

Accredited Standards Committee*

NCITS, National Committee for Information Technology Standards

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Project:

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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
July 23-24, 1997 : San Jose, CA

Agenda

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NCITS Secretariat, Information Technology Industry Council (ITI)

1250 Eye Street NW, Suite 200, Washington, DC 20005-3922

Email: ncits@itic.nw.dc.us Telephone: 202-737-8888 FAX: 202-638-4922

Results of Meeting

1. Opening Remarks

Gene Milligan called the meeting to order at 9:00 a.m., Wednesday July 23, 1997. He thanked Marc Noblitt of Seagate Technology 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 NCITS rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the T13 technical committee. The voting rules for the meeting are those of the parent committee, T13. 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.

The minutes of this meeting will be posted to the T13 ftp site and the T13 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 T13 membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

Charles	Brill	AMP, Inc.	P
Wen	Lin	Adaptec	G
Richard	Kalish	Adaptec, Inc.	P
Lawrence	Lamers	Adaptec, Inc.	A1
Ron	Roberts	Apple Computer	A
Irv	Tjomsland	Award	O
Josephine	Hsu	Award Software	A
Amy	Barton	Circuit Assembly Corp.	G
Bob	Brinckman	Circuit Assembly Corp.	G
Ian	Morrell	Circuit Assembly Corp.	G
Hale	Landis	Consultant	P
Paul	Raikunen	Digital	P
I. Dal	Allan	ENDL	G
Kazuo	Nakashima	Fujitsu	G
Robert	Liu	Fujitsu Computer Products	P
Tony	Goodfellow	GSI	P
Dan	Colegrove	IBM Corp.	P
Darrell	Redford	Iomega Corp.	G
Pete	McLean	Maxtor Corp.	P
Curtis	Stevens	Phoenix Technologies	P

Mark	Evans	Quantum Corp.	P
Paresh	Sheth	SSI	P
Gene	Milligan	Seagate Technology	P
Marc	Noblitt	Seagate Technology	A
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 14 ATA/ATAPI-4 [McLean]
- T13/1226 DT Rev 5 EDD [Stevens]
- T13/D97128r1 Annex C [Evans]
- T13/D97138r2 & r3 Annex B changes from EDD [Christensen/ Stevens]
- T13/D97139r1 Clearing INTRQ [Evans]
- T13/D97142r0 Autopolling [Goodfellow]
- T13/D97145r0 CHS & LBA [Evans]
- T13/D97143r0 Modification for series termination [Noblitt]

5. Review of Old Action Items

None.

6. ATA/ATAPI-4 - Project 1153D

6.1 Review of working draft

Pete McLean provided revision 14. Pete conducted a review of the change bars.

Five artifacts were eliminated relating to the removed "Identify DMA". Table 31 is missing a tE value, 50 ns was plugged in pending comment. A 4 ma driver with a 1K pull up does not meet the minimum low voltage in a corner case, the working group recommended that "values greater than 1K may improve noise margin" be added. The note on access restrictions found in the Device/Head register should also be added to the command register access restrictions.

Tom Hanan stated that the act of maintaining the consistency by following the convention for signals in table E.4 and E.5 does not aid in understanding the draft.

DRQ is allowed to toggle during DMA transfers. A Box will be added to the bottom of page 236 to accommodate the setting of DRQ=0 and BSY=1.

Should the bus release interrupt be added to queued DMA? Yes by adding the material from (f) to (h) to figure 18.

In figure 17 the box with 'G' input will have an added DRQ =1 and another box following with BSY=0.

If a device decides to transfer data, then it has to do it, it cannot change its mind. After asserting DMARQ the device shall transfer at least one word of data. Also add error path for D input due to device error.

6.2 Annex C changes from Ultra DMA [Evans] (D97128)

Revision 1 was presented. The working group recommended that this be incorporated into ATA 4 with the modifications discussed at this meeting.

6.3 SRST protocol for overlapped and queued devices [Hanan] (D97137)

6.4 Annex B changes from EDD [Christensen/ Stevens] (D97138)

Curtis Stevens presented revision 1 of the proposal and subsequently reviewed revision 2 based upon the discussion. Curtis agreed to produce a revision 3 with the agreed to changes.

Pete McLean moved Marc Noblitt seconded to accept the revision 3 proposal for incorporation into the ATA/ATAPI Draft. The motion passed without objection.

6.5 Clearing INTRQ [Evans] (D97139)

Mark Evans presented revision 1 of the proposal that sets the minimum pulse width for INTRQ to 40 ns. Marc Noblitt stated an objection to the requirement applying to drives that do not support overlap and queuing.

The consensus was to accept everything but the last paragraph until folks had a chance to check out the 40 ns number. The last paragraph was modified to apply to only overlap/queued devices.

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

Irv Tjomsland presented comments on EDD, see D97146. He suggested that the project be upgraded from a technical report to standards project. The working group accepted the recommendation of the Chair that the processing of the technical report continue and that either Irv or Curtis Stevens generate a project proposal to follow it with an expanded standards project.

Curtis Stevens reviewed rev 5 of the working draft. A new revision will be prepared. The working group recommendation is that the next revision be sent out for letter ballot for further processing by NCITS as a technical report.

8. Old Business

8.1 Items from Open Issues List

8.1.1 Location of DD7 pull down resistor with Ultra DMA

There was agreement that unless urgent review by the participants results in a clear objection, the technical editor will indicate in the draft that the pull-down resistor be placed between the series resistor and the host receiver.

8.2 Tailgate [Hanmann] (D97107)

Pete McLean reported that the tailgate ad hoc recommended that the working draft with the assigned project number incorporated be balloted for further processing by NCITS.

