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

Doc. No.: T13/98114r0
Date: July 2, 1998
Project:
Ref. Doc.:
Reply to: Gene Milligan

To: Membership of T13

From: Gene Milligan, Chair T13

Subject: Minutes of T13 Plenary #11
June 16-18, 1998: Irvine, CA

Start 0900

Agenda

Results of Meeting

1. Opening Remarks

Gene Milligan, the T13 Chairman, called the plenary meeting to order at 9:00 a.m., Tuesday, June 16, 1998. He thanked Tom Hanan of Western Digital for hosting the meeting.

The Chair briefly reviewed the meeting rules. Discussion is open to all attendees. Principal Membership requires attendance at two out of three successive meetings and a letter to the Chair on organizational letter head requesting membership, stating expertise and material interest in the scope of the technical committee. 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 jgales@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. Attendance and Membership

3.1 Members in Jeopardy

Members in Jeopardy for failure to attend two out of three successive meetings were not yet notified of their jeopardy.

Consequently none were terminated (changed from Principal Members to Observer Members) leaving the Principal Members to 22.

The chair reviewed the NCITS list of members in jeopardy for non-payment of fees.

3.2 Attendance

Honda	Yang	Adaptec	G
Lawrence	Lamers	Adaptec, Inc.	P
Ron	Roberts	Apple Computer	A
Hai	Chu	CMD Technology	P
Brian	Lin	CMD Technology	G
David	Shih	CMD Technology	A
Ben	Chang	Cirrus Logic Inc.	O
Hale	Landis	Consultant	P
Tony	Goodfellow	GSI	P
Richard	Harcourt	GSI	A1
Tom	Wood	GSI	G
Adge	Hawes	IBM	G
Dan	Colegrove	IBM Corp.	P
Darrell	Redford	Iomega Corp.	P
Mark	Jackson	Maxtor	G
Pete	McLean	Maxtor Corp.	P
Mike	Christensen	Phoenix Technologies	A
Curtis	Stevens	Phoenix Technologies	P
Greg	Elkins	QLogic Corp.	P
Mark	Evans	Quantum Corp.	P
Shane	Snipe	Sanyo Electric Co. Ltd.	G
Gene	Milligan	Seagate Technology	P
Marc	Noblitt	Seagate Technology	A
Paresh	Sheth	Silicon Systems Inc.	P
Stephen	Finch	Silicon Systems, Inc.	G
Yogi	Schaffner	Silicon Systems, Inc.	A
Renee	Depew	Symbios	A
Bob	Helmick	Texas Instruments	G
Tommy	Morris	Texas Instruments	G
Tom	Hanan	Western Digital Corp.	P

4. Document Distribution

The following documents were distributed:
T13 1998 Current Document Register
Agenda
Meeting Notice for #12
D97150r1 Proposal for Power-up in Standby Feature Set McLean
D98101r1 State diagram proposal McLean
D98105r1 Clarification of nIEN and interrupt pending McLean
D98112r0 New Identify Word Landis
D98113r0 Device Response to IOR & IOW tables Landis
D98115r0 32 Bit ATA Discussion Paper Goodfellow
D98117r0 3.3V (Expurgated) Proposal for ATA-5 Standard Schaffner
D98118r0 ATA-4 Circuits Classification Schaffner

5. Approval of prior plenary minutes (D98107R0)

The minutes were approved as written.

6. Review of Old Action Items

62) Tom Hanan to correct remaining reflector, ftp and web site issues. Carried over (see 13.2)
Several members noted they were not receiving email.
73) Gene Milligan to write PCMCIA a letter regarding the impending confirmation vote on ATA-1. Completed.
Pete McLean called Tom Newman Chair of the PCMCIA ATA Card group regarding this issue.
74) Gene Milligan to correct D98103 meeting minutes to get the membership count and information corrected. Completed.
75) Gene Milligan to revise ATA-5 project proposal. Completed.
76) Gene Milligan to forward ATA-5 project proposal to NCITS. Completed.
77) Gene Milligan to investigate inclusion of editorial comments and tRFS note in ATA-4. Completed.

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

The chairman reported that the NCITS ballot passed 21:0:1:4. There were no comments.

However, the errata noted at the last meeting (see D98111r0) needs to be addressed. The consensus is to request a project for an addendum to ATA/ATAPI-4.

Marc Noblitt noted additional changes: 1) in 6.7 word 73 should be word 75 to define the queue depth.

Pete noted that the Packet DMA flow chart needs to be corrected. See 11.4.

Hale Landis noted an error in the sleep commands.

