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Reply to: Larry Lamers

To: Membership of X3T13
From: Lawrence J. Lamers, Secretary X3T13
Gene Milligan, Chair X3T13
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Subject: Minutes of X3T13 Working Group
August 21-23, 1996 : San Jose, CA

Agenda

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*Operating under the procedures of The American National Standards Institute.

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Results of Meeting

1. Opening Remarks

Gene Milligan called the meeting to order at 9:00 a.m., Wednesday May 24, 1996. He thanked Marc Noblitt of Seagate for hosting the meeting.

The Chair requested that Larry Lamers take the minutes for this meeting and thanked him for agreeing to the request.

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.

Charles	Brill	AMP, Inc.	O
Lawrence	Lamers	Adaptec, Inc.	A1
Ron	Roberts	Apple Computer	A
Hale	Landis	Consultant	P
Dale	Smith	Data Transit	G
Tony	Goodfellow	GSI	P
Anthony	Yang	Hitachi America Ltd	P
Dan	Colegrove	IBM Corp.	P
Duncan	Penman	IIX Consulting	P

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Ron	Stephens	Iomega Corp.	G
Pete	McLean	Maxtor Corp.	P
Robert	Griffith	Oak Technology	A
Curtis	Stevens	Phoenix Technologies	P
Mark	Evans	Quantum Corp.	P
Gene	Milligan	Seagate Technology	P
Marc	Noblitt	Seagate Technology	A
David	Evans	Symbios Logic	G
Tokuyuki	Totani	Toshiba America Info.	P
Tom	Hanan	Western Digital Corp.	P
Jerry	Saltzman	Zen Research	G

4. Document Distribution

The following documents were distributed:

- Proposal for X3T13 1153D ATA/ATAPI-4 Rev 5 [McLean]
- D96103R1 Feature Status Reporting [McLean]
- D96104R7 ATA Overlap Proposal [McLean]
- D96114R0 Proposal for removing redundant information [McLean]
- D96142R4 Proposal to Modify the Reset Protocol in ATA/ATAPI-4 [Evans]
- D96139R1 BIOS Enhanced Disk Drive Specification
- D96149R0 WD Combo Connector
- D96150R0 WD 3-in-1 Connector
- X3T13 Document Register

5. Review of Old Action Items

- 51) Everyone check the protocol vis-à-vis the interrupts for READ/WRITE Sectors and DMA. Completed.
- 52) Everyone to check on usage of DSC bit and determine which values result for each command. Completed.
- 53) Regarding note 9 in Mark Evan's proposal D96142r3 folks should check if the 5 microsecond requirement is needed for coming out of sleep mode. Completed.

6. ATA-3 - Project 2008-D Status

Pete McLean has submitted the committee's public review comment. No other comments are known of at this time. The public review closes September 17, 1996.

7. Old Business

7.1 Enhanced BIOS Disk Drive Technical Report [Stevens] (D96139r0)

The chair reported that the project proposal was in letter ballot at X3 with a close date of 9/9/96.

Curtis Stevens distributed rev 1 of D96139. Curtis Stevens stated that Phoenix has no patents on the contents of the proposal. Detailed editorial changes were pointed out.

X3T13 is urged to review the proposal during the next two weeks and to post the results of the review on the reflector. After the two weeks Curtis will turn a rev to be reviewed at the next ad-hoc. Following that review the chair plans to issue a letter ballot for forwarding the technical report.

7.2 Interrupt Glitches (Determination) [Stevens] ()

No business.

7.3 Adding feature status to IDENTIFY DEVICE[McLean] (D96103r1)

Curtis Stevens moved and Tom Hanan seconded to delete Words 86 & 87 and sub clause 8.8.48 (remove command set default notification) from D96103r1. The motion passed unanimously.

Pete McLean proposed that Word 82-84 be Command Set/ Feature Set supported and Word 85-87 be Command Set/Feature Set enabled. A two bit signature will be included to indicate that these fields are supported.

Pete will investigate optional commands that are not part of a feature set, and if the number of these commands does not exceed five he will add a bit to indicate that they are supported.

Add ATA-4 to Table 9.

