Accredited Standards Committee* InterNational Committee for Information Technology Standards (INCITS)

 Doc. No.:
 T10/05-338r0

 Date:
 September 21, 2005

 Reply to:
 John Lohmeyer

To:T10 MembershipFrom:Ralph Weber / John LohmeyerSubject:Minutes of T10 Plenary Meeting #69 -- September 15, 2005
Vancouver, BC Canada

Agenda

- 1. Opening Remarks
- 2. Approval of Agenda
- 3. Attendance and Membership
- 4. Approval of Minutes July 2005 Colorado Springs, CO (T10/05-275r0)
- 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 SCSI Primary Commands 3 (SPC-3) Project 1416-D [Weber]
 - 8.3 Bridge Controller Commands (BCC) Project 1528-D [Elliott]
 - 8.4 MultiMedia Command Set 4 (MMC-4) Project 1545-D [McFerrin]
 - 8.5 SCSI Enclosure Services 2 (SES-2) Project 1559-D [Elliott]
 - 8.6 Fibre Channel Protocol 3 (FCP-3) Project 1560-D [Peterson]
 - 8.7 Serial Attached SCSI 1.1 (SAS-1.1) Project 1601-D [Elliott]
 - 8.8 SCSI Stream Commands 3 (SSC-3) Project 1611-D [Peterson]
 - 8.9 MultiMedia Command Set 5 (MMC-5) Project 1675-D [McFerrin]
 - 8.10 SCSI Architecture Model 4 (SAM-4) Project 1683-D [Penokie]
 - 8.11 SCSI / ATA Translation (SAT) Project 1711-D [Sheffield]
 - 8.12 Object-Based Storage Devices 2 (OSD-2) Project 1729-D [Weber]
 - 8.13 SCSI Media Changer Command Set 3 (SMC-3) Project 1730-D [Banther]
 - 8.14 SCSI Primary Commands 4 (SPC-4) Project 1731-D [Weber]
 - 8.15 Serial Attached SCSI Driver Interface (SDI) Project 1740-D [Elliott]
 - 8.16 Automation/Drive Interface Commands 2 (ADC-2) Project 1741-D [Suhler]
 - 8.17 Automation/Drive Interface Transport Protocol 2 (ADT-2) Project 1742-D [Suhler]
 - 8.18 Serial Attached SCSI 2 (SAS-2) Project 1760-D [Elliott]
- 9. Old Business
- 10. New Business
 - 10.1 Actions on SAS Protocol Working Group Recommendations
 - 10.2 Actions on SAS PHY Working Group Recommendations
 - 10.3 Actions on SAT Working Group Recommendations
 - 10.4 Actions on CAP Working Group Recommendations
 - 10.5 Actions on Other Working Group Recommendations
 - 10.6 SBC-3
- 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]
- 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 [Cummings]
 - 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 9:05 a.m., Thursday September 15, 2005. He thanked Rachelle Trent and Kelly Pollock of PMC-Sierra 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/revised during the course of the meeting:

10.6 SBC-3

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 2005 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 14 people from 7 organizations informing them that their membership was in jeopardy due to non-attendance (see 05-291r0) and that their membership would be terminated if they did not attend this meeting. The following organizations were in attendance jeopardy:

Cisco Systems, Inc. General Dynamics Hitachi Cable Manchester McDATA QLogic Corp. Storage Technology Corp. Symantec

John noted that Storage Technology Corp. had been acquired by Sun Microsystems.

All other organizations in attendance jeopardy were present except:

McDATA

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

Rich Ramos of Xyratex requested and was granted membership at this meeting.

The T10 membership during the meeting was 45 organizations, unchanged from the 45 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

Ballot: Report: Acronym: Organization		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		
<pre>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)</pre>					

4. Approval of Minutes - July 2005 - Colorado Springs, CO (T10/05-275r0)

Roger Cummings reported that the July minutes incorrectly stated the date on which meeting was called to order. The date was May 5 and it should have been July 14.

John Lohmeyer moved and Ralph Weber seconded that the minutes be approved with the exception noted above. 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 September 22, 2005. 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

6. 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 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

- 603 Gary Robinson will notify INCITS that T10 recommends T10/04-1216r0 as a JTC1/SC25 NWIP for 14776-151: IT - Small Computer System Interface (SCSI) - 1.1. -Part 151: Serial Attached SCSI (SAS-1.1), answering the 6 questions 'Yes' and naming Gary S. Robinson as the project editor. *Complete*
- 607 Gary Robinson will notify the JTC1/SC25 TAG that T10 has reviewed FCD, SBC-2, 14776-322, project 1.25.13.11.31 and recommends a vote to approve it. *Complete*
- 608 Gary Robinson will notify INCITS that T10 recommends the following list of delegates to the JTC1/SC25 and WG4 meeting September 2005 in Edinburgh, UK: Robert Snively (head of delegation), Roger Cummings, and Claudio DeSanti. *Complete*

