia Purnell (ppurnell@itic.org) (202) 626-5741. A subscription form is included on the meeting disk.

John Lohmeyer requested that all documents for the next mailing be uploaded to the T10 web site by 10:30 a.m. on Thursday January 19, 2006. Documents received after this time may go into a subsequent mailing.

John reminded the committee of the requirements for document submission. Since T10 meets its document retention requirements by preparing mailings, documents included in the mailing must be suitable for archiving. This means that native-format and/or Portable Document Format (PDF) electronic originals with proper identification must be submitted.

People can obtain T10 document numbers and revised T10 document numbers by filling out a web form at http://www.t10.org/members/. The assigned T10 document number will be sent to the requestor by e-mail. The requestor may then reply to this email, including the document to be posted as an attachment. The document will be automatically posted on the T10 web site.

T10 members can complete this entire process using their personal T10 password. John explained that members who do not know their password should surf to the above URL and click on the "forgot password" link to have their password sent to them via e-mail.

John noted that non-members can also use the above document number process, but their requests will require approval by an administrator.

Minutes are available on the T10 World Wide Web page (see below), and are distributed to the T10 Reflector.

To be added to the T10 Reflector, send an e-mail to majordomo@t10.org with the line 'subscribe t10' in the message body.

The INCITS Secretariat maintains a World Wide Web page at:

http://www.incits.org/.

LSI Logic maintains a web site on behalf of T10 on a server donated by the SCSI Trade Association at:

http://www.t10.org/

There is also a mirror site at:

http://www.t11.org/t10/

The T10 document register is available at:

ftp://ftp.t10.org/t10/dr.txt

Call for Patents

John Lohmeyer explained that this is a regular agenda item to identify any potential patent issues with developing standards and technical reports.

For additional information on ANSI procedures and the ANSI patent policy, please see the INCITS web page at http://www.incits.org/call.htm. The contact for INCITS patent issues is Lynn Barra (lbarra at itic dot org) or (202) 626-5739. Gene Milligan prepared a useful "Handy dandy Technical Committee's Patents Guide", which is available at ftp://ftp.t10.org/t10/document.99/99-291r0.pdf.

John Lohmeyer presented a summary of the ANSI patent policy prepared by Gary Robinson. The summary is also included on the Rules and Procedures (plus Patent Information) page on the T10 web site.

Bob Sheffield reminded the committee that a statement of the Intel patent policy can be found in T10/01-041r0.

John Lohmeyer said that he had received a letter from Nero AG (T10/06-009r0) stating that they have applied for a patent on Timely Safe Recording (TSR) regarding the draft MMC-5 standard.

John Lohmeyer said that he had received a letter from Molex Inc. (T10/06-063r0) stating that they will license their patents on the miniSAS connector regarding the draft SAS-1.1 standard.

Rob Elliott noted that SAS-1.1 currently does not have the patent statement noting that patents have been identified. John Lohmeyer stated that he would find the appropriate way to deal with this issue.

John asked that anyone who knows of other applicable patents to contact him.

There were no other responses to the call for patents other than those mentioned above.

7. Review of Old Action Items

- John Lohmeyer will forward 05-382r0 to INCITS as a new project proposal for SBC-3. *Complete*.
- 616 Gary Robinson will prepare an NWIP for FCP-3. Complete.
- Gary Robinson will forward 04-411r0 to the SC25 TAG as an NWIP contribution for SPC-3 as project 1.25.13.11.33, 14776-453, to mark YES on each of the 6 questions, define Gary S Robinson as Project Editor in question 4, and normal standard development track is proposed in question 7. *Complete*.
- Gary Robinson will inform the SC25 TAG that T10 has reviewed the FDIS, 1.25.13.11.31 SBC-2 14776-322, and recommends that the JTC1 TAG vote to approve said FDIS. *Complete.*

8. Project Status Reports

8.1 Project Status Summary and INCITS Liaison [Lohmeyer]

John Lohmeyer said that the current T10 project status summary was included on the meeting web site and will be included in the mailing as usual.

8.1.1 INCITS Antitrust Guidelines

All T10 members should be aware of the INCITS antitrust guidelines available at http://www.incits.org/natrust.htm.

John reminded committee members that all persons present at a T10 meeting is responsible for identifying potential violations of the antitrust guidelines and reporting them to the chair. Discussions of the following topics are considered sensitive:

- * Any company's prices or pricing policies;
- * Specific R&D, sales and marketing plans;
- * Any company's confidential product, product development or production strategies;
- * Whether certain suppliers or customers will be served;
- * Prices paid to input sources; or
- * Complaints about individual firms or other actions that might tend to hinder a competitor in any market.

8.2 Bridge Controller Commands (BCC) Project 1528-D [Elliott]

Rob Elliott reported that there has been no activity on BCC.

8.3 SCSI Enclosure Services - 2 (SES-2) Project 1559-D [Elliott]

Rob Elliott reported that a new SES-2 revision will be posted in time for the mailing incorporating the proposals approved by this meeting.

8.4 Fibre Channel Protocol - 3 (FCP-3) Project 1560-D [Peterson]

John Lohmeyer reported that due to a SNAFU at the INCITS Secretariat, the public review on FCP-3 ends 27 February 2006.

Dave Peterson reported that the FCP-4 study group met on January 10, 2006 (minutes in 06-067). The study group has prepared a project proposal (06-032), which will be addressed at the March T10 meeting.

8.5 Serial Attached SCSI - 1.1 (SAS-1.1) Project 1601-D [Elliott]

John Lohmeyer reported that due to a SNAFU at the INCITS Secretariat, the public review on SAS-1.1 ends 27 February 2006.

8.6 SCSI Stream Commands - 3 (SSC-3) Project 1611-D [Peterson]

Dave Peterson presented a report summarizing the activities of the SSC-3 working group (minutes in 06-066).

Conference calls have been scheduled on January 25, February 8, and February 20 from noon until 2 pm Pacific Time to discuss key management.

8.7 MultiMedia Command Set - 5 (MMC-5) Project 1675-D [McFerrin]

Bill McFerrin reported that the working group completed a review of MMC-5 draft (minutes in 06-071). A topic of interest to the group was the use of world-wide names by MMC devices. Based on consultations with the CAP working group a recommendation is in development for MMC-5.

The group expects to start a Letter Ballot on MMC-5 around the time of the March plenary.

Bill noted that an MMC-6 project proposal will be available for consideration at the March meeting.

8.8 SCSI Architecture Model - 4 (SAM-4) Project 1683-D [Penokie]

George Penokie reported that a new revision of SAM-4 will be generated incorporating all approved proposals, but may not be in time for the mailing.

8.9 SCSI / ATA Translation (SAT) Project 1711-D [Sheffield]

Bob Sheffield reviewed the recent SAT activities (minutes in 06-021 and 06-039). SAT r08 will be prepared in time for the next mailing to incorporate all approved proposals. The working group recommended that T10 conduct a forwarding letter ballot on SAT r08.

8.10 Object-Based Storage Devices - 2 (OSD-2) Project 1729-D [Weber]

Ralph Weber reported that the SNIA TWG is nearing resolution on the Exception Management and Snapshots topics. The chances of uploading a new revision before March were estimated to be slim.