7.4 ATA Overlap Proposal [McLean] (D96104r7)

Pete McLean reported that he had prepared a revision per the directives of the last meeting that removes all references to shared interrupts. It now defines READ DMA and WRITE DMA commands, and the field for the queue tag. This requires the host select each device and poll the device for a pending interrupt (bit 1 of the Status register - the old IDX bit). The Service bit (the old DSC bit) indicates that service is needed. Curtis Stevens urged that the definition, without shared interrupts, be folded into ATA/ATAPI-4. Dan Colegrove objected on the basis that the proposal does not yet define the overlapped commands as being for packet commands only.

The flow diagrams in Figure aa in D96104r7 have not been updated to reflect the deletion of shared interrupts. A proposal is expected from Devon Worrell at the next meeting.

Pete will remove INTP and develop two flow charts for command queuing without pending interrupts.

Ron Roberts moved and Tom Hanan seconded that this item be deferred until the next meeting. The motion carried 9:2.

7.5 ATA Cable Issues and Definitions [Evans] ()

No activity.

7.6 Core Command Set [Stevens] (D96135r0)

Needs to be reformatted as an annex.

7.7 Reset Proposal [Evans] (D96142r4)

Mark Evans reported that there have been significant changes and as such there are no change bars. In particular the ATAPI folks should review it in detail.

The 31 second time-out for Device Reset needs confirmation.

It was agreed to change note 1 under software reset to Host shall assert reset for 5 microseconds.

7.8 SFF Options Pins [] ()

The SFF SWIG recommended the 9-pin version presented by Quantum and Seagate be used for the ATA-4 unitized connector. The SFF SWIG recommendation has not yet been balloted. The definition of pin usage was left to X3T13.

Tom Hanan moved and Curtis Stevens seconded that a recommendation be made to X3T13 to adopt the signal definitions for the option pins as shown in SFF-8020 for the ATA-4 unitized connector. The motion failed 3:5.

Tom Hanan moved and Curtis Stevens seconded that the assignment of option pins be delayed until the next meeting. The motion failed 2:6.

Marc Noblitt moved and Curtis Stevens seconded that D96126, without the signal definitions, be recommended as the unitized connector for ATA-4. The motion carried 9:1.

This motion is not intended to exclude connectors in use today.

Pete McLean moved and Curtis Stevens seconded that a recommendation be made for usage of four pins to define address selection with the possibility of compromise with the 6-pin version. The motion carried 5:2.

7.9 Items from the Open Issues List [] ()

7.9.1 400 ns delay before reading the status register?

Some drives use the DRQ bit to extend the end of a command - but some BIOSes do not look at DRQ. The consensus is that no action be taken to change the requirement.

7.9.2 Item 36 of D96142r3 vis-à-vis portable cache flushing.

No Activity - deleted.

7.9.3 Software reset replaced by device reset

Goes away, both should be documented without a specific recommendation for usage.

7.9.4 Device Reset relationship to sleep mode

Not known- Tom Hanan has an action item to investigate this.

7.9.5 Removable device feature set needs further work

Should MSN usage of reserved fields be documented? Ron Stephens volunteered to bring in a proposal based on MSN.

7.9.6 33 Megaword transfers

No business.

7.9.7 Shielding

No business.

7.9.8 Termination

No business.

7.9.9 Grounding

No business.

7.10 Anti-redundancy [McLean] (D96114r0)

Reviewed the proposal. Several modifications were agreed to. Pete will prepare a revision 1 with these changes.

7.11 Security Erase [Colegrove]

Dan is still researching the topic. It appears that a fixed pattern will satisfy the requirements. Gene Milligan thought that this did not match the requirements stated by Kelly Schultz of UCSD.

7.12 X3T13 Reflector, ftp, and Web Site Setup [Hanan]

Tom Hanan reported the following:

http://x3t13.dt.wdc.com/x3t13 (Use this address to access x3T13 web page)
 ftp://x3t13.dt.wdc.com/x3t13 (Use this address to access x3t13 ftp site)
 x3t13@dt.wdc.com (Use this address to send e-mail to reflector)
 ata@dt.wdc.com (This reflector address will be phased out in a few months)
 majordomo@dt.wdc.com (Continue using this address to subscribe / unsubscribe)

8. ATA-4 - Project 1153D

8.1 Project 1153D proposed draft

The group requested that Pete fold in the additional changes which had been agreed to and to maintain the change bars pending a review of the items marked with change bars at the September meeting.

8.2 Interrupts for READ/WRITE Sectors and DMA [] ()

Any issue associated with this item was judged to be with non-compliant implementations and the group recommended that the agenda item be dropped from future agenda.

