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Reply to: Gene Milligan

To: Membership of T13
From: Gene Milligan, Chair T13
Subject: Minutes of T13 Plenary #10
April 14-16, 1998: Boulder, CO

Start 0900

Agenda

1. Opening Remarks	2
2. Approval of Agenda	2
3. Attendance and Membership	2
3.1 Members in Jeopardy	3
3.2 Attendance	3
4. Document Distribution	3
5. Approval of prior plenary minutes (D98103R1)	3
6. Review of Old Action Items	3
7. NCITS 298-1997 ATA-3 - Project 2008D	4
8. NCITS 317-199x ATA/ATAPI-4 - Project 1153D	4
9. NCITS/TR-21:199x -Enhanced BIOS Services For Disk Drives Technical Report Project D1226	4
10. NCITS 316-199x -1394 to AT Attachment - Tailgate- Project 1248D	4
11. ATA/ATAPI-5 Project Proposal	4
12. Proposal Cutoff Procedure Letter Ballot Results	5
13. Old Business	5
13.1 Power-up in Standby [McLean] (D97150r1)	6
13.2 T13 Reflector, ftp, and Web Site Setup [Hanan]	6
13.3 Items from the Open Issues List [] ()	6
13.3.1 nIEN Definition (D98105r0) [McLean]	6
13.4 ATA/ATAPI State Diagrams Introduction and Review [McLean] (D98101R0)	6
13.5 Proposal to Modify the Multiple Commands (D98102R0) [Evans]	6
13.6 EDD V3.0 New technical project proposal [Stevens]	7
13.7 Master Password Revision Code Feature (D98104R0) [Colegrove]	7
14. New Business	7
14.1 tRFS Timing Specification Interpretation	7
14.2 Electrical Specification (D98110r0) [Schaffner]	7
14.3 Seeking out of range () [Evans]	7

15.	Liaison Reports	7
15.1	EPA report () [McLean]	7
15.2	T10	8
15.3	IEEE 1394 / IEC 61883	8
15.4	SFF	8
16.	Call for Patents	8
17.	Open Issues List Summary	8
17.1	What is the behavior of SRST during command execution (e.g. during Write Sector)?	8
17.2	What happens to an SRST bit after the hard reset?	8
17.3	Should ATA/ATAPI-5 recommend that an error be posted if an error occurs during the last block even though an interrupt can not be posted?	8
17.4	Why does Execute Device Diagnostics require device one to hold PDIAG- for 31 seconds?	8
18.	Review of Action Items	8
19.	Meeting Schedule	8
19.1	Authorization of Working Group Meetings	8
19.2	Long term meeting schedule	8
20.	Adjournment	9

Results of Meeting

1. Opening Remarks

Gene Milligan, the T13 Chairman, called the plenary meeting to order at 9:00 a.m., Tuesday, April 14, 1998. He thanked Marc Noblitt of Seagate for hosting the meeting.

The Chair briefly reviewed the meeting rules since all attendees were from Principal Member organizations. Discussion is open to all attendees. Principal Membership requires attendance at two out of three successive meetings. Votes are only allowed to Principal Membership organizations. Membership also requires payment of NCITS administration fees.

Current NCITS memberships fees for Observer, Principle, or additional Alternate are \$300 (the first alternate is free). A T13 subscription is available to Principal, Alternate, or Observer Members at a fee of \$350 with \$240 for each additional CD. On an experimental basis this year, a corporate membership of \$2500 is being offered which allows one Principal and an unlimited number of Alternates and Observers, with two CD subscriptions, and also includes the International participation fee. However since T13 is not currently participating in International Standards work, there is no International participation fee and the Corporate membership is harder to justify than with T10 and T11.

Persons with questions or requests regarding membership fees and/or subscriptions should contact Judy Gales at 202-626-5741, or fax her at 202-638-4922, or by Email at jgale@itic.nw.dc.us

2. Approval of Agenda

Several new business items were added as reflected in these minutes and the modified agenda was approved without objection.