8.11 SCSI Media Changer Command Set - 3 (SMC-3) Project 1730-D [Banther]

Michael Banther reported on the activities of the SMC-3 working group (minutes in 06-062) with an electronic report available in 06-073r0.

8.12 SCSI Primary Commands - 4 (SPC-4) Project 1731-D [Weber]

Ralph Weber reported that SPC-4 r03 will be posted before the mailing and will incorporate all proposals approved by the November meeting and this meeting. He apologized for not preparing a revision over the holidays.

8.13 Serial Attached SCSI Driver Interface (SDI) Project 1740-D [Elliott]

Rob Elliott noted that any changes to the SDI will be handled in the CAP working group and that no changes are currently proposed.

8.14 Automation/Drive Interface - Commands - 2 (ADC-2) Project 1741-D [Suhler]

Paul Suhler reported on the activities of the ADI working group (minutes in 06-031) with an electronic report available in 06-072r0. A new revision of ADC-2 will be posted in time for the mailing.

8.15 Automation/Drive Interface - Transport Protocol - 2 (ADT-2) Project 1742-D [Suhler]

Paul Suhler reported on the activities of the ADI working group (minutes in 06-031) with an electronic report available in 06-073r0. A call for final technical proposals has been posted and technical input will close after the March meeting.

8.16 Serial Attached SCSI - 2 (SAS-2) Project 1760-D [Elliott]

Rob Elliott reported that several SAS-2 protocol proposals have been recommended (minutes in 06-038). The SAS-2 physical working group (minutes in 06-068) made no recommendations. A SAS-2 revision will be posted containing all approved proposals in time for the mailing.

8.17 SCSI Block Commands - 3 (SBC-3) Project 1799-D [Penokie]

George Penokie reported SBC-3 r03 has been posed on the web site. A new revision will be prepared containing the proposals approved at this meeting, probably not in time for the mailing.

9. Old Business

There was no old business.

10. New Business

10.1 Project proposal for SCSI / ATA Translation - 2 (SAT-2) (05-444r1) [Overby]

John Lohmeyer led a review of the SAT-2 project proposal (05-444r1). Two volunteer editors have been identified.

John Lohmeyer moved that T10 approve 05-444r1 as a new project proposal for SCSI / ATA Translation - 2 (SAT-2). Curtis Stevens seconded the motion. The motion passed a two-thirds vote of 38:0:2:5=45.

John Lohmeyer took an action item to forward 05-444r1 to INCITS for further processing as a new project proposal for SAT-2.

10.2 Actions on SAS Protocol Working Group Recommendations

The recommendations from the SAS protocol working group (minutes in 06-038) were presented to the committee.

George Penokie reviewed the following proposals recommended for inclusion in SAS-2:

```
06-055r0 (More counters) [Elliott]
05-309r3 (Add device name to IDENTIFY address frame) [Elliott]
06-028r1 (Redundant Primitive Sequence Handling) [Gorshe]
06-054r1 (Expander Issues) [Elliott]
```

Rob Elliott moved that 05-309r3, 06-028r1, and 06-054r1 be approved for inclusion in SAS-2. Ron Roberts seconded the motion. The motion passed on a vote of 30:0:6:9=45.

Rob Elliott moved that 06-055r0 be approved for inclusion in SAS-2. Kevin Marks seconded the motion. The motion passed on a vote of 19:5:14:7=45.

10.3 Actions on SAS PHY Working Group Recommendations

There were no recommendations made by the SAS physical working group (minutes in 06-068).

10.4 Actions on SAT Working Group Recommendations

The recommendations from the SAT working group (minutes in 06-021 and -039) were presented to the committee.

Bob Sheffield reviewed the following proposals recommended for inclusion in SAT:

```
05-245r4 (SEND DIAGNOSTIC Command and Self Test Results) [Bellamy] 06-001r1 (I_T Nexus Loss) [Sheffield] 06-022r0 (Rewrite TEST UNIT READY) [Sheffield] 06-020r1 (Clarify error handling for PIO data-in commands) [Elliott/Weber]
```

Bob Sheffield moved that 05-245r4, 06-001r1, 06-022r0, and 06-020r1 be approved for inclusion in SAT. Ron Roberts seconded the motion. The motion passed on a vote of 31:0:7:7=45.

Bob Sheffield took an action item to prepare SAT r08. Based on the unanimous recommendation of the SAT working group, John Lohmeyer took an action item to conduct a letter ballot on forwarding SAT r08 to INCITS for first public review.

10.5 Actions on CAP Working Group Recommendations

The recommendations from the CAP working group (minutes in 06-040) were presented to the committee.

George Penokie reviewed the following proposals recommended for inclusion in SAM-4:

```
06-003r1 (LUN representation format) [Elliott] 06-025r1 (More initiator port to I_T nexus changes) [Elliott]
```

Rob Elliott moved that 06-003r1 and 06-025r1 be approved for inclusion in SAM-4. Bob Nixon seconded the motion. The motion passed on a vote of 32:0:5:8=45.

George Penokie reviewed the following proposals recommended for inclusion in SPC-4:

```
06-018r0 (Update SPC-4 version field) [Weber]
05-157r9 (Security Commands proposal) [Houlder]
05-252r2 (Create well known LUN for security commands) [Houlder]
```

Gerry Houlder moved that 06-018r0, 05-157r9, and 05-252r2 be approved for inclusion in SPC-4. Roger Cummings seconded the motion. The motion passed on a vote of 32:0:7:6=45.

George Penokie reviewed the following proposals recommended for SPC-4 and SBC-3:

```
05-383r3 (Deferred microcode downloads) [Penokie] 05-340r3 (Background scan additions) [Elliott]
```

George Penokie moved that 05-383r3 be approved for SPC-4 and SBC-3. Bill Martin seconded the motion. The motion passed on a vote of 32:0:7:6=45.

Rob Elliott moved that 05-340r3 be approved for SPC-4 and SBC-3. Gerry Houlder seconded the motion. The motion passed on a vote of 23:2:12:8=45.

George Penokie reviewed 05-368r2 (Allow more commands through Write Exclusive reservations) [Elliott] a proposal recommended for inclusion in SPC-4, SBC-3, and SMC-3. George Penokie reviewed 06-036r1 (More Additional Element Status descriptors) [Elliott] a proposal recommended for inclusion in SES-2. George Penokie reviewed 06-002r2 (IEEE OUI/company_id tutorial for SCSI) [Elliott] a proposal recommended for forwarding to IEEE.

Rob Elliott moved that 05-368r2 be approved for inclusion in SPC-4, SBC-3, and SMC-3; that 06-036r1 be approved for inclusion in SES-2; and that that 06-002r2 be approved for forwarding to IEEE. Ron Roberts seconded the motion. The motion passed on a vote of 34:0:4:7=45.

John Lohmeyer took an action item to forward 06-002r2 to the IEEE for posting as an OUI tutorial for SCSI.

George Penokie reviewed 05-085r9 (Style Guide) [Penokie] a proposal recommended for posting as the T10 Style Guide.

