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Project:
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Reply to: Lawrence J. Lamers

To: Membership of X3T13
From: Lawrence J. Lamers, Secretary X3T13
Gene Milligan, Chair X3T13 (acting)
Subject: Minutes of X3T13 Working Group
June 21-22, 1996 : Irvine, CA

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance
4. Document Distribution
5. Review of Old Action Items
6. ATA-2 - Project 0948D [Larry Lamers]
7. ATA-3 - Project 2008D
8. ATA-4 - Project 1153D
 - 8.1 Vendor specific and Optional Command Zero Budgeting [Evans] (D96125r4)
9. Old Business
 - 9.1 Enhanced BIOS Disk Drive Technical Report [Stevens] (D96139r0)
 - 9.2 Interrupt Glitches (Determination) [Stevens] ()
 - 9.3 Get Features [McLean] (D96123r0)
 - 9.4 Strong Command Overlap and Command Queuing [McLean] (96D104r4)
 - 9.5 Cache Flush [Roberts] (D96106r1)
 - 9.6 ATA Protected Area Proposal [Colegrove] (D96137)
 - 9.7 ATA Mode X Analog Issues [Chen] ()
 - 9.8 Non-512 Byte Transfer Blocks [Bonke] ()
 - 9.9 ATA Cable Issues and Definitions [Evans] ()
 - 9.10 Out of order transfers [Worrell] ()
 - 9.11 SMART proposal [Evans] (D96131r2)
 - 9.12 Core Command Set [Stevens] (D96135r0)
 - 9.13 Reset Proposal [Evans] (D96142r2)
 - 9.14 Items from the Open Issues List [] ()
 - 9.14.1 Removable device feature set needs further work
 - 9.14.2 8-bit register access timing in Table 21
 - 9.15 X3T13 Reflector, ftp, and Web Site Setup [Hanan]
10. New Business
 - 10.1 Yosemite [] ()
 - 10.2 ENDL Column [] ()

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11. Call for Patents

12. Open Issues List Summary

13. Review of New Action Items

14. Meeting Schedule

15. Adjournment

Results of Meeting

1. Opening Remarks

Pete McLean called the meeting to order at 9:00 a.m., Wednesday June 21, 1996. He thanked Tom Hanan of Western Digital 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 X3T13 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.

The following items were added:

9.15 Reset proposal [Evans] (D96142r0)

10.1 Yosemite [Stevens]

10.3 Proposed unitized connector

The amended agenda was approved.

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.	G
Lawrence	Lamers	Adaptec, Inc.	A
Ron	Roberts	Apple Computer	A
Joe	Chen	Cirrus Logic Inc.	P
Hale	Landis	Consultant	P
Paul	Raikunen	Digital	P

Minutes of X3T13 Working Group

X3T13/D96145r0

I. Dal	Allan	ENDL	P
Tony	Goodfellow	GSI	P
Anthony	Yang	Hitachi America Ltd	P
Dan	Colegrove	IBM Corp.	P
Pete	McLean	Maxtor Corp.	P
Darrin	Bulik	Micro House Int.	P
Jim	McManus	Micro House International	
Robert	Griffith	Oak Technology	A
Curtis	Stevens	Phoenix Technologies	P
Greg	Elkins	QLogic Corp.	P
Mark	Evans	Quantum Corp.	P
Marc	Noblitt	Seagate Technology	A
Jeff	Reid	Seagate Technology	
Yogi	Schaffner	Silicon Systems	P
David	Evans	Symbios Logic	G
Tokuyuk	Totani	Toshiba America Info.	P
Carl	Bonke	Western Digital Corp.	A
Tom	Hanan	Western Digital Corp.	P

4. Document Distribution

The following documents were distributed:

Letter from X3T10 regarding command set development

D96103r0

D96104r5

D96106r1

D96125r4

D96126r0

D96131r2

D96135r0

D96139r0

D96142r2

D1153r4

5. Review of Old Action Items

None.

6. ATA-2 - Project 0948D [Larry Lamers]

X3 letter ballot closes July 31, 1996.

