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Date: August 24, 2004

Reply to: Curtis E. Stevens

To: Membership of T13

From: Curtis Stevens substituting for Mark Overby, Secretary of T13, and Dan Colegrove, Chairman of T13

Subject: Minutes of 48th T13 Plenary Meeting at Boulderado Hotel, Boulder Co.
August 24th to August 26th, 2004

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1 Opening remarks

Dan Colegrove, the T13 Chair, called the meeting to order at 9:00 A.M. on Tuesday, August 24th, 2004. Dan Colegrove thanked Mark Jackson of Maxtor Corp who 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

Greg Elkins moved and John Masiewicz seconded, that the agenda be approved. The motion passed with 14 ayes, 0 nays, and 0 abstentions.

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.

The chair reviewed the current membership status of members according to INCITS. It was noted by multiple members that they had paid and had receipts for their payment, but were not reflected in the INCITS list. In addition, there were multiple errors in the primary and alternate designations.

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 21 organizations.

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.

The following individuals attended:

Name	Company
Gardner, Phil	Absolute Software
Barras, Larry	Apple Computer
Hirata, Kenneth	Emulex
Fitzpatrick, Mike	Fujitsu
Puri, Sumit	Fujitsu
Livaccari, Steve	IBM
Dees, Brian	Intel
Breher, Joe ¹	Lingua Data
Thompson, Tim	LSI Logic
Evans, Mark	Maxtor
Jackson, Mark	Maxtor
Obr, Nathan	Microsoft
Maxwell, Conrad	Net Cell
Thurnhofer, Stefan	Pacific Digital
Zelenko, Karen	Phoenix
Elkins, Greg	Qlogic
Schadegg, John	Samsung
Hatfield, Jim	Seagate
Rubalcava, Anik	Seagate
Thibadeau, Bob	Seagate
Hartney, Mark	Silicon Image
Lott, Greg	ST Microelectronics
Sletten, Steve ¹	Sun Microsystem
Arakawa, Yutaka	Toshiba
Luksic, Mladen	Western Digital
Masiewicz, John	Western Digital
Stevens, Curtis	Western Digital
¹ Non-Member	

4 Approval of the Minutes from the Previous T13 Plenary Meeting (e04136r0)

Dan Colegrove reported that the minutes are taking a long time to be approved to INCITS. He will ask INCITS to try and get them approved more quickly

Jim Hatfield moved, John Masiewicz seconded, that the minutes be approved. The motion passed 14:00:7

5 Document Distribution

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

1. Agenda and document directory
2. Trusted Computing Group – Backgrounder (e04145)
3. 1701DT – SCT
4. 1572D – EDD3
5. e04139r1
6. e03124r2
7. e04143r0
8. e04128r0
9. e04129r1
10. e04132r0
11. e04141r1
12. e04128r0
13. e04145r0
14. e04146r0
15. e04140r0

6 Review of previous Action Items

1. Larry Barras to create document for SATA LED proposal. Remove
2. Dan Colegrove to send out letter ballot for Time Limited Read/Write proposal to send to INCITS for public review. Done.
3. Dan Colegrove to bring a proposal for IDENTIFY DEVICE to use DMA (carryover)
4. Nathan Obr will bring a proposal to clarify the behavior as to what hosts shall expect and devices shall do when a command is not supported and for how to report unsupported commands (clarification) (carryover).
5. Dan Colegrove to find out if the new PIO and MWDMA modes can be publicly shared with the T13 organization and can we release copyright to CF (carryover).
6. Dan Colegrove to find out the closing date for public review for ATA-7. Done, 30-AUG)
7. Dan Colegrove to find out if documents should have a –N (for national standard) on all pages containing the document number (carryover).
8. Dan Colegrove to report back about establishing liaison for the MMC (Multimedia Card) (carryover).
9. Mark Overby and Jithendra Bethur to coordinate on PCI-Express extension for DPTE table (carryover).

10. Brian Dees to work with the SATA II working group to find out the proposed solution for the asynchronous COMRESET problem and to find out when a proposal could be brought to T13.

7 Old Business

7.1 ATA/ATAPI-7 Project 1532D [Masiewicz]

7.1.1 INCITS Status

Public review closes on 30-AUG.

7.1.2 Goodfellow Public Comment on ATA/ATAPI-7

Tony is concerned that if a write command gets an error when the cache is written to the media that the sector reported by the command as being in error could be incorrect.