Bob Sheffield moved that 05-085r9 be approved for posting as the T10 Style Guide. Bob Nixon seconded the motion. The motion passed on a vote of 32:2:5:6=45.

10.6 Actions on Other Working Group Recommendations

No recommendations were brought to the committee from other working groups.

10.7 Project Proposal for Fibre Channel Protocol for SCSI - 4 (FCP-4) (06-032r1) [Peterson]

The FCP-4 study group prepared a project proposal for an FCP-4 project. However, the request to add this project proposal to the T10 agenda was not received two weeks prior to the T10 meeting, so T10 is not allowed to take action at this meeting. This is the only action for which the INCITS rules automatically invoke the two-week rule. This agenda item will be placed under old business for the March T10 meeting.

11. ISO/IEC

11.1 ISO/IEC Report [Robinson]

Gary Robinson presented the ISO/IEC report (06-035r2).

Rob Elliott moved that the IR be instructed to start the process of removing SSM-2 from the SC25 program of work. Gerry Houlder seconded the motion. The motion passed 26:0:12:7=45.

Gary Robinson took an action item to start the process of removing SSM-2 from the SC25 program of work.

11.2 ISO/IEC Business [Robinson]

11.2.1 NWIP for FCP-3 (06-045) [Robinson]

Gary Robinson moved that T10 recommends that the SC25 TAG contribute an NWIP (06-045r0) to SC25 for FCP-3 as project 1.25.13.11.33, 14776-223, to mark YES on each of the 6 questions, define Gary S Robinson as Project Editor in question 4, normal standard development track is proposed in question 7, and when the NWIP ballot is available; to vote Approve. Curtis Stevens seconded the motion. The motion passed on roll call vote of 33:0:8:4=45, the details of which were as follows:

Organization	Voter	Vote
Adaptec, Inc.	William Lynn	Abstain
AvagoTechnologies		(not present)
AMCC	Paul von Stamwitz	Yes
Amphenol Interconnect	Michael Wingard	Abstain
Broadcom Corp.	Ron Roberts	Yes
Brocade	Steven Wilson	Yes
Dallas Semiconductor	Steve Robalino	Abstain
Dell, Inc.	Kevin Marks	Yes
EMC Corp.	Gary S. Robinson	Yes
Emulex	Robert H. Nixon	Yes
ENDL	Ralph O. Weber	Yes
FCI	Douglas Wagner	Abstain
Foxconn Electronics	Elwood Parsons	Abstain
Fujitsu	Mike Fitzpatrick	Yes
General Dynamics	Nathan Hastad	Yes
Hewlett Packard Co.	Rob Elliott	Yes
Hitachi Cable Manchester	Mike Guzman	Abstain
Hitachi Global Storage Tech.	Dan Colegrove	Yes
IBM Corp.	George O. Penokie	Yes
Intel Corp.	Robert Sheffield	Yes
Iomega Corp.	Robert Payne	Abstain
Lexar Media, Inc.	John Geldman	Abstain
LSI Logic Corp.	John Lohmeyer	Yes
M-Systems		(not present)
Maxtor Corp.	Mark Evans	Yes
Microsoft Corp.	Emily Hill	Yes

Molex Inc.	Jay Neer	Yes
Nvidia Corp.		(not present)
Oracle	James Williams	Yes
Panasonic Technologies, Inc	Terence J. Nelson	Yes
Philips Electronics	William P. McFerrin	Yes
Pivot3, Inc.		(not present)
PMC-Sierra	Tim Symons	Yes
QLogic Corp.	Craig W. Carlson	Yes
Quantum Corp.	Paul Entzel	Yes
Seagate Technology	Gerald Houlder	Yes
Sierra Logic, Inc.	William Martin	Yes
Sun Microsystems, Inc.	Vit Novak	Yes
Symantec	Roger Cummings	Yes
Texas Instruments	Robert Kando	Yes
TycoElectronics	Ashlie Fan	Yes
Vitesse Semiconductor	David Allen	Yes
Western Digital	Curtis Stevens	Yes
Xiotech Corp.	Jeff Williams	Yes
Xyratex	Rich Ramos	Yes

This two-thirds roll call vote passed (33:0:8:4=45).

Gary Robinson took an action item to forward 06-045r0 to the SC25 TAG as an NWIP contribution for SPC-3 as project 1.25.13.11.33, 14776-223, to mark YES on each of the 6 questions, define Gary S Robinson as Project Editor in question 4, and normal standard development track is proposed in question 7.

12. Liaison Reports

12.1 T11 Liaison Report [Snively]

Although he could not attend, Bob Snively provided an electronic liaison report in T10/06-033 that was presented by Craig Carlson.

12.2 T13 Liaison Report [Colegrove]

Dan Colegrove provided an oral report to the committee on the activities of T13. The ATA-8 Architecture is in Letter Ballot comment resolution. Coordination with T10 regarding the TCG commands is in progress. A project to better describe how to emulate parallel interfaces for serial drives was approved as HBA-2. For details regarding T13 activities see www.t13.org.

12.3 SFF Industry Group [Allan]

In the absence of Dal Allan, no report was available.

12.4 IEEE 1394 [Johansson]

In the absence of Peter Johansson, no report was available.

12.5 SCSI Trade Association (STA) [Czekalski]

Marty Czekalski presented an electronic report (06-069) on the activities of the SCSI Trade Association.

12.6 IETF SCSI over IP [Black/Robinson]

David Black reported that the SCSI MIB is in IETF Last Call. The Implementors' Guide is in progress. One topic being covered is the restriction that only the requested amount of data can be transferred by a REPORT LUNS command. Apparently, many iSCSI developers are not reading all the relevant standards carefully.

12.7 SNIA [open]

Roger Cummings noted that he is no longer acting as the SNIA liaison. Steve Wilson reported to the committee and provided an electronic report in 06-074r0.

12.8 Trusted Computing Group [Fitzpatrick]

Mike Fitzpatrick report that the storage working group has published a white paper on usage models. The storage working group has doubled their efforts to develop their core, locking, and credentials specifications.

13. Review of Action Items

- Bob Sheffield will prepare SAT r08.
- John Lohmeyer will conduct a letter ballot on forwarding SAT r08 to INCITS for first public review.
- John Lohmeyer will forward 05-444r1 to INCITS for further processing as a new project proposal for SAT-2.
- John Lohmeyer will forward 06-002r2 to the IEEE for posting as an OUI tutorial for SCSI.
- Gary Robinson will forward 06-045r0 to the SC25 TAG as an NWIP contribution for SPC-3 as project 1.25.13.11.33, 14776-223, to mark YES on each of the 6 questions, define Gary S Robinson as Project Editor in question 4, and normal standard development track is proposed in question 7.
- Gary Robinson will start the process of removing SSM-2 from the SC25 program of work.

14. Meeting Schedule

The next plenary meeting of T10 will be Thursday March 9, 2006 in Hilton Head Island, SC at the Hilton Ocean Front Resort (Reservations: 1-800-Hiltons) hosted by the SCSI Trade Association. The meeting will begin at 9:00 a.m. on Thursday.