3.

4. Attendance and Membership

4.1 Members in Jeopardy

Members in Jeopardy for failure to attend two out of three successive meetings were HP, SyQuest, and Award Software. HP, and Award Software were terminated (changed from Principal Members to Observer Members) bringing the Principal Members from 24 to 22.

4.2 Attendance

Charles	Brill	AMP, Inc.	P
Lawrence	Lamers	Adaptec, Inc.	A1
Ron	Roberts	Apple Computer	A
Hale	Landis	Consultant	P
Paul	Raikunen	Digital	P
Matt	Rooke	Fujitsu Comp Prod of America	A
Tony	Goodfellow	GSI	P
Anthony	Yang	Hitachi America Ltd.	P
Dan	Colegrove	IBM Corp.	P
Pete	McLean	Maxtor Corp.	P
Bill	Cordan	Palmchip Corp.	G
Mike	Christensen	Phoenix Technologies	A
Greg	Elkins	QLogic Corp.	P
Mark	Evans	Quantum Corp.	P
Gene	Milligan	Seagate Technology	P
Marc	Noblitt	Seagate Technology	A
Yogi	Schaffner	Silicon Systems	A
Jeff	Cousins	SyQuest Technology	G
Alan	Longo	SyQuest Technology Corp	P
Tokuyuki	Totani	Toshiba America Electr Comp	P
Tom	Hanan	Western Digital Corp.	P

5. Document Distribution

The following documents were distributed:

T13 1998 Current Document Register	
D97150r0 Proposal for Power-up in Standby Feature Set	McLean
D98101r0 State diagram proposal	McLean
D98105r0 Clarification of nIEN and interrupt pending	McLean
D98102r1 Proposal to Modify the "MULTIPLE" Commands	Evans

6. Approval of prior plenary minutes (D98103R1)

The minutes were approved with correction of membership information (it should have reflected 24 members and one HP principal).

7. Review of Old Action Items

- 62) Tom Hanan to correct remaining reflector, ftp and web site issues. Carried over (see 13.2)
- 69) Gene Milligan to issue letter ballot on the cutoff procedure. Completed.
- 70) Gene Milligan to generate project proposal for ATA/ATAPI – 5. Completed.
- 71) Gene Milligan to issue letter ballot on project proposal for ATA/ATAPI - 5. Overtaken by events.
- 72) Gene Milligan to include EDD proposal and EPA report on April agenda. Completed.

8. NCITS 298-1997 ATA-3 - Project 2008D

The standard was published. The chair noted that in the past the technical editor received a complementary copy of the standard, however, the new practice is to send a 'pdf' file in lieu of a paper one.

9. NCITS 317-199x ATA/ATAPI-4 - Project 1153D

Pete McLean stated that a pre-edit has not been received at this time from the ANSI editors. The Chair reported that the NCITS letter ballot will begin at the end of this week. T13 is requested to contact the ANSI editorial staff and complete the ANSI pre-edits during the NCITS ballot period that should complete about 5/29/98.

A number of typographical errors were noted by a person outside the committee in an email sent to NCITS. The chair asked if there were any objections to forwarding these to the ANSI editor via the T13 Technical Editor. There was no objection.

10. NCITS/TR-21:199x -Enhanced BIOS Services For Disk Drives Technical Report Project D1226

The chair noted that this agenda item will be dropped in the future since D1226 has been approved by NCITS for publication.

11. NCITS 316-199x -1394 to AT Attachment - Tailgate- Project 1248D

Public review closed February 17, 1998. There were no public review comments.

12. ATA/ATAPI-5 Project Proposal

Tom Hanan moved and Tony Goodfellow seconded that the project proposal as amended be forwarded to NCITS for further processing.

The chair conducted a role call vote. The motion passed 15:0:0:7.