7. ATA-3 - Project 2008D

Assigned BSR X3.298-199x. In public review July 19 - September 17, 1996.

8. ATA-4 - Project 1153D

Pete pointed out that ATA-4 has never been accepted as a working draft at the plenary.

Pete reviewed the current set of change bars.

Folks are advised to check the protocol vis-a-vis the interrupts for READ/WRITE Sectors and DMA; check the DSC bit usage - claim that software checks values not bits in registers so what should DSC be for all commands.

Yogi made a motion (and Jim seconded it) to modify the non-overlapped packet command flow chart to reflect the fact that DRQ does not need to be cleared when BSY is set while there is still data to transfer [see page 185].

The vote was 5:3:6

There was a motion to move on (Hannan moved, Totani-san seconded)

The vote was 10:2:2

Dan Colgrove had an issue with Section 9.8. He said that SCO UNIX had a problem when Device 1 was selected in a Device 0 only configuration and a command was issued. He said UNIX wanted to see an aborted command status from Device 0. Qntm and Seagate said they accepted the command but just put zeros in the registers.

8.1 Vendor specific and Optional Command Zero Budgeting [Evans] (D96125r4)

Mark Evans reviewed the latest proposal. A request was made to add logical and physical sector to the glossary.

Mark Evans moved and Hale Landis seconded that rev 5 of D96125 be incorporated into project 1153. The motion carried 17:1:0.

Ron Roberts stated that there still is a need for READ LONG and WRITE LONG commands for drive qualification purposes.

9. Old Business

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

Curtis Stevens presented his proposal for the enhance BIOS. It needs considerable editorial work. Three command sets, fixed disk, removable device, extended disk. This document will get a page by page review at the next working group.

9.2 Interrupt Glitches (Determination) [Stevens] ()

In multiple drive systems there is a need to be able to determine which device generated the interrupt. If there is a glitch who did it? There is a system wide problem and the device is the only place where it can get resolved. What is needed is an interrupt pending indicator.

9.3 Get Features [McLean] (D96123r0)

Pete McLean reviewed the get features proposal

9.4 Strong Command Overlap and Command Queuing [McLean] (96D104r4)

Pete stated that he had incorporated the changes requested at the last working group. He asked to review the UIRQ bit. Summary - if both drives are overlapped it is not needed; can we get PDIAG to work correctly without race conditions, need to specify the timing on negating the PDIAG signal.

Hale stated that potential deadlocks exist.

Suggested that UIRQ be changed to interrupt pending for the selected device. This addresses Curtis Steven's issue above.

Curtis Stevens moved and Tony seconded that UIRQ bit be defined to indicate that the selected device has an interrupt pending. The UIRQ bit will be placed in bit one (where the index bit used to be). The motion carries 12:0:4.

Tom noted that the SFF8020 defines the DF bit to indicate that a DMA transfer is ready.

Further work was tabled until ATA-4 is reviewed.

Dan Colgrove moved and Mark Evans seconded that we stop working on the ATA Strong Overlapping Proposal (X3T13/D96104) in ATA/ATAPI-42: the vote was 2:7:5

Further work was tabled.

9.5 Cache Flush [Roberts] (D96106r1)

Ron Roberts reviewed the latest proposal for cache flush that includes the changes requested at the last working group. The working group expressed a desire to remove the subcommand options. Add a note stating that it may take quite a while to complete.

9.6 ATA Protected Area Proposal [Colegrove] (D96137)

It has happened; it may be required functionality from other vendors; we should at least document the current implementation.

Hale moved and Curtis seconded that D96137r0 be incorporated into project 1153. The motion passed 11:4:1.

This will be specified as an optional feature set.

9.7 ATA Mode X Analog Issues [Chen] ()

Tom Hanan moved and Joe Chen seconded that the existing agenda item be renamed to DMA transfer rates above 16 MB/sec with a list of items that need to be addressed for those transfer rates such as timing, termination, etc. The motion failed 3:6:7.

The agenda item will be removed.