The meeting list for the next plenary week is:

March 2006 Meeting Map
 (2006/01/12 Version)

Monday 3/06	9 10 11 12 1 2 3 4 5 6 7 8					
	ADI-2 WG / SMC-3 WG (10)					
	+======++=++++++++++++++++++++++++++++					
Tuesday 3/07	9 10 11 12 1 2 3 4 5 6 7 8					
	+======+ SAS Physical WG (45)					
	+=====++=+++++++++++++++++++++++++++++					
	STA Marcom * (35)					
	FCP-4 SG/ SSC-3 WG					
	MMC WG (25)					
Wednesday 3/08	9 10 11 12 1 2 3 4 5 6 7 8					
	+======+ CAP WG (40)					
	+=====++==+ MMC WG (25)					
	+=========++ SFF (30)					
	++ STA Plenary * / TCC* (20) ++					
Thursday 3/09	9 10 11 12 1 2 3 4 5 6 7 8					
	+======+ T10 Plenary					
Friday 3/10	9 10 11 12 1 2 3 4 5 6 7 8 No meetings planned for Friday.					

NOTES: The Thursday Key Mgmt SG was merged into the SSC-3 WG. The Thursday Lock SG was merged into the CAP WG.

/ means the next meeting starts when the previous meeting concludes Meetings marked with == are T10-authorized meetings. Meetings marked with -- are other groups and may change without notice. Meetings marked with (*) are closed meetings of other groups.

Other T10-authorized meetings: Meeting Date Location / Contact ______ SAS PHY Calls Biweekly beginning TBA via T10 reflector / Cox January 26 SAS Prot Calls TBA via T10 reflector / Elliott SAS Supervisor Thursdays 9-11 PST TBA via T10 reflector / Johnson Calls SSC-3 Key Mgmt Wed Jan 25 TBS via T10 reflector / Peterson Call noon - 2p PST SSC-3 Key Mgmt Wed Feb 8 TBS via T10 reflector / Peterson Call noon - 2p PST SAS Supervisor Feb 16 Tentative Denver / Johnson SSC-3 Key Mgmt Wed Feb 20 TBS via T10 reflector / Peterson Call noon - 2p PST SAT WG Feb 28 Tentative Denver DIA / Overby Map Abbreviation Key: ad hoc: a.k.a., working group Automation Drive Interface (tape library interface) Amnd: Amendment CAP: Commands, Architecture, and Protocols FC: Fibre Channel Interface T/F: IETF: Internet Engineering Task Force (the group that sets Internet standards) iFC: Internet Fibrary
Internet Protestation
Internet SCSI
Letter Ballot Internet Fibre Channel Internet Protocol SCSI iscsI: Letter Ballot LB: Lock SG: Study Group to examine need for Locking removable storage devices MMC: Multimedia Commands (CD-ROM, DVD, etc.)
OSD: Object-based Storage Device
PH or PHY: Physical (Connectors, Cables, Transceivers, etc.) Prot: Protocol Plenary: Full Committee Meeting Resolution Serial Attached SCSI SCSI / ATA Translation Res: SCSI / ATA Translation SAT: SBC-2: SCSI: SCSI Block Commands - 2 Small Computer System Interface Serial Attached SCSI Driver Interface SDI: SCSI Enclosure Services SES: SFF Industry Group (not an INCITS activity) Study Group SG: SMC-3: SCSI Medium Changer - 3 Commands
SPC-4: SCSI Primary Commands - 4 (4th generation)
SSC-3: SCSI Stream Commands - 2 (includes Tape)
STA: SCSI Trade Association (Closed meeting -- not an INCITS activity) STA Marcom: STA Marketing Communications (Closed meeting -- not an INCITS activity) STP: Serial ATA Tunneled Protocol T10: SCSI Storage Interfaces Technical Committee Device Level Interfaces Technical Committee T11:

For more information about T10 activities, please contact the following people:

Working Group (same as Ad Hoc Group)

WG:

Activity		Telephone/Email
ADT, ADT-2	Paul Entzel	(720) 406-5782
ADC, ADC-2	Rod Wideman	• •
SBC-2, SES-2, SAS-1.1, SAS-2,	Rob Elliott	
BCC, SDI MMC-4, MMC-5	Bill McFerrin	•
SBP-3	Peter Johansson	billmc@tstar.net (510) 527-3926
SAM-4, SBC-3	George Penokie	PJohansson@ACM.org (507) 253-5208
SAT	Bob Sheffield	gop@us.ibm.com (480) 554-8597
SMC-2	Erich Oetting	robert.1.sheffield@intel.com (303) 673-2178
SMC-3	Noud Snelder	Erich_Oetting@Stortek.com +31408446108
		Noud.snelder@bdt.de
SPC-3, SAM-3, SPC-4, OSD-2	-	roweber@acm.org
SSC-3, FCP-3	Dave Peterson	(763) 268-6139 david.peterson@mcdata.com
Other Activities	John Lohmeyer	(719) 533-7560 lohmeyer@t10.org

The long-term T10 meeting week schedule is:

Date	Location	Host/Comments
Mar 6-10, 2006 May 8-12, 2006	Hilton Head, SC Seattle, WA Colorado Springs, CO Nashua, NH Las Vegas, NV	SCSI Trade Association Nvidia Corp.
Jan 15-19, 2007 Mar 12-16, 2007 May 7-11, 2007		Symantec
-	Colorado Springs, CO TBD	LSI Logic PMC-Sierra
Proposed dates for Jan 14-18, 2008 Mar 10-14, 2008 May 5-9, 2008 Jul 14-18, 2008 Sep 8-12, 2008 Nov 3-7, 2008	2008:	

John Lohmeyer asked people interested hosting one of the above meetings to contact him.

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 T10 (that is, one vote per organization) and the results of a working group are not binding on the parent committee. Ad hoc groups should strive to achieve consensus prior to bringing issues to T10.

Kevin Marks moved that T10 authorize the T10-related meetings and events in the list above that had not previously been approved through the end of February 2006. Bill Martin seconded the motion. In the absence of any objections, the motion passed unanimously.

15. Adjournment

John Lohmeyer moved and Ralph Weber seconded that the meeting be adjourned. In the absence of any objections, the motion passed unanimously. The meeting was adjourned at 11:05 a.m. on Thursday January 12, 2006.

