

Accredited Standards Committee*

National Committee for Information Technology Standards (NCITS)

Doc. No.: T10/98-202r0

Date: July 21, 1998

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber / John Lohmeyer
Subject: T10 Plenary Meeting #27 -- July 16, 1998
Portland, ME

Agenda

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 - 10.1.2 ASC/ASCQ Definitions for RBC in SPC-2 [Weber]

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- 10.1.3 SPI-2 revision 20b to substitute for revision 20a [Penokie]
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- 10.1.5 A/B Port (98-145r1) for SPC-2 [Weber]
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Results of Meeting

1. Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 9:00 a.m., Thursday July 16, 1998. He thanked Doug Hagerman of Compaq for hosting the meeting.

John said that NCITS Subgroup Membership forms and the T10 Mailing Subscription form were available on the document table. He said that people should use the NCITS forms to insure the NCITS Secretariat has the latest membership information. These forms should be mailed directly to the NCITS Secretariat.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated. Copies of the draft agenda and general information on T10 were made available to those attending.

2. Approval of Agenda

The draft agenda was approved with the following additions/changes:

- 10.1.1 EPI revision 15 letter ballot for first public review [Ham]
- 10.1.2 ASC/ASCQ Definitions for RBC in SPC-2 [Weber]
- 10.1.3 SPI-2 revision 20b to substitute for revision 20a [Penokie]
- 10.1.4 SAM-2 hierarchical addressing requirement [Penokie/Snively]
- 10.1.5 A/B Port (98-145r1) for SPC-2 [Weber]
- 10.1.6 Background Scan in Informational mode page (98-205) for SPC-2 [Williams]
- 10.2 Disk Drive Failure Predictive Failure Workshop Report [Lohmeyer/Colegrove]
- 10.3 SPI-3 Timing Proposals Report [Milligan]

The following agenda items were removed and the topics were combined into a single motion during the course of the meeting:

- 11.2.1 Roll Call vote on CD 14776-112, Information technology - Small Computer System Interface - Part 112: Parallel Interface -2 (SCSI - SPI-2)
- 11.2.2 Roll Call vote on CD 14776-221, Information technology - Small Computer System Interface 3 - Part 221: Fibre Channel Protocol (SCSI-3 FCP)
- 11.2.3 Roll Call vote on CD 14776-342, Information technology - Small Computer System Interface - Part 342: Controller Commands-2 (SCSI SCC-2)
- 11.2.4 Roll Call vote on CD 14776-351, Information technology - Small Computer System Interface - Part 351: Medium Changer Commands (SCSI-3 MMC) (sic)
- 11.2.5 Roll Call vote on CD 14776-371, Information technology - Small Computer System Interface - Part 371: Enclosure Services Command Set (SCSI SES)

3. Attendance and Membership

The membership requirements were reviewed. NCITS 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 vote at the second plenary meeting. Working group meetings do not count toward attendance requirements.

Organizations must also pay the NCITS Service Fee (\$300) to maintain membership. The ANSI International Program Fee (also \$300) is billed at the same time. Alternatively, organizations may join T10 with the experimental Organizational Membership; this membership option costs \$2500 and includes one principal member, any number of alternates, and either two CD-ROM mailings or one CD_Access mailing.

John briefly discussed the mailing fees. Complete pricing information is contained in the 1998 membership form (available at ftp://ftp.symbios.com/t10/pub/standards/io/t10/mem_form.txt).

On July 7th, 22 people were dropped from the T10 roster for non-payment of fees. Most of these people were observers who seldom attended meetings. However, one person was a principal member of T10, Keith Parker of Diogenes SCSI.

The Chair said he had sent letters to 4 people from 2 organizations informing them that their membership was in jeopardy due to non-attendance (see 98-010r0) and that their membership would be terminated if they did not attend this meeting. The following organizations were in attendance jeopardy:

Cable Design Technologies
Distributed Processing Technology

All of the organizations were present.

No organizations were terminated due to lack of attendance.

No organizations requested new membership at this meeting.

Also, due to the acquisition of the Digital Equipment Corp. by Compaq Computer, the Digital membership was dropped.

The T10 membership during the meeting was 49 organizations down from 51 organizations last time. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current T10 membership list.

4. Approval of Minutes - May '98 Meeting Colorado Springs, CO (T10/98-148r1)

The minutes were approved as written.

5. Document Distribution

Members who have any problems with their mailing subscription should deal directly with Judy Gales (jgales@itic.nw.dc.us) (202) 626-5741.

John Lohmeyer requested that all documents for the next mailing be in his hands in electronic format by 10:30 a.m. on Thursday July 23, 1998. Documents received after this time will 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.

The electronic copies can be sent directly to John by e-mail (at lohmeyer@ix.netcom.com), placed on the SCSI BBS (719-533-7950), or they can be transferred by ftp protocol to ftp.symbios.com and placed in the /pub/standards/io/incoming directory. In the latter two cases, please also send an e-mail to John informing him of the file name and location of the file.

As usual, minutes are also available on the SCSI BBS (719-533-7950), the T10 World Wide Web page (see below), and will be distributed to the T10 Reflector.

To be added to the T10 Reflector, send an e-mail to majordomo@symbios.com with the line 'subscribe t10' in the message body. The NCITS Secretariat maintains a World Wide Web page at <http://www.ncits.org/>. Symbios maintains a World Wide Web page on behalf of T10 at <http://www.symbios.com/t10/>.

The current document register is enclosure (3). The T10 document register is also available on the SCSI BBS in file DR.TXT and at <ftp://ftp.symbios.com/pub/standards/io/t10/dr.txt>.

6. Call for Patents

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

A document is available from ANSI, "Procedures for the Development and Coordination of American National Standards", at no charge. This document is also on the WWW at http://www.ncits.org/help/ansi_sdo.html. Section 1.2.11 contains the ANSI patent policy. Amy Marasco manages patent issues for ANSI and can be contacted at amarasco@ansi.org or 212-642-4954.

7. Review of Old Action Items

- 265) John Lohmeyer will provide the project abstract form to all project editors. *Complete.*
- 266) All project editors will return the project abstract forms regarding their project(s) to the Chair.
- 267) The SSC project editor will provide a public review revision of SSC to John Lohmeyer. *Overtaken by events*
- 268) John Lohmeyer will notify the T10 Reflector that T10 is planning to remove all HVD material from SPI-3. *Complete.*

- 269) Ralph Weber will assign device type code 0Fh to ISO/IEC 14776-381 "SCSI Specification for Optical Card Reader/Writer" in SPC-2. *Complete.*
- 270) Peter Johansson will prepare SBP-2 revision 4 for public review and ISO/IEC activities. *Complete.*
- 271) John Lohmeyer will forward SBP-2 revision 4 to NCITS for processing toward first public review. *Complete.*
- 272) John Lohmeyer will notify NCITS that T10 has recommended the withdrawal of X3.170 and X3.170a. *Complete.*
- 273) John Lohmeyer will notify the T10 Reflector that T10 intends to make extent reservations obsolete for both Reserve and Persistent Reserve commands in SPC-2. *Complete.*
- 274) John Lohmeyer will notify the T10 Reflector that T10 intends to make the Change Definition command obsolete in SPC-2. *Complete.*
- 275) Peter Johansson will provide SBP-2 revision 4 electronic source files to the IR. *Completed the following week by the Chair.*
- 276) Gene Milligan will forward SBP-2 revision 4 along with a new work item proposal to ISO/IEC SC 25 WG 4. *Carryover*
- 277) John Lohmeyer will put out a call for an SSC technical editor. *Complete.*

8. Project Status Reports

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

John Lohmeyer said that the current T10 project status summary was included in the T10 Information Packages and will be included in the mailing as usual. John presented a foil with some recent updates to the project summary highlighted.

8.2 SPI Amendment (SPIAmnd) {Project 0855-D} [Johansson/Lamers]

John Lohmeyer reported that the SPI Amendment has been approved by BSR as is moving toward ANSI publication.

8.3 SCSI Common Access Method - 3 (CAM-3) Status {Project 990-D} [Dallas]

In the absence of Bill Dallas, no report was available.

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

Gene Milligan announced that SBC (NCITS.306:1998) had been published. John Lohmeyer congratulated Gene.

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

John Lohmeyer announced that he had appointed Dave Peterson as the new SSC Project Editor. Dave is also editing the FC-Tape Technical Report.

Gene Milligan moved that the SSC motion from the last meeting be removed from the table, and then moved that the motion be withdrawn. In the absence of any objections both motions passed and the motion to cancel the SSC project unless an editor could be named was withdrawn.

Gene Milligan moved that the SSC revision 12 forwarding motion from November be rescinded. Erich Oetting seconded the motion to rescind. John ruled that the motion would require a two-thirds vote to pass. The motion to rescind passed 27:0:0:22=49.

Chair's note: This effectively means that the SSC project is back in the state of letter ballots comments resolution and will need another forwarding motion to take it to first public review.

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

John Lohmeyer reported that SMC has been approved by BSR as is moving toward ANSI publication.