- 609 Gary Robinson will notify INCITS that T10 has reviewed the following ISs and recommends that the JTC1 TAG vote to reaffirm them: 9316-2:2000 Information Technology -- Small Computer System Interface-2 (SCSI-2) -- Part 2: Common Access Method (CAM) Transport SCSI interface module; 14776-342:2000 Information Technology -- Small Computer System Interface (SCSI) -- Part 342: SCSI Controller Commands - 2 (SCC-2); and 14776-381:2000 Information Technology -- Small Computer System Interface (SCSI) -- Part 381: Optical Memory Card Device Commands (OMC). *Complete*
- 610 Gary Robinson will notify INCITS that T10 has reviewed the 14776-341:2000 Information Technology --Small Computer System Interface-3 (SCSI-3) -- Part 341: SCSI Controller Commands (SCC) and recommends that the JTC1 TAG vote to withdraw it. *Complete*
- 611 Gary Robinson will notify INCITS that T10 has reviewed the following ISs and recommends that the JTC1 TAG vote to reaffirm them: 13213:1994 Information Technology -- Microprocessor systems -- Control and Status Registers (CSR) Architecture for microcomputer buses; 15205:2000 Bus -- Chip and module interconnect bus SBus; 13961:2000 Information Technology -- Scalable Technologies -- Interface Coherent Interface (SCI); ISO 9314-1:1989 Information Processing Systems -- Distributed Data Interface (FDDI) --Part 1: Token Ring Physical Layer (FDDI); ISO 9314-2:1989 Information Processing Systems -- Fibre Distributed Data Interface (FDDI) -- Part 2: Token Ring Media Access Control (FDDI) -- (MAC); 9314-9:2000 Information Technology -- Fibre Distributed Data Interface (FDDI) -- Part 9: Low-cost fibre physical layer medium dependent (LCF-PMD); 9314-21:2000 Information Technology -- Interface Distributed Data Interface (FDDI) -- Part 21: Abstract test suite for FDDI physical layer protocol conformance testing (FDDI PHY ATS). 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.

Gary Robinson reported that INCITS will probably take over the SC25 TAG.

Gary noted that he will be unable to attend the October 11-13 INCITS meetings in Santa Clara, but Bob Snively will represent T10, T11, and T13 at these meetings since he is local. This is fortunate because keeping the TC's web sites and reflectors open is an important issue for Bob.

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 SCSI Primary Commands - 3 (SPC-3) Project 1416-D [Weber]

Ralph Weber reported that no new news had been received since the July meeting. Publication is still anticipated in the next month or so.

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

Rob Elliott reported that an issue discussed at the CAP meeting (minutes in 05-337) may result in more BCC activity. George Penokie noted there might be other proposals written for BCC.

8.4 MultiMedia Command Set - 4 (MMC-4) Project 1545-D [McFerrin]

John Lohmeyer reported that MMC-4 has been published as INCITS 401-2005. He congratulated Bill McFerrin, the MMC-4 Project Editor.

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

Rob Elliott reported that no SES-2 proposals were recommended this week. Consequently, no new revision will be generated until at least after the November meeting.

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

On behalf of the absent Dave Peterson, Bob Nixon presented a report on the activities of the FCP-3 working group (minutes in 05-343).

Bob Nixon moved that 05-173r5 be approved as containing the resolutions for the FCP-3 letter ballot, that FCP-3 r04 be accepted as incorporating the letter ballot comment resolutions, and that FCP-3 r04 be forwarded to INCITS for further processing towards first public review. Bill Martin seconded the motion. The motion passed 42:0:0:3=45.

Based on the successful resolution of the FCP-3 letter ballot comments George Penokie asked that the IBM No vote on the letter ballot be changed to Yes. Based on the successful resolution of the FCP-3 letter ballot comments Gerry Houlder asked that the Seagate No vote on the letter ballot be changed to Yes.

John Lohmeyer took an action item to forward FCP-3 r04 to INCITS for further processing towards first public review.

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

Rob Elliott reported that in addition to the SAS-1.1 issues resolved by the SAS Protocol working group two new issues have been discovered.

Minutes of the SAS protocol working group are in 05-335 and the SAS PHY working group are in 05-354.

The SAS Protocol-Specific log page incorrectly shows the log page code value as 8 bits, when it should be 6 bits. In addition, a problem in the ACK/NAK Balance Point in transport layer frame retries required a wording correction in one paragraph.

The committee agreed to make the necessary changes and Rob agreed to include them in 05-169r5.

Rob Elliott moved that 05-169r5 be approved as containing the resolutions for the SAS-1.1 letter ballot, that SAS-1.1 r10 accepted as incorporating the letter ballot comment resolutions, and that SAS-1.1 r10 be forwarded to INCITS for further processing towards first public review. Mark Evans seconded the motion. The motion passed 42:0:0:3=45.

Based on the successful resolution of the SAS-1.1 letter ballot comments Kevin Marks asked that the Dell No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments Bob Nixon asked that the Emulex No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments Rob Elliott asked that the Hewlett Packard No vote on the letter ballot be

changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments George Penokie asked that the IBM No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments Bob Sheffield asked that the Intel No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments John Lohmeyer asked that the LSI Logic No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments John Lohmeyer asked that the LSI Logic No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments Mark Evans asked that the Maxtor No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments Jay Neer asked that the Molex No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments George Tesolution of the SAS-1.1 letter ballot comments Jay Neer asked that the Molex No vote on the letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments George Tesolution of the SAS-1.1 letter ballot be changed to Yes. Based on the successful resolution of the SAS-1.1 letter ballot comments George Tesolution of the SAS-1.1 letter ballot comments Ashlie Fan asked that the Tyco No vote on the letter ballot be changed to Yes.

Rob Elliott took an action item to prepare 05-169r5 and SAS-1.1 r10. John Lohmeyer took an action item to forward SAS-1.1 r10 to INCITS for further processing towards first public review.

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

On behalf of the absent Dave Peterson, Paul Entzel presented a report summarizing the activities of the SSC-3 working group (minutes in 05-356).

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

Bill McFerrin reported that the MMC-5 group spent the bulk of its time reviewing the document as it stands. Clause 4 is almost stabilized.

8.10 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 and that the revision should be ready in time for the mailing.