Enclosure(1) -- Meeting Attendees

Name	S	Organization
Mr. William Lynn	 P	Adaptec, Inc.
Mr. Paul von Stamwitz	P	AMCC
Mr. Michael Wingard	P	Amphenol Interconnect
Mr. Ron Roberts	A	Broadcom Corp.
Mr. Steven Wilson	A	Brocade Comm. Systems, Inc.
Mr. Steve Robalino	A	Dallas Semiconductor
Mr. Kevin Marks	Р	Dell, Inc.
Mr. David Black	А	EMC Corp.
Mr. Gary S. Robinson	Р	EMC Corp.
Mr. Robert H. Nixon	Р	Emulex
Mr. Ralph O. Weber	Р	ENDL Texas
Mr. Douglas Wagner	P	FCI
Mr. Elwood Parsons	P	Foxconn Electronics
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Nathan Hastad	P	General Dynamics
Mr. Michael Banther	V	Hewlett Packard Co.
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Mike Guzman	Α	Hitachi Cable Manchester
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Mr. James Rockrohr	V	IBM
Mr. George O. Penokie	Р	IBM Corp.
Mr. Robert Sheffield	Р	Intel Corp.
Mr. Robert Payne	Р	3
Mr. John Geldman		Lexar Media, Inc.
Mr. John Lohmeyer		LSI Logic Corp.
Mr. David Geddes		Marvell Semiconductor, Inc.
Mr. Martin Czekalski	A	-
Mr. Mark Evans	P	Maxtor Corp.
Mr. David Peterson		McDATA
Ms. Emily Hill	P	Microsoft Corp.
Mr. Jay Neer	P	Molex Inc.
Mr. James Williams Dr. Terence J. Nelson	P	Oracle
Mr. William P. McFerrin	P P	Panasonic Technologies, Inc Philips Electronics/CD Edge
	P	PMC-Sierra
Mr. Tim Symons Mr. Craig W. Carlson	A	
Mr. Paul Entzel	P	Quantum Corp.
Dr. Paul Suhler	A	Ouantum Corp.
Mr. Alvin Cox	V	Seagate Technology
Mr. Gerald Houlder	P	Seagate Technology
Mr. William Martin	P	Sierra Logic, Inc.
Mr. Vit Novak	P	Sun Microsystems, Inc.
Mr. Roger Cummings	Р	Symantec
Mr. Robert Kando	А	Texas Instruments
Ms. Ashlie Fan	Р	TycoElectronics
Mr. Dan Gorenc	А	TycoElectronics
Mr. Ron Mathews	AV	UNISYS Corporation
Mr. David Allen	А	Vitesse Semiconductor
Mr. Curtis Stevens	P	Western Digital
Mr. Jeff Williams	P	Xiotech Corp.
Mr. Rich Ramos	P	Xyratex
51 December Description		

51 People Present

Status Key: P - Principal

A,A# - Alternate

AV - Advisory Member
L - Liaison
V - Visitor

Enclosure(2) -- T10 Attendance Database

Generated on 2006/01/16 at 10:07:31

Mr. William Lynn (P) Phone: (303) 589-4655

Adaptec, Inc. Fax

1951 South Fordham St. Email: bill_lynn at adaptec dot com

Longmont, CO 80503

Mr. Lawrence J. Lamers (A) Phone: (408) 957-7817 Adaptec, Inc. Fax: (408) 945-6736

691 S. Milpitas Blvd. Email: ljlamers at ieee dot org

Milpitas, CA 95035

Mr. Ziad Matni (AV) Phone: 610-712-3569

Agere Systems Fax:

1110 American Parkway NE Email: matni at agere dot com

Allentown, PA 18109

Mr. Ken Paist (AV) Phone: (610) 712-3265

Agere Systems Fax:

Room 12D-225B Email: paist at agere dot com

1110 American Parkway NE Allentown, PA 18109-9138

Mr. Paul von Stamwitz (P) Phone: (408) 542-8767 AMCC Fax: (408) 542-8605

215 Moffett Park Drive Email: pvstamwitz at amcc dot com

Sunnyvale, CA 95089

Mr. Brian Miller (A) Phone: (281) 340-6500 x130 Amphenol AssembleTech Fax: (281) 340-6501

4850 Wright Road, Ste. 190 Email: bmiller at assembletech dot com

Stafford, TX 77477

Mr. Michael Wingard (P) Phone: (607) 786-4241 Amphenol Interconnect Fax: (607) 786-4311

20 Valley St. Email: mike dot wingard at aipce dot com

Endicott, NY 13760

Ms. Pat Thaler (P) Phone: (916) 788-5662

AvagoTechnologies Fax:

1101 Creekside Ridge Dr Email: pat_thaler at avagotech dot com

Suite 100, MS RG-10

Roseville, CA 95678

Mr. Niels Reimers (A) Phone: (916) 788-5720 AvagoTechnologies Fax: (916) 788-6136

1101 Creekside Ridge Email: niels_reimers at avagotech dot com

MS RG-10

Roseville, CA 95678

Mr. Paul Griffith (P) Phone: 408-313-6643

Broadcom Corp. Fax:

2451 Mission College Email: griffith at broadcom dot com

Santa Clara, CA 95054

Mr. Ron Roberts (A) Phone: (530) 677-5714 Broadcom Corp. Fax: (530) 677-1218

5240 Stampede Lane Email: rkroberts at aol dot com

Shingle Springs, CA 95682

Mr. Robert Snively (P) Phone: (408) 333-8135
Brocade Comm. Systems, Inc. Fax:
1745 Technology Drive Email: rsnively at br

Email: rsnively at brocade dot com

San Jose, CA 95110

Mr. Steven Wilson (A) Phone: (408) 333-8120
Brocade Comm. Systems, Inc. Fax: (408) 392-6655
Email: swilson at brocade dot com

Mr. Leroy Fong (AV) Circuit Assembly Corp. Phone: (949) 855-7887 Fax: (949) 837-8660

18 Thomas St. Email: leroyf at circuitassembly dot com

Irvine, CA 92618

Mr. Ian Morrell (AV) Phone: (949) 598-1780 Circuit Assembly Corp. Fax: (949) 855-4298

18 Thomas St. Email: ianm at circuitassembly dot com

Irvine, CA 92718-2703

Dr. Claudio DeSanti (AV) Phone: (408) 853-9172 Cisco Systems, Inc. Fax: (408) 853-9172

170 W. Tasman Dr. San Jose, CA 95134

Phone: (408) 853-7530 Mr. Fabio Maino (AV) Cisco Systems, Inc. Fax: (408) 853-7530

170 W. Tasman Dr. Email: fmaino at cisco dot com

San Jose, CA 95134

Mr. John Tyndall (AV) Phone: (512) 928-7282
Crossroads Systems, Inc. Fax:
8300 North Mopac Expressway Email: jtyndall at crossroads dot com

Austin, TX 78749

Phone: (972) 371-4939 Mr. James A. Lott, Jr. (P) Dallas Semiconductor 4401 S. Beltwood Pkwy. Fax: (972) 371-4370

Email: jim dot lott at dalsemi dot com

Dallas, TX 75244-3292

Mr. Steve Robalino (A) Phone: (512) 423-6198

Email: cds at cisco dot com

Dallas Semiconductor Fax:

Email: Steven dot robalino at dalsemi dot

com

Mr. Kevin Marks (P) Phone: (512) 723-9173 Dell, Inc. Fax: (512) 723-6657

One Dell Way - MS 8540 Email: kevin_marks at dell dot com

Round Rock, TX 78682

Mr. Gary S. Robinson (P) Phone: (617) 986-1484

EMC Corp. Fax:

85 East India Row Email: g dot robinson at computer dot org

Apt 18C

Boston, MA, 02110

Mr. David Black (A) Phone: (508) 293-7953 EMC Corp. Fax: (508) 293-7786

176 South St. Email: black_david at emc dot com

Hopkinton, MA 01748

Mr. Robert H. Nixon (P) Phone: (714) 885-3525 Emulex Fax: (714) 885-3794

3333 Susan St. Email: bob dot nixon at emulex dot com

Costa Mesa, CA 92626

Mr. Kenneth Hirata (A) Phone: (714) 662-5600 Emulex Fax: (714) 885-3794

3333 Susan St Email: Ken dot Hirata at Emulex dot com

Costa Mesa, CA 92626

Mr. I. Dal Allan (A) Phone: (408) 867-6630 ENDL Fax: (408) 867-2115

14426 Black Walnut Ct. Email: endlcom at acm dot org

Saratoga, CA 95070

Mr. Ralph O. Weber (P) Phone: (214) 912-1373 ENDL Texas Fax: (972) 596-2775

Suite 102#178 Email: roweber at ieee dot org

18484 Preston Rd. Dallas, TX 75252

Mr. Keith Holt (A) Phone: (316) 636-8665

Engenio Information Tech. Fax:

3718 N. Rock Rd. Email: keith dot holt at lsil dot com

Wichita, KS 67226-1397

Mr. Douglas Wagner (P) Phone: (805) 498-0325

FCI Fax:

472 Delwood Ct. Email: dwagner at fciconnect dot com

Newbury Park, CA 91320-4819

Mr. Elwood Parsons (P) Phone: (717) 558-7518 x141 Foxconn Electronics Fax: (717) 558-9306

100 S. 38th St. Email: elwood dot parsons at foxconn dot

Harrisburg, PA 17105

Mr. Mike Fitzpatrick (P) Phone: (405) 820-5809 Fax: (405) 755-8073 Fujitsu

1255 East Arques Ave. Email: mfitzpatrick at us dot fujitsu dot

Sunnyvale, CA 94085

Phone: (408) 894-3979 Mr. Ben-Koon Lin (A) Fujitsu Fax: (408) 894-3908

2904 Orchard Pkwy. Email: blin at fcpa dot fujitsu dot com

San Jose, CA 95134

Mr. Erhard Weiss (AV) Phone: 49-821-804-3602 Fujitsu Siemens Comp. gmbH Fax: 49-821-804-2910
Depatment: SNI PC SB ESW Email: weiss dot abg at sni dot de

Burgermeister-Ulrich-St D-86199 Augsburg Germany

Mr. Bob Thornton (AV) Phone: (408) 745-4932
Fujitsu Takamisawa America Fax: (408) 745-4971
250 E. Caribbean Dr. Email: bthornto at fta dot fujitsu dot com

Sunnyvale, CA 94089

Mr. Nathan Hastad (P) Phone: (952) 956-5417 General Dynamics Fax: (952) 956-5445

3021 American Blvd East Email: nathan dot hastad at gd-ais dot com

Bloomington, MN 55425

Mr. Tim Mackley (A) Phone: (952) 921-6866

General Dynamics

8800 Queen Ave. S. Email: timothy dot mackley at gd-ais dot

Bloomington, MN 55431

Ms. Liza Hunt (XO) Phone: Global Engineering Documents Fax: 15 Inverness Way East Email:

Englewood, CO 80112-5704

Phone: (281) 518-5037 Mr. Rob Elliott (P) Fax: (281) 518-7135 Hewlett Packard Co.

MC140801 Email: Elliott at hp dot com

PO Box 692000

Houston, TX 77269-2000

Dr. William Ham (A) Phone: (978) 828-9102 Hewlett Packard Co. Fax: (978) 470-0321

165 Dascomb Road Email: bill_ham at ix dot netcom dot com

Andover, MA 01810

Mr. Zane Daggett (P) Phone: (603) 669-4347 x236 Hitachi Cable Manchester Fax: (603) 669-9621

Email: zdaggett at hcm dot hitachi dot com 900 Holt Ave.

Manchester, NH 03109

Mr. Mike Guzman (A) Phone: (603) 669-4347 Hitachi Cable Manchester Fax: (603) 669-9621

900 Holt Ave. Email: mguzman at hcm dot hitachi dot com

Manchester, NH 03109

Mr. Hitoshi (Todd) Horita (A#) Phone: (603) 669-4347 Hitachi Cable Manchester Fax: (603) 669-9621

Email: horita dot hitoshi at hitachi-cable 900 Holt Ave

dot co dot jp

Manchester, NH 03109

Mr. Dan Colegrove (P) Phone: (702) 614-6119
Hitachi Global Storage Tech. Fax: (702) 614-7955
2903 Carmelo Dr. Email: daniel dot colegrove at hgst dot com

Henderson, NV 89052

Ms. Sally Castillo (A) Phone: (507) 322-2316
Hitachi Global Storage Tech. Fax: (507) 322-2413
3055 41st Street NW Email: Sally dot Castillo at hgst dot com

Rochester, MN, 55901

Mr. Sam Sawyer (A#) Hitachi Global Storage Tech. 5600 Cottle Road Phone: 408-717-8690

Fax:

Email: sam dot sawyer at hitachigst dot com

San Jose, CA

Mr. Steven Wirtz (AV) Phone: (952) 941-5905

I-TECH Corp. Fax:

10300 Valley View Rd. Email: steve_wirtz at i-tech dot com

Eden Prairie, MN 55344

Mr. George O. Penokie (P) Phone: (507) 253-5208 IBM Corp. Fax: (507) 253-2880

MS 2C6 Email: gop at us dot ibm dot com

3605 Highway 52 N. Rochester, MN 55901

Mr. Kevin Butt (A) Phone: (520) 799-5280

IBM Corp.

M/S 9032-2 65U Email: kdbutt at us dot ibm dot com

9000 S. Rita Rd. Tucson, AZ 85744 Mr. Robert Sheffield (P) Phone: (480) 554-8597 Intel Corp. Fax: (480) 554-7347

5000 W. Chandler Blvd. Email: robert dot 1 dot sheffield at intel

dot com

Chandler, AZ 85226-3699

Dr. Mark Seidel (A) Phone: (480) 554-9755

Intel Corp. Fax:

5000 W. Chandler Blvd. Email: mark dot n dot seidel at intel dot

CON

Chandler, AZ 85226

Mr. Roger Jeppsen (AV) Phone: 480-552-0584
Intel Corporation Fax: 480-554-6617

5000 W. Chandler Blvd. Email: roger dot c dot jeppsen at intel

dot com

M/S CH6-332

Chandler, AZ 85226

Mr. Robert Payne (P) Phone: (801) 332-4438 Iomega Corp. Fax: (801) 778-4170

1821 Iomega Way Email: PayneR at iomega dot com

Roy, UT 84067

Mr. Dennis Moore (AV) Phone: (303) 465-1800 KnowledgeTek, Inc. Fax: (303) 426-2600

8620 Wolff Ct., Suite 108 Email: dmoore at ix dot netcom dot com

Westminster, CO 80031

Dr. James Mueller (AV) Phone: (914) 522-8555 LeCroy Corporation Fax: (845) 587-4496