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

John Lohmeyer reported that MMC has been approved by BSR and in publication.

8.8 SCSI Parallel Interface - 2 (SPI-2) {Project 1142-D} [Ham/Penokie]

John Lohmeyer reported that the public review of SPI-2 closes July 21, 1998.

8.9 SCSI Enhanced Parallel Interface (EPI) Technical Report {Project 1143-D} [Ham]

John Lohmeyer reported that two editing sessions have been held for EPI since the last committee meeting. Bill Ham believes that revision 15 is the correct draft for a letter ballot approving first public review. John announced that he plans to conduct a letter ballot as soon as revision 15 is available. John warned members to review EPI carefully during the letter ballot, as that may be their last chance to comment on it, since EPI is a technical report.

8.10 SCSI Fibre Channel Protocol - 2 (FCP-2) {Project 1144-D} [Snively]

Bob Snively reported on the activities of the SCSI working group regarding FCP-2 (minutes 98-201) and indicated that the first draft should be available in late September, after the next committee meeting. Bob stated an expectation that FCP-2 will be ready for public review in November 1999.

8.11 Serial Bus Protocol - 2 (SBP-2) {Project 1155-D} [Johansson]

John Lohmeyer reported that SBP-2 is in public review, closing in late August. Pete McLean requested meeting time in September to resolve public review comments.

8.12 SCSI Architecture Model - 2 (SAM-2) {Project 1157-D} [Weber]

Ralph Weber reported that SAM-2 revision 6, containing all committee approved changes, was in the last mailing. Revision 7, wherein the object notation was replaced by English text, was prepared shortly before this meeting and reviewed at an editing meeting earlier this week. Revision 8, containing changes from this meeting week, will be prepared for the next mailing.

Ralph noted that questions have been raised that cause him to suspect a discontinuity between the architecture model depiction of targets and the image many committee members have of that same object. He requested that separate meeting time be scheduled to discuss this during September.

Ralph indicated that November 1999 is a reasonable target date for SAM-2 public review.

8.13 SCSI-3 Enclosure Commands (SES) {Project 1212-D} [Snively]

John Lohmeyer reported that SES has been approved by BSR as is moving toward ANSI publication.

8.14 High Availability Profile (HAP) Technical Report {Project 1224-DT} [Hagerman]

No report.

8.15 SCSI Controller Commands - 2 (SCC-2) {Project 1225-D} [Penokie]

John Lohmeyer reported that SCC-2 is ready to go to BSR and then publication.

8.16 Multimedia Command Set - 2 (MMC-2) Status {Project 1228-D} [Roberts]

John Lohmeyer reported that MMC-2 did not meet this month. They have requested their normal meeting times in September.

8.17 SCSI Primary Commands - 2 (SPC-2) Status {Project 1236-D} [Weber]

Ralph Weber reported that SPC-2 revision 3, containing all committee approved changes, was placed on the T10 web site shortly after the last mailing. Revision 4, containing all changes approved at this meeting, will be prepared for the next mailing.

Ralph indicated that the SPC-2 target date should be made to match the SAM-2 target date.

8.18 Reduced Block Commands (RBC) {Project 1240-D} [Bryan]

Pete McLean reported on the activities of the RBC working group, which met this past Monday (minutes in 98-207). The working group unanimously recommended that RBC revision 5 be the subject of a letter ballot for first public review. John stated that he would conduct a letter ballot as soon as he receives revision 5.

8.19 SCSI Socket/SSL Services Command Set (SSS) {Project 1246-D} [Parker]

John announced that Keith Parker provided an electronic report, 98-191, and asked interested persons to obtain the report from the T10 web site and review it.

Review of the report showed that the activities have shifted to defining IP over SCSI. It was suggested that work should be taken to IETF. John proposed that action on SSS be deferred to the September meeting.

8.20 SCSI Parallel Interface - 3 (SPI-3) {Project 1302-D} [Penokie]

George Penokie reported that SPI-3 revision 0 has been distributed. He noted the very active SPI-3 working group meeting (minutes in 98-200).

8.21 SCSI Enclosure Profile (SEP) Technical Report {Project 1303-DT} [Weber]

Ralph Weber reported that Brad Brookes responded to an e-mail request for inputs with an indication that other work was consuming all his time but he would be interested in discussing the topic at sometime in the future.

9. Old Business

9.1 Making Extent Reservations Obsolete [Snively]

Based a unanimous recommendation of the May working group and the lack of response to a T10 Reflector announcement, Bob Snively moved that extent reservations in Reserve/Release and Persistent Reservations be made obsolete. Erich Oetting seconded the motion. The motion passed 25:1. Ralph Weber took an action item to make extent reservations obsolete in SPC-2.

9.2 Making the Change Definition Command Obsolete [Snively]

Based a unanimous recommendation of the May working group and the lack of negative response to a T10 Reflector announcement, Bob Snively moved that the CHANGE DEFINITION command be made obsolete. Erich Oetting seconded the motion. Bob Snively provided a list of reasons for removing the CHANGE DEFINITION command.

The motion passed 26:0. Ralph Weber took an action item to make the CHANGE DEFINITION command obsolete in SPC-2.

10. New Business

10.1 Actions on Working Group Recommendations

10.1.1 EPI revision 15 letter ballot for first public review [Ham]

John noted that this item was covered under the EPI project report (see 8.9).

10.1.2 ASC/ASCQ Definitions for RBC in SPC-2 [Weber]

Ralph Weber moved, and Pete McLean seconded, that the following ASC/ASCQ codes be added to SPC-2 in support of RBC revision 5:

2C/05 ILLEGAL POWER CONDITION REQUEST

38/00 EVENT STATUS NOTIFICATION
38/02 ESN - POWER MANAGEMENT CLASS EVENT
38/04 ESN - MEDIA CLASS EVENT
38/06 ESN - DEVICE BUSY CLASS EVENT

5E/41 POWER STATE CHANGE TO ACTIVE
5E/42 POWER STATE CHANGE TO IDLE
5E/43 POWER STATE CHANGE TO STANDBY
5E/45 POWER STATE CHANGE TO SLEEP
5E/47 POWER STATE CHANGE TO DEVICE CONTROL

The motion passed 26:0.

10.1.3 SPI-2 revision 20b to substitute for revision 20a [Penokie]

George Penokie described a list of corrections for SPI-2 revision 20a (98-204r0) and how SPI-2 revision 20b will be prepared from SPI-2 revision 20a plus the exact changes described in 98-204r0. George reported that the working group judged all the changes to be non-substantive.

George Penokie moved that the T10 chair be instructed to substitute SPI-2 revision 20b (containing only non-substantive changes) for SPI-2 revision 20a prior to NCITS letter ballot, if SPI-2 completes public review without comments. Paul Aloisi seconded the motion. The committee carefully reviewed the changes in SPI-2 revision 20b. The motion passed 26:0:2:21=49.

George Penokie took an action item to prepare SPI-2 revision 20b at the convenience of the T10 chair. John took an action item to substitute SPI-2 revision 20b for SPI-2 revision 20a prior to NCITS letter ballot if no public review comments are received.

10.1.4 SAM-2 hierarchical addressing requirement [Penokie/Snively]

Based the unanimous recommendation of the working group, George Penokie moved that the all logical unit numbers be required to conform to the hierarchical addressing model. Dal Allan seconded the motion. It was agreed that a flat (single level) addressing example must be added to clarify the simple case as part of requiring the hierarchical model. The motion passed 24:0:1.

10.1.5 A/B Port (98-145r1) for SPC-2 [Weber]

Based on the unanimous recommendation of the working group, Ralph Weber moved that 98-145r1 be approved for inclusion in SPC-2. Bob Snively seconded the motion. The motion passed 28:0.

10.1.6 Background Scan in Informational mode page (98-205) for SPC-2 [Williams]

Based on the unanimous recommendation of the working group, Jeff Williams moved that 98-205r1 be approved for inclusion in SPC-2. Ralph Weber seconded the motion. After some questions were raised about the enable/disable sense of the bit, Jeff withdrew the motion and agreed to bring the proposal back to the working group.

10.2 Disk Drive Predictive Failure Workshop Report [Colegrove]

Dan Colegrove reported on the Disk Drive Predictive Failure Workshop held by professor Gordon Hughes of UCSD's Center for Magnetic Recording Research. He noted that the workshop failed to generate much interest from the drive vendors in establishing a common, standardized method for reporting disk failure prediction data.

10.3 SPI-3 Timing Proposals Report [Milligan]

Gene Milligan described several recommended times in the "SCSI bus control timing values" table. He informed the committee of his planned proposal to make the recommended times mandatory. The group was advised to examine the recommended times relative to their products and the possibility that the times might become mandatory, particularly the "power on to selection" time of 10 seconds.