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

The chairman reported that the ballot passed 21:0:1:4. There were no comments. The project is now headed to BSR and then publication.

9. ATA/ATAPI-5 Project Proposal

The chair reported that the new rules for project proposals are in place and apply to this project, however the secretariat is making an exception in this case and started the NCITS letter ballot 6/17/98.

10. Proposal Cutoff Procedure Letter Ballot Results

The chair reported that the subject letter ballot closed with a failing vote of 6:6:0:12. During the ballot period two members lost their principal membership which changes the ballot results to 6:6:0:10.

11. Old Business

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

Pete McLean presented a revised proposal including the comments from the last meeting.

Pete agreed to take out the response incomplete bit in word 0 and incorporate them as two additional random values in word 2.

11.2 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 reported that a link from the NCITS web page to T13 been added (ftp://fission.dt.wdc.com/x3t13/t13.htm) The chair noted that NCITS web page has a list of projects and member organizations.

11.3 Items from the Open Issues List [] ()

11.3.1 nIEN Definition (D98105r1) [McLean]

Pete McLean reviewed the revised proposal. Marc Noblitt requested that the phrase "When the device is selected be added to the first two items in 6.x. regarding the device exit.

Mark Evans noted that we are now requiring a determinate result from reading the status register and writing the command register, i.e., exiting the interrupt pending state. Add a phrase "..when BSY is cleared" for status reads and "..when BSY and DRQ are cleared" for command writes.

Several other minor changes were suggested to clarify the text.

Pete will incorporate the changes in a new revision.

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

If a valid ending status is not posted for a command then the assumption should be that the command is not completed and should be repeated.

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

Need to add a statement that clears SRST when BSY is cleared. (see 9.2.1 item o), 9.2.2. item l))
Approved for inclusion in ATA-5 unanimously.

11.3.4 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? (applies to PIO read only).

Consensus is to not fix this old mode; DMA transfers are encouraged since they post status at the end of the command.

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

Tradition.

11.4 ATA/ATAPI State Diagrams Introduction and Review [McLean] (D98101R1)

Pete McLean reviewed the current revision. Some clarification was made to the conventions based on the IEEE definitions. Pete reiterated that the error conditions are not shown, however a statement was added that if a status indicates an error the host shall take appropriate error recovery actions.

There was discussion on state diagrams; some items shown as states are really actions during transitions. Pete will revisit the diagrams to address this.

Error in ATA/ATAPI-4 - The byte count is mentioned in Fig 17, flow chart for DMA packet. This should be removed (see page 248).

Hale noted that Fig 24 needs some fixes to support device 1 only; the host has to poll.

The group recommended that state diagrams be used to define the protocol in ATA/ATAPI-5 and flow diagrams be eliminated.

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

Curtis Stevens reported that a review document is posted at http://www.phoenix.com/techs/specs.html The new EDD is designed to support other interfaces, including 1394 and Fibre Channel. It is based on INT 13 extensions which are widely implemented today.

Microsoft will ID each device through INT 13 and mark it. Subsequent access to these devices will not use INT 13.

Curtis took a straw poll to ascertain whether there was interest in having a standard for INT 13 extensions. There was.

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

Dan Colegrove stated the justification for this feature is to tell if the master password has changed and by looking up the revision level know the password. This is needed in network environments.

Dan Colegrove moved and Larry Lamers seconded that the proposal be accepted for inclusion in ATA/ATAPI-5.
The motion carried 7:2:5.

11.7 Electrical Specification (D98117r0) [Schaffner]

Yogi Schaffner reviewed his presentation from the last meeting as an introduction to the topic. Tommy Morris and Bob Helmick of TI presented a specification written from silicon designers point of view.

Definition of 5V-safe unifies how hot-plug events are handled. A 5V-safe device is not damaged when connected via a cable to a powered ATA bus – data integrity is not maintained.

A request was made of committee members to get feedback on maximum current specified in Table 1.

There was some consensus that the existing electrical specification in ATA-4 is not adequate going forward. Exactly how this proposal could be incorporated into ATA-5 is yet to be determined.

Skew needs to be examined in relation to achievable data rates on the bus. Operating from lower nominal voltage will reduce the skew.

12. New Business

12.1 New ID Word (98112r0) [Landis]

This proposal institutes a value in an ID Word that is reported differently for Device 0 than Device 1.

Hale will revise the proposal into a compatible with the draft format and bring it back.

12.2 I/O Chip Design (D98113r0) [Landis]

Set up the rules so that the interface can run as fast as capable without causing slower devices to malfunction.

Based upon discussion, a revision 1 will be forthcoming. Design folks need to parse this document against their implementations.