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

Bob Sheffield reviewed the recent SAT activities (minutes in 05-323 and 05-336). SAT r06 will be prepared to incorporate all approved proposals in time for the next mailing. The target for Letter Ballot is after the January meeting week.

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

Ralph Weber reported that four proposals for enhancing OSD-2 have been posted and discussed by the CAP Working Group (minutes in 05-337). A new OSD-2 revision will be posted when the SNIA OSD TWG decides it is ready, which will not be in time for the mailing.

8.13 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 05-353). No new revision of SMC-3 is anticipated at this time.

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

Ralph Weber reported that SPC-4 r02 will be posted to incorporate all approved proposals in time for the mailing.

8.15 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. Now that SAS-1.1 is forwarded more SDI work may be begun.

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

Paul Suhler reported on the activities of the ADI working group (minutes in 05-329).

8.17 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 05-329).

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

Rob Elliott reported that several SAS-2 proposals have been recommended. A SAS-2 revision will be posted containing all approved proposals, maybe in time for the mailing.

The SAS Phy group has begun work on 6 Gbs features. SAS modeling data is being collected for SAS-2 Phy development work. He asked interested people to contact himself or Alvin Cox.

9. Old Business

There was no old business.

10. New Business

10.1 Actions on SAS Protocol Working Group Recommendations

The recommendations from the SAS protocol working group (minutes in 05-335) were presented to the committee.

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

05-307r0 (Modifications to 05-167r5, New NOTIFY to indicate imminent power failure) [Evans] 05-305r0 (Maximum SMP response time) [Elliott]

Rob Elliott moved that 05-307r0 and 05-305r0 be approved for inclusion in SAS-2. Mark Evans seconded the motion. The motion passed on a vote of 36:0:2:7=45.

10.2 Actions on SAS PHY Working Group Recommendations

There were no recommendations made by the SAS physical working group (minutes in 05-354).

10.3 Actions on SAT Working Group Recommendations

The recommendations from the SAT working group (minutes in 05-336) were presented to the committee.

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

05-142r4 (LOG SENSE command and SMART) [Bellamy] 05-247r3 (Add 16-byte CDBs and PIO modes) [Sheffield] 05-108r3 (SAT Task Management) [Johnson] 05-226r3 (START STOP UNIT command mapping) [Evans]

Mark Overby moved that 05-142r4, 05-247r3, 05-108r3, and 05-226r3 be approved for inclusion in SAT. Bob Sheffield seconded the motion. The motion passed on a vote of 35:0:6:4=45.

10.4 Actions on CAP Working Group Recommendations

The recommendations from the CAP working group (minutes in 05-337) were presented to the committee.

George Penokie reviewed 05-301r0 (iSCSI allows portal group tag of zero) [Elliott] a proposal recommended for SAM-4.

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

05-296r0 (Persistent Reservations PREEMPT AND ABORT Clarification) [Weber] 05-331r1 (Allow Mode Sense Through Read Only Persistent Reservation) [Penokie] 05-337r0 (Change IEEE 1212-1994 reference to IEEE 1212-2001) [Weber]

George Penokie reviewed 05-313r0 (Change to background medium scan) [Houlder] a proposal recommended for SBC-3.

George Penokie reviewed 05-299r1 (Correct Log Page Format Tables in SPC-4, SBC-3, & SAS-2) [Weber] a proposal recommended for SPC-4, SBC-3, and SAS-2.

Ralph Weber moved that 05-301r0 be approved for SAM-4; that 05-296r0, 05-331r1, and 05-337r0 be approved for SPC-4; that 05-313r0 be approved for SBC-3; and that 05-299r1 be approved for SPC-4, SBC-3, and SAS-2. Mark Evans seconded the motion. The motion passed on a vote of 42:0:0:3=45.

10.5 Actions on Other Working Group Recommendations

The only other working group action presented for committee consideration was the forwarding recommendation for FCP-3 (see item 8.6).

10.6 SBC-3

George Penokie noted that proposed SBC-3 documents have been posted as 05-344r0 for r0 contents and 05-354r0 for r1 contents. He suggested that a SBC-3 project proposal be prepared in time for consideration at the next meeting.

11. ISO/IEC

11.1 ISO/IEC Report [Robinson]

Gary Robinson presented the ISO/IEC report (05-332).

11.2 ISO/IEC Business [Robinson]

No new ISO business was brought before the committee.

12. Liaison Reports

12.1 T11 Liaison Report [Snively]

On behalf of the absent Bob Snively, Claudio DeSanti presented the T11 liaison report contained in T10/05-333.

12.2 T13 Liaison Report [Colegrove]

Dan Colegrove provided an oral report to the committee on the activities of T13. New proposals have been closed for the ATA/ATAPI-8 family of standards. 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]

On behalf the absent Marty Czekalski, Harry Mason presented an electronic report on the activities of the SCSI Trade Association available in 05-362r0.

12.6 IETF SCSI over IP [Black/Robinson]

David Black reported that an iSCSI Implementer's Guide document is in progress and it will be open for inputs for at least a year. Input ideas should be sent to the IPS reflector (ips@ietf.org). The iSER document is technically complete but several crank-turning steps remain before it is a finished RFC.

12.7 SNIA [Cummings]

Roger Cummings made an oral report to the group and provided an electronic copy in 05-347r0.

12.8 Trusted Computing Group [Fitzpatrick]

Mike Fitzpatrick reported verbally on the activities of the TCG. The storage working group meeting schedule has changed. The trusted commands are being reviewed and enhanced in the CAP working group (minutes in 05-337).