11. ISO

11.1 ISO Report [Milligan]

Gene Milligan provided the following electronic report:

"ISO/IEC Report 6/98 Abstracted from relevant documents

ISO/IEC JTC 1/SC 25 (Tokyo 08) 29 May 1998

Working Group 4 Brief Report:

SC 25/WG 4 met in Tokyo from 25 May through 27 May covering all of the agenda items presented in SC 25 N 445A. In addition SC 25/WG 4 met with SC 26 on 28 May to review the work and future work of both groups with the object of evaluating synergy. During the past year five of the WG 4 projects resulted in published International Standards. Three standards were due for review in 1998. The recommended outcome of the review is addressed by the first WG 4 resolution.

At the conclusion of this meeting the projects of WG 4 include:

- Seventeen projects which have completed CD balloting.
- Six projects at the DIS stage.
- Sixteen published International Standards.
- One standard to be withdrawn.

During this meeting WG 4 has recommended thirty seven Resolutions, including some requesting specific new work item proposals, for approval by SC 25 and assigned fifteen action points for WG 4 and the Secretariat.

PROJECTS:

FDDI:

Project 25.13.01.03 - FDDI - Part 1:Physical Layer Protocol (PHY) [ISO 9314-1:1989-04]

A preliminary review was requested for this standard. Mr. Milligan explained that FDDI PHY-2 includes FDDI PHY but that both documents refer to each other, however. It was unanimously recommended for reaffirmation. Tokyo resolution WG 4/01 was generated.

Project 25.13.01.04 - FDDI - Part 2:Media Access Control (MAC) [ISO 9314-2:1989-05]

This standard also required a preliminary review. It was also unanimously reaffirmed. Tokyo resolution WG 4/01 also applies.

Project 25.13.01.05 - FDDI - Part 3:Physical Medium Dependent (PMD) [ISO/IEC 9314-3:1990-10]

The progress of the periodic review of this standard was still being restrained by the lack of IEC standards for component and test specifications. Mr. Milligan reported that he had received a partial conversion list from AMP of EIA-to-IEC specifications. He agreed to complete this conversion list as far as possible (Action item 1) to enable FDDI PMD to progress with a revised DIS document. London resolution WG 4/01 and Buzios resolutions WG 4/01 and /02 are still relevant.

FDD:

Project 25.13.10.01 - Flexible Disk [ISO 9315:1989-06]

This standard required a preliminary review. The US and Japanese NBs would refer to revise the standard. After discussion, Mr. Mori (who is the project editor) suggested that this standard should be withdrawn due to lack of resources. This was unanimously agreed. Tokyo resolution WG4/01 applies.

IPI:

Project 25.13.10.08 - Intelligent Peripheral Interface (IPI) - Part 3:
Device Generic Command Set for Magnetic Disk Drives (IPI-3 Disk) [ISO/IEC 9318-3:1990-12]

At the previous SC 25/WG 4 meeting it was decided to fast-track this standard. However due to a declining interest in this item, it was unanimously agreed not to encourage the US NB to fast-track IPI-3 Disk.

Project 25.13.10.09 - Intelligent Peripheral Interface (IPI) - Part 4:
Device Generic Command Set for Magnetic Tape Drives (IPI-3 Tape) [ISO/IEC 9318-4:1990-12]

As above.

SCSI:

Project 25.13.11.02 - SCSI-2 Common Access Method (SCSI-2 CAM) [9316-421 or 9316-2, DIS 15842]

DIS approved in 03/98. Following a request from IEC Central Office, it was agreed to use the number 9316-2 instead of 9316-421 for this standard. Mr. Margner pointed out that 9316-1 could not be used because it was formerly taken to progress the standards work on SCSI-2 before it became ISO/IEC 9316:1995-11. Tokyo resolution WG4/02 is appropriate.

Project 25.13.11.03 - SCSI-3 Primary Commands (SPC) [CD 14776-311]

The NWIP ballot failed because only 4 NBs had agreed to actively participate in this project (according to question Q.3 of the NP ballot form). It appears that a positive Brazil vote had not been incorporated into the ballot result. It is expected that the vote result will be changed to proceed.

Action point 9 was generated to request the Secretary to send out information electronically to WG 4 members indicating that an NP ballot for a particular project has started with special focus on the ending date and the importance of question Q.3.

The CD ballot was successful and was distributed as SC 25 N 463. Action point 8 was generated to ensure that any CD comments are obtained by the Secretary and circulated to Mr. Milligan. London resolution WG 4/20 is still pending. Tokyo resolution WG 4/03 was generated to enable progression from DIS to IS. Tokyo resolution WG 4/04 was generated in case the Brazil vote could not be changed i.e. to encourage the US NB to fast-track the standard.

Project 25.13.11.04 - SCSI-3 Interlocked Protocol (SIP) [CD 14776-211]

As above except that Tokyo resolutions WG 4/05 and /06 are relevant.

Project 25.13.11.16 - SCSI Specifications for Optical Memory Card Reader/Writer_ (OMC RD/WR) [14776-381]

Document JTC 1/SC 25/WG 4/T(okyo)07:Latest draft of CD 14776-381 SCSI Optical Memory Card Reader/Writer, was distributed by Mr. Hosoya. Document SC 25/WG 4/T(okyo)09 containing comments on the draft specification was distributed by Mr. Milligan. Tokyo resolution WG 4/16 was generated to enable the project title to be changed from 'SCSI Specification for Optical Memory Card Reader/Writer' to 'SCSI Optical Memory Card Device Commands' . Buzios resolution WG 4/17 and Tokyo resolution WG 4/17 are relevant for the progression of this standard.

Project 25.13.11.23 - SCSI Controller Commands-2 (SCC-2) [CD 14776-342]

This CD is currently out for ballot, however the NWIP has yet to be submitted. Tokyo resolution WG 4/22 enables the NWIP. Tokyo resolutions WG 4/36 and /37 were generated to enable CD and DIS documents and letter ballots.

HIPPI:

Project 25.13.12.07 - HIPPI - Part 7:Fibre Channel Protocol (HIPPI-FC) [11518-7]

HIPPI-FC was to have been a temporary standard to enable FC oriented commands to be ported over HIPPI. As FC became widely used no requirement for a standards was felt. Consequently, a NWIP will not be submitted. London resolutions WG 4/51, /52, and /53 have been withdrawn in 01/98.

FC:

Project 25.13.13.09 - Fibre Channel (FC) Mapping of Link Encapsulation [ISO 8802-2] (FC-LE) [14165-231]

The current implementations of FC over LE have not been used. The US has decided to recommend that standards developed in other areas (e.g. 'IP over FC' (IPFC) will be handled by a proposed IETF working group) be used instead. The US does not plan to submit this as a CD and recommended that this project was canceled.. Tokyo resolution WG 4/26 cancels this project and withdraws London resolutions WG 4/56 and /57.

Note: IETF stands for Internet Engineering Task Force

Project 25.13.13.2x - Fibre Channel (FC) Fabric Loop Attachment_ (FC-FLA) [14165-tbd]

This document has been published as a Technical Report in the US. The content is more like a profile standard. Currently there is no perceived need to promote it into the international arena. An abstract was distributed electronically to all Buzios WG 4 participants in 10/97.

Project 25.13.13.2x - Fibre Channel (FC) Private Loop SCSI Direct Attach (FC-PLDA) [14165-tbd]

This document is currently being generated as a Technical Report in the US. The content is more like a profile standard. Currently there is no perceived need to promote them into the international arena. An abstract was distributed electronically to all Buzios WG 4 participants in 10/97."

11.2 ISO Business [Milligan]

Gene Milligan moved that T10 recommend the following votes:

- CD 14776-112, Information technology - Small Computer System Interface - Part 112: Parallel Interface -2 (SCSI - SPI-2) -- Approve with comments in 98-204r0;
- CD 14776-221, Information technology - Small Computer System Interface 3 - Part 221: Fibre Channel Protocol (SCSI-3 FCP) -- Approve with comments in 98-209r0;
- CD 14776-342, Information technology - Small Computer System Interface - Part 342: Controller Commands-2 (SCSI SCC-2) -- Approve as presented;
- CD 14776-351, Information technology - Small Computer System Interface - Part 351: Medium Changer Commands (SCSI-3 MMC) -- Approve with changing 'MMC' to 'SMC' and the comments in 98-178r1; and
- CD 14776-371, Information technology - Small Computer System Interface - Part 371: Enclosure Services Command Set (SCSI SES) -- Approve as presented.

