

Accredited Standards Committee\*  
NCITS, National Committee for Information Technology Standards

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Date: March 21, 1997  
Project:  
Ref. Doc.:  
Reply to: Lawrence J. Lamers

To: Membership of T13  
From: Lawrence J. Lamers, Secretary T13  
Gene Milligan, Chair T13  
Subject: Minutes of T13 Working Group  
March 18-21, 1997 : San Jose, CA

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**Agenda**

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  - 6.3 Protocol Diagrams [Landis & McLean]
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## Results of Meeting

### 1. Opening Remarks

Gene Milligan called the meeting to order at 9:00 a.m., Tuesday, March 18, 1997. He thanked Mike Noblitt of Seagate for hosting the meeting.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections.

It was stated that the meeting had been authorized by T13 and would be conducted under the ITCITS rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the technical committee. The voting rules for the meeting are those of the parent committee. For the ad hoc, other than straw votes, the voting rules are: one vote per participating company.

Gene Milligan informed the attendees that, as Chair of T13, he preferred to be a "Non-voting Chair" with another Seagate employee Marc Noblitt functioning as the voting member. He indicated the motivation was to facilitate an attempt to Chair the meetings without bias to a specific faction's position. However, even in this mode he would reserve the right to cast a vote in the event there were no Seagate representatives present.

Gene Milligan also informed attendees that he had received requests for a tutorial on the standards process as it relates to T13 and that he would present such a tutorial at the close of the ad hoc meeting.

The minutes of this meeting will be posted to the T13 ftp and the ATA Reflector and will be included in the next T13 committee mailing.

### 2. Approval of Agenda

The electronically distributed agenda was used as a basis for the meeting with adjustments as reflected in these minutes.

### 3. Attendance

Attendance at working group meetings does not count toward minimum attendance requirements for membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

Wen	Lin	Adaptec	G
Richard	Kalish	Adaptec, Inc.	P
Lawrence	Lamers	Adaptec, Inc.	A1
Ron	Roberts	Apple Computer	A
Irv	Tjomsland	Award	G
Ben	Chang	Cirrus Logic Inc.	P
Hale	Landis	Consultant	P
Paul	Raikunen	Digital	P
Dan	Colegrove	IBM Corp.	P

Eugene	Kherson	Iomega	G
Ron	Stephens	Iomega Corp.	P
Pete	McLean	Maxtor Corp.	P
Mike	Christensen	Phoenix Technologies	A
Mark	Evans	Quantum Corp.	P
John	Mangan	SanDisk	G
Gene	Milligan	Seagate Technology	P
Marc	Noblitt	Seagate Technology	A
Yogi	Schaffner	Silicon Systems, Inc.	P
Patrick	Mercer	SyQuest Technology Corp	A
Tokuyuki	Totani	Toshiba America Info.	P
Tom	Hanan	Western Digital Corp.	P

#### 4. Document Distribution

The following documents were distributed:

T13 Document Register - 1997  
 T13/1153D Rev 10 ATA/ATAPI-4 [McLean]  
 D97116r0 Compact Flash Feature Set  
 D97117r0 44 and 56 MT/s  
 D97118r0 Rewording of Timings  
 D97119r0 IDENTIFY DRIVE bit for minimum standby timer

#### 5. Review of Old Action Items

75) Pete McLean to contact Jonathan Hanmann regarding resolution of byte count issue with Tailgate. Completed. The proposal for Tailgate has been corrected to reflect the fact that byte count is not available for DMA transfers.

#### 6. ATA/ATAPI-4 - Project 1153D

##### 6.1 Review of working draft

Pete McLean stated that rev 10 is available.

Consensus to remove the last sentence of 3.1.16.

Pete McLean moved and Ron Stevens seconded that a prohibited section be added in 6.3.1 and 6.3.2. The motion carried 8:2.

The address shown in clause 7 (CS1; CS0) is incorrect, the values should be swapped.

Consensus to make the DEV bit valid for packet devices during sleep.

Yogi Schaffner moved and Wen Lin seconded that in word 88 bit 0, 1, 2, the definition of zero be struck. The motion carries unanimously.

Do we need an aborted command protocol for packet devices? A test for error will be added to the flow charts following busy test. Tom Hanan accepted an action item to develop a proposal.

Everyone should check if their devices report ID Not Found if seek address out of range.

Rick Kalish moved and Yogi Schaffner seconded that the warning of possible data corruption when BSY bit is set to one be included for the DEVICE RESET command in clause 9. The motion carries 11:4:0

Consensus to include D96153r4 (Ultra DMA) into the working draft.

**6.2 Set Max [Colegrove] (D97119)**

Dan Colegrove reviewed a clarification proposal on how to calculate CHS and LBA. The consensus was to incorporate the material into the working draft. Dan will propose a command sequence to reestablish native parameters.