9.8 Non-512 Byte Transfer Blocks [Bonke] ()

Tom reported that SFF-8070 does define a method of doing block devices using ATAPI and there really is no need for greater than 512 byte blocks on IDE. See 10.1. There was email traffic on this from Fujitsu.

There was unanimous consensus to delete this agenda item.

9.9 ATA Cable Issues and Definitions [Evans] ()

Mark Evans had samples from Berg of a connector adapted to use an SCSI terminator

9.10 Out of order transfers [Worrell] ()

Devon was not present.

Stevens moved and Noblitt seconded that this agenda item be removed. The motion carried 14:2:2.

9.11 SMART proposal [Evans] (D96131r2)

Mark Evans reported that revision two incorporates all the comments from the SMART working group. Mark Evans moved and Curtis Stevens seconded that D96131r2 be incorporated into project 1153. The motion carries 16:1:1.

Joe Chen stated incorporating this proposal seems like we are moving faster than we should.

9.12 Core Command Set [Stevens] (D96135r0)

Curtis Stevens proposed a minimum command set that must be implemented. Curtis will do further development of the proposal aiming towards an annex.

9.13 Reset Proposal [Evans] (D96142r2)

Mark did a preview in preparation for a line by line review tomorrow.

Curtis Stevens requested that a recommendation be included that devices should return to their power-on defaults following a reset.

Hale Landis requested that a recommendation be made for what a device does when a soft reset is received during a hard reset process.

A month discussion on the reflector is scheduled to review this proposal.

9.14 Items from the Open Issues List [] ()**9.14.1 Removable device feature set needs further work**

There is development work going on but a proposal has not been formulated.

9.14.2 8-bit register access timing in Table 21

A proposal is needed to fix deficiencies in project 1153. Hale Landis requested that the vales for t2 timing in Table 21 for 8-bit be restated as they were in the previous standard.

Hale Landis moved and Curtis Stevens seconded that 8-bit register timing be re-incorporated into project 1153. The motion passed unanimously.

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

The address for the ftp site is x3t13.wdc.com, the web site is www.x3t13.wdc.com, and the reflector is x3t13@dt.wdc.com. These are in service now, however the current ftp site, fission.dt.wdc.com, should be used until Tom notifies the group that the new site is fully operational. Still not operational.

10. New Business**10.1 Yosemite [Stevens] ()**

Curtis Stevens reported that SFF 8070 is available and it does have a packet protocol for block devices; it includes write operations.

10.2 ENDL Column [Allan] ()

Dal Allan stated that he writes a column for the far East on interface topics. He requested help on developing a series of specific issue tutorial articles.

10.3 Proposed Unified Connector [Evans] (D96126r0)

Mark Evans showed an illustration of a proposed unified connector for 3.5-inch devices. This is not the connector proposed at the last SFF meeting.

The following recommendations were prioritized by the X3T13 working group.

Legacy ATA Compatible
40 Pin Host Interface
Molex Power
Standard User Jumper Locations
Standard Connector / Device X,Y,Z
Host / Device Cost Savings
Power integrated into IDC cable/connector
Direct Connect

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) 33 Megaword transfers
- 2) Shielding
- 3) Termination
- 4) Grounding
- 5) Is IORdy open collector or tri-state?
- 6) Behavior of a device when a reset is received
- 7) Should Power Management be mandatory?

13. Review of New Action Items

None.

14. Meeting Schedule

The next plenary meeting of X3T13 will be August 2, 1996 at the Seagate facility on Zanker Road in San Jose, CA hosted by Seagate.

The next working group meeting will be July 31- August 1, 1996 at the Seagate facility on Zanker Road in San Jose, CA hosted by Seagate.

The August meeting is planned for the Seagate facility on Zanker Road in San Jose, CA hosted by Seagate
The September meeting is planned for Irvine, CA hosted by Western Digital.
The October meeting is planned for Honolulu, HA hosted by Quantum.

15. Adjournment

The meeting was adjourned at 11:24AM, 21 June 1996.