John Lohmeyer seconded the motion. On a roll call vote, the motion passed 29:1:0:19=49. The details of the roll call vote are as follows:

Organization	Stat	Name	Yes	No	Abs	NP
Adaptec, Inc.	P	Mr. Lawrence J. Lamers	1			
AMP, Inc.						1
Amphenol Interconnect	P	Mr. Michael Wingard	1			
Ancot Corp.						1
Apple Computer						1
Berg Electronics						1
Cable Design Technologies	P	Mr. Richard Wagner	1			
Ciprico Inc.						1
Circuit Assembly Corp.						1
Compaq Computer Corp.	P	Mr. Robert C. Elliott	1			
Congruent Software, Inc.						1
Dallas Semiconductor	P	Mr. Charles Tashbook	1			
Data General / Clariion						1
Distributed Processing Tech.	P	Mr. Roger Cummings	1			
Eastman Kodak Co.						1
ENDL	P	Mr. I. Dal Allan		1		
Exabyte Corp.	P	Mr. Tom Jackson	1			
Fujitsu						1
Harting, Inc. of N. America						1

Hewlett Packard Co.				1
Hitachi Cable Manchester, Inc	P	Mr. Zane Daggett	1	
Hitachi Storage Products	P	Mr. Anthony Yang	1	
Honda Connectors				1
IBM Corp.	P	Mr. George Penokie	1	
Iomega Corp.	P	Mr. Tim Bradshaw	1	
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1	
Linfinit Micro				1
LSI Logic Corp.	P	Mr. Alan Littlewood	1	
Madison Cable Corp.				1
Maxtor Corp.	P	Mr. Pete McLean	1	
Methode Electronics, Inc.				1
Molex Inc.	A	Mr. Jay Neer	1	
Mylex Corp.	P	Mr. Brian McKean	1	
Ophidian Designs	P	Mr. Edward A. Gardner	1	
Philips Electronics				1
QLogic Corp.	P	Mr. Skip Jones	1	
Quantum Corp.	P	Mr. Mark Evans	1	
Seagate Technology	P	Mr. Gene Milligan	1	
Silicon Systems, Inc.	P	Mr. Dave Guss	1	
Sony Electronics, Inc.	A	Mr. Janek Rebaliski	1	
Storage Technology Corp.	P	Mr. Erich Oetting	1	
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1	
Symbios, Inc.	P	Mr. John Lohmeyer	1	
SyQuest Technology, Inc.				1
Toshiba America Elec. Comp.				1
UNISYS Corporation	P	Mr. Kenneth J. Hallam	1	
Unitrode Corporation	P	Mr. Paul D. Aloisi	1	
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1	
Woven Electronics	P	Mr. Doug Piper	1	

29 1 0 19 = 49

Dal Allan stated a preference for using fast tracking on the proposals as the reason for his negative vote.

12. Liaison Reports

John Lohmeyer announced that Timothy Witcher had contacted him regarding the work of IT10, Electronic Still Picture Imaging of the Photographic & Imaging Manufacturers Association. They have a work item to develop "common command set" for Digital Still Cameras that is suitable for "host centric" and "peer-to-peer" protocols. They want the commands to work over multiple transports including SBP-2 over 1394, USB, IrDA, and RF.

John had responded to Timothy saying that T10 would be willing to cooperated with IT10, particularly in providing SCSI architectural guidance should IT10 want to develop a SCSI-compatible command set.

The next meeting of this group is August 20-21 in Rochester, NY.

12.1 T11 Liaison Report [Cummings]

Roger Cummings presented an oral report to the committee and provided the following electronic report for the minutes.

85 people attended the June T11 Plenary. No organizations lost membership. KnowledgeTek was added as anew member organization. The membership of T11 is now 81 organizations. The total attendance for the T11 week was 141 people.

First Public Reviews for HIPPI-6400-PH and HIPPI-6400-SC each closed with one comments distributed by T11.1.

McData indicated that they had obtained patent 5748612, "Method and apparatus for implementing virtual circuits in a fibre channel system", which they believe may be necessary for implementation of Class 4 in FC-PH-2. An action item was assigned for Ken Fredericks of McData to investigate licensing this patent within the terms of the ANSI patent policy.

T11 approved the submittal of the text of X3.230/AM1:1996 and X3.230/DAM2:199x as comments against the DIS Letter Ballot of FC-PH by a rollcall vote of Y59-N00- DNV20.

The FC-TAPE & FC-MJS-2 projects were assigned Project Numbers 1315-DT and 1316-DT respectively. The FC-FS and FC-VI Project Proposals were not considered at the May OMC meeting because of the pressure of work, and they will be considered at the July NCITS meeting.

Project Proposals for ST-API (Scheduled Transfer API) & HIPPI-LE Revised (Link Encapsulation Revision due to 5 year review) project proposals were forwarded by meeting votes of Y56-O00-DNV25 and Y51-O00-DNV30 respectively.

The Calls for Volunteers for T11.3 and T11.4 Chair are still open and will close on 8/7/98.

The T11 Chair has tendered his resignation from the post. A Call for Volunteers for that position has been issued and will close on 9/18/98 so that the new Chair may be appointed by NCITS at their meeting in Denver, CO on 9/23- 25/98. The Call is document 98-355v0.htm, on <http://www.t11.org>.

The dates for the April 1999 T11 meeting week were changed to 12-16 by unanimous consent.

The next T11 meetings will be held during the week of August 10-14 @ the Forte Crest Hotel, Pembroke Road, Portsmouth PO1 2TA, UK hosted by Xyratex. The telephone number (from the US) is 011-44-1705-827651, the fax number is 011-44-1705-756715 and the rate is £85/night. As of last week rooms were still available. See <http://www.t11.org> for meeting map. The exact time and date for the Plenary meetings are:

- a) T11.1 8/12 6-9pm
- b) T11.2 8/12 1-6pm
- c) T11.3 8/13 9am-1pm
- d) T11.4 8/11 5-9pm,
- e) T11 8/13 2-7pm

12.2 T13 Liaison Report [Milligan]

Gene Milligan reported on the activities of the most recent T13 meeting.

12.3 SFF Industry Group [Allan]

Dal Allan made an oral report to the committee and provided the following electronic report for the minutes.

The HSS (High Speed Serial) Testing SSWG (Specific Subject Working Group) met in Shrewsbury hosted by Compaq/DEC and another will be held later this month in Owego, hosted by Amphenol. It looks as if there has been breakthrough that reduces the complexity of testing. Four tests produce significant data, many other tests are complementary but not essential.

The missing dimension on SCA-2, which delayed publication of SFF-8451, is still missing, and a replacement figure will be provided by AMP. Mark Evans asked that a warning be added when SCA drives are used with a

transition card to a cabled tester. Because the angle of entry is not constrained and the guides get distorted with repeated use, it is possible to short 12V and fry the drive on a hot insertion.

A set of new figures for HSSDC received from AMP caused great perturbation because of the high number of changed dimensions. One in particular has caused grief for Amphenol because it affects a tooled part and is critical on the mating interface. In addition, there have been complaints about the latch not retaining between different vendors, and it is not immediately obvious that the new dimensions correct the problem.

Seagate proposed an extension to SFF-8067 (for Fibre Channel enclosures) which amongst other things, allows gathering SCSI Inquiry data out of band. It will be incorporated into the next revision.

The shroud chamfer tolerance on SFF-8012 for the 4-pin power connector was modified to remove an interference problem with unitized connectors.

Most of SFF-8017 has been incorporated within SCSI-3 EPI, and Bill Ham recommended that it be balloted to Expire.

The ballot on SFF-8090i for ATAPI Removable Rewritable Media passed the ballot to be renewed, because there is some content which is specific to hi-density 120 MB floppies which is not in SCSI-3 MMC-2. A letter will be sent asking if it is possible to identify this content so that it can be considered for RBC or a new revision which has no optical media content.

12.4 IEEE 1394 [Johansson]

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

12.5 IEEE P1285 Status

No report.

12.6 IEEE P1596.8 Status

Bob Snively reported that no new information is available.

12.7 SCSI Trade Association (STA) [Jones/Aloisi]

Paul Aloisi presented the following report:

STA Meeting May 8, 1998

Proposals for Ultra3 were presented.

A letter ballot, vote at the meeting tomorrow will be used to define what will be included in Ultra3.

Web site has been Updated; new format!

www.scsita.org

Marcom Group

Marketing person hired for a press tour promoting SCSI.

Trade show activity

Next meeting July 17, 1998

STA Technical

SCSI Harbor

The last meeting was May 7, 1998 after the Plenary, 15 people attended the meeting.

The document 98s004R1 was reviewed at the meeting.

Benjie Sun generated a new version of the document. 98s004R2 is on the web site and will be reviewed this afternoon.

Note: Paul Aloisi replaced Louis Grantham as the STA Technical Chairman.

13. Review of Action Items

- 266) All project editors will return the project abstract forms regarding their project(s) to the Chair.
- 276) Gene Milligan will forward SBP-2 revision 4 along with a new work item proposal to ISO/IEC SC 25 WG 4.
- 278) Ralph Weber will make extent reservations obsolete in the next SPC-2 revision.
- 279) Ralph Weber will make the CHANGE DEFINITION command obsolete in the next SPC-2 revision.
- 280) George Penokie will prepare SPI-2 revision 20b at the convenience of the T10 chair.
- 281) John Lohmeyer will substitute SPI-2 revision 20b for SPI-2 revision 20a prior to NCITS letter ballot if no public review comments are received.
- 282) John Lohmeyer will conduct a letter ballot on forwarding EPI revision 15 to first public review.
- 283) John Lohmeyer will conduct a letter ballot on forwarding RBC revision 5 to first public review.

14. Meeting Schedule

The next plenary meeting of T10 will be September 17, 1998 in St. Petersburg Beach, FL at the Tradewinds Hotel (813-367-6461), hosted by AMP, Inc. The meeting will begin at 9:00 a.m. on Thursday.