13. Review of Action Items

512 John Lohmeyer will forward FCP-3 r04 to INCITS for further processing towards first public review.

- 613 Rob Elliott will prepare 05-169r5 and SAS-1.1 r10.
- John Lohmeyer will forward SAS-1.1 r10 to INCITS for further processing towards first public review.

14. Meeting Schedule

The next plenary meeting of T10 will be Thursday November 10, 2005 in Austin, TX at the Diskill Hotel (512-474-5911) hosted by Dell, Inc. The meeting will begin at 9:00 a.m. on Thursday.

The meeting list for the next plenary week is:

November 2005 Meeting Map (2005/09/15 Version)

Monday 11/07	9 10 11 12 1 2 3 4 5 6 7 8 +========+ +=========================		
		(10)	
	+=======+====++===================+ SAS Prot WG ((40)	
	+======+		
		(25)	
	++ ++ ++	(60)	
	STA 6GB (++	(60)	
Tuesday 11/08	9 10 11 12 1 2 3 4 5 6 7 8		
	+========+ SAS Physical WG ((45)	
	+====+==++==++==++		
		(30)	
	+======+==++++++++==++++++++++++++++++	(35)	
	+======+====++====+++===+++++++++++++++		
	FCP-4 SG/ SSC-3 WG ((15)	
		(25)	
	+======+	(1 -)	
	T11 ad hoc ??? ((15)	
Wednesday 11/09	9 10 11 12 1 2 3 4 5 6 7 8		
	+===========+ CAP WG ((40)	
	CAF WG (-U)	
	MMC WG	(25)	
	+=================+++		
	SFF ((30)	
		(20)	
	++		
	T11 ad hoc ??? ((15)	
Thursday 11/10	9 10 11 12 1 2 3 4 5 6 7 8		
)/10)	
	+======+===+	,	
Deviders 11/11			
Friday 11/11	9 10 11 12 1 2 3 4 5 6 7 8 No meetings planned for Friday.		
/ means the next meeting starts when the previous meeting concludes			
Meetings marked with == are T10-authorized meetings.			

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 TBA via T10 reflector / Cox TBA via T10 reflector / Elliott SAS Prot Calls SAT Call Oct 7 10 am PDT TBA via T10 reflector / Sheffield Trusted Call Oct 12 2:00pm CDT TBA via T10 reflector / Houlder SAT WGMon Oct 17 9am-5pmLas Vegas, NV, CO (T13) / SheffieldMMC WGTue-Fri Nov 1-4Llano, TX / McFerrinStyle CallOct 13TBA via T10 reflector / PenokieStyle CallOct 27TBA via T10 reflector / Penokie Map Abbreviation Key: Automation Drive Interface (tape library interface) ADI: Amnd: Amendment CAP: Commands, Architecture, and Protocols Fast-80: Data Transfer at 80 Mega-transfers/sec. (a.k.a., Ultra3, Ultra160) Fast-160: Data Transfer at 160 Mega-transfers/sec. (a.k.a., Ultra320) FC: Fibre Channel I/F: Interface IETF: Internet Engineering Task Force (the group that sets Internet standards) iFC: Internet Fibre Channel IPS: Internet Protocol SCSI iscsı: Internet SCSI Letter Ballot LB: MMC: Multimedia Commands (CD-ROM, DVD, etc.) Object-based Storage Device OSD: Par.: Parallel (e.g., SPI-n) PH or PHY: Physical (Connectors, Cables, Transceivers, etc.) PIP:(SCSI) Passive Interconnect PerPlenary:Full Committee MeetingRes:ResolutionSAS:Serial Attached SCSISBC-2:SCSI Block Commands - 2SBP-3:Serial Bus Protocol - 3SCSI:Small Computer System InterfaceSDI:Serial Attached SCSI Driver Top PIP: (SCSI) Passive Interconnect Performance Serial Attached SCSI Driver Interface SDI: SES: SCSI Enclosure Services SFF Industry Group (not an INCITS activity) SFF: SG: Study Group SCSI Medium Changer - 2 Commands SMC-2: SPC-3: SCSI Primary Commands - 2 (3rd generation) Fourth Generation SCSI Parallel Interface SPI-4: SPI-5: Fifth Generation SCSI Parallel Interface SCSI RDMA Protocol (was SVP) SRP: SRP-2: SCSI RDMA Protocol (2nd generation, SSC-2: SCSI Stream Commands - 2 (includes Tape) SSM-2: SCSI Signal Modeling (2nd generation) Specific-Subject Working Groups SCSI Trade Association (Closed meeting -- not an INCITS activity) STA: STA Marcom: STA Marketing Communications (Closed meeting -- not an INCITS activity) STA Tech: STA Technical Meeting (T10 members invited) Serial ATA Tunneled Protocol STP: SCSI Storage Interfaces Technical Committee т10: Device Level Interfaces Technical Committee т11: WG: Working Group (same as Ad Hoc Group)

Activity		Telephone/Email
ADT, ADT-2	Paul Entzel	
ADC, ADC-2	Rod Wideman	paul.entzel@quantum.com (720) 249-5796
		rod.wideman@adic.com
SBC-2,SES-2,SAS-1.1,SAS-2,	Rob Elliott	
BCC,SDI		Elliott@hp.com
MMC-4, MMC-5	Bill McFerrin	
		billmc@tstar.net
SBP-3	Peter Johansson	
		PJohansson@ACM.org
SAM-4	George Penokie	(507) 253-5208
		gop@us.ibm.com
SAT	Bob Sheffield	(480) 554-8597
		robert.l.sheffield@intel.com
SMC-2	Erich Oetting	(303) 673-2178
		Erich_Oetting@Stortek.com
SMC-3	Noud Snelder	+31408446108
		Noud.snelder@bdt.de
SPC-3, SAM-3, SPC-4, OSD-2	Ralph Weber	(214) 912-1373
		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