700 Chestnut Ridge Rd. Email: jimm at lecroy dot com

Chestnut Ridge, NY 10977

Mr. John Geldman (P) Phone: (510) 580 8715 Lexar Media, Inc. Fax: (510) 580 0504

47300 Bayside Parkway Email: jgeldman at lexar dot com

Fremont, CA 94538

Mr. Martin Furuhjelm (A) Phone: (510) 580-2368 Lexar Media, Inc. Fax: (510) 580-0478

47300 Bayside Parkway Email: mfuruhjelm at lexar dot com

Fremont, CA 94538

Mr. Pat LaVarre (A#) Phone: (510) 743 4533 Lexar Media, Inc. Fax: (510) 580 0504

47300 Bayside Parkway Email: p dot lavarre at ieee dot org

Fremont, CA 94538

Mr. John Lohmeyer (P) Phone: (719) 533-7560

LSI Logic Corp. Fax: (719) 533-7183

4420 ArrowsWest Dr. Email: lohmeyer at t10 dot org

Colorado Springs, CO 80907

Phone: +972528444610 Mr. Avraham Shimor (P) M-Systems Fax: +97235466888

Email: avraham dot shimor at m-systems dot 7 Atir Yeda Str

com

Kfar Saba 44425

Israel

Mr. Ariel Sobelman (A) Phone: +972-52-4444104

M-Systems Fax:

7 Atir Yeda St Email: ariel dot sobelman at m-systems dot

com

Kfar Saba, 44425

Israel

Mr. David Geddes (AV)
Marvell Semiconductor, Inc. Phone: (408) 222-3307 Fax: (408) 988-0136

700 First Avenue Email: dgeddes at marvell dot com

E-203

Sunnyvale CA 94089

Mr. Paul Wassenberg (AV) Phone: 949-389-6221
Marvell Semiconductor, Inc. Fax: 949-389-6210
26880 Aliso Viejo Pkwy, #100 Email: paulw at marvell dot com

Aliso Viejo, CA 92656

Mr. Wei Zhou (AV) Marvell Semiconductor, Inc. Phone: (408) 314-0355

Fax:

700 First Avenue Email: wzhou at marvell dot com

Sunnyvale CA 94089

Phone: (408) 894-5310 Mr. Mark Evans (P) Maxtor Corp. Fax: (408) 324-7432

500 McCarthy Blvd. Email: mark_evans at maxtor dot com

Milpitas, CA 95035

Phone: (508) 770-3795 Mr. Martin Czekalski (A) Maxtor Corp. Fax: (508) 770-2299

333 South Street Email: marty_czekalski at maxtor dot com

Shrewsbury, MA 01545

Mr. David Peterson (AV) Phone: (763) 268-6139

McDATA

6000 Nathan Lane North Email: david dot peterson at mcdata dot com

Minneapolis, MN 55442

Phone: (508) 256-1300 x134 Mr. Randy Banton (AV)

Mercury Computer Fax: 199 Riverneck Road Email:

Chelmsford, MA 01824

Mr. Tim Brackett (AV) Phone: (707) 836-7883
Meritec Fax: (707) 836-7959

1382 West Jackson Street Email: tbrackett at meritec dot com

Painesville, OH 44077

Mr. Edward Cady (AV) Phone: (503) 359-4556 Meritec Fax: (503) 359-9273

1382 West Jackson Street Email: ecady at meritec dot com

Painesville, OH 44077

Ms. Emily Hill (P) Phone: (425) 705-9595 Microsoft Corp. Fax: (425) 936-7329

1 Microsoft Way Email: emhill at microsoft dot com

Redmond, WA 98052

Mr. Jeff Mastro (A) Phone: (425) 707-9254 Microsoft Corp. Fax: (425) 936-7329

1 Microsoft Way Email: jmastro at microsoft dot com

Redmond, WA 98052

Mr. Jay Neer (P) Phone: (561) 447-2907 x3889

Molex Inc. Fax: (561) 447-2908

399 W. Camino Gardens Blvd. Email: jay dot neer at molex dot com

Suite 103

Boca Raton, FL 33432

Mr. Galen Fromm (A#) Phone: (630) 718-5270

Molex Inc. Fax

2222 Wellington Ct. Email: galen dot fromm at molex dot com

Lisle, IL 60532

Mr. Jerry Kachlic (A) Phone: (630) 718-5991 Molex Inc. Fax: (630) 512-8622

2216 Wellington Court Email: jerry dot kachlic at molex dot com

Fax:

Lisle, IL 60532

Mr. Mark Overby (P) Phone: (425) 417-9412

Nvidia Corp.

2701 San Thomas Expry Email: moverby at nvidia dot com

Santa Clara, CA 95050

Mr. James Williams (P) Phone: (650) 506-5120 Oracle Fax: (650) 506-5120

500 Oracle Parkway Email: James dot A dot Williams at oracle

dot com

Mailstop: 4op1220

Redwood Shores, CA 94065

Mr. William Bridge (A) Phone: (650) 506-6350 Oracle Fax: (650) 506-6350

500 Oracle Parkway Email: Bill dot Bridge at Oracle dot com

Mailstop: 4op1220

Redwood Shores, CA 94065

Phone: (908) 464-1652
Panasonic Technologies, Inc Fax: (908) 464-0149
167 Maple St.

Email: terry at tjnelson dot com

New Providence, NJ 07974

Mr. Rudolf Vitti (A) Panasonic Technologies, Inc One Panasonic Way Phone: (201) 348-7064 Fax: (201) 348-7807

Email: vittir at panasonic dot com

Panazip 1E-6

Secaucus, NJ 07094

Mr. William P. McFerrin (P) Phone: (325) 423-1560 Mr. William 1. 1021 Philips Electronics/CD Edge

Fax:

PO Box 381 Email: billmc at tstar dot net

Llano, TX 78643

Mr. Bill Galloway (P) Phone: (281) 516-6002 Pivot3, Inc. Fax: (281) 516-6099

6605 Cypresswood Dr. Email: billg at pivot3 dot com

Suite 350

Spring, TX 77379

Mr. Tim Symons (P) Phone: (604) 415 6000 x2264

PMC-Sierra Fax:

100-2700 Production Way Email: Tim_Symons at pmc-sierra dot com

Burnaby,

BC, V5A 4X1. Canada

Mr. Yuriy Greshishchev (A) Phone: 613-271-4034 PMC-Sierra Fax: 613-271-7007

4th Floor - 411 Legget Drive Email: Yuriy_Greshishchev at pmc-sierra

dot com

Kanata, Ontario K2K 3C9

Canada

Mr. Skip Jones (P) Phone: (949) 389-6368 Fax: (949) 389-6114 QLogic Corp.

Email: skip dot jones at qlogic dot com 26600 Laguna Hills Dr.

Aliso Viejo, CA 92656

Mr. Craig W. Carlson (A) Phone: (952) 932-4064

QLogic Corp. Fax:

6321 Bury Drive Email: craig dot carlson at qlogic dot com

Eden Prairie, MN 55346

Mr. Paul Entzel (P) Phone: (720) 406-5782 Fax: (720) 406-5762 Quantum Corp.