Dan presented e04026 as the response to this review comment. This response states that the behavior is understood and that there are other mechanisms that guarantee delivery of data to the media with the requested status reporting capability.

John Masiewicz moved and Tim seconded that we adopt e04026 as the response to Goodfellow's public review comment. Motion passed 14:0:1:6

7.1.3 Failed conveyance test equals failed drive? [Obr]

The standard does not address the actions to be taken when a drive fails the conveyance test. The group decided that this action varied based on the usage of the command.

7.2 TLC Project 1696DT [Hatfield]

7.2.1 Ballot Results/ Comment

Ballot closed and passed. The only comment received was on an abstention that did not state a reason for the abstention and therefore was not a valid vote. There was one no vote that did not contain a comment, as a result the vote was invalid.

7.3 ATA8-AM Project 1700D [Hatfield]

7.3.1 Architecture Model Discussion and Diagram

Carried over to next meeting.

7.4 ATA8-ACS Project 1699D [Stevens]

7.4.1 e04139r1 Proposed Command Format [Stevens]

Reviewed the 4 formats presented and settle on the one that has the status/error bits described vertically (they were horizontal). The bits should not be shown in a table with lines, the lines should be turned off. This is the equivalent of format #2 in the document.

Discussed BSY,DRDY, DRQ, DEV, and interrupt. These bits are transport dependent and appear in the state transition diagrams in the transport docs, but they are all documented as having the same value in the command set document. We agreed to make these bits “Transport Dependent” and add a discussion earlier in the document. We also discussed the interrupt which is really a concept in SATA. This is also a transport specific function. References to the interrupts will be removed from the text.

We agreed to organize the commands into an ATA, ATAPI and Common command section. This will allow us to place some text at the beginning about the operation of these commands and mention the limitations of the command set.

Curtis will create a version of the command set document based on the feedback listed above.

7.4.2 e03124r2 HPA State Diagram Corrections [Zelenko]

Discussed the diagram. Resets are now represented in the diagrams. There was concern expressed that the diagrams were too dense and should be spread across more pages. We will try and get them right first and then worry about making them pretty. Curtis provided several comments involving the reset transitions that will be evaluated for incorporation. There was some discussion on how to represent command sequence requirements in these diagrams. Karen will invent some terms to represent the sequences and insert them into the diagram.

Karen will turn a new revision for the next meeting.

7.4.3 e04143r0 Smart Table Settings / Single Smart Table Proposal [Stevens]

Discussed to columns in the table and decided to replace the Feature Set column to a Reference column and add hotlinks to the applicable section. There was some discussion on the common aspect of the host vendor specific pages. This is possibly creating a new requirement since ATA/ATAPI-7 was unclear on the issue.

The group decided to give everyone some time to evaluate the possible new requirement. We will wait to the next meeting and discuss this again.

7.4.4 DMA replacements for PIO commands [Colegrove]

Dan did not yet have a proposal. We discussed the purpose of this proposal. The group appeared to be unclear about what would be gained by defining the DMA commands. There is currently no requirement for this capability. The item will be removed from the agenda until a need arises.

7.4.5 e04128r0 Assignments for Trusted Computing Group [Hatfield]

T10 is planning on creating a standard that defines the data stream used by the ATA commands requested here. Jim will check on the status of this proposed project. There was discussion involving the protocol, TCG wanted to do both DMA and PIO. This proposal would use a bit in a register to spec DMA/PIO. This would impact the protocol state diagrams in the transport documents. Another way to do it would be to have 4 commands dedicated to 1 protocol. This way the commands could use standard protocols.

7.4.6 e04129r2a Write Read Verify Proposal [Puri]

Sumit summarized the changes from the previous revision. The proposal has been simplified to make the verify process vendor specific. The group suggested that the mode and verify sector count fields be made separate.

There was a lot of discussion on the functioning of the write cache during the operation. If the cache is enabled and the verify operation eventually fails the drive will produce a Device Fault (DF) when the error occurs. Although ATA does not specify the drive behavior after a DF, many drives require a power cycle to clear this error. If this proposal were to compensate for transient errors, requiring a power cycle would be less than optimal. A better behavior would be to fail the command so the host can issue it again. If the proposal is to detect permanent errors, then setting DF and requiring a power cycle may be the right action.