The meeting list for the next plenary week is:

September '98 Meeting Map
(7/16/98 Version)

Monday 9/14	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	EPI LB res										SAM-2 review			(25)
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	Fibre Channel FC-AL3												(40)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
Tuesday 9/15	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	SPI-3 WG												(40)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	RBC/SBP-2 comment resolution												(20)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	MMC-2 WG												(15)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	Joint T10/T11.3 Tape WG												(40)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
Wednesday 9/16	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	SCSI WG												(40)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	MMC-2 WG												(15)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
						SFF SSWGs			SFF				(40)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
Thursday 9/17	9	10	11	12	1	2	3	4	5	6	7	8		
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	T10 Plenary										/ SCSI Harbor (*)			(60/40)
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
						STA Marcom							(15)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
(*) - SCSI Harbor meeting begins 30 minutes after T10 plenary but not before 2:00 pm														
Friday 9/18	8	9	10	11	12	1	2	3	4	5				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													
	SCSI Trade Association (STA)												(30)	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+													

Meetings marked with == are T10-authorized meetings.
Meetings marked with -- are authorized by other groups and may change without notice.

Meeting	Date	Location / Contact	
-----	-----	-----	
T10/T11.3	8/11/98	Tue	Portsmouth, England / T11
Joint Tape WG			
MMC-2	8/4-5/98	Tue-Wed	Longmont, CO / Philips

Meeting Map Abbreviation Key:

Amnd: Amendment
 CAM: Common Access Method
 CAM-3: Next generation CAM for SCSI-3
 Diskboys: Industry group studying disk attachment via IEEE 1394
 EPI: SCSI Enhanced Parallel Interface (Technical Report)
 Encl Profile Enclosure Profile Study Group
 Fast-20: Data Transfer at 20 Mega-transfers/second (a.k.a., Ultra)
 Fast-40: Data Transfer at 40 Mega-transfers/second (a.k.a., Ultra2)
 FC: Fibre Channel
 FC-AL: Fibre Channel - Arbitrated Loop (a T11 project)
 FCLC: Fibre Channel Loop Community (not an NCITS activity)
 I/F: Interface
 Int'l SG: International Activities Study Group
 HAP: High Availability Profile (Technical Report)
 LB: Letter Ballot
 MMC: SCSI-3 Multimedia Commands (CD-ROM)
 PH: Physical (Connectors, Cables, Transceivers, etc.)
 Plenary: Full Committee Meeting
 RAID: Redundant Array of Independent Devices
 RBC: Reduced Block Commands
 SBC: SCSI-3 Block Commands
 SBP-2: Serial Bus Protocol for IEEE 1394 (2nd generation)
 SCC: SCSI-3 Controller Commands (RAID)
 SCSI: Small Computer System Interface
 SES: SCSI Enclosure Services
 SCSI Harbor: A STA project on defining a wrapper for SCSI devices
 SFF: SFF Industry Group (not an NCITS activity)
 SFF ATA: SFF ATA Cabling SSWG (not an NCITS activity)
 SG: Study Group
 SMC: SCSI-3 Medium Changer Commands
 SPC: SCSI-3 Primary Commands
 SPI-2: Second Generation SCSI Parallel Interface
 SPI-3: Third Generation SCSI Parallel Interface
 SSA: Serial Storage Interface
 SSC: SCSI-3 Stream Commands (includes Tape)
 SSWGs: Specific-Subject Working Groups
 STA: SCSI Trade Association (not an NCITS activity)
 STA T: STA Technical Meeting (T10 members invited)
 STS: SCSI Transport via SBP-2
 T10: Lower Level Interfaces Technical Committee
 T10.1: SSA Task Group of T10
 VHDCI: Very High Density Cabled Interconnect
 WG: Working Group (same as Ad Hoc Group)

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

Activity	Contact	Telephone/Email
CAM-3	Bill Dallas	(603) 881-2508 dallas@zk3.dec.com
EPI	Bill Ham	(508) 841-2629 bill.ham@digital.com
FCP, FCP-2, SES	Robert Snively	(415) 336-5332 Bob.Snively@eng.sun.com
GPP	Gary Stephens	(602) 321-1725

HAP	Doug Hagerman	6363897@mcimail.com (508) 841-2145 douglas.hagerman@digital.com
SBC	Gene Milligan	(405) 324-3070 gene_milligan@notes.seagate.com
SBP, MMC, MMC-2	Ron Roberts	(916) 677-5714 rkroberts@aol.com
SBP-2 or RBC	Pete McLean	(303) 678-2149 pete_mclean@maxtor.com
SBP-2	Peter Johansson	(510) 531-5472 pjohansson@aol.com
RBC	Michael Bryan	(303) 684-1407 mike_bryan@notes.seagate.com
SCC-2, SPI-2, SPI-3	George Penokie	(507) 253-5208 gop@us.ibm.com
SMC	Erich Oetting	(303) 673-2178 Erich_Oetting@Stortek.com
SPC, SPC-2, SAM-2, SEP	Ralph Weber	(972) 503-3205 x228 roweber@acm.org
SSA-PH1, -PH2, -TL1, -TL2	Larry Lamers	(408) 957-7817 ljlammers@ix.netcom.com
SSA-S2P & -S3P	John Scheible	(512) 823-8208 Scheible@vnet.ibm.com
SSC	Dave Peterson	dap@network.com (612) 391-1008
SSS	Keith Parker	(503) 255-1035 diogenes@europa.com
Other Activities	John Lohmeyer	(719) 533-7560 lohmeier@ix.netcom.com

The long-term T10 meeting week schedule is:

Date	Location	Host/Comments
Sep 14-18, 1998	St. Petersburg Beach, FL	AMP
Nov 2-6, 1998	Palm Springs, CA	Adaptec
Mar 8-12, 1999	Sarasota, FL	AMP
May 3-7, 1999	Manchester, NH	Hitachi Cable
Jul 12-16, 1999	Colorado Springs, CO	Symbios
Sep 13-17, 1999	Huntington Beach, CA	QLogic
Nov 8-12, 1999	Palm Springs, CA	Adaptec
Jan 10-14, 2000	Brisbane, Australia	ENDL Pacific Technologies
Mar 6-10, 2000	RTP, NC or Dallas, TX	Unitrode
May 8-12, 2000	Manchester, NH	Hitachi Cable
Jul 10-14, 2000	Colorado Springs, CO	Symbios
Sep 11-15, 2000	Huntington Beach, CA	QLogic
Nov 6-10, 2000	To be determined	Adaptec

Gene Milligan moved that there be no January 2000 meeting. George Penokie seconded the motion. The motion failed 8:15:5. Gene Milligan moved that the offer of ENDL to host in Brisbane, Australia be accepted. Ed Gardner seconded the motion. The motion passed 15:9:5. A straw poll between RTP (Research Triangle Park) and Dallas in March 2000 favored RTP 12:6, however the decision will be made by the host.

Zane Daggett moved that the March through November 2000 dates and locations be approved. Roger Cummings seconded the motion. The motion passed 20:1:2.

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.

Roger Cummings moved that T10 authorize the T10-related meetings and events in the list above. Paul Aloisi seconded the motion. The motion passed unanimously.

15. Adjournment

The meeting was adjourned at 12:37 p.m. on Thursday July 16, 1998.

Meeting Attendees -- Enclosure (1)

