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Date: 18 Dec 2003

Reply to: Mark Overby

To: Membership of T13

From: Mark Overby, Secretary of T13, and Dan Colegrove, Chairman of T13

Subject: Minutes of 44th T13 Plenary Meeting at Las Vegas NV.
December 16th to December 18th, 2003

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BOOKMARK NOT DEFINED.

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Results of the Meeting

1 Opening remarks

Dan Colegrove, the T13 Chair, called the meeting to order at 9:00 A.M. on Tuesday, December 16th, 2003. Dan Colegrove of Hitachi Global Storage hosted this meeting.

As is customary, the people in attendance introduced themselves, and a copy of the attendance list was circulated. Copies of the agenda were made available to those in attendance.

The Chair briefly reviewed the meeting rules: T13 is a Technical Committee of INCITS and operates under INCITS rules. Anyone with interest in the work of the committee is free to attend and take part in discussions. However, motions and votes are limited to member organizations, one vote per member organization.

The Chair also noted that T13 operates under the INCITS antitrust guidelines. There should never be discussion of the following topics at any INCITS or an INCITS subgroup meeting:

- ✍ 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.

Policies and Procedures and antitrust guidelines for INCITS are available at the web site at www.incits.org. T13 operates under these policies and procedures augmented by the T13 procedures at the T13 web site at www.t13.org.

2 Approval of agenda

The agenda was approved by unanimous consent.

3 Membership and attendance

The Chair reviewed the rules for membership and attendance:

3.1 Membership

An individual from an organization new to T13 must attend at least one T13 plenary meeting before requesting voting membership. After that meeting, the representative may request membership from the T13 chair stating expertise and material interest in the scope of the committee and pay the required fees to INCITS. The time when membership becomes effective has just changed. Membership now becomes effective at the start of the next meeting the organization attends assuming the organization attends one of the next two meetings.

3.2 Fees

Current INCITS memberships fees for Principal or additional Alternates are 800.00 USD. The First Alternate is free with a Principal membership.

Mailings of committee documents are available to any interested party after each plenary meeting. The cost for mailings for one year is 300.00 USD for mailing in the USA and 400.00 USD for mailing to a location outside of the USA.

Persons with questions or requests regarding membership fees and/or subscriptions for mailings should contact Parthenia Purnell, ITI Standards Operations, at ppurnell@itic.org.

3.3 Attendance

In addition to payment of fees, there are also minimum attendance and participation requirements to maintain voting membership status on T13. A representative from a member organization must attend two of every three plenary meetings and vote on at least every other letter ballot. If a member organization fails to have a representative in attendance at two of the last three T13 plenary meetings or vote on every other letter ballot, they are warned that failing to attend the next T13 meeting or to vote on the next letter ballot will result in their voting membership being terminated.

Attendance at a working group meeting does not affect voting membership status in T13.

The T13 voting membership during the meeting was 19 organizations. There were 17 companies present.

The number of eligible voting members required for establishing a quorum was 7. 15 Member organizations were present at the start of the meeting, thus a quorum was present.

NVIDIA Corporation was added as an official member effective this meeting.

The following individuals attended:

Name	Company	E-Mail
		E-Mail Addresses
		Removed due to spam mail abuse.
		Contact the committee chairman
Colegrove, Dan	Hitachi GST	For attendee contact information
Puri, Sumit	Fujitsu	
Livacaari, Steve	IBM	
Grimsrud, Knut	Intel	
Eschmann, Michael	Intel	
Thompson, Tim	LSI Logic	
Jackson, Mark	Maxtor	
Overby, Mark	NVIDIA	
Goodfellow, Tony		
Elkins, Greg	QLogic	
Chen, Joe	Samsung	
Noblitt, Marc	Seagate	
Hatfield, Jim	Seagate	
Hartney, Mark	Silicon Image	
Lott, Glenn	ST Microelectronics	
Suzuki, Hiroshi	Toshiba	
Hirata, Kenneth	Emulex	
Masiewicz, John	Western Digital	
Chen, Joe	Samsung	
Zelenko, Karen	Phoenix Technologies	
Flake, Lance	Maxtor	

4 Approval of the Minutes from the Previous T13 Plenary Meeting (e03139r0)

Mark Overby moved and John Masiewicz seconded that the minutes of the previous meeting, e03139r0, be approved. The motion was approved with 14 ayes, 0 nays, and 0 abstentions.