Charles	Brill	AMP, Inc.	P	Absent
Larry	Lamers	Adaptec, Inc.	P	Y
Ron	Roberts	Apple	A	Y
Victor	Siu	CMD Technology	P	Absent
Hale	Landis	Consultant	P	Y
Paul	Raikunen	Digital	P	Y
Matt	Rooke	Fujitsu Computer Products	P	Y
Tony	Goodfellow	GSI	P	Y
Anthony	Yang	Hitachi America Ltd.	P	Absent
Dan	Colegrove	IBM Corp.	P	Y
Darrell	Redford	Iomega Corp.	P	Absent
Pete	McLean	Maxtor Corp.	P	Y
Christopher	Mayne	O.R. Technology	P	Absent
Mike	Christensen	Phoenix Technologies	A	Y
Greg	Elkins	QLogic Corp.	P	Y
Mark	Evans	Quantum Corp.	P	Absent
Marc	Noblitt	Seagate Technology	A	Y
Yogi	Schaffner	Silicon Systems Inc.	A	Y
Alan	Longo	SyQuest Technology Corp	P	Y
Mike	Winchell	Symbios Logic	P	Absent
Tokuyuki	Totani	Toshiba America Info.	P	Y
Tom	Hanan	Western Digital Corp.	P	Y

13. Proposal Cutoff Procedure Letter Ballot Results

The chair reported that the ballot has not closed so discussion may not take place.

14.

15. Old Business

15.1 Power-up in Standby [McLean] (D97150r1)

Pete McLean reported that the EPA activities do not affect this proposal.

Discussion on whether all ATA-5 drives should power-up in standby mode to eliminate need for non-volatile memory. Proposed jumper option or an explicit start unit option.

There are conflicting requirements between being able to boot quickly and power sequence drives in portable applications or high RPM drives.

The result of the discussion was that all ATA-5 drives power-up in standby; typical drives power-up with an early IDENTIFY DEVICE command from the BIOS; a SET FEATURES to start units that require it; and a set of bits to indicate that the start unit option is required.

Once full ID data is returned it must always be returned until power-down. This is today's behavior.

Pete McLean will turn a revision before the next meeting.

15.2 T13 Reflector, ftp, and Web Site Setup [Hanan]

The chair requested that the information in the working draft correlate to the ftp site access. The chair also requested that a link from the NCITS web page to T13 be made (**Error! Bookmark not defined.**). The chair noted that NCITS web page has a list of projects and member organizations.

15.3 Items from the Open Issues List [] ()

15.3.1 nIEN Definition (D98105r0) [McLean]

Pete reviewed his proposal to clarify nIEN and interrupt pending. Pete will incorporate the editorial comments. Interrupt pending is a state within the device that the devices enters or exits.

15.4 ATA/ATAPI State Diagrams Introduction and Review [McLean] (D98101R0)

Pete's first question was 'Does the group want to incorporate state diagrams and go through the review necessary to get it right? Tom Hanan noted that the state diagrams have a half-dozen improvements that are worthwhile.

A straw poll indicated -

Add the state diagrams	4:7
Stay with the flow diagrams and drop the state diagrams	6:3
Add state the state diagrams to the normative portion and move the flow diagrams to an informative annex	9:4

The group reviewed and Pete marked up the state diagram proposal through page 38, skipped packet and reviewed Execute Device Diagnostics.

Pete requested that each member do a thorough review of the proposal prior to the next meeting.

15.5 Proposal to Modify the Multiple Commands (D98102R0) [Evans]

Pete McLean moved and Tom Hanan seconded that D98102r2 be included in the proposed draft of ATA/ATAPI-5. The motion passed unanimously.

D98102r2 contains a correction that replaces word 57 with word 59.

15.6 EDD V3.0 New technical project proposal [Stevens]

Curtis Stevens has requested that the proposal be delayed until the next meeting.

15.7 Master Password Revision Code Feature (D98104R0) [Colegrove]

Dan asked if there were any comments on the proposal presented at the previous meeting. The group reiterated that they would like to be able to communicate directly with the person at the system house making the request. Dan agreed to pursue this.