12.3 Sleep mode to standby: () [McLean]

Pete McLean noted that ATA-4 states when in sleep mode, and given a soft reset, the device enters standby mode maybe made mandatory in a future standard. Should we do it in ATA-5.

12.4 Comment on Device Reset () [Landis]

The sleep command states that a Device Reset command will wake up a device; this is in error since the device cannot respond to it.

12.5 ATA Five Year Review () []

Pete McLean stated that he had contacted Tom Newman regarding the PC-Card reference to ATA. Tom was checking and said he would advise if there is a problem in changing the reference to ATA-2. No problem has been identified.

Pete McLean moved and Ben Chang seconded that the recommendation be made to withdraw ATA X3.221-1994. The motion carries 13:0.0:9

Charles	Brill	AMP, Inc.	P	Absent
Larry	Lamers	Adaptec, Inc.	P	Y
Ron	Roberts	Apple	A	Y
Hai	Chu	CMD Technology	P	Y
Hale	Landis	Consultant	P	Y
Paul	Raikunen	Digital	P	Absent
Robert	Liu	Fujitsu Computer Products	P	Absent
Tony	Goodfellow	GSI	P	Y
Anthony	Yang	Hitachi America Ltd.	P	Absent
Dan	Colegrove	IBM Corp.	P	Y
Darrell	Redford	Iomega Corp.	P	Y
Pete	McLean	Maxtor Corp.	P	Y
Christopher	Mayne	O.R. Technology	P	Absent
Curtis	Stevens	Phoenix Technologies	P	Absent
Greg	Elkins	QLogic Corp.	P	Y
Mark	Evans	Quantum Corp.	P	Y
Marc	Noblitt	Seagate Technology	A	Y
Paresh	Sheth	Silicon Systems Inc.	P	Y
Alan	Longo	SyQuest Technology Corp	P	Absent
Renee	Depew	Symbios Logic	A	Y
Tokuyuki	Totani	Toshiba America Electr Comp	P	Absent
Tom	Hanan	Western Digital Corp.	P	Absent

12.6 32-bit ATA (D98115r0) [Goodfellow]

Tony Goodfellow made a presentation on the need for a 32-bit version of ATA. Part of the proposal is to use 80-contact connectors. The extra data bus is achieved by sharing some of the control signals; 32-bit transfers are only DMA. Assert CS0 and CS1 to get an additional bank of 16-bit registers. The 32-bit option requires 9 additional pins on the ASIC. There was some concern about the grounds when dealing with old devices. Tony promised to enhance the table to specify the cable and contact numbers.

Other requests were to get extended addressing to allow 4 devices per cable; also may want to look at differential drivers with the 80-contact; 64-bit addressing.

12.7 Ultra ATA Implementation Guide (D98109r0) [Evans]

The group needs to study this guide and come prepared to discuss it at the next meeting.

12.8 Identify Device Word 80 () []

The Chair requested input on disposing of the ATA 1 bit in word 80. Plan to take a vote at the next meeting.

13. Liaison Reports

13.1 EPA report () [McLean]

Pete McLean reported no activity has taken place since the last meeting.
Mark Evans reported that he had heard that an initiative to do with power consumption targets on watts per megabyte basis. He is requesting additional information. Another topic is total cost of disk drives from manufacture through disposal.

13.2 T10

The liaison report from the T10 chair was read to the attendees and has been previously sent out on the T13 reflector. The chair reported that the separate project for isochronous has not been forwarded pending the outcome of further investigation.

13.3 IEEE 1394 / IEC 61883

The chair reported that IEC 61883 has been published. The letter ballot on 1394a closed on July 11, 1998.

13.4 SFF

Pete McLean reported no significant events; however the 4-pin power connector project has been reopened; SFF 8020, 8070, 8080 are scheduled for a vote to obsolete at the next SFF meeting.

14. 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 WWW at ftp//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.

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.

15. Open Issues List Summary

15.1 Split DMA transfers

16. Review of Action Items

78) Gene Milligan to write project proposal for addendum to ATA/ATAPI-4.
79) Gene Milligan to advise secretariat on disposition of ATA reaffirmation.

17. Meeting Schedule

17.1 Authorization of Working Group Meetings

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

17.2 Long term meeting schedule

Date	Location	Host	Contact
August 18-20, 1998*	**Boulder, CO**	**Maxtor**	**Pete McLean**
September 22-24, 1998+			*Curtis Stevens*
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*	**Boulder, 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 August 18-20, 1998 hosted by Maxtor in Boulder, CO at the Boulderado Hotel.

18. Adjournment

The meeting adjourned upon completion of all the agenda items.