8.3 PIO Response Tables for Annex E [Landis] (D97134r0)

No work done.

8.4 Integrity Procedure [Hanan] (D97103r0)

A project proposal was not available.

9. New Business

9.1 Autopolling [Goodfellow] (D97142)

Tony Goodfellow made a proposal to add an AutoPoll command to reduce overhead when queuing commands.

The proposal was recommended to be modified to use the NOP command with a value in features register that causes the queue not to be flushed and start auto polling. The working group proposed that the statement “A feature register value of zero in the NOP command causes an abort and the other feature register values are reserved but do not cause an abort.” be the basis of a change to the proposal.

9.2 CHS & LBA [Evans] (D97145)

The group is in agreement with the proposed revision, but has requested that it be revised to use the language appropriate for the standard before taking a vote to incorporate it into the draft standard.

An exception for removable media devices to not require zeroing out words 54-58 if the IDP command is not able to complete successfully is needed. Added a requirement to clear Word 53 bit 0 when IDP fails and softening the suggestion to zero words 54-58.

The removable folks need to document the expected behavior for their devices regarding commands that fixed media devices view as non-media access but may be greatly impacted in removable media devices if a media is not present.

9.3 Pausing Ultra DMA

An email exchange between Mark Evans and Robbie Shergill resolved this issue prior to the meeting without any needed clarification in the draft standard. However Mark will double check that clarification is not required.

9.4 Modification for series termination [Noblitt] (D97143)

This proposal is an attempt to resolve inconsistencies within the current draft , prior versions of ATA, and among manufacturers.

After discussion the ad hoc recommendation is to add the statement “Actual termination values should be selected to compensate for transceiver and trace impedance to match the characteristic cable impedance.” The word “recommended” in the title should be changed to “typical” in table 5 and in Annex C.

9.5 Cable Connector Recommendations

Pete McLean noted that the following cable/connector issues came up at the last SFF meeting:

- 1) Connector marked at Pin 1
- 2) Connector keyed with bump
- 3) Shroud keyed with slot
- 4) Connector Pin 20 plugged
- 5) Device/Host Pin 20 removed
- 6) Shroud required?
- 7) Orientation of Pin 1 on device

On item (2) the SFF recommendation was to not require the bump. On item (3) the SFF recommendation was to require a slot.

Rick Kalish and Pete McLean moved that all keying recommendation be made mandatory. Passed unanimously.

A motion to divide the question and have a separate vote on item (2). Passed unanimously.

The Chair constructed the following matrix and conducted the included voting poll.

40-conductor		Host Yes/No/Abstain	Device Yes/No/Abstain
Receptacle Connector	Pin 1 Marked	12/1/0	12/1/0

Cable Connector	Pin 1 Marked	11/0/2	11/0/2
Receptacle Connector	Pin 20 removed	12/0/1	12/0/1
Cable Connector	Pin 20 plugged	12/0/1	12/0/1
Receptacle Connector	Slot	12/0/1	12/0/1
Cable Connector	Bump	9/3/1	9/3/1
Shroud required		4/12/1	12/0/1

The above constitutes a recommendation for the SFF 8059 specification. The ad hoc agreed without objection that the same recommendation applies to the 80 conductor cable, SFF 8049 specification.

The consensus was that the mandatory color coding in SFF 8049 be supported. Also the group recommended that the 80-conductor cable assembly, as an option, have indications for HOST, DEVICE 1, and DEVICE 0. This could be labeling on the cable or provided in an information packet.

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.

11. Open Issues List Summary

The following items were added to the list at this meeting:

- 11) Check tE value in Table 31 Multiword DMA data transfer.
- 12) Can the minimum 40 ns be extended to all devices any time it is asserted.
- 13) How should removable media devices handle words 54-58 if the IDP command is not able to complete successfully and are there any restrictions to other commands that need to be documented if media is not present?

12. Review of New Action Items

None

13. Meeting Schedule

The next plenary meeting of T13 will be October 24, 1997 in Wailea, Maui, HI hosted by Quantum. Mark Evans

The next working meeting will be August 20-22, 1997 in Longmont, CO hosted by SSI/TI.

The subsequent working group meeting, if required, will be September 24-26, 1997 in Irvine, CA hosted by Phoenix Technologies.

Date	Location	Host	Contact
August 20-22, 1997	Longmont, CO	SSI/TI	Yogi Schaffner
<i>September 24-26, 1997+</i>	<i>Irvine, CA</i>	<i>Phoenix Technologies</i>	<i>Curtis Stevens</i>
October 22-24, 1997*	Wailea, Maui, HI	Quantum	Mark Evans
December 3-5, 1997	Irvine, CA	Western Digital	Tom Hanan
<i>January 21-23, 1998+</i>			<i>Marc Noblitt</i>
February 17-20, 1998*	Ft. Collins	Symbios Logic	Dave Evans
<i>March 25-27, 1998+</i>			<i>Marc Noblitt</i>
April 14-17, 1998 *	San Jose, CA	Seagate	Marc Noblitt
<i>May 20-22, 1998+</i>			<i>Marc Noblitt</i>
June 16-19, 1998*	Irvine, CA	Western Digital	Tom Hanan
<i>July 22-24, 1998 +</i>			<i>Marc Noblitt</i>
August 18-21, 1998*	Boulder, CO	Maxtor	Pete McLean
<i>September 23-25, 1998+</i>			<i>Curtis Stevens</i>
October 20-23, 1998*	Wailea, Maui, HI	Quantum	Mark Evans
December 1-4, 1998*	Irvine, CA	Western Digital	Tom Hanan

* indicates that Friday will be used for the plenary meeting.

+ indicates this meeting is tentative and may be canceled depending upon workload.

14. Adjournment

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