Sumit will turn a new rev of the document and better address the purpose of the proposal.

7.4.7 e04132r0 Download Microcode Enhancements [Livaccari]

Discussed the needs for this proposal. The RAID community would like to download drive firmware in a standard way. This does not exist in ATA today. Although Download Microcode is a standard command, it still requires vendor specific utilities to operate. This proposal standardizes some of it, but there is still a lot of vendor specific activity surrounding the standard command. Drive manufacturers would like to see a more comprehensive proposal.

7.4.8 Command function for commands not shown as supported in Identify

Carried over to next meeting

7.4.9 Topics from the reflector

7.5 ATA8-PT Project 1698D [Overby]

The editor was not present at this meeting and there are no outstanding proposals against this project.

7.6 ATA8-ST Project 1697D [Masiewicz]

7.6.1 e04141r1 Serial Transport FIS Mapping [Masiewicz]

Reviewed the proposal for reformatting the FIS documentation. The purpose of this is to better match the command set document. This also allows the task file emulation to be moved into an annex and the FIS documentation to become independent of the parallel emulation or transport.

7.6.2 SATA LED [Barras]

Larry asked that this be removed from the agenda.

7.6.3 Soft Settings Across Comreset [Masiewicz]

John asked that this be removed from the agenda.

7.6.4 e04140r0 Serial Transport Editors Draft [Masiewicz]

This was a copy of ATA/ATAPI-7 volume 3 with postits regarding issues.

We agreed to take the figure that is currently in this volume and update it to match the new architecture of the standards. This new figure will appear in the architecture model document and in all the other documents as well. When the figure appears in a document other than the architecture model, the appropriate portion will be highlighted to indicate where the document resides in the architecture.

We discussed the usage of color and agreed to add color to our documents where appropriate.

We agreed to use the ISO clause style in all the new documents for hanging indents. We will continue to use US numbering systems. The T10 style guide is 03-049r0.PDF dated Jan-2003. It could be used as a reference for this information.

There is no command for issuing a BIST FIS. Should we do a proposal for a new command?

7.7 AT Attachment-8 – Infrastructure Components (ATA8-IC) Proposal [Barras]

7.7.1 Project Proposal Review

Carried over to next meeting

7.7.2 Project Schedule

7.8 SCT Project 1701DT [Stevens]

7.8.1 Review of Draft

Performed a page-turn review.

There were many questions about the temperature control, which should be resolved in the next draft. One issue is that the temperatures are 2's compliment. This was not originally specified. This should change the unused field initialization from 00h or FFh to 80h

There were questions about some of the tables. There are some that are specifying command usage, and some used as examples. The tables appear to be identical. I will look them over to see if it would be better to remove the duplicate tables and just provide a reference, or keep the duplicate tables.

Discussed the various revisions in the SCT Status Response. Clarifications were made about words 0, 1, and 2.

Agreed to change the command documentation from text to a table format including offsets.

Agreed to change the flow chart to include security. Also agreed to change the notation in the better diagram to be more standard.

Curtis agreed to create a new revision for the next meeting.

7.9 EDD-3 Project 1572D [Stevens]

7.9.1 e04133r0 IBM Comments on EDD-3 Fulk

Incorporated in rev 2 of the document.

7.9.2 Draft Review

Performed change-bar document review. There was one change made, an editors not was still in the document. This was deleted and an r2a was created.

The decision was made not to incorporate PCI-X addressing into this version.

7.9.3 Forward to Letter Ballot (2/3)

Curtis Stevens motioned and Greg Elkin seconded that we forward 1572Dr2a for letter ballot. Motion passed 16:0:1:4.

7.10 A/V Technical Report Project 1696DT [Colegrove]

Dan is still working on the document. He has a partial document but is not ready to publish it as a first rev. The group decided to review the partial document.

7.11 PARTIES-2 Project Status [Zalenko]

Phoenix considering withdrawing this proposal. They will provide more feedback at the next meeting.

7.12 T13 reflector, FTP, and web site setup

Jim performed some reflector cleanup and removed 20-25 names

Some people have been complaining that they cannot send attachments to the reflector. The group agreed that we prefer to only post attachments to the web site.

Dan changed the web site to have links near the top for finding the agenda. He also grouped the working projects separate from the published projects.

7.12.1 Long file name policy

There were no problems reported due to the long file name policy.