Name	S	Organization	Electronic Mail Address
Mr. Lawrence J. Lamers	P	Adaptec, Inc.	ljlammers@ieee.org
Mr. Michael Wingard	P	Amphenol Interconnect	mikwingard@aol.com
Mr. Richard Wagner	P	Cable Design Technologies	rwagner@montrose-cdt.com
Mr. Joseph Merkwaz	A	Cable Design Technologies	
Mr. Edward Haske	O	CMD Technology	haske@cmd.com
Mr. Robert C. Elliott	P	Compaq Computer Corp.	Robert.Elliott@compaq.com
Mr. Douglas Hagerman	A#	Compaq Computer Corp.	douglas.hagerman@digital.com
Mr. Sid Snyder	A#	Compaq Computer Corp.	sid.snyder@digital.com
Mr. Charles Tashbook	P	Dallas Semiconductor	charles.tashbook@dalsemi.com
Mr. Greg McSorley	P	Data General / Clariion	greg_mcsorley@dg.com
Mr. Roger Cummings	P	Distributed Processing Tech.	cummings_roger@dpt.com
Mr. I. Dal Allan	P	ENDL	endlcom@ibm.net
Mr. Tom Jackson	P	Exabyte Corp.	thomasj@exabyte.com
Mr. Frank Wang	A	Exabyte Corp.	frankw@exabyte.com
Ms. Constance Kephart	R	Exabyte Corp.	conniek@exabyte.com
Mr. Zane Daggett	P	Hitachi Cable Manchester, Inc	zdaggett@hcm.hitachi.com
Mr. Anthony Yang	P	Hitachi Storage Products	yang_a@halsp.hitachi.com
Mr. George Penokie	P	IBM Corp.	gop@us.ibm.com
Mr. Tim Bradshaw	P	Iomega Corp.	bradshat@iomega.com
Mr. David L. Jolley	A#	Iomega Corporation	jolley@iomega.com
Mr. Dennis Moore	P	KnowledgeTek, Inc.	dmoore@ix.netcom.com
Mr. Alan Littlewood	P	LSI Logic Corp.	alanl@lsil.com
Mr. Pete McLean	P	Maxtor Corp.	pete_mclean@maxtor.com
Mr. Jay Neer	A	Molex Inc.	jneer@molex.com
Mr. Brian McKean	P	Mylex Corp.	brianm@mylexboulder.com
Mr. Edward A. Gardner	P	Ophidian Designs	eag@ophidian.com
Mr. Skip Jones	P	QLogic Corp.	sk_jones@qlc.com
Mr. Mark Evans	P	Quantum Corp.	mark.evans@quantum.com
Mr. Patrick McGarrah	A	Quantum Corp.	pat.mcgarrah@quantum.com
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Dave Guss	P	Silicon Systems, Inc.	dave.guss@tus.ssil.com
Mr. Janek Rebaliski	A	Sony Electronics, Inc.	janek_rebaliski@asd.sel.sony.com
Mr. Erich Oetting	P	Storage Technology Corp.	erich_oetting@stortek.com
Mr. Robert N. Snively	P	Sun Microsystems Computer Co	bob.snively@sun.com
Mr. John Lohmeyer	P	Symbios, Inc.	lohmeier@ix.netcom.com
Mr. Ralph O. Weber	A	Symbios, Inc.	roweber@acm.org
Ms. Randi Mitchem	A#	SyQuest Technology, Inc.	randi.mitchem@syquest.com
Ms. Dora M. Deivert	O	The JPM Company	dmdeivert@jpmsj.com
Mr. Glen McCord	O	The JPM Company	gmccord@jpmsj.com
Mr. Kenneth J. Hallam	P	UNISYS Corporation	ken.hallam@unisis.com
Mr. Paul D. Aloisi	P	Unitrode Corporation	aloisi@unitrode.com
Mr. Jeffrey L. Williams	P	Western Digital Corporation	Jeffrey.L.Williams@wdc.com
Mr. Doug Piper	P	Woven Electronics	doug.piper@internetmci.com

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

T10 Attendance Database on 1998/07/20 at 16:27:07 -- Enclosure (2)

Mr. Daniel Weng (O) Phone: 886-2-3773357
Acard Technology Corp. Fax: 886-2-7374916
IF NO 6 Email:
Wu Hsing Street
Taipei Taiwan ROC

Mr. Lawrence J. Lamers (P) Phone: (408) 957-7817
Adaptec, Inc. Fax: (408) 957-7193
691 S. Milpitas Blvd. Email: ljlamers@ieee.org
Milpitas, CA 95035

Mr. Tak Asami (A#) Phone: (714) 455-8201
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9701 Jeronimo Rd. Email: asami@itc.adaptec.com
Irvine, CA 92718

Mr. Vincent Bastiani (A#) Phone: (408) 957-7153
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691 S. Milpitas Blvd. Email: bastiani@corp.adaptec.com
Milpitas, CA 95035

Mr. Wally Bridgewater (A#) Phone: (408) 945-8600
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691 S. Milpitas Blvd. Email: wally@eng.adaptec.com
Milpitas, CA 95035

Mr. Mark Delsman (A#) Phone: (408) 957-5661
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Mr. Norm Harris (A) Phone: (408) 957-2230
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691 S. Milpitas Blvd. Email: nharris@corp.adaptec.com
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Mr. Richard Moore (A#) Phone: (714) 455-8326
Adaptec, Inc. Fax:
2801 McGaw Email: richard_moore@corp.adaptec.com
Irvine, CA 92714

Mr. Tom Schneider (A#) Phone: (714) 455-8266
Adaptec, Inc. Fax: (714) 455-8102
9701 Jeronimo Email: schneid@itc.adaptec.com
Irvine, CA

Mr. Erik Falk (O) Phone: (206) 881-8004
ADIC Fax: (206) 881-2296
POB 2996 Email:

Redmond, WA 98073-2996

Mr. Steven P. Ego (O) Aeronics Inc. 12741 Research Blvd #500 Austin, TX 78759	Phone: (512) 258-2303 Fax: (512) 258-4392 Email:
Mr. Kent Manabe (O) America Kotobuki Electronics 100 Century Center Ct. #310 San Jose, CA 95112	Phone: (408) 441-9232 Fax: (408) 441-9246 Email: manabe@ix.netcom.com
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T10 Document Database on 1998/07/20 at 16:25:52 -- Enclosure (3)

T10/98-001R0	Date: 1997/12/05	Author: J. Lohmeyer	Mailing: 1998_1
Agenda for T10 Meeting #26 (May '98)			
T10/98-002R0	Date: 1997/12/05	Author: J. Lohmeyer	Mailing: 1998_1
T10 Project Summary - Mar '98			
T10/98-003R0	Date: 1997/12/05	Author: J. Lohmeyer	Mailing: 1998_1
Jeopardy letter for May '98 meeting			
T10/98-004R0	Date: 1997/12/05	Author: J. Lohmeyer	Mailing: 1998_1
Letter Ballot on Forwarding SPI-2 to First Public Review			
T10/98-005R0	Date: 1998/01/13	Author: J. Lohmeyer	Mailing: 1998_1
Results of letter ballot 97-038 on forwarding SBP-2			
T10/98-006R0	Date: 1998/01/13	Author: J. Lohmeyer	Mailing: 1998_1
Results of letter ballot 98-004 on forwarding SPI-2			
T10/98-007R0	Date: 1998/01/26	Author: J. Lohmeyer	Mailing: 1998_1
Ltr. to Ken Bush (Compaq) re Security Patents			
T10/98-008R0	Date: 1998/05/13	Author: J. Lohmeyer	Mailing: 1998_2
Agenda for T10 Meeting #27 (July '98)			
T10/98-009R0	Date: 1998/05/13	Author: J. Lohmeyer	Mailing: 1998_2
T10 Project Summary - May '98			
T10/98-009R1	Date: 1998/05/20	Author: J. Lohmeyer	Mailing: 1998_2
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T10/98-010R0	Date: 1998/05/13	Author: J. Lohmeyer	Mailing: 1998_2
Jeopardy letter for Jul '98 meeting			
T10/98-101R0	Date: 1997/12/02	Author: Dean Wallace	Mailing: 1998_1
Universal Backplane Annex			
T10/98-102R0	Date: 1997/12/07	Author: L. Lamers	Mailing: 1998_1
Minutes of Protocol Study Group - 12/97			
T10/98-103R0	Date: 1997/12/04	Author: Craig McCombs	Mailing: 1998_1
Predicting Performance Benefits of Packetized SCSI			
T10/98-104R0	Date: 1997/12/04	Author: Drew Wilson	Mailing: 1998_1
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SCSI Usable Bandwidth - Fixed Select Times; Varying Data Rate			
T10/98-106R0	Date: 1998/01/01	Author: Gerry Houlder	Mailing: 1998_1
Add PLPB feature to mode page 19h			
T10/98-106R1	Date: 1998/04/24	Author: Gerry Houlder	Mailing: 1998_2
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T10/98-107R0	Date: 1997/12/12	Author: John Lohmeyer	Mailing: 1998_1
Document Retention Policy			

T10/98-107R1 Date: 1998/03/19 Author: John Lohmeyer Mailing: 1998_1
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T10/98-108R0 Date: 1998/01/14 Author: George Penokie Mailing: 1998_1
Comment resolution on SPI-2 letter ballot

T10/98-108R1 Date: 1998/01/14 Author: George Penokie Mailing: 1998_1
Comment resolution on SPI-2 letter ballot

T10/98-108R2 Date: 1998/03/18 Author: George Penokie Mailing: 1998_1
Comment resolution on SPI-2 letter ballot

T10/98-109R0 Date: 1998/01/23 Author: Peter Johansson Mailing: 1998_1
Comment Resolution on SBP-2 letter ballot - Revision 3

T10/98-109R1 Date: 1998/02/28 Author: Peter Johansson Mailing: 1998_1
Comment Resolution on SBP-2 letter ballot - Revision 3

T10/98-109R2 Date: 1998/03/21 Author: Peter Johansson Mailing: 1998_1
Comment Resolution on SBP-2 letter ballot - Revision 3

T10/98-110R0 Date: 1998/01/15 Author: Ron Roberts Mailing: 1998_1
Minutes of MMC-2 Working Group - 1/98

T10/98-111R0 Date: 1998/01/19 Author: J. Lohmeyer Mailing: 1998_1
Minutes of SPI-3 Physical SG 1/22/98

T10/98-112R0 Date: 1998/02/02 Author: T. Coughlan Mailing: 1998_1
Writable Device Identifiers

T10/98-113R0 Date: 1998/01/21 Author: V. Bastiani Mailing: 1998_1
Initial test results on dual-edge clock signals