5 Document Distribution

The following documents were distributed either via hard copy, soft copy, or both:

Agenda and document directory
ATAPI DMA Direction proposal update (e03129r3)
SATA Errata 43 drawings

6 Review of Previous Action Items

The open action items list were reviewed under item 11

6.1 Review of Open Issues

1. Completed
2. Not yet completed. Dan requested that someone involved in the ATAPI business consider taking ownership of this item.

7 Old Business

7.1 ATA/ATAPI-7 Project 1532D

7.1.1 Time Limited Read Write (e03129r0)

7.1.1.1 Results of Letter Ballot (e03023r0)

The letter ballot passed with 8 yes votes, 5 no votes, and 1 abstention. The comments returned by the letter ballot were reviewed by each party. It was noted that in the letter ballot return there was a typo in the document that states it is **D03024r0** when it should be e03024r0. (Bold type added by secretary for emphasis). All letter ballots were returned except for Absolute Software.

The ruling by the chair was reviewed that the document was subject to a simple majority because the 30-day period of the letter ballot constituted sufficient notification for the change. The chair commented that he did attempt to receive clarification from INCITS but has not been able to contact the appropriate individual. The chair ruled that because the ATA/ATAPI-7 document was not stabilized and therefore did not need the 2/3 supermajority.

As a result of the letter ballot the Time Limited Read/Write information will be removed from the ATA/ATAPI-7 specification.

Seagate stated that they would submit a formal project proposal to turn this item into a formal standalone technical document. The procedure for creating a new project was reviewed by the chair.

7.1.2 ATAPI DMA Direction Indication (e03132r3) [Hartney]

The latest revision of the proposed changes was reviewed. The new document contained background information about the necessity of this change in relation to ATAPI DMA over SATA. The changes to the IDENTIFY PACKET data were reviewed, most of the new information was moved to a previously reserved word (word 62) of the identify data. This was done to reflect comments that existing words should not be modified in behavior. In addition further comments were extended in the notes.

It was moved that revision 3 of this document be incorporated into the ATA/ATAPI-7 standard. The motion passed with 14 ayes, 0 nays, and 0 abstentions.

7.1.3 Clarification of BSY bit behavior for parallel emulation on SATA (e03144r0) [Overby]

The proposal was discussed. Knut Grimsrud commented that he was concerned that we were changing the meaning of device detection and not allowing for alternate methods of determining the connection status of a device. John Masiewicz and Mark Overby both pointed out that language in Clause 20.2.2.1 already indicates that this is the case and that the definition of the DET bit in the SStatus register is already referenced in conjunction to this section. It was agreed that a forward link in the section should be included from the parallel emulation section to the definition of “device presence” in Clause 20.2.2.1 as an editorial change.

For the behavior of the register, it was proposed that it be changed to require a return of 0x80 when device presence is detected. A long discussion ensued between various host vendors about the fact that would require changes to existing silicon and make them incompatible. An alternative change was made that the language be changed to make 0x80 a preferred return value. Debate ensued about if host drivers should actually test against 0x80 as a legal return value. It was agreed that they should solely be testing against bit 7. Discussion about what effect returning 0xFF has on existing host software ensued.

Mark Overby proposed that the language in the parallel emulation section be revised to return 0x80 as a “preferred” return value but leave 0xFF as a legal return value. The motion died for lack of a second.

7.1.4 Data Register Read/Write Bug (5.4.3 v1 in ATA-7) [Landis]

It was noted that the direction of the reads and writes were reversed during the operation of PIO for. In or out for data direction is from the perspective of the host not the device so PIO out transactions occur by writes to the data port (e.g.). It was also noted that the data register has the directions reversed as well in section 5.3.3.

It was noted that this should be considered for an erratum on ATA-6 as well.

The changes discussed will be reflected in the ATA-7 document.

7.1.5 SATA Connector Status (SATA Errata 43)

This erratum has already been approved by the SATA working group as an erratum to the serial 1.0a document. It was noted that this is actually a new feature that adds a latching connector to the specification. It was determined that the new erratum replaces some existing drawings with new connector drawings. Concern was raised that this would make existing connectors non-compliant. It was pointed out that the drawings actually make the new parts optional meaning that existing connectors will still be compliant.

Marc Noblest moved and Tim Thompson seconded that Errata 43 be incorporated as presented. The motion passed with 13 ayes, 0 nays, and 1 abstention.

7.1.6 Jitter Measurement Table (SATA Errata 44)

Knut reported that the background for this erratum is that the last step in the jitter measurement was determined to be impossible to accurately determine. Instead of having 3 ledges, it would only have two. Also all references to A2 and the table for jitter measurement would be removed. The erratum from the SATA working group was reviewed.

John Masiewicz requested that the erratum be formatted into the normal T13 proposal feature. It was noted that due to time constraints it should be incorporated without the formal proposal.