16. New Business

16.1 tRFS Timing Specification Interpretation

The group elected to address this by adding a paragraph from Eric Kvamme's explanation (see D98108r0) as an implementers note and cross references from the timing diagrams to the text.

Mark Evan's also reported that he had an implementation guide for Ultra 33 that he would make available (see D98109r0).

The chair stated that ATA/ATAPI-4 will go to NCITS letter ballot in one week. The committee drafted a proposal (see D98111r0) to include in ATA-5 that will add the cross references and implementers note. A T13 member company that participates in NCITS may submit it as a ballot comment.

16.2 Electrical Specification (D98110r0) [Schaffner]

Yogi Schaffner made a presentation to work on a future driver/receiver that eliminates 5 volts in order to achieve the benefits available with the advances in silicon technology. The big question is how to achieve backward compatibility.

5 V Failsafe - an unpowered I/O pad externally driven to maximum signal levels and still maintain zero DC current flow and guaranteed to survive for a specified time.

5 V Tolerant - a powered up 3 volt I/O pad externally driven by a 5 volt I/O pad to maximum signal levels and still provide correct circuit operation and no damage (requires power supply sequencing, 3 volt first)

5 V Safe - an unpowered I/O pad externally driven to maximum signal levels and still maintain finite DC current flow below TBD volts and guaranteed to survive for a specified time. Yogi requested input on what that current limit should be.

The group suggested to propose a 3.3 volt specification and deal with the compatibility issues later. The proposal should be cognizant of the Intel PICS4 document.

16.3 Seeking out of range () [Evans]

Different implementations were discussed but no changes were made.

17. Liaison Reports

17.1 EPA report () [McLean]

Pete McLean reported that this is a meeting called by the EPA consisting of some 40 companies to address the issue of the MOU with the system vendors for green machines (Energy Star logo) that expires this year. The big issue is the behavior of networks when the computer enters the power saving mode, i.e., the computer is dropped. All machines and the attached peripherals have a low power state that can be awoken from to the same functional state as when entered into the low power state and nobody will do anything to mess up power management. How this is accomplished is not clear, but there should be no effect on existing disk drives.

Pete will post a message to the T13 reflector with information on future meetings.

17.2 T10

Gene Milligan reported that the T10 folks have declined to participate as a committee in T13 power deliberations. He also noted that he forwards John Lohmeyer's T10 liaison report to the reflector.

17.3 IEEE 1394 / IEC 61883

Gene Milligan reported that the SBP-2 letter ballot has closed; rev 3d is the latest that includes removal of isochronous services. The plan is to forward after the next meeting.

Pete McLean reported that the RBC project is moving forward with the inclusion of removable support.

17.4 SFF

The 4-pin power connector, the 40-pin interface connector and the 80-conductor cable all had corrections at the last meeting and will be balloted one more time.

18. Call for Patents

The Chair announced that anyone aware of patents or patent applications the license of which would be required to conform with the documents produced as a part of the T13 projects make such patents or patent applications known to the committee as soon as practical and to provide an offer to license such patents at reasonable and non-discriminatory terms according to the ANSI patent policy. There was no response to the call for patents.

19. Open Issues List Summary

19.1 What is the behavior of SRST during command execution (e.g. during Write Sector)?

19.2 What happens to an SRST bit after the hard reset?

19.3 Should ATA/ATAPI-5 recommend that an error be posted if an error occurs during the last block even though an interrupt can not be posted?

19.4 Why does Execute Device Diagnostics require device one to hold PDIAG- for 31 seconds?

20. Review of Action Items

73) Gene Milligan to write PCMCIA a letter regarding the impending confirmation vote on ATA-1.

74) Gene Milligan to revise ATA/ATAPI-5 project proposal.

75) Gene Milligan to forward the modified ATA/ATAPI-5 project proposal to NCITS.

76) Gene Milligan to investigate inclusion of editorial comments and tRFS note in ATA/ATAPI-4.

21. Meeting Schedule

21.1 Authorization of Working Group Meetings

No working groups will be held prior to the June T13 plenary.