T10/98-114R0 Date: 1998/01/21 Author: W.C. Gintz Mailing: 1998_1
Hot Plugging on Ultra3 Busses

T10/98-115R0 Date: 1998/01/30 Author: Ralph Weber Mailing: 1998_1
Sundry Minor Enhancements for SPC-2

T10/98-115R1 Date: 1998/02/10 Author: Ralph Weber Mailing: 1998_1
Sundry Minor Enhancements for SPC-2

T10/98-115R3 Date: 1998/03/17 Author: Ralph Weber Mailing: 1998_1
Sundry Minor Enhancements for SPC-2

T10/98-116R0 Date: 1998/02/04 Author: Ron Roberts Mailing: 1998_1
MMC-2 Features and Parameters Clause

T10/98-117R0 Date: 1998/02/28 Author: Peter Johansson Mailing: 1998_1
Comment Resolution on SBP-2 letter ballot - More on Revision 3

T10/98-117R1 Date: 1998/02/28 Author: Peter Johansson Mailing: 1998_1
Comment Resolution on SBP-2 letter ballot - More on Revision 3

T10/98-118R0 Date: 1998/01/21 Author: Darrell Redford Mailing: 1998_1
RBC Generic Command Set Issues

T10/98-118R1 Date: 1998/03/03 Author: Darrell Redford Mailing: 1998_1
RBC Generic Command Set Issues

T10/98-119R0 Date: 1998/02/11 Author: Pete McLean Mailing: 1998_1
Minutes of RBC working group - 2/98

T10/98-120R0 Date: 1998/02/28 Author: Peter Johansson Mailing: 1998_1
Comment Resolution on SBP-2 letter ballot: Isochronous or Not?

T10/98-121R0 Date: 1998/02/20 Author: Greg Shue Mailing: 1998_1
Serial Bus Protocol 2 - Programmable Reconnect Interval Extension

T10/98-121R1 Date: 1998/03/30 Author: Greg Shue Mailing: 1998_1
Serial Bus Protocol 2 - Programmable Reconnect Interval Extension

T10/98-121R2 Date: 1998/05/08 Author: Greg Shue Mailing: 1998_2
Serial Bus Protocol 2 - Programmable Reconnect Interval Extension

T10/98-122R0 Date: 1998/03/02 Author: Ron Roberts Mailing: 1998_1
Proposal Clause 4 MMC-2

T10/98-123R0 Date: 1998/03/15 Author: Jeff Williams Mailing: 1998_1
Removal of Tag Checking Requirement in SPI-2

T10/98-123R1 Date: 1998/03/17 Author: Jeff Williams Mailing: 1998_1
Removal of Tag Checking Requirement in SPI-2

T10/98-124R0 Date: 1998/03/13 Author: Robert Snively Mailing: 1998_1
SPC-2, Persistent Reservation: Additional proposed corrections

T10/98-124R1 Date: 1998/05/01 Author: Robert Snively Mailing: 1998_2
SPC-2, Persistent Reservation: Additional proposed corrections

T10/98-124R2 Date: 1998/05/15 Author: Robert Snively Mailing: 1998_2
SPC-2, Persistent Reservation: Additional proposed corrections

T10/98-125R0 Date: 1998/03/26 Author: Weber/Lohmeyer Mailing: 1998_1
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T10/98-126R0 Date: 1998/03/26 Author: Weber/Lohmeyer Mailing: 1998_1
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T10/98-127R1 Date: 1998/03/31 Author: Weber/Lohmeyer Mailing: 1998_1
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T10/98-128R0 Date: 1998/03/13 Author: Robert Snively Mailing: 1998_1
New Log Page Requirements

T10/98-128R1 Date: 1998/04/08 Author: Robert Snively Mailing: 1998_2
New Log Page Requirements

T10/98-128R2 Date: 1998/05/15 Author: Robert Snively Mailing: 1998_2

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T10/98-129R0 Date: 1998/03/14 Author: W.C. Gintz Mailing: 1998_1
Hot Plugging on U3 Busses (Second Report)

T10/98-130R0 Date: 1998/03/18 Author: Keith Parker Mailing: 1998_1
SCSI Socket Services (SSS) Review 98-03-18

T10/98-131R0 Date: 1998/03/16 Author: Greg Kapraun Mailing: 1998_1
0.5pF Balance Capacitance

T10/98-132R0 Date: 1998/03/16 Author: W. Bridgewater Mailing: 1998_1
Bias Reduction Proposal - 3/98

T10/98-133R0 Date: 1998/03/16 Author: Richard Moore Mailing: 1998_1
Presentation on QAS changes

T10/98-134R0 Date: 1998/03/16 Author: Dean Wallace Mailing: 1998_1
Termination Power Requirements

T10/98-135R0 Date: 1998/03/19 Author: Bill Ham Mailing: 1998_1
Section of EPI describing SCSI switches

T10/98-136R0 Date: 1998/03/10 Author: Gene Milligan Mailing: 1998_1
ISO/IEC 8482 issues

T10/98-137R0 Date: 1998/03/19 Author: Steve Finch Mailing: 1998_1
Project Proposal for Serial Bus Isochronous Protocol Standard

T10/98-138R0 Date: 1998/03/19 Author: Pete McLean Mailing: 1998_1
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T10/98-140R0 Date: 1998/03/19 Author: T. Coughlan Mailing: 1998_1
Clarification of Persistent Reservation

T10/98-141R0 Date: 1998/03/19 Author: Ron Roberts Mailing: 1998_1
Minutes of MMC-2 Working Group - 3/98

T10/98-142R0 Date: 1998/03/17 Author: John Scheible Mailing: 1998_1
Common Database Record Interchange Structure

T10/98-143R0 Date: 1998/03/19 Author: Tom Lagatta Mailing: 1998_1
Storage Networking Industry Association Presentation

T10/98-144R0 Date: 1998/01/14 Author: George Penokie Mailing: 1998_2
CRC on existing SCSI parallel protocol

T10/98-144R1 Date: 1998/04/14 Author: George Penokie Mailing: 1998_2
CRC on existing SCSI parallel protocol

T10/98-145R0 Date: 1998/04/19 Author: R. Weber Mailing: 1998_2
Which port changes for SPC-2

T10/98-145R1 Date: 1998/07/04 Author: R. Weber Mailing: 1998_3
Discovering If This Is SES Port A or Port B

T10/98-146R0 Date: 1998/05/12 Author: Lohmeyer/Weber Mailing: 1998_2
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T10/98-148R0 Date: 1998/05/13 Author: Weber/Lohmeyer Mailing: 1998_2
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T10/98-148R1 Date: 1998/05/18 Author: Weber/Lohmeyer Mailing: 1998_2
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T10/98-149R0 Date: 1998/04/22 Author: N. Wanamaker Mailing: 1998_2
Tape Error Recovery in Queued Environments

T10/98-150R0 Date: 1998/05/02 Author: Ed Gardner Mailing: 1998_2
Simplified Parallel SCSI CRC Proposal

T10/98-151R0 Date: 1998/05/01 Author: Hideki Hosoya Mailing: 1998_2
Optical Memory Card Read/Write Command Set for T10 review

T10/98-152R0 Date: 1998/04/29 Author: Gene Milligan Mailing: 1998_2
Presentation on Fast-80

T10/98-153R0 Date: 1998/05/02 Author: Gene Milligan Mailing: 1998_2
Fast-80 details

T10/98-153R1 Date: 1998/05/15 Author: Gene Milligan Mailing: 1998_2
Fast-80 details

T10/98-153R2 Date: 1998/06/17 Author: Gene Milligan Mailing: 1998_3
Proposal for the Fast 80 Specifications in the SPI-3 Standard

T10/98-153R3 Date: 1998/07/10 Author: Gene Milligan Mailing: 1998_3
Proposal for the Fast 80 Specifications in the SPI-3 Standard

T10/98-154R0 Date: 1998/05/04 Author: Bruce Leshay Mailing: 1998_2
CRC Proposal

T10/98-155R0 Date: 1998/05/04 Author: Richard Uber Mailing: 1998_2
Hot Swap Technical Issues

T10/98-156R0 Date: 1998/05/04 Author: Wally Bridgewater Mailing: 1998_2
Full Length Cable & 15 Loads, 3 Point Plan

T10/98-157R0 Date: 1998/05/04 Author: James McGrath Mailing: 1998_2
Testing for Old Expanders

T10/98-158R0 Date: 1998/05/04 Author: James McGrath Mailing: 1998_2
Communicating with New Expanders

T10/98-159R0 Date: 1998/05/04 Author: George Penokie Mailing: 1998_2
Presentation on QAS Timing

T10/98-159R1 Date: 1998/06/19 Author: George Penokie Mailing: 1998_3
Presentation on QAS Timing

T10/98-159R2 Date: 1998/06/19 Author: George Penokie Mailing: 1998_3
Presentation on QAS Timing

T10/98-160R0 Date: 1998/05/02 Author: Dan Smith Mailing: 1998_2
Leading Pulse Tests Using Ultra2 REQ Signal