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

The long-term T10 meeting week schedule is:

Date	Location	Host/Comments			
Nov 7-11, 2005	Austin, TX	Dell Computer			
Jan 9-13, 2006		Intel Corp.			
Mar 6-10, 2006	Hilton Head, SC	SCSI Trade Association			
May 8-12, 2006	Seattle, WA	Nvidia Corp.			
Jul 10-14, 2006	Colorado Springs, CO	LSI Logic			
Sep 11-15, 2006	Nashua, NH	Hitachi Cable Manchester			
Nov 6-10, 2006	Las Vegas, NV	Hitachi GST			
Approved dates for	2007:				
Jan 15-19, 2007	Orlando, FL	Symantec			
Mar 12-16, 2007					
May 7-11, 2007					
Jul 9-13, 2007	Colorado Springs, CO	LSI Logic			
Sep 17-21, 2007 (to avoid conflicts with the Jewish High Holy Days)					
Nov 5-9, 2007					
Proposed dates for	2008:				
Jan 14-18, 2008					
Mar 10-14, 2008					
May 5-9, 2008					
Jul 14-18, 2008					
Sep 8-12, 2008					
Nov 3-7, 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 October 2005. Erich Oetting 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 10:55 a.m. on Thursday September 15, 2005.

Enclosure(1) -- Meeting Attendees

	Name	S 	Organization
Mr.	William Lynn	Ρ	Adaptec, Inc.
	Pat Thaler	P	Agilent Technologies
	Ron Roberts	А	
	Steven Wilson		Brocade Comm. Systems, Inc.
	Claudio DeSanti	P	Cisco Systems, Inc.
	Doug Cole	Ā	
	Kevin Marks	Ρ	Dell, Inc.
Mr.	David Black	А	EMC Corp.
Mr.	Gary S. Robinson	Ρ	EMC Corp.
	Robert H. Nixon	Ρ	Emulex
	Ralph O. Weber	Ρ	ENDL Texas
	Douglas Wagner	Ρ	FCI
	Elwood Parsons	Ρ	Foxconn Electronics
Mr.	Mike Fitzpatrick	Ρ	Fujitsu
	Nathan Hastad	Ρ	General Dynamics
Mr.	Michael Banther	v	Hewlett Packard Co.
Mr.	Rob Elliott	Ρ	Hewlett Packard Co.
Mr.	Mike Guzman	А	Hitachi Cable Manchester
Mr.	Dan Colegrove	Ρ	Hitachi Global Storage Tech.
Mr.	George O. Penokie	Ρ	IBM / Tivoli Systems
Mr.	Robert Sheffield	Ρ	Intel Corp.
Mr.	Fernando Gomez	v	LeCroy Corporation
Mr.	Mike Micheletti	v	LeCroy Corporation
Mr.	Martin Furuhjelm	А	Lexar Media, Inc.
Mr.	John Lohmeyer	Ρ	LSI Logic Corp.
Mr.	Harry Mason	V	LSI Logic Corp.
Mr.	Avraham Shimor	Ρ	M-Systems
Mr.	Mark Evans	Ρ	Maxtor Corp.
Mr.	David Walp	V	Microsoft Corp
Mr.	Jay Neer	Ρ	Molex Inc.
Mr.	Mark Overby	Ρ	Nvidia Corp.
Mr.	James Williams	AV	Oracle
Dr.	Terence J. Nelson	Ρ	Panasonic Technologies, Inc
Mr.	William P. McFerrin	Ρ	Philips Electronics/CD Edge
Mr.	Tim Symons	Ρ	PMC-Sierra
Mr.	Craig W. Carlson	А	QLogic Corp.
	Paul Entzel	Ρ	Quantum Corp.
Dr.	Paul Suhler	А	Quantum Corp.
	Alvin Cox	V	Seagate Technology
	Gerald Houlder	Ρ	Seagate Technology
	William Martin	Ρ	Sierra Logic, Inc.
	Vit Novak	P	Sun Microsystems, Inc.
	Erich Oetting		Sun Microsystems, Inc.
	Roger Cummings	Ρ	Symantec
	Robert Kando	A	Texas Instruments
	Yutaka Arakawa	P	Toshiba
	Ashlie Fan	P	TycoElectronics
	Dan Gorenc	A	TycoElectronics
	David Allen	A	Vitesse Semiconductor
	Curtis Stevens	P	Western Digital
	Jeff Williams	P	Xiotech Corp.
Mr.	Rich Ramos	V	Xyratex

52 People Present

Status	Key:	P	-	Principal
		A,A#	-	Alternate
		AV	-	Advisory Member
		L	-	Liaison
		V	-	Visitor

Enclosure(2) -- T10 Attendance Database

Generated on 2005/09/19 at 16:05:20

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 Fax: (408) 945-6736 Adaptec, Inc. 691 S. Milpitas Blvd. Email: ljlamers at ieee dot org Milpitas, CA 95035 Mr. Bernhard Laschinsky (AV) Phone: (610) 712-7937 Agere Systems Fax: (610) 712-4574 Room 12D-225B Email: blaschinsky at agere dot com 1110 American Parkway NE Allentown, PA 18109-9138 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 Ms. Pat Thaler (P) Phone: (916) 788-5662 Agilent Technologies Fax: 1101 Creekside Ridge Dr Email: pat_thaler at agilent dot com Suite 100, MS RG-10 Roseville, CA 95678 Mr. Niels Reimers (A)Phone: (916) 788-5720Agilent TechnologiesFax: (916) 788-61361101 Creekside RidgeEmail: niels_reimers at agilent dot com MS RG-10 Roseville, CA 95678 Mr. Paul von Stamwitz (AV) Phone: (408) 523-1085 AMCC Fax: (408) 523-1001 455 West Maude Avenue Email: pvstamwitz at amcc dot com Sunnyvale, CA 95085 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 Eax: (607) 786-4311 Amphenol Interconnect Fax: (607) 786-4311 Email: mike dot wingard at aipce dot com 20 Valley St. Endicott, NY 13760 Mr. Paul Griffith (P) Phone: 408-313-6643 Broadcom Corp. Fax:

2451 Mission College Santa Clara, CA 95054	Email:	griffith at broadcom dot com
Mr. Ron Roberts (A) Broadcom Corp. 5240 Stampede Lane Shingle Springs, CA 95682	Fax:	(530) 677-5714 (530) 677-1218 rkroberts at aol dot com
Mr. Robert Snively (P) Brocade Comm. Systems, Inc. 1745 Technology Drive	Fax:	(408) 333-8135 rsnively at brocade dot com
San Jose, CA 95110	Email.	Ishivery at brocade dot com
Mr. Steven Wilson (A) Brocade Comm. Systems, Inc. 1745 Technology Drive San Jose, CA 95110	Fax:	(408) 333-8128 (408) 392-6655 swilson at brocade dot com
Mr. Leroy Fong (AV) Circuit Assembly Corp. 18 Thomas St. Irvine, CA 92618	Fax:	(949) 855-7887 (949) 837-8660 leroyf at circuitassembly dot com
Mr. Ian Morrell (AV) Circuit Assembly Corp. 18 Thomas St. Irvine, CA 92718-2703	Fax:	(949) 598-1780 (949) 855-4298 ianm at circuitassembly dot com
Dr. Claudio DeSanti (P) Cisco Systems, Inc. 170 W. Tasman Dr. San Jose, CA 95134	Fax:	(408) 853-9172 (408) 853-9172 cds at cisco dot com
Mr. Fabio Maino (A) Cisco Systems, Inc. 170 W. Tasman Dr. San Jose, CA 95134	Fax:	(408) 853-7530 (408) 853-7530 fmaino at cisco dot com
Mr. John Tyndall (AV) Crossroads Systems, Inc. 8300 North Mopac Expressway Austin, TX 78749	Fax:	(512) 928-7282 jtyndall at crossroads dot com
Mr. James A. Lott, Jr. (P) Dallas Semiconductor 4401 S. Beltwood Pkwy. Dallas, TX 75244-3292	Fax:	(972) 371-4939 (972) 371-4370 jim dot lott at dalsemi dot com
Mr. Doug Cole (A)	Phone:	972-371-3887