Email: paul dot entzel at quantum dot com 4001 Discovery Dr.

Boulder, CO 80303

Dr. Paul Suhler (A) Phone: (714) 641-2485 Quantum Corp. Fax: (714) 966-7328

1650 Sunflower Ave. Email: paul dot suhler at quantum dot com

Costa Mesa, CA 97626

Mr. John A. Fobel (AV) Phone: (909) 987-3966 Rancho Technology, Inc. Fax: (909) 989-2365

10783 Bell Court Email: johnf at rancho dot com

Rancho Cucamonga, CA 91730

Mr. Gerald Houlder (P) Phone: (952) 402-2869 Fax: (952) 402-3471 Seagate Technology

Mailstop SHK231 Email: gerry dot houlder at seagate dot com

1280 Disc Drive

Shakopee, MN 55379-1863

Phone: (952) 402-2665 Mr. Jim Coomes (A) Seagate Technology Fax: (952) 402-3471

1280 Disc Drive Email: jim dot coomes at seagate dot com

M.S. SHK231

Shakopee, MN 55379

Mr. William Martin (P) Phone: (916) 772-3658 Sierra Logic, Inc. Fax: (916) 771-5416 Sierra Logic, Inc. Fax: (916) 771-5416

Email: bill_martin at sierralogic dot com 7213 Marblethorpe Dr

Roseville, CA 95747

Mr. Narayan Ayalasomayajula (A) Phone: (916) 772-1234 x116 Fax: (916) 771-1811 Sierra Logic, Inc.

9083 Foothills Blvd., #300 Email: narayan at sierralogic dot com

Roseville, CA 95747

Mr. James T. Lie (AV) Phone: (510) 490-7795

SiliconStor Inc. Fax:

48430 Lakeview Blvd. Email: jlie at siliconstor dot com

Fremont, CA 94538

Phone: (510) 936-2527
Email: vit dot novak at sun dot com Mr. Vit Novak (P) Sun Microsystems, Inc.

MS NWK16-211

7777 Gateway Blvd. Newark, CA 94560

Mr. Charles Binford (A) Phone: (316) 315-0382 x222
Sun Microsystems, Inc. Fax: (509) 756-4425
3450 N. Rock Rd., Suite 301 Email: Charles dot Binford at sun dot com

Wichita, KS 67226

Phone: (303) 673-2178 Mr. Erich Oetting (A#)

Sun Microsystems, Inc. Fax:

One Storagetek Drive Email: erich dot oetting at sun dot com

Louisville, CO 80028-4272

Mr. Roger Cummings (P) Phone: (407) 357-7257

Symantec Fax:

Post Stop HRO3-3 Email: roger_cummings at symantec dot com

1001 Heathrow Park Lane Heathrow, FL 32746

Mr. Greg Wheeless (A) Phone: (407) 357-7133 Symantec Fax: (407) 357-7590

Post Stop HRO3-2 Email: greg_wheeless at symantec dot com

1001 Heathrow Park Lane Heathrow, FL 32746

Mr. Halvard Eriksen (AV) Phone: +47-22189090

Tandberg Data ASA Fax:

PO Box 134 Kjelsas Email: halvard dot eriksen at tandberg dot

com

N-0411 Oslo, Norway

Mr. Anders Emil Olsen (AV) Phone: +47-22189090

Tandberg Data ASA Fax:

PO Box 134 Kjelsas Email: anders dot emil dot olsen at

tandberg dot com

N-0411 Oslo, Norway

Mr. Paul D. Aloisi (P) Phone: (603) 222-8687 Texas Instruments Fax: (603) 222-8700

50 Phillipe Cote St. Email: Paul_Aloisi at ti dot com

Manchester, NH 03101

Mr. Robert Kando (A) Phone: (603) 222-8667

Texas Instruments Fax:

50 Phillipe Cote St. Email: Robert_Kando at ti dot com

Manchester, NH 03101

Mr. Yutaka Arakawa (AV) Phone: (949) 462-7588 Toshiba Fax: (949) 581-1170

9740 Irvine Blvd. Email: yutaka dot arakawa at tais dot

toshiba dot com

Irvine, CA 92618

Mr. Tasuku Kasebayashi (AV) Phone: (949) 462-7551 Toshiba Fax: (949) 458-7815

35 Hammond Email: task dot kasebayashi at tais dot

toshiba dot com

Irvine, CA 92618-1607

Ms. Ashlie Fan (P) Phone: (508) 926-4148 TycoElectronics Fax: (508) 752-4230

125 Goddard Memorial Drive Email: afan at madisoncable dot com

Worcester, MA 01603

Mr. Dan Gorenc (A) Phone: (717) 986-3518 TycoElectronics Fax: (717) 592-2566

M/S 128-053 Email: daniel dot gorenc at

tycoelectronics dot com

PO Box 3608

Harrisburg, PA 17105-3608

Mr. Ron Mathews (AV) Phone: (949) 380-5077 UNISYS Corporation Fax: (949) 380-5858

N1101 Email: ronald dot mathews at unisys dot com

25725 Jeronimo Road Mission Viejo, CA 92691

Mr. Phil Shelton (AV) Phone: (949) 380-5111 UNISYS Corporation Fax: (949) 380-5858

MV201 Email: phil dot shelton at unisys dot com

25725 Jeronimo Road Mission Viejo, CA 92691

Mr. George Ren (AV) Phone: (408) 235-3002 Universal Scientific Industrial Co Fax: (408) 982-0145

3600 Peterson Way Email: ren at ms dot usi dot com dot tw

Santa Clara, CA 95054

Mr. Robin Yan (AV) Phone: (408) 235-3002 Universal Scientific Industrial Co Fax: (408) 982-0145

3600 Peterson Way Email: robin_y at ms dot usi dot com dot tw

Santa Clara, CA 95054

Mr. Gregory Tabor (P) Phone: (719) 867-6200 Vitesse Semiconductor Fax: (719) 867-6203

4323 ArrowsWest Drive Email: greg at vitesse dot com

Colorado Springs, CO 80907

Mr. David Allen (A) Phone: 719-867-6280

Vitesse Semiconductor Fax:

4323 ArrowsWest Dr. Email: dallen at vitesse dot com

Colorado Springs, CO 809

Mr. Curtis Stevens (P) Phone: 949-672-7933

Western Digital Fax:

20511 Lake Forest Dr. Email: Curtis dot Stevens at wdc dot com

Lake Forest, Ca. 92630

Mr. John Masiewicz (AV) Phone: (949) 672-7686

Western Digital Fax:

20511 Lake Forest Dr. Email: john dot masiewicz at wdc dot com

Lake Forest, CA 92630

Mr. Jeff Williams (P) Phone: (952) 983-2445 Xiotech Corp. Fax: (952) 983-2320

6455 Flying Cloud Drive Email: jeff_williams at xiotech dot com

Eden Prarie, MN 55344

Mr. Rich Ramos (P) Phone: (312) 224-8852 Xyratex Fax:

Xyratex Fax:

860 Embarcadero Dr Email: rich_ramos at us dot xyratex dot com

Ste 10

W. Sacramento CA 95691