8.3 DSC bit Usage [] ()

Any issue associated with this item was judged to be with non-compliant implementations and the group recommended that the agenda item be dropped from future agenda.

9. New Business

9.1 A/V Commands () []

Mark Evans reported that there has been interest in the industry in having a audio/visual command(s). This is a similar concept to AV SCSI drives currently being sold. The question is how should it be handled to deliver a minimum latency. The consensus at this meeting was that a new command(s) should be used rather than modifications of current commands. Impact of compression was discussed. Tom Hanan described some of the requirements of MPEG encoding/decoding. This needs further study.

10. Liaison Reports

10.1 DVD Copy Protection [Milligan]

Gene Milligan reported on the X3 OMC Copy Protection ad hoc group which met on August 6 to determine the interest of X3 TCs in copy protection in a general-purpose computing system to protect analog and digital video content against unauthorized copying, specifically in the areas of linear motion pictures and DVD technology.

The first objective of this meeting was to establish a common understanding of the different policy, market, and technical objectives of the industries which are trying to agree on the means for protecting DVD content. The second objective was to examine the technical approaches proposed by the cross-industry Copy Protection

Technical Working Group (CPTWG) to determine how X3 can expeditiously support those aspects of the work which are suitable for Information Technology standards solutions.

The Multimedia Command set project (MMC-2) approved for X3T10 is slated to include the SCSI and IDE interface commands needed to support DVD-ROM, DVD-R, and DVD-RAM devices. There have already been some presentations to T10 concerning the command extensions that will be needed to support the media scrambling and key exchange schemes that are proposed for protecting DVD content.

X3T10 is the appropriate forum for the detailed specification to be developed and agreed, and then submitted to ISO/IEC Joint Technical Committee 1 (JTC1). X3T10 should keep CPTWG Subcommittee 1 (DVD) informed of the progress in this area through an active liaison arrangement.

No single X3 Technical Committee currently has a system-level scope to match the packaging of technologies proposed for DVD copy protection. Moreover, there are elements of the DVD copy protection proposal which may most logically be developed in committees outside of X3 but which need to be followed closely by X3 because of the potential impact on computer system architectures and performance.

The ad hoc concluded that X3 should retain the X3 OMC Copy Protection ad hoc to monitor and report on

- the CPTWG, so long as it continues to develop the system-level agreements;
- related development, processing, and advisory activities undertaken by individual TCs such as suggested above;
- related activities such as analog signaling schemes which may be undertaken in other bodies.

Gene added that a key issue that the ad hoc is addressing is a movement already underway in Congress to write DVD copy protection technical requirements into US law. The ad hoc's position is that the requirements should be accomplished through standards and not through law. Organizations are urged to consider this issue and to use their influence to promote the standards route.

10.2 1394 [Stevens]

Curtis Stevens reported that a 1394 TA group, chaired by Pete McLean, is working on defining a transport protocol and a command set profile for fixed and removable disk drives. Ultimately the group thinks that the documents should wind up in a standards body, but there is contention over whether it be done in X3T10 or X3T13.

The 1394 TA group plans to hold a meeting the two days prior to the X3T13 ad hoc in September in the same hotel in Irvine.

Tom Hanan reported that the reflector is 'diskboys@dt.wdc.com'.

11. 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. No additional patents were identified by the attendees in response to this call.

12. Open Issues List Summary

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

- 1) Define when the tristate signals driven by the drive are tristated.
- 6) Protocol for IORDY, when is it asserted, negated, and tristated.
- 7) Description of device power on reset to power good to device reset protocol along with the ambiguity between devices.

13. Review of New Action Items

- 54) Tom Hanan to investigate the reaction of ATAPI devices to software reset, ~~IDE~~ Reset and sleep modes.
- 55) Tom Hanan and Mark Evans to bring samples of the new connectors and jumpers to the next meeting.
- 56) Gene Milligan to determine if a forward is required for the EDD Technical Report and if so what the content should be.

14. Meeting Schedule

The next ad hoc meeting of X3T13 will be September 25-27, 1996 at the Windsor Hotel hosted by Phoenix Technologies.

The subsequent ad hoc meeting of X3T13 will be October 23-24, 1996 at the Sheraton Hotel in Honolulu, HI hosted by Quantum.

The next plenary meeting of X3T13 will be October 25, 1996 at the Sheraton Princess Kaiulani Hotel, in Honolulu, HI, hosted by Quantum. For reservations call 808-922-5811.

15. Adjournment

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