21.2

21.3 Long term meeting schedule

Date	Location	Host	Contact
June 16-18, 1998*	Irvine, CA	Western Digital	Tom Hanan
<i>July 22-24, 1998 +</i>			<i>Mike Christensen</i>
August 18-21, 1998*	Boulder, CO	Maxtor	Pete McLean
<i>September 23-25, 1998+</i>			<i>Curtis Stevens</i>
October 27-30, 1998*	Wailea, Maui, HI	Quantum	Mark Evans
December 8-11, 1998*	Irvine, CA	Western Digital	Tom Hanan
February 23-26, 1999*	Placerville, CA	Sierra Pac	Ron Roberts
April 27-30, 1999*	Boulder, CO	Seagate	Marc Noblitt
June 22-25, 1999*	San Jose, CA	Phoenix	Mike Christensen
August 24-27, 1999*	Longmont, CO	Maxtor	Pete McLean
October 26-29, 1999*	Wailea, Maui, HI	Quantum	Mark Evans
November 30-December 3, 1999*			

* indicates plenary meeting.

+ indicates this meeting is tentative and may be canceled.

As noted above the next meeting of T13 is June 16-18, 1998 hosted by Western Digital in Irvine, CA at the Western Digital facility.

22. Adjournment

The meeting adjourned upon completion of all the agenda items.

T13 Document Database - Enclosure (1)

ORGANIZATIONAL ATTENDANCE AT LAST THREE MEETINGS					----	+
INDIVIDUAL ATTENDANCE					----	+
					v	v
Charles	Brill	AMP, Inc.	P	6	3	
Richard	Kalish	Adaptec, Inc.	P	6	3	
Lawrence	Lamers	Adaptec, Inc.	Al	9	3	
Ron	Roberts	Apple Computer	A	9	3	
William	Benson	Avatar Systems Corp.	O	0	0	
Jeff	Chen	Award Software Intl.	O	0	0	
George	Huang	Award Software Intl.	O	0	0	
Raymond	Liang	CMD Technology	A	5	2	
Victor	Siu	CMD Technology	P	1	2	
Ben	Chang	Cirrus Logic Inc.	O	4	0	
Ken	Bush	Compaq Computer Corp.	O		0	
Hale	Landis	Consultant	P	10	3	
Irv	Tjomsland	Consultant	G	2	0	
Paul	Raikunen	Digital	P	9	3	
Andy	Chen	Fujitsu	A	0	3	
Robert	Liu	Fujitsu Computer Products	P	4	3	
Tony	Goodfellow	GSI	P	7	3	
Richard	Harcourt	GSI	Al	1	3	
John	Moore	Hewlett Packard Co.	O	0	0	
J. R.	Sims	Hewlett Packard Co.	O	4	0	
Anthony	Yang	Hitachi America Ltd.	P	7	3	
Hitoshi	Ogawa	Hitachi Ltd.	O	0	3	
Quang	Vuong	Hitachi Storage Products	A	0	3	
Dan	Colegrove	IBM Corp.	P	10	3	
Duncan	Penman	IIX Consulting	O	3	0	
George	Blattner	Imation	O	1	0	
John	Blagaila	Integral Peripheral	O	0	0	
Darrell	Redford	Iomega Corp.	P	0	1	
Ron	Stephens	Iomega Corp.	A	5	1	
LeRoy	Leach	Maxtor Corp.	A	1	3	
Pete	McLean	Maxtor Corp.	P	9	3	
Darrin	Bulik	Micro House Int.	O	3	0	
Chris	Smith	NEC Systems Laboratory	O	0	0	
Son	Ho	Neomagic Corp.	O	3	1	
Christopher	Mayne	O.R. Technology	P	3	1	
Joe	Chen	Oak Technology	O	2	0	
Lam	Dang	Oak Technology	O	0	0	
Dan	Salmonsens	Oak Technology	O	0	0	
Stephen	Heil	Panasonic Technologies	O	0	0	
Mike	Christensen	Phoenix Technologies	A	5	3	
Curtis	Stevens	Phoenix Technologies	P	5	3	
Skip	Jones	QLogic	A	0	3	
Greg	Elkins	QLogic Corp.	P	8	3	
Mark	Evans	Quantum Corp.	P	10	3	
James	McGrath	Quantum Corp.	Al	1	3	
Kenichi	Kojima	Sanyo Electric Co Ltd	O	4	0	
John	Masiewicz	Seagate Technology	A	1	3	
Gene	Milligan	Seagate Technology	P	10	3	
Marc	Noblitt	Seagate Technology	A	9	3	
Paresh	Sheth	Silicon Systems Inc.	P	2	2	
Yogi	Schaffner	Silicon Systems, Inc.	A	4	2	
Rich	Wahler	Standard Microsystems Corp	O	0	0	
Alan	Longo	SyQuest Technology Corp	P	1	2	
Patrick	Mercer	SyQuest Technology Corp	A	4	2	
David	Evans	Symbios Logic	A	3	2	
Mike	Winchell	Symbios Logic	P	4	2	
Tokuyuki	Totani	Toshiba America Electr Comp	P	7	3	
Ken	Hallam	Unisys Corp.	O	0	0	
Tom	Hanan	Western Digital Corp.	P	10	3	
Masa	Morizumi	Yamaha	O	1	0	