T13 Attendance Database - Enclosure (1)

				ORGANIZATIONAL ATTENDANCE AT LAST THREE MEETINGS	INDIVIDUAL ATTENDANCE
Charles	Brill	AMP, Inc.	P	6	2
Richard	Kalish	Adaptec, Inc.	P	6	3
Lawrence	Lamers	Adaptec, Inc.	A1	10	3
Ron	Roberts	Apple Computer	A	10	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
Ben	Chang	Cirrus Logic Inc.	O	5	1
Ken	Bush	Compaq Computer Corp.	O		0
Hale	Landis	Consultant	P	11	3
Irv	Tjomsland	Consultant	G	2	0
Paul	Raikunen	Digital	P	9	2
Andy	Chen	Fujitsu	A	0	2
Robert	Liu	Fujitsu Computer Products	P	4	2
Tony	Goodfellow	GSI	P	8	3
Richard	Harcourt	GSI	A1	2	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	2
Hitoshi	Ogawa	Hitachi Ltd.	O	0	2
Quang	Vuong	Hitachi Storage Products	A	0	2
Dan	Colegrove	IBM Corp.	P	11	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	1	2
LeRoy	Leach	Maxtor Corp.	A	1	3
Pete	McLean	Maxtor Corp.	P	10	3
Darrin	Bulik	Micro House Int.	O	3	0
Chris	Smith	NEC Systems Laboratory	O	0	0
Son	Ho	Neomagic Corp.	O	3	0
Christopher	Mayne	O.R. Technology	P	3	0
Joe	Chen	Oak Technology	O	2	0
Lam	Dang	Oak Technology	O	0	0
Dan	Salmonsen	Oak Technology	O	0	0
Stephen	Heil	Panasonic Technologies	O	0	0
Mike	Christensen	Phoenix Technologies	A	6	3
Curtis	Stevens	Phoenix Technologies	P	6	3
Skip	Jones	QLogic	A	0	3
Greg	Elkins	QLogic Corp.	P	9	3
Mark	Evans	Quantum Corp.	P	11	3
James	McGrath	Quantum Corp.	A1	1	3
Kenichi	Kojima	Sanyo Electric Co Ltd	O	4	1
John	Masiewicz	Seagate Technology	A	1	3
Gene	Milligan	Seagate Technology	P	11	3
Marc	Noblitt	Seagate Technology	A	10	3
Paresh	Sheth	Silicon Systems Inc.	P	3	2
Yogi	Schaffner	Silicon Systems, Inc.	A	5	2
Rich	Wahler	Standard Microsystems Corp	O	0	0
Alan	Longo	SyQuest Technology Corp	P	1	1
Patrick	Mercer	SyQuest Technology Corp	A	4	1
David	Evans	Symbios Logic	A	3	3
Mike	Winchell	Symbios Logic	P	4	3
Tokuyuki	Totani	Toshiba America Electr Comp	P	7	2
Ken	Hallam	Unisys Corp.	O	0	0
Tom	Hanan	Western Digital Corp.	P	11	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
D97150R2	Power-up in Standby proposal	/technical	3	6/19/98	DM9803	mclean
D98001R0	Letter ballot on proposal cutoff date	/ballots	2	3/25/98	DM9802	milligan
D98002R0	Results of proposal cut-off letter ballot	/ballots	2	5/12/98	DM9803	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
D98101R2	State diagram proposal	/technical	68	6/23/98	DM9803	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
D98105R2	Clarification of nIEN and pending interrupt	/technical	2	6/19/98	DM9803	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	/technical	25	6/16/98	DM9803	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
D98112R0	New identify word	/technical	2	6/15/98	DM9803	landis
D98113R0	Device response to IOR and IOW tables	/technical	7	6/14/98	DM9803	landis
D98114R0	Minutes of 6/16-18/98 plenary meeting	/meetings	12	7/2/98	DM9803	lamers
D98115R0	32 bit ATA	/technical	3	6/18/98	DM9803	goodfellow
D98116R0	Seagate ATA-4 addendum items		""			noblitt
D98117R0	3.3v Ultra DMA ATA			6/16/98		schaffner
D98118R1	ATA-4 circuits	/technical	8	6/17/98	DM9803	schaffner
D98119R0	EDD 3.0 project proposal		""			stevens
D98120R0	EDD 3.0		""			stevens
DM9801R0	Mailing #1 1998	/mailing	86	3/3/98	----	milligan
DM9802R0	Mailing #2 1998	/mailing	111	5/12/98	----	milligan
DM9803R0	Mailing #3 1998	/mailing	142	7/2/98	----	milligan