Dan Colegrove moved, Phil Hartney seconded, that the changes outlined in Errata 44 be incorporated from the source material provided. The motion passed with 13 ayes, 0 nays, and 2 abstentions.

7.1.7 ATA/ATAPI-7 Page by Page Review [Masiewicz]

ATA/ATAPI-7 Volume 1 (d1532v1r3d) – reviewed changes

ATA/ATAPI-7 Volume 2 (d1532v2r3d) – reviewed changes

ATA/ATAPI-7 Volume 3 (d1532v3r3d) – reviewed changes

John Masiewicz led a page by page review of Volume 3, revision 3f. The review was conducted of all outstanding changes, editorial changes, and changes approved earlier in the plenary session.

It was noted by Knut Grimsrud that he was concerned that the cable connector change for Errata 43 may not have been incorporated with all of the necessary information. John responded that the changes were not deltas in the document so he was unable to verify the veracity of the changes. Dan Colegrove pointed out that it would appear that the missing material is indeed present in other separate diagrams in the connector section.

Knut also pointed out that there are issues with the spread spectrum diagrams for idealized waveforms in relation to a Lexmark patent for spread spectrum. After much discussion it was decided that the section was not a requirement and would be left intact for the revision and if necessary a new diagram could be provided as part of letter ballot comments.

The attendees further reviewed the new connector diagrams to make sure that all of the new diagrams were included and that the replaced diagrams were actually replaced. Some minor corrections were also made to the titles for the figures for the connectors. It was noted that the attendees sure ensure that this material was reviewed by appropriate parties for correctness during further review of the document.

General non-technical, grammatical, or formatting errors or changes were requested by multiple parties and were incorporated into the document.

John Masiewicz led a page by page review of Volume 2, revision 3f. The review was conducted of all outstanding changes and other editorial corrections, and was incorporated as noted during the review. Any revisions necessitated by other actions taken by the committee during this meeting were also reflected in the document after review.

Corrections were made to the host protected area state diagrams for volume 2 to reflect the correct behavior of the nIEN bit.

General non-technical, grammatical, or formatting errors or changes were requested by multiple parties and were incorporated into the document.

John Masiewicz led a page by page review of Volume 1, revision 3f. The review was conducted of all outstanding changes and other editorial corrections, and was incorporated as noted during the review. Any revisions necessitated by other actions taken by the committee during this meeting were also reflected in the document after review.

During discussions of the effect of device configuration overlay bits for SMART tests it was noted by Joe Chen that bit 1 of the DCO originally controlled all tests and that new bits in the DCO control the new tests. Jim Hatfield indicated that the intent was that bit 1 would only control the existing tests and the new bits control the new tests. There was significant discussion on the interpretations of this issue. The document was revised to indicate that the behavior of bit 1 may vary based on implementation and that consulting the other bits in conjunction was needed by software using this feature.

It was requested that each volume title page reflect the contents of the volume for ease of reading. In addition incorrect data was observed in the forewords and it was noted by Dan Colegrove

Based on the results of the letter ballot covering the removal of the time limited read/write feature set, the document was reviewed to accurately and completely remove all references to the time limited read/write feature set from the document.

Multiple corrections were made to the command descriptions to accurately reflect the command availability for packet devices as well as making the names of the stream commands accurately reflect that they are DMA (PIO commands are not explicitly stated as such in the command name) and 48-bit only.

John Masiewicz moved, Jim Hatfield seconded, that all of the changes be accepted and a new revision (3g) be created for all 3 volume. The motion passed with 13 ayes, 0 nays, and 0 abstentions.

John Masiewicz moved, Mark Overby seconded, that he be authorized to create a revision 4 to incorporate editorial changes and accept all outstanding changes from revision 3g. The motion passed with 12 ayes, 1 nay, and 0 abstentions.

Greg Elkins moved, Mark Jackson seconded, that committee requests that the chair create a letter ballot to forward revision 4 of ATA/ATAPI-7 to INCITS. The motion passed with 12 ayes, 1 nay, and 0 abstentions.

7.1.8 ATA/ATAPI-7 Schedule Review

Schedule Item	Original	Prior	Proposed
Proposal	Aug-01	Aug-01	Aug-01
Initial draft	Dec-01	Dec-01	Dec-01
Proposal cut-off	Jun-02	Jun-02	Jun-02
Stabilized draft	Dec-02	Dec-02	Aug-03
Letter ballot	Apr-03	Apr-03	Dec-03
Forward to INCITS	Jun-03	Jun-03	Apr-04

7.2 ATA/ATAPI-8 Project Proposal [Colegrove]

Dan Colegrove began the discussion by commenting that there are two possible avenues of approach to the next standard. There are several known extensions coming from the SATA II activities that will be here soon. One possible approach is to incorporate those changes quickly with leaving the document largely intact in a short timeframe. The alternative proposal is to make potential wide-sweeping changes on the normal 18 month to 2 year timeframe.