T10/98-161R0 Date: 1998/05/04 Author: Dan Smith Mailing: 1998_2
Cable Skew Tests Using Ultra2 Data Signals

T10/98-162R0 Date: 1998/05/04 Author: Dan Smith Mailing: 1998_2
Setup and Hold Tests Using Ultra2 Data/REQ Signals

T10/98-163R0 Date: 1998/05/05 Author: Gerry Houlder Mailing: 1998_2
SCSI Extensions for Network Attached Storage

T10/98-164R0 Date: 1998/05/19 Author: Robert Snively Mailing: 1998_2
Command behavior under reservations

T10/98-165R0 Date: 1998/05/05 Author: Neil Wanamaker Mailing: 1998_2
FCP-2 Enhancements for Tape

T10/98-165R1 Date: 1998/05/05 Author: Neil Wanamaker Mailing: 1998_2
FCP-2 Enhancements for Tape

T10/98-165R3 Date: 1998/07/14 Author: Neil Wanamaker Mailing: 1998_3
FCP-2 Enhancements for Tape

T10/98-166R0 Date: 1998/05/05 Author: Dave Guss Mailing: 1998_2
REQ-ACK Counting

T10/98-167R0 Date: 1998/05/05 Author: Pete Mclean Mailing: 1998_2
Minutes of RBC Working Group - 5/5/98

T10/98-168R0 Date: 1998/05/06 Author: Pete Mclean Mailing: 1998_2
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T10/98-169R0 Date: 1998/05/06 Author: Rob Sims Mailing: 1998_2
GET CONFIGURATION Overview

T10/98-170R0 Date: 1997/12/04 Author: Rob Sims Mailing: 1998_2
Proposal for additions to SPC

T10/98-171R0 Date: 1998/05/06 Author: Peter Johansson Mailing: 1998_3
SBP-2 Document History

T10/98-172R0 Date: 1998/05/07 Author: Stewart Wyatt Mailing: 1998_2
Minutes of Joint T10/T11.3 Meeting on Fibre Channel Tape - 5/5/98

T10/98-173R0 Date: 1998/05/16 Author: Ralph Weber Mailing: 1998_2

SAM-2 Rev 6 Notes

T10/98-174R0 Date: 1998/05/08 Author: Hank Herrmann Mailing: 1998_2
Dual Conductivity Contact

T10/98-175R0 Date: 1998/05/19 Author: Robert Snively Mailing: 1998_2
Proposal to obsolete CHANGE DEFINITION command in SPC-2

T10/98-176R0 Date: 1998/05/19 Author: Jim McGrath Mailing: 1998_2
Proposal for Parallel SCSI: Domain Validation

T10/98-176R1 Date: 1998/05/21 Author: Jim McGrath Mailing: 1998_2
Proposal for Parallel SCSI: Domain Validation

T10/98-176R2 Date: 1998/06/02 Author: Jim McGrath Mailing: 1998_3
Proposal for Parallel SCSI: Domain Validation

T10/98-176R3 Date: 1998/06/09 Author: Jim McGrath Mailing: 1998_3
Proposal for Parallel SCSI: Domain Validation

T10/98-177R0 Date: 1998/05/19 Author: Jim McGrath Mailing: 1998_2
Proposal for Parallel SCSI: Increase Transfer Rate and Improve Error Detection

T10/98-177R1 Date: 1998/06/02 Author: Jim McGrath Mailing: 1998_3
Proposal for Parallel SCSI: Increase Transfer Rate and Improve Error Detection

T10/98-177R2 Date: 1998/06/08 Author: Jim McGrath Mailing: 1998_3
Proposal for Parallel SCSI: Increase Transfer Rate and Improve Error Detection

T10/98-177R3 Date: 1998/07/11 Author: Jim McGrath Mailing: 1998_3
Proposal for Parallel SCSI: Increase Transfer Rate and Improve Error Detection

T10/98-178R0 Date: 1998/05/19 Author: Erich Oetting Mailing: 1998_2
Known defects in SMC (T10/0999-D Rev 10a)

T10/98-178R1 Date: 1998/07/16 Author: Erich Oetting Mailing: 1998_3
Known defects in SMC (T10/0999-D Rev 10a)

T10/98-179R0 Date: 1998/05/22 Author: J. Lohmeyer Mailing: 1998_3
Minutes of SPI-3 Working Group - May 22, 1998

T10/98-180R0 Date: 1998/05/13 Author: George Penokie Mailing: 1998_3
Parallel Protocol Requests

T10/98-180R1 Date: 1998/05/13 Author: George Penokie Mailing: 1998_3
Parallel Protocol Requests

T10/98-180R2 Date: 1998/07/16 Author: George Penokie Mailing: 1998_3
Parallel Protocol Requests

T10/98-181R0 Date: 1998/05/22 Author: Vince Bastiani Mailing: 1998_3
Fast-80 Eye Pattern Testing

T10/98-182R0 Date: 1998/05/21 Author: Dan Smith Mailing: 1998_3
Ultra-3 Cable Tests

T10/98-183R0 Date: 1998/05/25 Author: Keith Parker Mailing: 1998_3
SSS & IP packets over SCSI

T10/98-184R0 Date: 1998/06/17 Author: Larry Lamers Mailing: 1998_3
Extended Modes for READ/WRITE BUFFER

T10/98-186R0 Date: 1998/06/04 Author: George Penokie Mailing: 1998_3
World Wide IDs

T10/98-187R0 Date: 1998/06/19 Author: Gerry Houlder Mailing: 1998_3
Considerations for mode pages common to several LUNs

T10/98-188R0 Date: 1998/06/26 Author: Gerry Houlder Mailing: 1998_3
Method for defining very long command blocks

T10/98-189R0 Date: 1998/06/16 Author: Larry Lamers Mailing: 1998_3
Presentation on Basic Host Initiated Validation (B-HIV)

T10/98-190R0 Date: 1998/06/19 Author: J. Lohmeyer Mailing: 1998_3
Minutes of SPI-3 Working Group - June 19, 1998

T10/98-191R0 Date: 1998/07/15 Author: Keith Parker Mailing: 1998_3
SCSI Socket Services (SSS) Review 98-07-15

T10/98-192R0 Date: 1998/06/18 Author: Richard Uber & Mailing: 1998_3
Duncan Penman
Experimental Results on Fast-80 SCSI Signals

T10/98-193R0 Date: 1998/06/18 Author: Richard Uber & Mailing: 1998_3
Duncan Penman
Fast-80 Simulated Host Waveforms

T10/98-194R0 Date: 1998/06/18 Author: Richard Uber & Mailing:
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Fast-80 Target Source Waveforms

T10/98-194R1 Date: 1998/06/18 Author: Richard Uber & Mailing: 1998_3
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Fast-80 Target Source Waveforms

T10/98-195R0 Date: 1998/06/18 Author: Richard Uber & Mailing: 1998_3
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ISI Testing at 25 Meters

T10/98-196R0 Date: 1998/06/19 Author: Vince Bastiani Mailing: 1998_3
Fast-80 Test Data

T10/98-197R0 Date: 1998/07/01 Author: Zane Daggett Mailing: 1998_3
SPI-3 Concerns

T10/98-198R0 Date: 1998/07/10 Author: Duncan Penman Mailing: 1998_3
Fast-80 Case Study - One Bit Across a 6-device Backplane

T10/98-199R0 Date: 1998/07/10 Author: Duncan Penman Mailing: 1998_3
Fast-80 Case Study - Data Pattern Dependent Effects

T10/98-200R0 Date: 1998/07/16 Author: Lohmeyer / Weber Mailing: 1998_3
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T10/98-201R0 Date: 1998/07/20 Author: Lohmeyer / Weber Mailing: 1998_3
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T10/98-202R0 Date: 1998/07/02 Author: Lohmeyer / Weber Mailing: 1998_3
Minutes of T10 Plenary Meeting #27 - 7/16/98

T10/98-203R0 Date: 1998/07/07 Author: George Penokie Mailing: 1998_3
Persistent Reservations

T10/98-204R0 Date: 1998/07/15 Author: George Penokie Mailing: 1998_3
Editorial changes in SPI-2 from Rev 20a to Rev 20b

T10/98-205R0 Date: 1998/07/14 Author: Jeff Williams Mailing: 1998_3
Addition of Disable Off-Line Read Scan to Information Exception Page

T10/98-205R1 Date: 1998/07/16 Author: Jeff Williams Mailing: 1998_3
Addition of Disable Background Scan to Information Exception Page

T10/98-206R0 Date: 1998/07/14 Author: Bob Snively Mailing: 1998_3
Proposal for FCP Initiator Identification during Persistent Reservations

T10/98-207R0 Date: 1998/07/14 Author: Pete McLean Mailing: 1998_3
Minutes of RBC Working Group - July 14, 1998

T10/98-208R0 Date: 1998/07/14 Author: Gerry Houlder Mailing: 1998_3
Object Oriented Devices: Description of Requirements

T10/98-209R0 Date: 1998/07/16 Author: Bob Snively Mailing: 1998_3
List of changes from FCP Rev 10 to FCP Rev 12