Some folks expressed a desire for password protection on operations that changed drive geometry. Current implementations aren't password protection; further more the existing SET MAX command is not covered by the SECURITY operations. The consensus was to move the SET MAX command under the SECURITY protection.

**6.3 Protocol Diagrams [Landis & McLean]**

Pete reviewed the revised protocol timing figures (see clause 9)

In Fig 8 there the flowchart following 'A' is incorrect because no interrupt is generated. It will be corrected in the next revision.

Tom Hanan stated that a select to release should take 5 to 10 seconds; every protocol essentially does a release but it is not documented that way.

Tom Hanan noted that there may be an issue with byte count as used in SFF 8090 and the description in rev 10.

Add 'grab and buffer' decision for queued commands to packet protocol and a note regarding the release interrupt enable bit.

Rick Kalish moved and Mike Christensen seconded that a note be added next to the END in the flow charts to explain the host options at that time. The motion passed 10:3

Tom Hanan moved and Mark Evans seconded to change the box under item F in Figure 15 to a note. The motion carried 12:0.

**6.4 Pin 44**

Agreed to specify that Pin 44 be open (no connection at either device or host).

**6.5 Annex B changes from EDD**

No activity.

**6.6 Annex C changes from Ultra DMA**

No activity.

**6.7 Security Erase**

Review of security erase and minor modifications made.

**6.8 PDIAG**

There was no objection to reinstating the ATA-3 connection statement regarding PDIAG.

**7. Enhanced BIOS Disk Drive Technical Report - Project 1226DT**

Curtis Stevens was not present.

**8. Old Business****8.1 Support for Removable Media [] (D97120r0)**

Ron Stephens presented D97120r0 which includes support for removable media for backward compatibility and to support MSN 1.03. Ron agreed to generate a state diagram to go along with the proposal.

**8.2 MSN 1.03 Commands [Stephens] (D97120r0)**

See 8.1.

**8.3 Last Call for LUNS [Worrell] ()**

Devon Worrell was not present. This item will be dropped from future agenda.

**8.4 Tailgate [Hanmann] (D97107r0)**

Pete McLean briefly summarized the results of the Tailgate ad hoc meeting and noted that an updated proposal was being uploaded to the ftp site. Pete reported that the byte count issue was addressed and fixed to be in concert with ATA/ATAPI-4. A new revision reflecting this change and other editorial changes.

The configuration ROM contains universal ID numbers to indicate compliance with related standards. The tailgate project needs a UID number to be placed in the configuration ROM. Pete will create a standing document for the committee to define the UID and the number sequences assigned to T13 by NCITS.

Larry Lamers moved and Greg Elkins seconded that Pete McLean draft a standing document to define and maintain the UID for T13. The motion passed unanimously.

A command profile proposed draft is being studied, with a project proposal planned to be sent to T10.

**8.5 PDIAG in 80 Conductor cable [Evans]**

Mark Evans reported that the proposal was made to SFF. There were a few additional modifications made as a result of discussion at that meeting. This proposal is planned to be incorporated into SFF-8051.

Tom Hanan presented a report (see D97122) on DST (data settling time) test results with 80-conductor cables. Fully isolated data busses and 80 conductor cables yield the best DST values. Further improvement could be made by specifying 3 volt swing drivers, and raising thresholds to 1 to 1.5 volt range.

**9. New Business****9.1 Compact Flash Feature Set [Landis] (D97116)**

Hale Landis introduced a proposal from the CompactFlash Association to support CompactFlash devices in ATA-4.

A sample device was available at the meeting. Several members successfully tried it out on their notebooks.

Hale was requested to revisit the vendor specific designation for all the remaining error codes in an attempt to reserve some for future standardization. Since PC-Card devices do not support DMA, which is now required, the CFA needs to visit this issue and develop a list of prohibited commands.

The question arose of how to handle this proposal since new proposals have been cut-off for ATA-4. Is ATA-5 in the wings?

**9.2 44 and 66 MT/s [Edwards] (D97117)**

Mark will post his proposal on the ftp site the week after the meeting. It was agreed that the priority for the proposal would be lower than the ATA/ATPI-4 activity. Mark agreed that work on this item could include assessment of improved transceiver specifications.

### 9.3 Power Management Bit [Hanan]

Tom presented a proposal D97123r0 for an identify drive bit indicating the drive has a minimum supported power management timer value. Pete McLean reported that the inverse of the bit had already been included in ATA/ATAPI-4 as the result of a prior meeting.