Dallas Semiconductor Fax: 972-371-4370 4401 South Beltwood Pkwy Email: doug dot cole at dalsemi dot com Dallas, Texas 75244 Phone: (512) 723-9173 Mr. Kevin Marks (P) 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) 300-7242 EMC Corp. Fax: 85 East India Row Email: robinson_gary at emc dot com 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 Fax: (714) 885-3794 Emulex 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 Fax: (972) 596-2775 ENDL Texas Email: roweber at ieee dot org Suite 102#178 18484 Preston Rd. Dallas, TX 75252 Mr. Keith Holt (A) Engenio Information Tech. Phone: (316) 636-8665 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 FCT 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
                                            com
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
                                             com
Sunnyvale, CA 94085
Mr. Ben-Koon Lin (A)
                                   Phone: (408) 894-3979
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: 49-821-804-3602Fujitsu Siemens Comp. gmbHFax: 49-821-804-2910Depatment: SNI PC SB ESWEmail: weiss dot abg at sni dot deDurgermeister Windel SiSiemens dot abg at sni dot de
Burgermeister-Ulrich-St
D-86199 Augsburg Germany
Mr. Bob Thornton (AV)Phone: (408) 745-4932Fujitsu Takamisawa AmericaFax: (408) 745-4971250 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
                                     Fax:
8800 Queen Ave. S.
                                     Email: timothy dot mackley at gd-ais dot
                                             COM
Bloomington, MN 55431
Ms. Liza Hunt (XO)
                                     Phone:
Global Engineering Documents
15 Inverness Way East
                                     Fax:
                                     Email:
Englewood, CO 80112-5704
                               Phone: (281) 518-5037
Mr. Rob Elliott (P)
Hewlett Packard Co.
                                     Fax: (281) 518-7135
                                 Email: Elliott at hp dot com
MC140801
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 Mr. Zane Daggett (P) Hitachi Cable Manchester Fax: (603) 669-9621 900 Holt Ave. Email: zdaggett at hcm dot hitachi dot com Manchester, NH 03109 Mr. Mike Guzman (A) Mr. Mike Guzman (A) Hitachi Cable Manchester Phone: (603) 669-4347 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 900 Holt Ave Email: horita dot hitoshi at hitachi-cable dot co dot jp Manchester, NH 03109 Phone: (702) 614-6119 Mr. Dan Colegrove (P) Mr. Dan Colegrove (P)Phone: (702) 614-6119Hitachi Global Storage Tech.Fax: (702) 614-79552903 Carmelo Dr.Email: daniel dot colegrove at hgst dot com Henderson, NV 89052 Ms. Sally Castillo (A)Phone: (507) 322-2316Hitachi Global Storage Tech.Fax: (507) 322-24133055 41st Street NWEmail: Sally dot Castillo at hgst dot com Rochester, MN, 55901 Mr. Sam Sawyer (A#) Phone: 408-717-8690 Hitachi Global Storage Tech. Fax: 5600 Cottle Road Email: sam dot sawyer at hitachigst dot com San Jose, CA Mr. Steven Wirtz (AV) Phone: (952) 941-5905 Fax: I-TECH Corp. Email: steve_wirtz at i-tech dot com 10300 Valley View Rd. Eden Prairie, MN 55344 Mr. George O. Penokie (P) Phone: (507) 253-5208 Fax: (507) 253-2880 IBM / Tivoli Systems 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. Fax: 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
Mr. Bill Bissonette (A) Phone: (978) 553-6140
                                   Fax: (978) 553-3206
Intel Corp.
HD2-2-J12 25th Ave.
                       Email: bill dot bissonette at intel dot com
77 Reed Road
Hudson, MA 01749
Mr. Roger Jeppsen (AV) Phone: 480-552-0584
                                   Fax: 480-554-6617
Intel Corporation
Intel CorporationFax: 480-554-66175000 W. Chandler Blvd.Email: roger dot c dot jeppsen at intel
                                          dot com
M/S CH6-332
Chandler, AZ 85226
                            Phone: (801) 332-4438
Fax: (801) 778-4170
Emod 1
Mr. Robert Payne (P)
Iomega Corp.
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
                         Email: jimm at lecroy dot com
700 Chestnut Ridge Rd.
Chestnut Ridge, NY 10977
Mr. Pat LaVarre (P) Phone: (510) 743 4533
Lexar Media, Inc.
                                  Fax: (510) 580 0504
                             Fax. (510, 500 coll
Email: p dot lavarre at ieee dot org
47300 Bayside Parkway
Fremont, CA 94538
Mr. Martin Furuhjelm (A)Phone: (510) 580-2368Lexar Media, Inc.Fax: (510) 580-047847300 Bayside ParkwayEmail: mfuruhjelm at lexar dot com
47300 Bayside Parkway
Fremont, CA 94538
Mr. John Lohmeyer (P) Phone: (719) 533-7560
                                   Fax: (719) 533-7183
LSI Logic Corp.
4420 ArrowsWest Dr.
                                   Email: lohmeyer at t10 dot org
Colorado Springs, CO 80907
Mr. Avraham Shimor (P)
                                   Phone: +972528444610
                                   Fax: +97235466888
M-Systems
7 Atir Yeda Str
                                  Email: avraham dot shimor at m-systems dot
```

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)Phone: (408) 222-3307Marvell Semiconductor, Inc.Fax: (408) 988-0136700 First AvenueEmail: dgeddes at marvell dot com E-203 Sunnyvale CA 94089 Mr. Mark Evans (P) Phone: (408) 894-5310 Fax: (408) 324-7432 Maxtor Corp. Email: mark_evans at maxtor dot com 500 McCarthy Blvd. Milpitas, CA 95035 Mr. Martin Czekalski (A) Phone: (508) 770-3795 Fax: (508) 770-2299 Maxtor Corp. 333 South Street Email: marty_czekalski at maxtor dot com Shrewsbury, MA 01545 Mr. David Peterson (AV) Phone: (763) 268-6139 McDATA Fax: 6000 Nathan Lane North Email: david dot peterson at mcdata dot com Minneapolis, MN 55442 Mr. Randy Banton (AV) Phone: (508) 256-1300 x134 Mercury Computer Fax: 199 Riverneck Road Email: Chelmsford, MA 01824 Mr. Tim Brackett (AV) Phone: (707) 836-7883 Fax: (707) 836-7959 Meritec Email: tbrackett at meritec dot com 1382 West Jackson Street Painesville, OH 44077 Phone: (503) 359-4556 Mr. Edward Cady (AV) Meritec Fax: (503) 359-9273 1382 West Jackson Street Email: ecady at meritec dot com Painesville, OH 44077 Phone: (425) 705-9595 Ms. Emily Hill (P) Fax: (425) 936-7329 Microsoft Corp. Email: emhill at microsoft dot com 1 Microsoft Way Redmond, WA 98052

