

Accredited Standards Committee*
X3, Information Technology

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Project:
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Reply to: Gene Milligan

To: Membership of X3T13
From: Lawrence J. Lamers, Secretary X3T13
Gene Milligan, Chair X3T13
Subject: Minutes of X3T13 Working Group
November 13-15, 1996 : Irvine, CA

Agenda

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Results of Meeting

1. Opening Remarks

Gene Milligan called the meeting to order at 9:00 a.m., Wednesday November 13, 1996. He thanked Tom Hanan of Western Digital Corporation 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 X3T13 and would be conducted under the X3 rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the X3 Technical committee. The voting rules for the meeting are those of the parent committee, X3T13. For the ad hoc, other than straw votes, the voting rules are: one vote per participating company.

The minutes of this meeting will be posted to the X3T13 and the ATA Reflector and will be included in the next X3T13 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 X3T13 membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

Lawrence	Lamers	Adaptec, Inc.	A1
Ron	Roberts	Apple Computer	A
Ben	Chang	Cirrus Logic Inc.	P
Hale	Landis	Consultant	P
Tony	Goodfellow	GSI	P
Richard	Harcourt	GSI	A1
Anthony	Vu	GSI	G
Tom	Wood	GSI	G
Anthony	Yang	Hitachi America Ltd.	P
Dan	Colegrove	IBM Corp.	P
John	Blagaila	Integral Peripheral	G
Pat	La Varre	Iomega	A
Ron	Stephens	Iomega Corp.	P
Pete	McLean	Maxtor Corp.	P
Darrin	Bulik	Micro House Int.	P
Son	Ho	Neomagic Corp.	G
Greg	Shonle	O.R. Technology	G
Lam	Dang	Oak Technology	G
Doug	Otis	Pertec Memories	G
Curtis	Stevens	Phoenix Technologies	P

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Mark	Evans	Quantum Corp.	P
Eric	Kvamme	Quantum Corp.	G
Gene	Milligan	Seagate Technology	P
Jeff	Reid	Seagate Technology	G
Yogi	Schaffner	Silicon Systems, Inc.	P
Alan	Longo	SyQuest Technology Corp.	P
David	Evans	Symbios Logic	A
Tokuyuki	Totani	Toshiba America Info.	P
Tom	Hanan	Western Digital Corp.	P
Devon	Worrell	Western Digital Corp.	A1

P=Principal Member, A=Alternate Member, O=Observer Member, G=Guest

4. Document Distribution

The following documents were distributed:

- X3T13 Document Register
- D96104R9 ATA Overlap Proposal [McLean]
- D97104R0 Proposed changes to Ultra DMA [Worrell]
- D97103R0 Physical interface test procedures [Hanan]
- D96153R2 Ultra DMA Rev 2 [Evans]
- D96157R0 Reset changes from the working group [McLean]
- X3T13/1226DT EDD Rev 2 [Stevens]
- X3T13/1153D Rev 7 ATA/ATAPI-4 [McLean]

5. Review of Old Action Items

- 57) Yogi Schaffner to develop proposal for register access restriction corrections. Completed.
- 64) Devon Worrell to expand the definition of the Device Reset protocol. Carried over.
- 65) Tom Hanan to put a list of ATAPI issues together for Ultra DMA. Completed.
- 66) Devon Worrell to provide list of items in word 82 and 85 not applicable to ATAPI. Carried over.
- 67) Devon Worrell to bring in MSN 1.03 to next meeting. Completed.
- 68) Devon to document the proper behavior of ATAPI soft reset. Carried over.
- 69) Gene Milligan to write letter to Oak regarding patents. Completed.

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

A page by page review was conducted with several editorial changes noted. Curtis Stevens promised a revised draft based upon the comments before Christmas. There are several issues that need to be addressed in a subsequent project. Some of these will be identified in the initial technical report.

7. Old Business

7.1 Items from the Open Issues List [] ()

7.1.1 Access Restrictions in Functional Descriptions of Registers [Schaffner]

Yogi Schaffner has a presentation addressing this item which he will present at the January meeting.

7.2 Security Erase [Colegrove] (D96156)

Dan Colegrove stated that he and Prof. Schultz had not successfully made contact to complete clarifications on the requirements.

7.3 Proposal for Ultra DMA [Evans] (D96153r2)

Eric Kvamme stepped through a list of common question on Ultra DMA. Devon Worrell presented a list of changes and additions. One change deals with CRC errors that occur on a REQUEST SENSE command.

Tom Hanan presented a document on physical interface testing used by WD. He stated that a test board has been developed to ensure consistency of results and these will be made available to the industry. He indicated that the test procedure should be considered for inclusion in Annex C.

Complications of accommodating IDENTIFY DRIVE DMA with the Ultra DMA mode in ATA/ATAPI-4 were discussed. By unanimous consent it was decided to obsolete IDENTIFY DRIVE DMA.

7.4 Read/Set Maximum Address [Landis]

The CHS translation should report the same maximum address as set in LBA. This means that there would appear to be an 'orphaned' track. Pete McLean volunteered to propose a resolution to this issue.