John Masiewicz and Marc Noblitt both commented that we can only work with the material on the table and since some of these features are not available we can proceed with what we have. John also commented that it makes sense to begin work on revamping the current volume 1 material now since this will be an extremely large task.

Attendees also discussed what the root nature of the project should be. There was a straw poll conducted among the attendees that indicated that 13 of the attendees supported removing parallel ATA information and 5 were opposed to the removal. Dan Colegrove stated that he would generate the formal project proposal that would include the removal of the parallel ATA standard.

Other features or changes that people have commented on for a future project included:
ATAPI over SATA

EESA

Erratum from the SATA working group

Write Wrong revival

ISO Standardization

Remove PIO

Remove Parallel ATA

Command volume interface changes

7.2.1 Enterprise Extensions SMART Accessed (EESA) (e03138r1) [Masiewicz]

Mike Masiewicz reviewed the latest revision of the document. He states that this document is the first fully clean revision of the document and he requested that this be the version of the document that people review. In addition, the sections on the control timeouts was the most revised section of the document as well as information about the superstatus and how to obtain or observe status.

Marc Noblitt commented that he disagrees with the title of the document in that the “Enterprise” in the command feature set is unnecessarily restrictive and was confusing as to if this was available for any type of drive or just a certain segment of drives.

Marc Noblitt made a motion to revise the title of the document to remove the word Enterprise. There was significant discussion as to if the motion was possible. The motion eventually failed for lack of a second.

John continued with his review about why SMART was chosen for this method of command delivery and also what changes were made to data structures and commands. He also discussed the way commands are delivered by using one sector of data that follows the actual SMART command. The data following the command is the actual EESA command.

7.2.2 SATA LED [Puri]

Sumit Puri commented that this agenda item is more of a placeholder for a future document and that once the SATA working group has completed their work on the LED, then this committee will need to decide what to do about that investigation. Sumit commented that the item could be removed from the agenda until the SATA working group has completed their work. It will be left on the agenda as skipped if no new data is available.

7.2.3 HPA State Diagram Corrections [Kataria]

Karen Zalenko stated that the modifications are not really corrections as there is nothing incorrect about the information, but instead it is bringing together all of the information that is currently spread throughout the ATA/ATAPI-7 document. Karen showed a diagram that brought all of the states taken into one diagram.

Jim Hatfield stated that their engineers have concerns about the effects of resets on the various commands and that information was not present.

Dan stated that there were several different ways that this could be approached, included doing this as a technical report or just waiting for ATA/ATAPI-8. A suggestion was also made that it could be included now and resolved through letter ballot comments from the ATA/ATAPI-7 ballot. Several attendees raised concerns about that approach.

Karen agreed to update the document on the website and solicit feedback based on the updated document from the reflector.

7.2.4 Remove Parallel Interface from ATA-8?

See discussion under section 7.2 for full details of the discussion revolving around removing parallel from ATA/ATAPI-8. This agenda item was collapsed into the ATA/ATAPI-8 project proposal discussion.

7.3 ATA/ATAPI-6 Error Correction Project [Colegrove]

Dan Colegrove has not yet put together the proposal for the correction to the ATA/ATAPI-6 correction.

7.4 ATA/ATAPI Host Adapter Standard Project 1510D Status [Goodfellow]

ANSI editor was satisfied with the final edits and the project will be published.

7.5 EDD-3 Project 1572D

Mike Eschmann volunteered that he will take ownership of the EDD-3 standard as the project currently does not have an editor. Mike also commented that the proper owner of this project would be with a system BIOS company.

7.5.1 Behavior for Obsolete Commands

Dan Colegrove stated that a review needed to be done as to what a standard reply should be for those commands that are no longer allowed (obsolete commands). It was also noted that there is not a consistent standard for how the BIOS should respond to those commands

7.5.2 Emulex request for iSCSI and SAS Interface Type

7.5.3 SAS Device Path Proposal for SAS interface and path type

Mike Eschmann reviewed the proposal document including the reasons for the requested change and the impact of the change. Dan Colegrove commented that it was appropriate to include a link to the T10 documents if needed.