### 9.4 Project Proposal on Tailgate [Milligan]

The project letter ballot results on the question: Do you approve the project proposal to develop a IEEE-1394 to AT Attachment - Tailgate standard in D97105r1? were as follows:

Charles	Brill	AMP, Inc.	P	Y
Richard	Kalish	Adaptec, Inc.	P	X
Ron	Roberts	Apple Computer	A	Y
Victor	Siu	CMD Technology	P	Y
Ben	Chang	Cirrus Logic Inc.	P	Y
Hale	Landis	Consultant	P	N
Paul	Raikunen	Digital	P	Y
I. Dal	Allan	ENDL	P	Y
Robert	Liu	Fujitsu Computer Products	P	Y
Tony	Goodfellow	GSI	P	Y
J. R.	Sims	Hewlett Packard Co.	P	Y
Anthony	Yang	Hitachi America Ltd.	P	Y
Dan	Colegrove	IBM Corp.	P	Y
Duncan	Penman	IIX Consulting	P	X
Ron	Stephens	Iomega Corp.	P	X
Pete	McLean	Maxtor Corp.	P	Y
Darrin	Bulik	Micro House Int.	P	Y
Lance	Flake	O.R. Technology	P	Y
Dan	Salmonsens	Oak Technology	P	X
Curtis	Stevens	Phoenix Technologies	P	X
Greg	Elkins	QLogic Corp.	P	Y
Mark	Evans	Quantum Corp.	P	Y
Kenichi	Kojima	Sanyo Electric Co Ltd	P	X
Marc	Noblitt	Seagate Technology	A	Y
Yogi	Schaffner	Silicon Systems, Inc.	P	Y
Alan	Longo	SyQuest Technology Corp	P	X
Tokuyuki	Totani	Toshiba America Info.	P	Y
Tom	Hanan	Western Digital Corp.	P	Y
Masa	Morizumi	Yamaha	P	X

Y=Yes N=No X=Did not Vote

The letter ballot passed by a vote of 20:1:0:8

The only comment was that of negative ballot from Hale Landis as follows:

“Want to know why I vote NO? 1) The tailgate document we are being asked to consider has little or no ATA/ATAPI content. The only real references to ATA/ATAPI are in "informative" annexes of the document. 2) The ATA committee has NEVER attempted to define how an ATA host adapter works and tailgate is nothing more than an ATA host adapter. 3) T13 is NOT the appropriate place to discuss 1394 issues (unless the T13 charter is revised and T13 becomes THE 1394 committee).”

The Chair indicated he would propose a resolution to the letter ballot comment at the April plenary.

**10. 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. Annex I contains the ANSI patent policy.

The Chair requested that any participant aware of patents or patent disclosures that may be required to comply with any publications resulting from T13 projects provide an early disclosure of such patent and offer to license such patents under reasonable and non-discriminatory conditions in accordance with the ANSI Patent Policy.

**10.1 European Patent Application Number 95201658.2**

The Chair reported that the Oak patent council had informed him that Oak expected to have a response by the end of March.

**11. Open Issues List Summary**

The following item was added to the list at this meeting:

- 1) Everyone should check if their devices report ID Not Found if seek address out of range.
- 2) Should and how should ATA/ATAPI-4 accomodate read only devices or read only modes.
- 3) When did bit 13 word 49 go in and who has implimented it.

Dan Colegrove requested an agenda item for Advanced Power Management at the next working group.

**12. Review of New Action Items**

- 76) Tom Hanan to develop a proposal for error register use on packet devices.

**13. Meeting Schedule**

The next plenary meeting of T13 will be April 25, 1997 at the Western Digital facility, in Irvine, CA hosted by Western Digital.

The next working meeting will be April 23-24, 1997 at the Western Digital facility, in Irvine, CA hosted by Western Digital.

The subsequent working group meeting will be May 21-23, 1997 at the Stanley Hotel facility, in Estes Park, CO hosted by Seagate. 3Pm close

The long term meeting schedule is:

Date	Location	Host	Contact
April 23-25, 1997 *	Irvine, CA	Western Digital	Tom Hanan
May 21-23, 1997	Estes Park, CO	Seagate	Marc Noblitt
June 18-20, 1997	Irvine, CA	Western Digital	Tom Hanan
July 23-25, 1997 *	San Jose, CA	Seagate	Marc Noblitt
August 20-22, 1997	Longmont, CO	SSI/TI	Yogi Schaffner
September 24-26, 1997	Irvine, CA	Phoenix Technologies	Curtis Stevens
October 22-24, 1997*	TBD, HI	Quantum	Mark Evans
<b>December 3-5, 1997</b>	Irvine, CA	Western Digital	Tom Hanan
January 21-23, 1998*	San Jose, CA	Seagate	Marc Noblitt
February 18-20, 1998	Ft. Collins, CO	Symbios Logic	Mike Winchell

March 25-27, 1998	Longmont, CO	Maxtor	Pete McLean
April 15-17, 1998	Irvine, CA	Western Digital	Tom Hanan
May 20-22, 1998			
June 17-19, 1998	Irvine, CA	Western Digital	Tom Hanan
July 22-24, 1998			

\* Plenary

**14. Adjournment**

The meeting was adjourned upon completion of all the agenda items.