7.5 DASP Signal Usage [Totani] (D96151r0)

Totani-san reported that some folks have an issue with how reset is handled and there may be other issues with master/slave handling. He requested that the proposal be withdrawn. He requested that a statement that the host shall not infer device status based upon the DASP signal be added. There was unanimous consent to add a statement that the DASP signal may be unsynchronized with command execution.

7.6 Definition of ATAPI protocol for device one only (8.8.1.1).

It was agreed that there is no distinction between ATA and ATAPI regarding the device 0/1 protocol.

7.7 Support for Removable Media [] ()

7.7.1 MSN 1.03 Commands

Tom Hanan moved and Ron Stevens seconded that the technical content of MSN 1.03 be accepted as the basis for a proposal suitable for inclusion in ATA-4 including a recommendation on related items to obsolete. The motion carried 11:0.

Ron Stephens accepted the authorship of the proposal.

7.7.2 Change of the Removable Feature Set to Make DOOR LOCK and UNLOCK obsolete

The status of this topic will be addressed by the proposal described by 7.7.1.

7.8 LUNS

It was agreed that LUNs for devices implementing the packet commands had previously been agreed to. It was not clear why the draft does not reflect this agreement. However at this point the specific requirements are not clear. Devon Worrell agreed to document the ATAPI LUN requirements based upon current ATAPI specifications.

7.9 Overlap/Queuing (D96104r9)

Pete McLean revised the proposal restoring the READ DMA and WRITE DMA commands. The October plenary vote has already authorized this for inclusion in ATA/ATAPI-4.

7.10 Word 73 [Stephens]

Ron Stephens pointed out that the packet device words had somehow been transposed into different words. Pete McLean will work with Devon Worrell to straighten out this ambiguity.

7.11 Reset [Longo] (D96157r0)

Alan Longo described several issues he had with the wording of the reset requirements. His discussion pointed out a potential need for a minimum off time for SRST and pointed out problems with on-off-on reset cycles. It was agreed that currently the minimum low 'off' time is one memory write cycle.

8. ATA-4 - Project 1153D

8.1 Review of current working draft

The detailed editorial review of documents from prior agenda items did not allow sufficient time for a detailed review of this item. It was agreed that this item should have a higher priority on the next agenda. It was further agreed that the committee preferred to review the document with all of the previously accepted proposals included in a revision of the document. All participants were urged, by the Chair, to read the revised documents prior to the meeting and if applicable to post specific comments to the reflector to enhance the meeting efficiency.

9. New Business

9.1 Disk Boys [] ()

Pete McLean reported that the Disk Boys were interested in bringing the Tailgate specification to X3T13 as the basis for a standards project. There was unanimous consent to request that Disk Boys submit a project proposal at the January ad hoc for a X3T13 Tailgate project.

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 X3T13 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 summarized the letter that he had sent to Oak Technology.

11. Open Issues List Summary

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

- 1) Enhanced FDPT signature of A0h.
- 2) Driver types and required pull-ups for Ultra DMA.
- 3) Minimum cleared time for SRST.

12. Review of New Action Items

In addition to the carry over action items:

- 70) Pete McLean to propose a resolution to the orphaned sectors issue of Read/Set Maximum Address [Landis]
- 71) Ron Stephens to generate a proposal based upon MSN 1.03.
- 72) Devon Worrell to document the ATAPI LUN requirements based upon current ATAPI specifications.
- 73) Pete McLean and Devon Worrell to work out Word 73 ambiguity.
- 74) Pete McLean to request that the Disk Boys submit a project proposal at the January ad hoc for a X3T13 Tailgate project.

13. Meeting Schedule

The next plenary meeting of X3T13 will be January 24, 1997 at the Seagate facility, in San Jose, CA hosted by Seagate. Although the meeting announcement shows a starting time of 0900, in view of the heavy work load the ad hoc unanimously agreed to change the starting time to 1300 to allow another half day for the ad hoc work. The Chair indicated that although the meeting announcement had already gone out in the mailing he could agree to a later starting time but would have overruled an earlier starting time.

The next working group meeting will be January 22-24, 1997 at the Seagate facility in San Jose hosted by Seagate.

The long term meeting schedule is:

Date	Location	Host	Contact
February 18-21, 1997##	Fort Collins, CO	Symbios Logic	Mike Winchell
March 19-21, 1997	San Jose, CA	Seagate	Marc Noblitt
April 23-25, 1997 *	Irvine, CA	Western Digital	Tom Hanan
May 21-23, 1997	Boulder, CO	Seagate	Marc Noblitt
June 18-20, 1997	Irvine, CA	Western Digital	Tom Hanan
July 23-25, 1997 *			
August 20-22, 1997			
September 24-26, 1997	Irvine, CA	Phoenix Technologies	Curtis Stevens
October 22-24, 1997*	TBD, HI	Quantum	Mark Evans
December 10-12, 1997	Irvine, CA	Western Digital	Tom Hanan
January 21-23, 1998*			
February 18-20, 1998			
March 25-27, 1998			

* Plenary

This meeting was originally scheduled for 19-21 February and it has not yet been confirmed that the host can accommodate the added earlier day. Watch the reflector for further information.

14. Adjournment

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