```
Mr. Jeff Mastro (A)
                                  Phone: (425) 707-9254
                                    Fax: (425) 936-7329
Microsoft Corp.
1 Microsoft Way
                                    Email: jmastro at microsoft dot com
Redmond, WA 98052
Mr. Jay Neer (P)
                                  Phone: (561) 447-2907 x3889
                                     Fax: (561) 447-2908
Molex Inc.
399 W. Camino Gardens Blvd.
                                    Email: jay dot neer at molex dot com
Suite 103
Boca Raton, FL 33432
                                  Phone: (630) 718-5270
Mr. Galen Fromm (A#)
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
                                    Fax: (630) 512-8622
Molex Inc.
                                  Email: jerry dot kachlic at molex dot com
2216 Wellington Court
Lisle, IL 60532
                             Phone: (425) 417-9412
Mr. Mark Overby (P)
Nvidia Corp.
                                    Fax:
2701 San Thomas Expry
                                  Email: moverby at nvidia dot com
Santa Clara, CA 95050
Mr. William Bridge (AV) Phone: (650) 506-6350
Oracle
                                     Fax: (650) 506-6350
                             Email: Bill dot Bridge at Oracle dot com
500 Oracle Parkway
Mailstop: 4op1220
Redwood Shores, CA 94065
Mr. James Williams (AV) 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
Dr. Terence J. Nelson (P)Phone: (908) 464-1652Panasonic Technologies, IncFax: (908) 464-0149167 Maple St.Email: terry at tjnelson dot com
New Providence, NJ 07974
Mr. Rudolf Vitti (A)Phone: (201) 348-7064Panasonic Technologies, IncFax: (201) 348-7807One Panasonic WayEmail: vittir at panasonic dot com
Panazip 1E-6
Secaucus, NJ 07094
Mr. William P. McFerrin (P) Phone: (325) 423-1560
Philips Electronics/CD Edge Fax:
PO Box 381 Email: billmc at tsta
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
PMC-SierraFax: 613-271-70074th Floor - 411 Legget DriveEmail: Yuriy_Greshishchev at pmc-sierra
                                       dot com
Kanata, Ontario K2K 3C9
Canada
                              Phone: (949) 389-6368
Mr. Skip Jones (P)
                          Fax: (949) 389-0114
Email: skip dot jones at qlogic dot com
QLogic Corp.
26600 Laguna Hills Dr.
Aliso Viejo, CA 92656
Mr. Craig W. Carlson (A) Phone: (952) 932-4064
ougic Corp.
6321 Bury Drive
                                Fax:
                               Email: craig dot carlson at glogic dot com
Eden Prairie, MN 55346
Mr. Paul Entzel (P)
                                Phone: (720) 406-5782
                                Fax: (720) 406-5762
Quantum Corp.
4001 Discovery Dr.
                              Email: paul dot entzel at quantum dot com
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
                           Phone: (952) 402-2869
Mr. Gerald Houlder (P)
Seagate Technology
                                Fax: (952) 402-3471
                            Email: gerry dot houlder at seagate dot com
Mailstop SHK231
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 7213 Marblethorpe Dr Email: bill_martin at sierralogic dot com Roseville, CA 95747 Mr. Narayan Ayalasomayajula (A) Phone: (916) 772-1234 x116 Sierra Logic, Inc.Fax: (916) 771-18119083 Foothills Blvd., #300Email: narayan at sierralogic dot com Roseville, CA 95747 Mr. Vit Novak (P) Phone: (510) 936-3284 Sun Microsystems, Inc. Fax: (510) 936-2527 MS NWK16-211 Email: vit dot novak at sun dot com 7777 Gateway Blvd. Newark, CA 94560 Mr. Charles Binford (A)Phone: (316) 315-0382 x222Sun Microsystems, Inc.Fax: (509) 756-44253450 N. Rock Rd., Suite 301Email: Charles dot Binford at sun dot com Wichita, KS 67226 Mr. Erich Oetting (A#) Phone: (303) 673-2178 Sun Microsystems, Inc. Fax: 2270 South 88th St. Email: erich_oetting at stortek 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 Phone: (407) 357-7133 Mr. Greg Wheeless (A) Fax: (407) 357-7590 Symantec 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 Fax: Tandberg Data ASA Email: anders dot emil dot olsen at PO Box 134 Kjelsas tandberg dot com N-0411 Oslo, Norway

```
        Mr. Paul D. Aloisi (P)
        Phone: (603) 222-8687

        Texas Instruments
        Fax: (603) 222-8700

                              Email: Paul_Aloisi at ti dot com
50 Phillipe Cote St.
Manchester, NH 03101
                            Phone: (603) 222-8667
Mr. Robert Kando (A)
Texas Instruments
                                  Fax:
50 Phillipe Cote St.
                                Email: Robert_Kando at ti dot com
Manchester, NH 03101
Mr. Yutaka Arakawa (P) 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 (A)
                                  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
                     Phone: (508) 926-4148
Fax: (508) 752-4230
Ms. Ashlie Fan (P)
                                 Fax: (508) 752-4230
TycoElectronics
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
                                Phone: (949) 380-5077
Mr. Ron Mathews (AV)
                                  Fax: (949) 380-5858
UNISYS Corporation
MV201
                                  Email: ronald dot mathews at unisys dot com
25725 Jeronimo Road
Mission Viejo, CA 92691
Mr. Phil Shelton (AV)
                                  Phone: (949) 380-5111
                                  Fax: (949) 380-5858
UNISYS Corporation
MV201
                                  Email: phil dot shelton at unisys dot com
25725 Jeronimo Road
Mission Viejo, CA 92691
                                Phone: (719) 867-6200
Mr. Gregory Tabor (P)
                                  Fax: (719) 867-6203
Vitesse Semiconductor
4323 ArrowsWest Drive
                                 Email: greg at vitesse dot com
Colorado Springs, CO 80907
Mr. David Allen (A)
                                Phone: 719-867-6280
```

Vitesse Semiconductor 4323 ArrowsWest Dr. Colorado Springs, CO 809	Fax: Email:	dallen at vitesse dot com
Mr. Curtis Stevens (P) Western Digital 20511 Lake Forest Dr. Lake Forest, Ca. 92630	Fax:	949-672-7933 Curtis dot Stevens at wdc dot com
Mr. John Masiewicz (AV) Western Digital 20511 Lake Forest Dr. Lake Forest, CA 92630	Fax:	(949) 672-7686 john dot masiewicz at wdc dot com
Mr. Jeff Williams (P) Xiotech Corp. 6455 Flying Could Drive Eden Prarie, MN 55344	Fax:	(952) 983-2445 (952) 983-2320 jeff_williams at xiotech dot com
Mr. Lynn Waggie (A) Xiotech Corp. 3535 40th Avenue, N.W. Rochester, MN 55901	Fax:	(507) 529-7024 Lynn_Waggie at Xiotech dot com
Mr. Rich Ramos (P) Xyratex 27 coronado ct Manhattan Beach, CA 90266	Fax:	(312) 953-4964 rich_ramos at us dot xyratex dot com