T13 Document Database - Enclosure (2)

Doc#	Description	subdir	Pgs	Date	Mailing	Submittor
D0791R4c	ATA-1 revision 4c	/project	66	5/12/94	----	lamers
D0948R4c	ATA-2 revision 4c	/project	111	3/18/96	DM9602	finch
D1153R17	ATA/ATAPI-4 revision 17	/project	331	10/30/97	DM9704	mclean
D1226R7	BIOS Enhanced Disk Drive Specification	/project	35	10/23/97	DM9704	stevens
D1248R5	1394 to AT Attachment - Tailgate	/project	71	10/28/97	DM9704	hanmann
D2008R7b	ATA-3 revision 7b	/project	194	1/27/97	DM9701	mclean
D97150R1	Power-up in Standby proposal	/technical	4	5/11/98	DM9802	mclean
D98001R0	Letter ballot on proposal cutoff date	/rules	2	3/25/98	DM9802	milligan
D98100R0	1996-1997 Document Directory	/meetings	5	1/1/98	DM9801	mclean
D98101R0	State diagram proposal	/technical	61	2/6/98	DM9801	mclean
D98101R1	State diagram proposal	/technical	66	5/11/98	DM9802	mclean
D98102R0	Set multiple proposal	/technical	2	2/17/98	DM9801	evans
D98102R1	Set multiple proposal	/technical	2	2/27/98	----	evans
D98102R2	Set multiple proposal	/technical	3	4/15/98	DM9802	evans
D98103R1	Minutes of 2/17-18/98 plenary meeting	/meetings	10	2/19/98	DM9801	milligan
D98104R0	Master password revision proposal	/technical	2	1/12/98	DM9801	colegrove
D98105R0	Clarification of nIEN and pending interrupt	/technical	2	3/10/98	----	mclean
D98105R1	Clarification of nIEN and pending interrupt	/technical	2	5/11/98	DM9802	mclean
D98106R0	ATA/ATAPI-5 project proposal	/project	3	3/6/98	----	milligan
D98106R1	ATA/ATAPI-5 project proposal	/project	3	5/12/98	DM9802	milligan
D98107R0	Minutes of 4/14-16/98 plenary meeting	/meetings	10	5/12/98	DM9802	lamers
D98108R0	Trfs timing spec interpretation	/technical	3	4/14/98	DM9802	evans
D98109R0	Implementation guide - Ultra DMA		""			evans
D98110R0	ATA/ATAPI-5 electrical presentation	/technical	10	4/15/98	DM9802	schaffner
D98111R0	Proposed editorial changes for ATA/ATAPI-5	/technical	3	4/30/98	DM9802	evans