Mike Eschmann moved and Ken Hirata seconded that the proposal be included as documented in document d1572r1. The motion passed with 11 ayes, 0 nays, and 2 abstentions.

7.6 A/V Technical Project Report [Colegrove]

Dan Colegrove stated that he has no new information to report on this project. The item will be carried forward to the next meeting.

7.7 PARTIES-2 Project Status

Dan Colegrove was unclear as if there was a project or a proposal for a project. Dan stated that he will have to report in the new calendar year and needs to know what the status of the project is and when new material should be available.

7.8 Proposal for HBA-2 Standard [Overby]

Mark Overby agreed that NVIDIA will propose a new project at the next meeting for a serial-ATA host bus standard (document number e03146r0).

7.9 T13 reflector, FTP, and web site setup

Dan Colegrove stated that we now have a backup mirror of the T13 website. That mirror can be accessed at <http://www.t10.org/t13> and <ftp://ftp.t10.org/t13>. Dan agreed to post this information on the reflector and to also address the broken links that have been found on the site.

8 New Business

8.1 “Master/Slave” Reflector Discussion

Dan Colegrove moved and Tim Thompson seconded that all current references to slave be removed from the document glossary. The motion passed with unanimous consent.

9 Liaison Reports

9.1 T10

Dan has not yet posted a liaison report for T10. No other new information to report.

9.2 SFF

Dan mentioned that there is work going on with server features for drives involving handles and new holes that will not affect current drawings. In addition there is a proposal floating from Sun for a 12v only drive for server applications.

9.3 IDEMA

IDEMA has two working groups that affect T13. There is a long physical sector committee for large block (4k) formatting. There is a letter being formed to Microsoft for support and that the T13 committee supports their work. There is work also being done for benchmarking for A/V work. On the level 1 benchmark (seek profile) that is was being considered for production line and qualification purposes. It was proposed that IDEMA publish the algorithm with the statement that it is for not for public standardization and just an example how one could write such a test. The level 2 benchmark had consistent feedback that the benchmark was not useful and had numerous bugs.

9.4 Compact Flash Association

CFA does want to add UDMA support and an A/V command set to the CFA. There was talk that because of the small sizes of the device, they may want to use their own variation on the A/V command set. There was also discussion about standardizing a USB interface for the devices.

9.5 Serial ATA II

Knut Grimsrud stated that the next serial ATA plugfest has been announced for March. It does not require membership, but does require executing the plugfest agreement.

10 Call for Patents

The Chair explained the patent policy. 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 INCITS web site at ftp://www.incits.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.

The Chair then called for patents and/or patent applications that may be necessary to comply with the requirements in T13 standards, draft standards, technical reports, or draft technical reports.

There was no response to the call for patents.

11 Review of Action Items

1. Dan Colegrove to provide new foreword template based on new INCITS foreword information.
2. Dan Colegrove to include information about the data direction error found in ATA/ATAPI-7 for inclusion in the ATA/ATAPI-6 errata project.

3. Dan Colegrove will publish an errata document for ATA/ATAPI-6 for changes to the state diagram (figure 33) (carryover)

12 Schedule

12.1 Authorization of Ad Hoc Working Groups

No Ad Hoc meetings were authorized.

12.2 Long term meeting schedule

The meeting dates, locations, hosts, and contacts were reviewed through CY2005 (included below).

CY 2004 Dates	Location	Host	Contact	#
February 24-26, 2004	Santa Clara, CA	NVIDIA	Mark Overby	45
April 20-22, 2004	Longmont, CO	Seagate	Jim Hatfield	46
June 22-24, 2004	San Jose, CA	Phoenix	Mukesh Kataria	47
August 24-26, 2004	Longmont, CO	Maxtor	Mark Jackson	48
October 19-21, 2004	Las Vegas, NV	Fujitsu	Sumit Puri	49
December 14-16, 2004	Las Vegas, NV	Hitachi Global	Dan Colegrove	50
CY 2005 Dates	Location	Host	Contact	#
February 22-24, 2005	TBD	TBD	TBD	51
April 19-21, 2005	TBD, CO	Seagate	Jim Hatfield	52
June 21-23, 2005	TBD	TBD	TBD	53
August 23-25, 2005	TBD, CO	Maxtor	Mark Jackson	54
October 18-20, 2005	Las Vegas, NV	Fujitsu	Sumit Puri	55
December 13-15, 2005	Las Vegas, NV	Hitachi Global	Dan Colegrove	56
NOTE ? Meetings are scheduled for three days.				

13 Adjournment

Greg Elkins moved that the meeting be adjourned. The motion passed with unanimous consent at 5:30 pm on Thursday December 17, 2003.