8 New Business

none

9 Liaison Reports

9.1 T10

Jim to report on TCG and T10

9.1.1 SCSI to ATA Mapping Study Group

There is a working group meeting that will follow this ATA meeting

9.1.1.1 Working group meeting after T13 plenary co-located.

9.1.2 Trusted Computing

9.1.2.1 (04-140r0) SPC-3 Security Commands proposal (Houlder) - T10 version of e04128r0 (Assignments for Trusted Computing Group)

Bob Thibideau made a presentation on the TCG. This presentation will be made available as e04146.

The TCG is eventually planning on submitting a standard to ISO, but they do not yet have a schedule. They are asking T13 to document the format and protocol for 2 requested commands. The TCG will maintain the documentation for the data stream that these commands will transport.

9.2 SFF

Dan presented the liaison report.

9.3 IDEMA

The 4k sector size committee is active again and are evaluating the ATA large logical sector size standard. They are concerned with the 512 byte emulation portions of the standard. The long physical sector does allow a device to be 4k only. It does not look like ATA needs to do anything to support this. IDEMA is working more on solving host side implementation issues. The purpose of the 4k sector size to allow more data to be placed on the same media.

9.4 CFA

CFA is adopting PIO Modes 5 and 6 as well as DMA modes 3 and 4. We do not have a response yet from CFA if they will release the information on these new transfer modes. However, the group seemed to think that these new transfer modes only apply to CFA.

CFA is working on UDMA and plans to publish by early November.

9.5 Serial ATA IO

Brian Dees to confirm that the SATA copyrighted material can be used in ATA-8

10 Call for Patents

No one responded

11 Review of Action Items

1. Dan Colegrove to forward TLC to INCITS for processing.
2. Jim Hatfield to verify the front matter of TLC.
3. Dan to do 1572r2a (EDD-3) letter ballot.
4. Jim to resend information about TCG reflector.
5. Jim to resend TCG meeting information.
6. Curtis to turn a new revision of SCT.
7. Curtis to turn a new revision of 1699D.

8. John to turn an initial revision of 1697D.
9. Nathan Obr will bring a proposal to clarify the behavior as to what hosts shall expect and devices shall do when a command is not supported and for how to report unsupported commands (clarification) (carryover).
10. Dan Colegrove to find out if documents should have a –N (for national standard) on all pages containing the document number (carryover).
11. Dan Colegrove to report back about establishing liaison for the MMC (Multimedia Card) (carryover).
12. Mark Overby and Jithendra Bethur to coordinate on PCI-Express extension for DPTE table (carryover).

12 Schedule

Back to 2.5 days to accommodate SCSI to ATA WG at the next meeting.

12.1 Authorization of Ad Hoc Working Groups

12.2 Long term meeting schedule

12.2.1 Review Schedule

CY 2004 Dates	Location	Host	Contact
October 19-21, 2004	Las Vegas, NV	Fujitsu	Sumit Puri
December 14-16, 2004	Las Vegas, NV	Hitachi Global	Dan Colegrove
CY 2005 Dates	Location	Host	Contact
February 22-24, 2005	TBD	NVIDIA	Mark Overby
April 19-21, 2005	Longmont, CO	Seagate	Jim Hatfield
June 21-23, 2005	Orange County, CA	Western Digital*	John Masiewicz.
August 23-25, 2005	Longmont, CO	Maxtor*	Mark Evans
October 18-20, 2005	Las Vegas, NV	Fujitsu*	Sumit Puri
December 13-15, 2005	Las Vegas, NV	Hitachi Global	Dan Colegrove
CY 2006 Dates	Location	Host	Contact
February 21-23, 2006	Orange County, CA	Western Digital*	John Masiewicz.
April 18-20, 2006	Longmont, CO	Seagate*	Jim Hatfield
June 20-22, 2006	TBD	NVIDIA*	Mark Overby
August 22-24, 2006	Longmont, CO	Maxtor*	Mark Evans
October 24-26, 2006	Las Vegas, NV	Fujitsu*	Sumit Puri
December 12-14, 2006	Las Vegas, NV	Hitachi Global	Dan Colegrove
* Tentative			
NOTE – Meetings are scheduled for 2.5 days.			

13 Adjournment

Greg Elkins and Tim Thompson seconded that we adjourn the meeting. Motion passed unanimously.